EDUCATING THE DISADVANTAGED STUDENTS IN ICT AND VOCATIONAL EDUCATION: A PANACEA FOR SELF-RELIANT IN A PERIOD OF SOCIO-ECONOMIIC VICISSITUDES

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Abstract

Education of the socio-economically disadvantaged group of students is a matter of great concern since these students encounter a variety of learning hurdles in their educational endeavour. Systematic explorations of these hurdles followed by specific remedial measures to overcome them are found to fetch good dividends. The work carried out by the researchers has proved beyond doubt that these students are educable. With special efforts, teachers can break the difficulties of these repeated failures and also boost disadvantaged student's scholastic attainment. Field trials have shown that a teacher in a typical rural school can be trained to use Remedial Teaching Strategies (RTS) for the benefit of the students. This paper draws heavily upon the first hand experiences of field project undertaken by the researchers in South-South geopolitical zone of Nigeria (October, 2015 – September, 2016) to bring in hitherto neglected population of deprived students in the mainstream of the school education for self-reliant. In order to assist the disadvantaged students in a period of socio-economic and political vicissitude,

this paper discussed teaching strategies with numerous measures that could enhance effective academic performance and technical skills of the students to include, introduction of vocational education and information technology in schools, positive discrimination, simplified language of communication, effective relationship between the teachers and the students, exposure to peer interaction, satisfying students curiosity.

Keywords: Vocational Education, Information and communication Technology, Disadvantaged students, Socio-economic Vicissitude.

Introduction

As any other Colonies, Nigeria inherited a British system of education. Formal school education had taken firm roots in Nigerian society during the Colonial period itself. The beneficiaries of this system however belong mainly to higher socio-economic strata. After independence in 1960 the formal education has been expanded horizontally to cater for students in rural area. In fact, through specific efforts it was ensured that a child could reach his/her school on foot. This step facilitated a large number of first generation learners into the formal school system. Education is one of the most important factors that distinguish man from animals. It is one of the principal outcomes of man's rationality. It is a process that starts at birth and ends whenever an individual finally died. It involves a number of activities on the part of several people, including the government, teachers, students, parents, and every citizen of the country.

According to Nigerian National Policy on Education (NPE, 2004). Vocational-Technical education is that aspect of education that gives its recipients an opportunity to acquire practical skills as well as some basic scientific knowledge for employment or self-reliant. Oni (2007) quoted Puding (1994) who defined technical education as that type of education which prepare the individual for gainful employment in recognized occupation as semi-skilled workers or technicians or sub-professionals.

Vocational education could be regarded as that aspect of education which provides the recipients with the basic knowledge and practical skills needed for entry into the world of work as employees or as self-employed (Oni 2007). Vocational-Technical education nurtures skills that are necessary for agricultural, industrial, commercial and economic development and thus builds a self-reliant nation. Oni (2007) quoted Adeyemi (1997) who depicted technical education as that aspect of the total education process that focuses on individual occupation, while Olaitan (2007)

explained technical education as that type of education, which is concerned with the development of skills, knowledge and attitudes necessary for success to any occupation.

Two of the aims of Vocational-Technical education as stated in the Nigerian National Policy on Education (NPE, 1981, p.28) are: to give training and impart the necessary skills leading to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant, and to enable Nigerian young men and women to have an intelligent understanding of the increasing complexity of technology. The above aims of Vocational-Technical education were stated about three decades ago. Today, according to Oni (2007), the nation still lacks quality technical education programmes in technical institutions. He however suggested the need to establish good technical institutions to provide the required training and impart the necessary skills leading to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant. Quality technical education is also essential in developing nations to sustain the nation's populace where quality of life is still very poor. The United Nations Educational Scientific and Cultural Organization (UNESCO) noted that revitalizing this important sector is among the ways to improve economic opportunities for the disadvantaged youth.

According to Obanya (2007) Vocational-Technical education is part of integral development of the 'three hs' - the head, the heart, and the hands which must not be neglected. The disadvantaged students due to their social deprivation hardly fulfil these demands. One often finds the mismatch between students' technical skills development and curriculum demands (Alade, 2011). It is necessary that effort be made to ensure that these development match with each other. In this context we would like to refer to four main aspects of learning prerequisite: Reading Comprehension, Initial Knowledge (entry behaviour), Attitude and confidence.

