
Rethinking the Traditional Learning Method for Nigerian Polytechnics

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Abstract: *The objective of establishing polytechnics in Nigeria is to produce graduates with higher technical skills. The non-achievement of this objective as recognized from the unemployment rate in Nigeria may be because of learning method used. This paper examines the traditional learning method for Nigerian polytechnics. The paper first presents the background information on traditional learning method currently being used in polytechnics in Nigeria. Further the impact of the traditional learning method on the characteristics of polytechnic education students is elucidated. The paper later presents some of the major problems associated with the traditional learning method which include non-support of knowledge construction and students to receive lectures anywhere and anytime, inability of students who miss lectures and those who have shorter attention span to have access to recorded lectures, unsuitable assessment method and inadequate practical and project. Finally, the paper presents an effective leaning method which is a Web-based blended learning (WBBL) comprising of teacher-directed and learner directed learning methods for lectures, capstone projects and practical and assessment comprising of capstone project/practical score (50%) and essay-type examination (50%). The authors recommended that the proposed effective leaning method should be adopted in polytechnic education in Nigeria to achieve the aim of establishing polytechnics.*

Keywords: *Traditional Learning Method, Nigerian Polytechnics, Impact, Problems, Web-Based Blended Learning*

1.1 Introduction

The aim of the polytechnic education in Nigeria is to enable the student to acquire the relevant technical skills. Graduates are expected to have gained expertise in design, planning, development, maintenance and marketing of goods and services (Ezetoha and Okechukwu, 2016a). The skills will enable them secure job in various industries such as production companies and servicing companies amongst others. However, polytechnic graduates' unemployment has contributed to the upward trend in graduate unemployment in Nigeria. Even some graduates who graduated with distinction are also frustrated and disappointed as they had thought that it would have been the anti-dote to their job problems.

Surprisingly companies are still recruiting even in the serious unemployment situation in Nigeria. The companies always employ foreign expatriate that possess the right skills and competencies; people that will assist them make profit. The employment of a candidate is therefore based on the skills he has and what he can do with them and not on the degrees or certificate obtained.

Furthermore, the traditional learning method for polytechnics is designed to provide students with the relevant skills (Ezetoha and Ohaneme, 2017). The inability of graduates to acquire these skills may be due to the problems associated with the learning method such as inadequate learning which cause students' poor skills

acquisition and performance (Bagongon and Ray, 2007). It is, therefore, necessary at this point to investigate the problems associated with the traditional learning method for polytechnics in Nigerian and to proffer solutions.

The aim of this study is to investigate the problems associated with the traditional learning method for polytechnics in Nigerian and to propose an effective method.

2.1.1. Traditional Learning Method for Nigerian Polytechnics

The traditional learning method which is the current method used by Nigerian polytechnics is based on the curricula approved by the National Board for Technical Education (NBTE), a board which oversees polytechnic education for various programmes. There is a curriculum for each of the national diploma (ND) and higher national diploma (HND) for each programme. Generally, the curriculum of the ND and HND programmes consists of four main components for ND and three main areas for HND. The three common components for both ND and HND are: General Studies/Education, foundation courses and professional courses while the additional component to ND is supervised industrial work experience scheme (SIWES).

The general education components include course in Art and Humanities such as English Language/Communication in English which are compulsory. English language is required to enable students understand the underlying concept or idea that the authors try to convey in their books and papers and to know how to write academic reports such as laboratory reports, seminar, and project reports. Humanities, social sciences, and ethics related courses are aimed at providing students enough opportunities to explore nature and the society at large and to understand the real needs of the people (Sarkar, 2012). The social studies which are a component of general education include citizenship and economics amongst others. Other general education components are sociology and philosophy amongst others. Philosophy is aimed at making students gain insight into questions about knowledge, truth, reason, reality, meaning, mind, and value (Grayling, 1998). Entrepreneurship studies as a component of general education is aimed at providing students with the knowledge of creating value through opportunities and becoming entrepreneurs (Lee & Wong 2005; Osuala, 2010).

