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### Enhancing Quality in Educational Practice and Instructional Delivery by Teachers of Technology and Vocational Education in Nigeria

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#### Abstract

This paper is put together to educate on the best possible means to deliver instructions to students in technical and vocational education (TVE) programs. Realizing that TVE involves skills acquisition and also practically affiliated, the paper is conscious of this fact. As a result, it highlighted techniques and the factors that determine good teaching assignment as part of best means to achieve success in TVE instructional delivery. Recommendations are proffered based on the highlights.

#### Introduction

Many schools of thoughts have argued variously on methods and pro and con involving effective instruction in the school setting. Some schools of thoughts hold the view that if a teacher prepares a subject matter adequately, he would be able to develop appropriate teaching method. Others believe that content can be acquired if a teacher has mastered the skills of instruction. Between these points of view, are differing contentions. Whatever is the case, teaching method refers to the structuring of educational materials to achieve an effective teaching-learning process (Olaitan & Agusiobo, 1981). However, there is no one best teaching method for instruction in technical and vocational education programs. One method may be more desirable to use in a lecture or tutorial class while another is more appropriate in team teaching. This implies that teaching has ever been struggling through a transitional period so replete with cross-currents and uncertainties of which instructional techniques and methods must be adopted to yield better results among students during conventional class and practical class instruction.

In the present time, survival of education in Nigeria depends on effective use of new teaching and learning technologies for instruction. This premise is more evident today because the public is demanding accountability. Moreover, educators are advancing competency-based instruction as their reaction to the stage challenge; a stage in which many academic institutions in Nigeria perceive their traditional methods of instruction as obsolete with the introduction of electronic and other sophisticated methods of instruction. And as many academic institutions in Nigeria try to overcome the complex problem of ICT implementation for effective instruction, there has been an ever-widening syllabus for the junior and senior secondary education curriculum in the country which have necessitated that appropriate teaching methods and activities be utilized for good result.

In Nigeria, the post-primary education is sub-divided into two stages. The first stage of 3-years duration is called junior secondary school (JSS) education during which period a student is expected to offer courses with diversified curriculum to cater for differences in talents, opportunities and future roles and as well provide him with technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development (National Policy on Education NPE (2004). The second stage also of 3-years duration called senior secondary school (SSS) provides comprehensive academic activities with a core-curriculum designed to broaden pupil's knowledge and out-look. At this stage students are expected to offer six (6) core subjects comprising science, social science, arts and vocational subjects.

The students who complete JSS are streamed into: SSS; technical college; out-of-school vocational training centre; or apprenticeship scheme. The streaming has always been based on the result of continuous assessment tests and examinations conducted by state and federal examination boards to determine academic ability, aptitude and vocational interest of students; and as much as possible to achieve a transition ratio of 50:50 from the JSS to SSS and other technical and vocational education (TVE) programs.

Currently in Nigeria, great emphasis is on TVE programs. The Federal Republic of Nigeria in its NPE (2004: 29-31) realized that TVE is an aspect of educational process that contributes to the achievement of the societal goals of greater democratization and social, cultural and economic development. It is a career that enables people to comprehend and act upon their environment. It is assumed that without appropriate educational practice and teaching methods that would embrace the new teaching and learning technologies, these objectives may not be accomplished.

Teaching methods influence the effectiveness of teaching and the ease of learning. In this awareness, the paper briefly discussed;

- The characteristics of a good method of teaching and instruction in technical and vocational programs.
- The factors to consider for selection of an appropriate method of instruction in technical/vocational programs.
- Possible tactics for greater learning outcome during workshop practice.
- Ideal guides for classifying students to necessitate positive learning response in TVE classes.
- The role of a thoughtful TVE teacher for greater achievements in classes.

#### Meaning of Teaching

Teaching involves imparting information to the learner and the acquisition by the leaner of specific knowledge, ideas, facts, skills and other relevant data condensed in the information for the learner's academic and mental development. Teaching is an activity in which Mr. B learns what Mr. A instructs. Thus if Mr. B does not learn, Mr. A has not taught.

To teach is not just to engage in activities, but to pay attention to what is going on, to make diagnoses, and to change another's behaviour. In normal circumstances, if a technical instructor is engaged in teaching students different methods of house wiring, it is understood that he is intending to get the students to know the regulations guiding house wiring. The ability to observe the regulations and also demonstrate the skills guiding house wiring by the students indicate that learning has taken place. Learning also has taken place if a student correctly observes the rules guiding orthographic projection in technical/engineering drawing and demonstrates the ability to use the T-square, the set-square and the drawing board creditably well. The objective of teaching is, therefore, to bring about learning.