- **Reading comprehension**

One of the common expectations from student undergoing school education is that he/she has an adequate comprehending ability to be able to decode meaning out of written material. In junior secondary classes, teachers expect proficiency in both listening and reading comprehension while at the senior secondary classes, teachers expect from students competence in listening, writing as well as reading comprehension. Due to social deprivation both these faculties remain underdeveloped among the disadvantaged students. The study conducted to compare the level of reading comprehension between junior and senior secondary school students showed that the

performance of the former group was much lower as compare to the latter group (Akintunde & Sabonde, 2004). It was noticed that the students had the habit of repeating all the information after reading a paragraph instead of focusing on central issue.

How do teachers develop reading comprehension among the students? Comprehension exercises were found to be quite useful in this research. In this study, paragraphs from literature were chosen for the students to read and prepare their summaries. All the difficult words and phrases contained in the paragraph were explained to them. Student usually resorted to writing verbose summaries. Each of the students was then given a task, to look for the central theme from the passage and to identify peripheral matters. It was found that ability to decode technical matter showed marked improvement as students gained experience over a span of one year. This strategy has fetched good dividends.

- **Initial knowledge (Entry behaviour)**

Science curriculum at any level expects certain knowledge based on the part of learners. Many of the disadvantaged students do not fulfil this demand, as they do not posses adequate knowledge. Most of the teachers too stick to similar information. First generation learners, even with their rich first hand experiences, find themselves at loss as their knowledge is not respected. On many occasions, student's ideas are contrary to the prevailing scientific notions. For example, the concept of weight is very different in day-to-day life and in science. In some cases, misconceptions are created through teaching. For example, it is taught that Oxygen is required for combustion. Hence the students look at the statement, ''magnesium continues to burn in Nitrogen'' with suspicion (Agarkar, 2002).

The researchers undertook this research (interactive programme from October, 2015 – September, 2016) to identify hurdles faced by junior and senior secondary school students and to design appropriate remedial measures to overcome the menace. A group of 200 students was chosen from JSS 1 and 2 and 200 students from SS1 and SS 2, which essentially caters for students from lower socio-economic strata. During the interaction, efforts were made to enhance the knowledge base of the students through discussions, question-answer sessions and leisure time assignments. JSS stage was poor. Inputs were offered to ensure that their base was strong. These inputs were found useful in boosting the scholastic attainment of these students at the school leaving examination.

- **Attitude and confidence**

Because of the lack of quality education for students from deprived homes, they have no idea of the benefits of education. On the other hand, they are surrounded by adults who had very little or no success in their educational endeavour. Presence of a large number of educated unemployed youths in the locality also adds to their negative feelings towards education. In Nigerian universities, there is a steep competition to gain admission into science stream after secondary school, only a few are fortunate enough to obtain high scores in Unified Tertiary Matriculation Examination (UTME) to qualify for admission. For many others, it remains just a dream unfulfilled. Students develop a feeling that they can do without science and want to avoid it whenever possible. Added to this repeated failures in dealing with abstract scientific concepts bring down their confidence.

In order to develop a positive attitude among the students, it is necessary that a few interesting experiences are offered to the students. Demonstrations of activities with unexpected results often attract students' attention. What is needed is to explain the causes of apparently unexpected results, an opportunity for hands on experiments adds to their interest and motivation to learn. In order to build self confidence, it is necessary that the reason of repeated failure is broken. Teachers need to give the students an assignment or class work that they can complete without much help from others. The students must realize that he/she too has some potential and his/her work is worth appreciating. Such an effort made through class work or vacation assignments given to a group could be making of decorative lanterns, conducting interviews, conducting market surveys, writing skits etc.