The general education components account for 15% of total contact hours for the programme. Foundation courses are courses that give students the basics in their area, and they account for about 25-35% of the total contact hours.

On the other hand, the professional courses are courses which give the students the theory and practical skills needed for their practice in their fields of calling and they account for about 60 – 70 % of the contact hours.

The SIWES is undertaken during the long vacation following the end of the second semester of the first year.

Learning Structure

The ND and HND programmes consist of four semesters of classrooms activities and activities such as laboratory work and workshop practice in the institution and a semester (3-4months) of SIWES for ND. Each semester is made up of 17 weeks duration made up of: 15 contact weeks of teaching (i.e. lectures, recitation, and practical exercises etc.) and 2 weeks for test, quizzes, examinations, and registration. The 15-content week of teaching is divided into weekly activities; the lecture, laboratory/practical, tutorial and contact hours. These hours are assigned based on the nature of the course. Projects are integrated at second year of ND and HND programmes. Practical to be performed are specified in the curriculum for each course based on content of the

course. In addition, assignments given to students are based on the objectives of each topic as stated for the course.

The curriculum is drawn in unit courses based on the provisions of the National Policy on Education which stress the need to introduce the semester credit units to enable a student who so wish to transfer the units already completed in an institution of similar standard from which he is transferring. The credit unit system partially allows lecturers to write their own curriculum based on conditions existing in their institutions that aid performance.

Implementation Methods

Teaching: Teacher-centered method (face-to-face method) is adopted for teaching, and this allows the teacher/lecturer/instructors to impart knowledge on students (Ezetoha *et al.*, 2017) via lecture, practical or tutorial.

The teaching facilities such as videos presentations and reading in a course are provided by academic staff. Textbooks are recommended by the academic staff in charge of the course. Other facilities such as classrooms, electric power supply, chalk, makers, equipment are to be provided by the management of the institution. The curriculum stipulates that the maximum number of students in a class should be 40 and that only 2 streams are allowed. The recommended class size is proper as large number of students in class negatively affects learning (Oweye, 2000)

Assessment: Examination, quizzes, assignment, and practical/project scores are used for assessing students. The marks assigned to each of these assessment components depend on whether practical is integrated in a course or not. Examination is assigned 70% for courses without practical while 60% is assigned to it for courses without practical. Essay type and multiple-choice test are used for examination and quiz/test (Ezetoha, Onyemaobim, Ohaneme, 2016).

Project: The project requires that students conduct research, write out a report on the project and defend the project.

SIWES: The completion of SIWES is important in the final determination of whether the student is successful in the programme or not. So, it is required that students must pass the SIWES after grading. In addition, it is prescribed that the institution should arrange to place the students in industry for the SIWES.

2.2 Effective Learning Method

To learn effectively in polytechnics, a learning method in which learning can take place anywhere, may not require lecturer/instructor being physically present, requires less expensive facilities; that supports student-directed learning, assessment of higher order learning, execution of adequate projects and conduction of adequate practical is required.

The effective leaning method is a Web-based blended learning (WBBL) comprising of lectures, capstone projects, practical and assessment. Web-based blended learning is one of the models of blended learning; a learning method that integrates both face-to-face and online delivery methods (Duhaney, 2004). This effective leaning method is shown in figure1.