Learning is defined as a relatively permanent change in behaviour as a result of experience. When an individual's behaviour is influenced or modified such that the individual thinks or behaves differently consequent upon the newly acquired information, principles, data, skill or knowledge, learning is said to have taken place (Greyson & Lewis, 1979).

### **Basic Psychological Principles to be Practised by Teachers of Technology and Vocational Education**

The two most important tools of a teacher are: a comprehensive mastery of the subject matter and adequate knowledge of the psychological principles underlying human behaviour and learning. However, it appears that most teachers do not possess the second tool, that is, functional knowledge of the psychological principles of learning.

On this basis, many psychologists and industrial technologists including Silvius (1967) and Oranu (1992) have identified principles of learning which a practicing teacher in technical education should know for effective teaching and learning.

These basic psychological principles are summarized in the following seven points.

- 1. Learning process is experiencing, doing, reacting, undergoing and accomplishing.
- 2. Learning situation, to be of maximum value, must be realistic to the leaner, meaningful, and take place within a rich and satisfying environment.
- 3. Learning process occurs through a wide variety of experiences and also through subject matters which are unified around a core of purpose.
- 4. Learning is most effective when the experiences, materials, and desired results are carefully adjusted to the maturity and background experience of the leaner.

- 5. Learning is best when the learner acknowledges positive results, gains insight, and when tolerance for failure is created by providing backlog of success that compensates for experienced failures.
- 6. Learning process proceeds most effectively under that type of instructional guidance which stimulates without dominating or coercing; which provides for successes rather than too many failure; and which encourages rather than discourages.
- 7. Transfer to new tasks will be better if; in learning, the learner can discover relationships personally, and if the learner gains experience during learning within a variety of tasks.

# Distinction between Teaching Technique and Teaching Method *Teaching Technique*

Teaching techniques are the activities or practices and refinements of teaching which a teacher adopts to make teaching more lively and effective when employing a specific teaching method. For instance, a teacher may employ a specific direction to explain and show how a switch should be held and how a person should stand as the person performs the operation of installing the switch in order to identify the positive (life) and the negative (neutral) terminals. The specific direction, now held, and standing posture are the teaching techniques employed by good technical teacher to demonstrate how fire outbreak or electric shock could be avoided during installation of a point of light. Holding the t-square in a special manner to demonstrate how to slide it on the drawing board is a technique. Applying certain technical words to amuse the class while instruction is going on is also a teaching technique. This technique keeps the students at alert and makes the class lively too.

#### **Teaching Method**

Teaching method or instructional delivery style is the unique whole adopted by teacher for imparting knowledge and skills to the leaner. It refers to the structure of the teaching-learning process to accomplish stated objectives. It could be a combination of two or more unique methods for appropriate instruction. It embraces the teaching techniques.

Teaching method is believed to be a source of critical thinking or inspirational disposition on the part of students (Johannesse, 2004; Borinskiy, 2003). If adequate teaching method is effectively employed by the teacher of technology and vocational education (TVE) in a conventional classroom setting, higher order thinking is improved and better levels of creative

expression are fostered among students (UNESCO, 2008). Point is argued that for students to reach their fullest potential, they must learn to think and reason critically. For instance, in a technical drawing class, a student may be required to draw the sectional view of an engine block, or draw the link mechanism of an operational outlay, or to assemble a machine component whose sectional views are given, or other complex tasks of these sorts. This task requires higher order thinking and creative skill. It is only the teaching methods which enhance students' capabilities to accomplish these learning tasks that provide right information and make impact on the students' modelling. This implies that teaching (instructional) methods utilized by teachers of TVE programs must also improve in line with the changing needs of the contemporary society.

#### **Characteristics of a good Teaching Method**

Onwuegbu (1979) and Obiwusi (1981) summarized the characteristics of a good teaching method as follows:

- 1. It should progress from simple activities to the more complex ones.
- 2. It must possess the quality to arouse enthusiasm for active participation of students.
- 3. It should lend itself to accommodate the individual differences.
- 4. A good teaching method helps students link classroom activities with real life activities.
- 5. It must be structured to satisfy the basic needs of the students.
- 6. It should be able to put into action all five senses (hearing, seeing, feeling, testing and touching) for effective retention of knowledge and transfer of skill acquired.
- 7. It should be a method that always motivates for higher achievement without boredom.

#### Factors to consider in selecting appropriate Teaching Method

No teaching method is effective in every given condition. Among other factors to consider before appropriate teaching method is selected for effective teaching and learning are:

1. The performance objectives the teacher wants the students to achieve at the end of the lesson.

- 2. The contents of the instructional unit.
- 3. The age group and size of the group to be taught with the method.
- 4. The time available or meant for the lesson delivery.
- 5. The interest of the students.
- 6. The cost-benefit of the method.
- 7. The space provided, teaching materials available and the nature of the learning assignment.