IMPORTANCE OF ICT IN DISADVANTAGED STUDENTS EDUCATION

The concept of Information and Communication Technology (ICT) refers to harnessing electronic technology for information processing needs of business organizations using the computer and telecommunications-based equipment for storage, processing and dissemination of information. While ICT is an umbrella term that includes any communication devices or application, encompassing radio, television cellular phones, computer and network, sensors, interface boxes, e-mail, satellite connections, hardware and software and so on, as well as the various services and application associated with them, such as video conferencing and distance learning which can be used in the teaching/learning process in classrooms. As the world is changing on geometrical rate in sciences and technology, especially in ICT, developing nations must move along with the change.

Information and Communication Technology (ICT) is playing an increasing important role in education for both teachers and disadvantaged students. Findings have shown that the use of ICT enable each student to develop at his or her own pace according to his/her ability and make the whole learning process flexible (Encarta, 2004). The use of ICT in classroom instruction, according to Landu (2004) helps to take care of the learner's individual ability. In most secondary school in Nigeria, as noted by Ugo (2009), learning is mostly teacher centred, theoretical or expository. Learning takes place mostly by memorization. To avert this situation, Landu (2004) assets that integration of ICT into teaching at this level of education should be mandatory.

Educational opportunities available to disadvantaged students

Educational opportunities available to disadvantaged students are very inadequate (Crone, 2010). These students live in the locality where academic environment is hardly felt. They are surrounded by people who had very little or no education. They attend schools that are crowded by children like themselves. Hence the quality of peer interaction is also very poor. They hardly have an opportunity for good lesson delivery or have access to a good library. In the absence of these opportunities, fixation of school related knowledge does not take place. It is therefore, essential that the following educational opportunities are offered to the students to compensate for their deprivation.

- **Reading material**

Lots of reading material in the form of newspaper, magazine, technical skills and information technology textbooks etc is presently available in Nigeria. In case of the underprivileged students, however, the availability of these materials is negligible (Crone, 2010). In many deprived homes, the only reading material available is the textbook of a school going child. In the absence of additional material, reading habits are almost undeveloped among these students, which affect their understanding of school related subjects that envisage reading and comprehension of abstract concepts. It is, therefore, necessary that effort be made to provide appropriate reading material to facilitate development of Vocational-Technical education skills and reading habits of these students.

- **Communication Competence**

Unless students know how to communicate, they would not be able to create an impression that they understand the subject. In the absence of developed communication competence,

disadvantaged students often failed to convey what they know. During this research, one of the causes of student's underperformance was found to be lack of adequate communication skills in written exercise. This aspect was tackled by developing their general communication skills, by providing inputs for improving Vocational-Technical communication and by preparing the students for communication in examinations. Short accounts of these inputs are:

- **General communication**

In order to develop skills of general communication, teachers need to provide the students with enough opportunities to engage in communication activities. The communication competence programme referred to above tried to provide as many opportunities as possible in this context. Students were asked to narrate the summary of what they have read every week. They were also demanded to write on the topic of their interest. This led to the writing of essays, skit etc. Once they realize that they have flair for writing, they continue to do so and produce good pieces of written material.

- **Vocational-Technical communication**

It has been noticed that the first generation learners face problem with handling Vocational-Technical language that is profusely used in textbook of Vocational-Technical education and science. In Nigeria, majority of students study in rural areas with unqualified teachers. Vocational-Technical terms used in these areas are usually derived from substandard materials. Students from disadvantaged homes do not have exposure to standard local and foreign textbooks hence they are unable to understand the meaning of some technical terms. In order to overcome this difficulty, government prepared dictionary of technical terms (Agarkar, 1992). These books were found to help the students to make meaning out of Vocational-Technical descriptions. These dictionary attempts to identify root word along with it suffix and prefix and clarify the meaning of Vocational-Technical terms.

In addition to Vocational-Technical terms, scientific descriptions make use of pictorial representation and symbolic language. Schematic diagrams, formulae/equations are often not understood by students. It has been noticed that students avoid problem solving based on formulae or equations. This is mainly because students have hardly any chance to use this language in their day-to-day life and the duration of exposure in the school is so short that there is not enough time for the acquisition of the language. Learning of new language demands repetition and immediate feedback. In order to ensure that this interaction yield expected result,

students should be encouraged to recall relevant formulae and undertake problem-solving activities in cooperative activities. These efforts have fetched good dividends.