Fig.1: Effective leaning method

Lecture *Traditional teacher-centred learning method *Online learning method	Capstone Project *ND II project *HND I project *HND II project
Practical *Adequate practical in core courses	Assessment *Capstone project/practical score (50%) *Essay-type examination (50%)

Lecture

In this method, lectures will be delivered through traditional teacher-centred learning method and online method. While traditional learning method supports teacher-directed learning, the online method supports learner-centred/directed learning. In the online method, recorded lectures (either recorded in or outside the classroom) are sent to students via the mobile devices or computers. The recorded lectures will help students who miss lectures and those with shorter attention span to listen and view at their convenience. The integration of web-based blended learning in this method helps in achieving effective learning in polytechnics since it supports learner-centred learning and collaboration, learning taking place anywhere, increase students' engagement, does not require lecturer/instructor being physically present, requires less expensive facilities and provides audio and visual records of lectures (Ezetoha and Ohaneme, 2017). This learning method supports over population of students in classrooms as online lectures are made available to students to access at anytime and anywhere. So, students can learn in any environment conducive for them and conducive learning environment aids learning (Ezetoha and Mmuo, 2017). This method, therefore, allows students to learn in diverse ways aimed at achieving higher order learning outcomes needed in polytechnics.

Capstone project

The projects integrated in this method are capstone projects based on student's discipline. The Projects are integrated in second semester of ND II, HND I and HND II). The project is executed, the report written and presented. In this way creativity, problem solving, and critical thinking skills acquired (Bath, Smith, Stein and Swann, 2004) are applied in the execution of project.

Practical

In this method, adequate practical is integrated in all the core courses. Practical comprises of virtual practical and laboratory work. The virtual practical supports submission of practical report immediately after virtual practical carried out.

With the adequate number of practical integrated in this method, adequate acquisition and development of practical skills, development of reasoning and teamwork abilities and cultivation of interest in course will be achieved.

Assessment

The assessment method comprises of capstone project/practical score (50%) and essay-type examination (50%). The questions for the essay-type examination require higher order tasks such as evaluation, application of

knowledge, criticism, and creation of new solution (i.e. the questions are of the type- apply, analyse, evaluate and design). These questions access higher order teaching/learning (Tyler, 2014). Assignment is not integrated in the assessment as it is mainly done at home and may not be done by students themselves. The capstone project score comprises of score for execution of project and presentation of report. This assessment method comprising of capstone project/practical and essay-type examination will make students to be serious with their projects and examination as assessment method used determines how serious a student will be with his studies (Rust, 2002).

3.0 Methodology

The researcher adopted the qualitative approach using secondary sources of data from journals, textbooks, and internet to examine the traditional learning method for Nigerian polytechnics and effective leaning method.

4. Findings

4.1 Impact of TLM on the Characteristics of Nigerian Polytechnic Education Students

TLM can have a huge impact on how higher education students think and learn (characteristics). The following are the ways TLM influence how Nigerian polytechnic education students think and learn:

1. The teacher-centred method (face-to-face method) makes students to be passive learners. It allows the teacher/lecturer/instructors to impart knowledge on students through instructions. Students receive lectures in classroom the traditional teacher-centred learning and are required to be physically present. Hence, it is a lecture-based instructive approaches which rely on the development of a set of instructional sequences with predetermined outcomes based on a 'one-size fits-all' approach. This method does not support students to construct knowledge; a method known as students-centred learning method also referred to as constructivist approach (Bitter and Pierson, 2002). Constructivist approach is considered as the most recognized and preferred method of instruction over the last two decades because it makes students to be active learners. Constructivism is a philosophy of learning based on the premise that knowledge is constructed by the individual through his or her interactions with the environment including other learners. According to Bell and Garofalo (2005), the teacher-centred method is instructive, passive learning, and information delivery method.
2. The assessment method makes students to reproduce information from lectures or textbooks instead of to construct knowledge through thinking and reasoning. According to Ezetoha and Onyemaobim (2016) and McNeil, Gosper and Xu (2012), the essay type and multiple-choice test used in the TLM support the reproduction of information from lectures or textbooks. On the other hand, take-home assignment and practical reports are used in addition to examination and quizzes to assess students and this encourages copying and this affects students' achievement (Guskey, 2003; Haddcok, 2006).
3. Practical make students to be more engaged in learning and this bring about enhancement in mastery of course, development of scientific reasoning abilities, understanding of the complexity and ambiguity of empirical work, development of practical skills, understanding of the nature of the course and cultivation of interest in course learning and teamwork abilities (Ezetoha *et al.*, 2016a).