#### **Guide for Teaching Beginners**

The teachers should select the method which is believed to be most suitable for students based on the criteria and characteristics of a good teaching method. For instance, for beginning students, it is recommended that only one method should be employed, otherwise, the students might become confused. Substitute method could only be employed after some time lapse and when a sufficient degree of skill has been acquired and developed in using the first method.

#### Interpretation through Discussion and Classification for Assignment

When a teacher enters a class, one or two times, it is very possible to establish the learning capabilities of the students. The individual capacities of the students could be determined by the teacher. This determination informs and guides the teacher on the grouping method for effective practical instruction.

One of the mistakes the technical instructors make is the neglect of classifying their students for assignment. Teachers of technology and vocational education should neither neglect nor minimize the importance of classifying students before assignment for skill acquisition. Good results are achieved if students are classified based on their abilities. Many scholars including Greyson and Lewis (1979) had concluded that the best classifying method is achieved when it is made based on ability, age and grade.

It has been argued in favour of ability grouping that when students are placed with reference to their abilities, there are fewer accidents and injuries in the practical class. It is also advisable to place students in several ability groups, because students who have attained a high level of proficiency may become bored if they have to practice with beginners. A good technical instructor could as well observe the students and classify them as; good or poor, beginners, intermediates, and advanced. In every class, there are varying degrees of competence and skills, and a good technical instructor should divide the students into as many groups as possible, depending on facilities, equipment and ability of the class. Technical instructors should familiarize themselves with the methods of grouping best suitable and then select the most practical method for each situation.

Points are made that when students are properly grouped for practical instruction classes;

- i. The competition will be more balanced.
- ii. The instruction will be more scientific.
- iii. The program will have more continuity.
- iv. The health and safety needs of the students will be met.

Also when students are grouped by age, it subsumes people of the same grade. Students of the same age bracket are usually in the same grade. This grouping provides the most practical classification because it is argued that competition among peers fosters better performance and mastery of skills.

However, whatever strategy adopted for improved instructional delivery in technology and vocational programs, the teacher should never forget to always explain the objective of the activity to teach. Many technology and vocational instructors never realize that it makes no meaning to the students to casually walk into the instructional class and begin teaching a skill or an exercise without explaining why it should be learned. Activities and skills become more interesting when students understand the importance of such skills or exercise.

### Arrangement of Students in the Workshop for Effective Practical Instruction

Several factors should be put into consideration before a student is assigned to a permanent seat in the workshop. The technical instructor/teacher should determine within the first few days if any of the students are physically handicapped. Those who cannot hear or see well are assigned the front seats.

The teacher should also identify students who by virtue of any similarities such as cultural background, sex, religion, socio-economic class or ethnic group move together or sit in groups. The teacher should discourage the practice of assigning such groups or permitting them to sit together during practical classes. The teacher may use chalk to demarcate the demonstration position from where the students will begin to stand or sit in front of him with taller students behind the shorter students.

Only when a technical teacher has carefully planned and arranged the students can the teacher skilfully give a group practical instruction employing effective teaching techniques. Students respect and foster confidence in a teacher who presents carefully planned instruction. However, the teacher should always be conscious of time for effective practical class since the span of attention for many students is short. All technical teachers should realize that after approximately ten minutes, it is often difficult to maintain attention of the students unless the teacher changes his method.

## Instructional Role of Teachers of Technology and Vocational Education in Nigeria

One of the basic concerns of TVE is to bring about economic and technological development through adequate training of students of the program who would be able to acquire the skills, knowledge and values that are required in the world of work for effective performance. TVE also aims at tackling the problem of low level of technical skill, which is responsible for low productivity and poverty in the developing countries like Nigeria. TVE may not achieve this objective unless the instructors are able to fulfil the role of effectively teaching the students (Okoro, 2005). This role is possible if teachers of technology and vocational education possess three basic qualities or characteristics;

- 1. Practical occupational skill in an occupational area.
- 2. Theoretical scientific and technological knowledge in their area of specialization; and
- 3. Pedagogical knowledge and teaching skills necessary in classrooms, laboratory and workshop situations (Okoro, 2005: 5).