- **Communication in examination**

Examination is crucial in the life of a student. In the present scenario, success in examinations decides which door would open to the students. Since the main focus of examination is on written mode, teachers and students needs to provide enough attention to it. It has been noticed in various programme of tertiary institutions that many students perform poorly not because they do not know the subject but because they are unable to communicate effectively what they know (Agarkar, et al 2002). They do not know the rules of the game and do not have skills of precise writing. On many occasions, students write verbosely for the question that carries just one or two marks. In the other cases, they give short answer(s) to question(s) that carries more than five marks. The lack of time judgement is yet another problem faced by the students in written examinations. Analysis of the answer sheets of the underachieving students showed that the slipshod writing cost them considerable number of marks.

The present mode of assessment offer the students delayed gratification. Instead it is necessary that students be given feedback immediately. In this research students were offered suggestions to ratify their mistakes by looking at their answer sheets as soon as they finished writing. They were made aware of the marking distribution. In order to bring their mistakes to their notice a novel method was adopted. Students were themselves asked to assess each other's paper. A model answer sheet was with clear instructions that they deduct marks for each mistake made. In doing so, they realized that they lose marks due to slipshod writing in the examinations. These efforts enabled the improvement of the student's performance. It must be pointed out that these efforts are more prominent for the students who are in the lower performance brackets.

- **Teacher-students relationship**

Teacher – Student's relationship and interaction is an important aspect in school education (Emenike & Ifeoma, 2006). It is the sympathetic attitude and commitment of the teachers that instigate the students to undertake even the most difficult Vocational-Technical task. Also the active participation of students enables them to acquire knowledge better. In this regard, five different aspect of classroom interaction is recommended, they are:

- **Satisfying curiosity**

Students are curious in nature. Their curiosity is tickled both by textual information and by everyday experiences. The disadvantaged students have a large number of questions in their minds but do not have access to a sympathetic adult to deal with their curiosity. As a result, the curiosity behaviour of the students is often curbed. Fortunately the urge to know does not die easily. Given the opportunity, students came out with a large number of questions.

Mention must be made on how to deal with the students' questions. It is noticed that an epigrammatic cut and dry answer do not satisfy the students. Teachers and concerned citizen needs to explain the questions in logical manner taking into consideration, knowledge base of the students and their linguistic background. Moreover, it is imperative that students are taught how to find answers to these questions. In this regard, reference materials should be suggested wherever possible. One some occasions, students simple activities should be suggested to get answers to questions that hunted them. This method is useful not only in satisfying the student's curiosity but also in creating interest among them.

- **Peer interaction**

It is widely accepted that peer interaction plays an important role in shaping the behaviour of a child. The rich peer interactions often help in scholastic matters as they can help each other in case of difficulty. In order to enhance peer interaction among the student, group activities should be completed cooperatively. Small cooperative groups should be formed, taking students from different ability groups. They should be asked to undertake their homework collaboratively with each other. The better student will benefit while explaining the concept or problem to his/her friend. The weaker one will benefit as one of his colleagues explained the concept instead of a teacher who usually goes at a faster pace than the student can cope with.

- **Positive discrimination**

In a mixed ability classroom, disadvantaged students are often faced with humiliation as they are unable to match themselves with advantaged students. The students therefore, prefer not to take part in the classroom deliberation. Special efforts are therefore required to ensure that these students take active part in the classroom activities. The idea of positive discrimination needs to be implemented in this case. The disadvantaged group of students are to be discriminated and not by humiliating but by providing additional opportunities. The feelings that they are being cared go a long way in enhancing their self concept, which will in turn enhance their participation in the classroom.