4. The SIWES makes students to acquire skills and knowledge needed for them to work in industries after graduation. According to Omar *et al.*, (2008) the SIWES is aimed at helping students acquire skills and knowledge.
5. The project executed by students make them to know how to conduct research, write report and present it, work as a team, and market product. The recommended project is a capstone project which serves as a culminating academic and intellectual experience for students because it involves critically thinking, solving of problem and development of skills such as public speaking, teamwork, planning, self-sufficiency, and marketing (Cowan, 2015).

4.2 Problems of the Traditional Learning Method

The problems associated with the traditional learning method are as follows:

1. The teacher-centred method supports knowledge reproduction of lecture, and textbook instead of knowledge construction from interactions with the environment (Rovai and Jordan, 2004). It is teacher directed learning (single medium-based learning) which supports little or no collaboration amongst students (Bell *et al.*, 2005). So, it is a factual, knowledge-based learning method that supports knowledge reproduction.
2. The traditional teacher-centred learning method does not give opportunity to students who miss lectures and those who have shorter attention span to have access to lectures since there is no audio and visual record integrated in the learning method (Vaughan, 2007).
3. The traditional teacher-centred learning method does not support students to receive lectures anywhere and anytime since lectures are received only in the classroom (Ezetoha *et al.*, 2017).
4. The assessment method is unsuitable for assessing higher order learning. While the essay and multiple choice test do not assess higher order learning outcomes since it support the reproduction of information from lectures or textbooks (McNeil *et al.*, 2012), the take-home assignment and practical reports encourage copying and copied work is never suitable for assessing higher order learning.
5. The number of practical done is inadequate for acquisition and development of practical skills, development of reasoning and teamwork abilities and cultivation of interest in course (Ezetoha and Okechukwu, 2016b).
6. Project is inadequate for acquisition and development of the desired skills- critically thinking, problem solving, public speaking, teamwork skills (Ezetoha *et al.*, 2017).

Conclusion

This study has shown that the effective leaning method for polytechnic education in Nigeria is a Web-based blended learning (WBBL) comprising of teacher-directed and learner directed learning methods for lectures, adequate capstone projects and practical and assessment comprising of capstone project/practical score (50%) and essay-type examination (50%).

The study initially revealed that the traditional learning method for polytechnic education in Nigeria is associated with problems. It supports knowledge reproduction of lecture and textbook and does not supports students to receive lectures anywhere and anytime. It does not give opportunity to students who miss lectures

and those who have shorter attention span to have access to lectures, is unsuitable for assessing higher order learning and inadequate practical and project.

It is therefore, necessary for the Federal government of Nigeria and stake holders of polytechnic education in Nigeria to adopt the proposed effective leaning method in other to achieve the aim of establishing polytechnics.