These characteristic traits advocate that the technology teacher should possess adequate and sufficient practical experience necessary for imparting the skills he possessed. However, there has been the difficulty of getting TVE teachers who possess all qualities of practical skills, pedagogical skills and industrial experience. In case of this difficulty, Okoro (2005) suggests that TVE instructors who possess adequate practical skills and industrial experience but who lack the pedagogical expertise should be considered

preferably. Momoh (2008) noted that absence of adequate practical skills by TVE teachers would make nonsense of the whole training program. Lack of practical skill will only boil down to mere possession of theoretical information by students without adequate practical skills to effectively engage in the occupational area for which the students received their training (Okoro, 2005; Wipawin, 2004).

Even so, skills necessary to adapt to the modern technology should be taught with broad based theoretical knowledge. It is this knowledge that would enable students adapt to the increasing versatility of modern inventions in science and technology. However, without the right attitude and values, it may be very difficult for the students to get adapted to the changing society. Many research findings show that people who do not appreciate the jobs they do produce poorly finished jobs.

Deductively, it implies that for improved instructional delivery in TVE, the teacher should deliver lessons with due emphasis on cognitive, affective and psychomotor domains as suggested by Bloom (1956), Krathwohl et al (1994) and Simpson (1966) respectively. These three domains which obtains from the taxonomy of educational objectives relate to or emphasized on what the students of occupational interest should know, how they feel and what they can do. That is to say, with these three instructional domains in view, the TVE teacher should be able to deliver lessons highlighting the latest innovations, discoveries and knowledge in his area of specialization. He should be able to keep abreast of latest developments in his area of specialty and must be capable to communicate such to his students using appropriate teaching methods. He should also be expected to include all the stuff that relate to recall of knowledge and all the practically possible events that should warrant the development of the students' intellectual abilities around the newest inventions. It is also the teacher's role to ensure that his students appreciate their vocation, improve on it and get gainfully engaged after training. Though in developing countries like Nigeria, money to import the necessary training equipment hinder functional TVE career, effort must be made by the TVE teacher to teach the occupational skills using the tools and machines of the same working features and principles as those that are used in the occupational environment.

For instance, a teacher of Introductory Technology Subject at JSS level has arranged to teach concepts in Simple Parallel Electric Circuit to his JSS students who had been introduced to the concept of voltage (emf), current and resistance and the application of Ohm's law in a simple series electric circuit; It is necessary for the students to;

- 1. Know that voltages (emf) across parallel branches are equal.
- 2. Know that quantity of current through each branch is determined by the resistance value in the branch.
- 3. Appreciate these facts using a simple two-branch parallel circuit connected to a battery source and voltmeter connected across each branch resistor.
- 4. Practice simple circuit calculations involving the applied voltage (emf) and the resistors in the branches with Ohm's law as a guide.

Such as;

i) 
$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$$
 or that  $R = \frac{R_1 R_2}{R_1 R_2}$   
ii)  $i_1 = \frac{V}{R_1}$  and  $i_2 = \frac{V}{R_2}$   
iii)  $I = i_1 + i_2$  and that  $I = \frac{V}{R}$ 

5. If the age and level of the students warrant, these concepts should be made to be practiced using MATLAB as part of the newest applications in solving electrical problems and on extension, use modern electronic and communication technologies in sourcing information and solution on the matter.

The use of electronic media for problem solving is important because Nigeria should meet up with the challenge posed by the introduction of ICT to improve quality of teaching and learning. Instruction using ICTs is a problem to both the academic staff and universities' management. It is a problem since most of the academic staff in Nigeria universities are not ICT literate and on the other hand, the procurement of ICT accessories is substantially costly especially in the developing countries like Nigeria. The use of ICT for instruction definitely reveals that the role of TVE teacher must change if he

must achieve positive result in his educational practice and instructional delivery. It is expected that he must engage actively in what is going on outside his institutions environment so as to communicate and impart knowledge with the newest and most appropriate delivery methods (Lorensten, 2004). Success will be achieved when the TVE teacher reaches out to society and interact with the needs of society based on the existing agenda in the institution (Schutter & Van der Sijde, 2000). It is a wide overview that by so doing, the TVE teacher must have succeeded in changing the existing industrial but traditional cultures to becoming knowledge economics.

Knowledge economics, according to Lorensten (2004) are dependent on production of new knowledge and on the integration of this knowledge into actual products. This is possible only with better educated workforce, who are highly skilled in the current scientific and technological era. The implication of this is that, the poorly educated population, (the workforce that lack creativity) would become educated illiterates since they lack vocational skills and creative aptitude in technological abilities. Hence, it behoves the thoughtful TVE teacher the role to use ICT devices to train students who can possess the ability to think clearly and creatively. By this achievement, the TVE teacher must have succeeded in producing students who can generate new ideas, invent new products, device new services and suggest quality improvement necessary for improved economy (Wipawin, 2004). It is believed that when students (people) acquire skills, they make themselves more productive, able to produce more output and income for a given amount of time and would commonly also make themselves more adaptable to changes (Asian Development Bank-ADB, 2004).

