

INTEGRATING COMMUNICATIVE SKILLS IN ENGINEERING AND TECHNOLOGY STUDIES FOR EFFECTIVENESS IN TERTIARY INSTITUTIONS IN NIGERIA

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Abstract

This paper examined the need to integrate communicative skills in engineering and technology curriculum for students and staff effectiveness. It discusses communicative syllabus in the teaching and learning of engineering technology studies. Ineffective communication skills only reinforce negative stereotype of the engineer in an era of globalization in retention and recruitment. This paper examined the importance of engaging features of communication skills for engineers in order to maintain relevance with global environment and in professional practice. Mixed feelings have been expressed by both qualified and unqualified persons that most graduate engineers lack the required standard of communication skill particularly when compared to the need of industries and the academic. Insufficient communication undermines the whole image of an engineer. The paper recommended that engineering students, teachers of engineering discipline, teacher of use of English should expose their students to the ability to construct, communicate in the language of institution effectively. The paper concluded that communicative process can help engineers exert profound influence on the vast discipline of engineering.

Keyword: Communication, Process, Engineering, Skill, Syllabus

Introduction

One urgent problem in the engineering technology field is how to develop communicative competence, and fluency in the use of English among personnel and for students for teaching and learning effectiveness. An important key to this problem lies on realization that the principal aim of communicative competence is to permit individual to communicate with others in many diverse personal and professional situation of daily living. Most students, graduate engineers and teachers feel that once they are able to make a pass or credit in the use of English in West African Senior Secondary School Certificate exam which is pre-requisite for gaining admission into tertiary institution, that there is no need for developing interest in the use of English or communicative process and competence. Some feel that these set of skills are not directly related to academic abilities. Communicative skills are imperative in engineering technology. The possession of language skill involves first of all the ability to communicate with others in that language in a meaningful way. Engineers and technologists require ever increasing range of skills to maintain relevance. Communication skills are essential component recognized by academic and industry. Engineering communication skill basically constitutes several core elements such as fluency and accuracy in English language. The use of handset (phone) short message service (SMS) online charting, teaching methodology and lack of political will may also be a contributing factor. There are ample of evidence that show the fallen standard of spoken and written English among students and graduate engineers.

Based on this backdrop, the following considerations for Integrating Communicative Skills in Engineering and Technology Studies for Effectiveness in Tertiary Institutions in Nigeria were discussed

1. Communicative syllabus
2. Teaching effectiveness in engineering technology studies
3. Subject content
4. Language of instruction
5. Recommendations

Communicative Syllabus

The primary purpose of a communicative syllabus in an engineering technology institution where students specialize in different disciplines such as engineering technology, management technology, science technology, health technology and environmental studies is to identify the elements of target language which the learner, as member of a particular group with particular social and occupational purpose in mind would most need to know. The secondary stage of actual implementation or delivery of the programme is left up to the teacher and those responsible for concrete teaching programme to see it that the syllabus is carried into the classroom. Our teachers in engineering studies must bear in mind that when students learn the English language they have to learn it not for its own sake but for some specific functional purposes in their daily life. The syllabus must therefore reflect this in classroom. The communicative approach focuses on the ability of the learner to speak, interact in a social or academic situation in an effective way. In this way, the engineering or technological student is made to communicate his cultural, social and educational feeling to native speaker of English. More so, the teacher is responsible for providing guidance to the learners who for the most part is not able to act autonomously especially in the early stages. This guidance can best be decided on through a need survey and choice of appropriate syllabus type rather than choice of one method or another. The communicative syllabus has as its starting point something different from either the grammatical syllabus or the situational one. Here the curriculum designer concerns himself initially with what the student communicates through language not with how he expresses himself, when and where.

The objectives of communicative syllabus are stated primarily in terms of communicative function not in terms of linguistic item or in term of ideational content. Although these components are often included and sometimes obscure, the purpose of syllabus design. In this approach, the objective determines the function needed and the function determines the selection and sequencing of grammatical materials. Many English for Science and Technology (EST) course materials have been based on functional approach. They have been criticized for providing phrase-book language or for teaching only language like behaviour rather than developing communicative competencies. It must be stated that this type of syllabus is valuable in situation where rapid progress to a highly functional variety of the target language is required. We have to look at the communicative approach to the teaching and learning of language in our engineering and technological studies in order to ensure that teacher must, above all, make his methodology more interactive and enjoyable which will act as an antidote to demand for subject specific. The introduction of some sort of fluency-type activities will help our students achieve conversational capacities and a fundamental control of the language which will enable them equip themselves with a flexibility of mind that will enable them to expand and apply this knowledge to meet the demands of their subject specifically. In this regard, it is certainly rewarding to have the skill of communicative competence among engineering technology students especially in this era of globalization.

Teaching Effectiveness in Engineering Technology Studies

One other problem in the engineering and technological studies is how to make teaching effective in the classroom so that the students will derive full benefit from their studies. An important key to this problem lies in the realization that teaching is really a research activity in which the teacher as a facilitator creates opportunity for learner to observe situation and investigate phenomena. One problem teachers in engineering studies encounter is how to get their students to attain the set objectives. An important key to this problem lies in incorporating in the curriculum experiences which will guarantee reflective thinking, practical intelligence, information and communication technologies, encouraging problem solving skills and question/interrogative method in learners so as to improve their communicative competence. It is no exaggeration to say that our future as a country depends on the quality of our children's education and therefore to a considerable extent on the quality of teaching they receive (Eyibe, 2014). In this era of globalization, it is becoming increasingly clear that curriculum innovation which concentrates on subject matter to the exclusion of the problem of school administration is not likely to succeed. For instance in some schools in Nigeria, the medium of instruction English, is not given sufficient period on time table, fault to school organization. Engineering technology students brought up in such schools are handicapped. They cannot express themselves in the medium of instruction and cannot impart knowledge to others using English as a medium of instruction.