References

- Bagongon, C. K., & Ryan, E. C. (2009), The effects of study habit on the academic Performance of freshman education students in XAVIER University, Retrieved from <http://www.scribd.com/doc/24002413/the-effect-of-study-Habits-on-the-academic-performance-of-freshmen-education-students-in-Xavier-university-cagay-an-de-oro-city-school-year-2008-20#scribd>
- Bath, D., Smith, C., Stein, S., & Swann, R. (2004). Beyond mapping and embedding graduate attributes: bringing together quality assurance and action learning to create a validated and living curriculum. *Higher Education Research and Development*, 23(3), 313–328.
- Bell, R. L., & Garofalo, J. (2005). *Science units for grades 9–12: National educational standards for students*. Eugene, OR: ISTE
- Bitter, G., & Pierson, M. (2002). *Using technology in the classroom* (5th ed.). Boston: Allyn and Bacon.
- Duhaney, D. (2004). Blended learning in education, training, and development. *Performance Improvement*, 43(8), 35–38. [DOI: 10.1002/pfi.4140430810.]
- Ezetoha F. C., & Mmuo A. N. (2017). Health hazards in non-environmentally controlled classrooms in Nigerian tertiary institutions, In Proceedings of the 10th International Conference on New Directions in Science and Humanities, International Research and Development Institute, Uyo, Nigeria.
- Ezetoha F. C., & Ohaneme, L. (2017). Web-based blended learning: a panacea for effective learning in tertiary institutions, In Proceedings of 10th International Conference on New Directions in Science and Humanities, International Research and Development Institute, Uyo, Nigeria.
- Ezetoha, F. C., & Okechukwu, I. E. (2016a). Engineering technology curriculum implementation in Nigerian polytechnics: problems and improvement strategy. In Proceeding of African Regional Conference on Sustainable Development, 14(6), 169-175.
- Ezetoha, F. C., & Okechukwu I. E. (2016b). Curriculum for engineering technology programmes in Nigerian polytechnics: problems and improvement strategy. *International Journal of Research and Advancement in Engineering Science*, 6(1), 190-196.
- Ezetoha, F. C., & Onyemaobim, I. (2016). Assessment method for engineering programme in Nigerian polytechnics: problems and improvement strategy through inclusion of engineering design, In Proceedings of International Conference on Sustainable Development, 16(3), 194-198.
- Ezetoha, F. C., Onyemaobim, I., & Ohaneme, L. C. (2016). All in-class assessment: a method for producing reliable result for higher order learning, In Proceedings of African Regional Conference on Sustainable Development, 14(4), 340-342.
- Grayling, A.C. (1998). *Philosophy 1: A Guide through the Subject*, (pp.1) UK: Oxford University Press.
- Guskey, T. R. (2003). How classroom assessments improve learning, *Educational leadership*, 60(5), 6-11.

- Haddock, V. (2006). After years of teachers piling it on, there's a new movement to abolish homework. *The San Francisco Chronicle*.
- Lee, L., & Wong, P. (2005). Entrepreneurship education: a compendium of related issues. NUS Entrepreneurship Centre Working paper, July, 2005.
- McNeill, M., Gosper, M., & Xu, J. (2012). Assessment choices to target higher order learning outcomes: the power of academic empowerment. Retrieved from <http://www.researchinlearningtechnology.net/index.php/rlt/article/view/17595>
- Omar, M. Z., Kofli, N. T., Darus, Z. N., Osman, S. A., Rahman, M. N. A., Abdullah, S., & Zaharim, A. (2008). Benefits of industrial training to engineering students, In EE'08 Preceedings of the 5th WSEA/IASE International Conference on Engineering Education, pp.408-412.
- Osuala E. C. (2010). *Principles and methods of business and computer education*. Enugu: Cheston Agency Ltd Pub, Nigeria
- Owoeye, J. S. (2000). The effect of interaction of location, facilities and class size on academic achievement of secondary school students in Ekiti State, Nigeria. An unpublished Ph.D. thesis, University of Ibadan, Ibadan, Nigeria
- Rovai, A. P., & Jordan, H. M. (2004). Blended learning and sense of community: a comparative analysis with traditional and fully online graduate courses, *International Review of Research in Open and Distance Learning*, 5(2),1-13.
- Rust, C. (2002). The impact of assessment on student learning: how can the research literature practically help to inform the development of departmental assessment strategies and learner-centred assessment practices? *Active Learning in Higher Education*, 3(2), 145–158.
- Sarkar, A. K. (2012). The roles of social sciences in engineering education, *Pertanika J. Soc. Sci. & Hum*, 20 (4), 1276-1286.
- Tyler, C. (2014). Engineering and the multiple choice exam. Retrieved from, <https://www.linkedin.com/pulse/20140923002003-190826467-engineering-and-the-multiple-choice-exam>
- Vaughan, N. (2007). Perspectives on blended learning in higher education. *International Journal on E-Learning*, 6 (1), 81-94.