- **Laboratory programme**

The practicing teachers agree that the students should be taught through activities. In actual practice, however, only a few resort to performing experiments in dealing with technical and information technology concepts. The main reason put forth by the teachers is the lack of material resources in the schools. Majority of the schools do not have laboratory facilities. At the secondary school level only a small percentage of schools have well equipped labs. Added to this, the lack of confidence on the part of teachers leads to teaching through a ''chalk and talk'' method. In order to enhance teacher's confidence in performing experiment, teachers should be exposed to simple experiments using easily available material. Apart from inputs during the training courses, follow-up visits should be arranged to provide on-spot guidance to the teachers. According to Sadiq, (2001). No education system can rise above the quality of its teachers. These efforts will led to the activity based teaching and enhance effective teacher-students interaction in the classroom.

- **Language of communication**

Because of constraints of pages and cost of production, Vocational-Technical education textbooks are usually written in English language with high standard Vocational-Technical terms and grammatical structure. Teacher's resorts to use these terms and grammatical structure during classroom deliberations hence, the disadvantaged students are unable to take active part in classroom proceedings. In order to overcome this problem, teachers need to use simple language while teaching/talking to the students. Simplification of language of textbook was undertaken by HBCSE (Gambhir, 1996). Attempts were made to rewrite textbooks for grade 5, 6, and 7 in simple language removing ambiguities and other linguistic hurdles. Technical terms were maintained as they were. Similarly, the length of the books was kept unchanged. These books were then given to about 30,000 students in the municipal school system of the city of Mumbai since it caters mainly for the slum dwellers in the city. Benefits of language simplification without any teacher training were noticed in the project evaluation. It was found out that language simplification leads to teacher-student's interaction, better communication skills among the students and enhance disadvantaged students performance at the school examinations.

Recommendation

- Developing nations should make it a point of duty to build infrastructural facilities including functional workshops in all educational institutions across the nation with adequate provision of workshop equipment, Instructional materials, and tools to make teaching and learning of the skill-based subjects meaningful. This way, disadvantaged students will have the opportunity to engage in practical works for self-reliant.
- Disadvantaged students should be encouraged to have interest in vocational and technical subjects, hence should be accorded appropriate recognition. There is need for a change in the mind-set of youth to see self-employment as an option and be prepared psychologically and emotionally for it. This will enable them to be more motivated in identifying entrepreneurial opportunities. To this end, entrepreneurship education should be made integral part of vocational and technical teaching-learning process.
- With the recent emphasis on the need for youth self-employment, the developing nations is equally expected to create the enabling environment that will promote entrepreneurship by ensuring constant power supply in the country, without this the youth will become discouraged and return to idleness.
- The best of theories in education has opined that no educational system could rise above the level of quality of its teachers. Technical education teachers must be highly trained and acquire enough skills to be able to communicate their skills to disadvantaged students effectively.
- It is a known fact that some society accord inferior status to technical education. Therefore, the negative attitude of many parents towards technical education should be changed. Adequate enlightenment campaigns should be carried out to emphasize their importance in light of the prevailing economic circumstances of the nation and the unemployment rate, which is on the increase.
- Practical project work in vocational and technical subjects should be made compulsory for students as part of their requirements for graduation. Each student is to produce marketable product or service and such products should be put up for exhibition. This will further create motivation for entrepreneurship.
- Teachers should be supported through continuing professional development & motivation to enable them prepare the youth for success in the competitive global economy.

- Parents, teachers, principals, students, policy makers and other education stakeholders should be made aware of the findings of this study, during Parent-Teachers Association meetings, Town Hall meetings, seminars, conferences and workshops.
- The government, Parents, NGOs and other stakeholders should provide ICT facilities in their schools and train teachers on how to use them to teach technical drawing. Government/private schools owners' school employ technical support staff to help teachers operate the facilities until the teachers get used to the facilities.

Conclusion

Education of the disadvantaged group of students is a major challenge to face world over. In case of developing countries, this challenge demand urgent attention. Fortunately, their problems are surmountable. Field project undertaken by the researchers have shown that this students are educable and through specific efforts they can be brought into the mainstream of school education. What is required is a free relationship between the teachers and the students. Although the study reported in this paper were from Nigeria but the findings of the research have global implications. It is envisage that general nature of the problem would be the same across cultures. Effort to overcome these problems will hopefully lead to mastery learning among the underprivileged students.

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