Subject Content

The modern teacher of today must have a thorough knowledge of his chosen subject area if he is to command the respect of his students and produce quality student graduate. A new curriculum can effectively be introduced, only when the teachers are familiar with aims, methods and techniques of implementing the curriculum as well as evaluation techniques. The process of curriculum revision can be meaningful and rewarding if the teacher's standard of education is raised so that the teacher and learner can be receptive and critical of innovations. It is imperative to say that a half-backed engineering technology teacher will produce half-back-graduates. (Eyibe 2014). Indeed, any effective teaching process today must include activities which enable our students to think positively and find solutions themselves to problems arising from lectures and society (Eyibe, 2014).

More so, changes are inevitable in modern teaching. For instance, experience has shown that many teachers have continued to use their lecture notes which they prepared many years ago to teach their student of today. This situation is unfortunate, awful and calls for change. New information and new concepts arising out of research are always taking place and teachers must pursue these current ideas to update their lectures. Again, antiquated machine and equipment in laboratory, and technical workshops must be replaced to make way for newness and currency in education and practice (Mkpa 2007), Nwabueze, 2006, Eyibe 2010). More energy and attention should be directed to academic programmes such as actual teaching, research, workshop practice, laboratory work, seminar presentation, teaching practice, project defence and students industrial work experience scheme (SIWES) so that our engineering technological student can derive maximum benefits from their education and training (Eyibe 2014) The art of reading and communication have become increasingly important today. The printed word is the main route to an improved technological and general knowledge in human understanding. The modern teacher must compete with all these to ensure that the student put under his care receive worthwhile education for self-realization and national development.

Language of Instruction

Language is power. The power to communicate effectively should be the central factor in the teaching process and developing one selves. Language should not be seen not just as another school course but as an essential tool for communication and interaction in the process of teaching and learning. This implies that the language of instruction must be given sufficient periods on the time table during the first-two years of engineering technology programmes (Eyibe, 2010).

It has been suggested that a resolution of these issues revolving around the language of instruction, the sequence of instruction, efficiency and effectiveness of mass communication, the selection and the use of official language in and out of school interaction depends very much upon our understanding of the mode of interaction of language and thought. (Olelewa 2007). A number of question are raised on why curriculum implementers do not perform to the level expected by the curriculum developers: Can effective teaching take place without an adequate command of the language of instruction? Can our imaginative thought process be straight when our language is loaded with slangs, mannerism, clichés and antiquated vocabulary? Can the teacher with an imperfect command of the language of instruction carryout his research and report accurately his findings? Can the engineering technological teacher with an imperfect command of the language produces quality graduate engineers, technologists with communicative competence? It is imperative to say that language, whether spoken, or written is a means of communication and of discovery, of self-exploration, and of self-definition.

Proficiency in language is the paramount requirements that our teachers and students must satisfy. Steeming from this, raising the standard of English both spoken and written is the responsibility of teachers at all levels. Teachers' skills in communication helps to determine the quality and quantity of students learning. Choice of word and certain type of well formulated question are useful for pulling a student back to the subject and help them improve in communicative process. The main function of the teacher is not to impart useful information but to stimulate as much as possible the questioning attitude of mind and to provide the student with technical equipment for following of his question. The requisite equipment will vary from subject to subject. It ranges from that employed in writing of an essay and in the understanding of mathematical problems (Coleman 2008 Hayakawa 2002). Whatever the point in expository, technical or engineering subject, the teacher soon realizes that questioning or teaching is not simply a method of testing but it is a way of teaching, helping the learners improve and sharpen themselves in the communication process (Eyibe 2014).

Recommendations and Directions

1. Proficiency in language is the paramount requirement that teachers and students must satisfy.
2. Communication syllabus or approach focuses on the ability of the learner to speak, interact in a social or academic situation in an effective way.
3. Teacher skills in communication helps determine the quantity and quality of students learning
4. The medium of instruction of English should be given sufficient periods on the timetable.
5. The printed word is the main route to an improved technological and general understanding. It is imperative for all engineering technology students to be voracious readers.
6. English language should be seen not just as another school subject but as an essential tool for communication and interaction in the process of teaching and learning
7. A new curriculum can effectively be introduced only when teachers are familiar with aims, methods, techniques and evaluation.
8. Communication skills are essential components recognized by academic and industry.

Conclusion

The power to communicate effectively should be the central factor in the teaching process and in developing one selves Language should be seen not just as another school subject but as an essential tool for communication and interaction in the process of teaching and learning. This means that the language of instruction must be given sufficient periods on the timetable during the first two years of engineering technology programmes. It is imperative to note that whatever the point of questioning in expository, technical or engineering subjects, the teacher must realize that questioning is not simply a method of testing but it is a way of teaching and helping learners, improve themselves in communication process.

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