Without a workforce that is continuously acquiring new skills, it would be difficult to reap most of the returns from technological progress (Booth & Snower, 1996) as cited in ADB (2004). More so, World Bank (2002) as cited in ADB (2004) noted that technological change has shifted demand toward higher skills in the labour force and that these new technologies are knowledge and skill intensive, thus there is a need to train people to work with these technologies (UNESDOC, 2001).

The projection is that if people become skilfully empowered, entrepreneurially oriented and creatively nurtured, these people could contribute to environmentally sound sustainable development through their occupations and other areas of their lives. Therefore, the changes facing education suggest that the academic mission of any academic institution must encompass new teaching and learning technologies that would produce students who can possess the ability to think clearly and create output (Wipanwin, 2004) without compromising the integrity of the instructional practices of the traditional past in Nigeria (Okoye & Eze, 2008). The university environment must therefore, delineate the TVE teacher's role from that of a lecturer to more of a guide, resulting in learning being more individualized and interactive process. This changing role of the TVE teachers as noted by Singh, O'Donoghue and Worton (2005) should bear on the teaching style (methods), teaching technique, and motivation to facilitate web-based instruction.

#### **Conclusion and Recommendation**

It is understood from the foregone discussions that ability grouping is a necessity in a well-planned and well structured technical and vocational education instructional class. To impart to students the desired skills necessary for effective participation in the world of work and also help for economic development of this country, the most appropriate techniques of instruction must be practiced by the technical teachers. Appropriate techniques when effectively practiced will build confidence on the part of the instructor and provoke self motivation to participate on the part of the students.

Testimony from the highlights in the paper shows that perhaps the most significant objective is for students to be able to determine their own learning objectives and plan their study activities. As UNESCO (2008) put it, the ability to establish what they already know, assess their strengths and weaknesses, design a learning plan, stay on task, track their own progress, and build on successes and adjust to failures. Larson (1972) also upholds that learning is individual and students must learn by themselves and assume responsibility for their own achievements in the learning process.

The author feels confident that if students are adequately motivated using appropriate educational practice and teaching methods, they could collaborate and develop problem solving skill with creative expression. The role for TVE teachers is to overtly model these processes, and structure situations in which the students would apply the skills. Therefore, the author recommends that skills and exercises selected by the TVE instructors to teach should be scientifically and technologically relevant and at the same time meaningful to the learners in reference to the needs of the community. It is evident that possession of proficient skill in ones career field is basic to motivation to learn and lack of knowledge of this skill kills interest on the part of students.

#### References

- Asian Development Bank-ADB (2004). *Improving technical education and vocational training: Strategies for Asia*. Internet accessed at <u>http://www.adb.org/publications.pp. 25-80</u>
- Bloom, B.S. (1956). A taxonomy of educational objectives: Handbook 1, the cognitive domain. New York: David Mackay Co.
- Booth, A. L. & Snower, D.J. (Eds) (1996). Acquiring skills: Market failures, their symptoms and policy responses. Cambridge: Cambridge University Press.
- Federal Republic of Nigeria (2004). National Policy on education. Lagos: NERDC Press.
- Gorinskiy, S. (2003). ICT usage in technology education and vocational training: World obshestvo remeslennogo Truda (ORT) (World society for handicraft labour). In B.Kotsik (Ed). *ICTs in technical and vocational education and training*. Moscow: UNESCO Institute for Information Technologies in Education (IITE), Russia.
- Greyson, D. and Lewis, C.G. (1979). *Effective teaching strategies in secondary Physical Education*. London: W.B. Saunders Company.
- Johannesen, O.H. (2003). How to organise schools in order to facilitate a pedagogical use of ICTs in the learning process. In B.Kotsik (Ed). *ICTs in technical and vocational education and training*. Moscow: UNESCO Institute for Information Technology in Education (IITE), Russia.
- Kranthwohl, D.R., Bloom, B.S. & Masia, B. (1964). A taxonomy of educational *Objectives:* Handbook 2, the effective domain. New York: David Mackay Co.
- Larson, M.E. (1972). *Teaching related subjects in trade and industrial and teaching Education*. Columbus: Charles B. Merrill Publisher Co.
- Lorensten, A. (2004). National, European and global collaborative efforts to further the introduction of ICT into Universities. Denmark: Aalborg University Press.
- Momoh, S.O. (2008). Enhancing teachers' competence in research and development in TVE studies. A paper presented in a seminar organised by National Association for teachers of technology (NATT) at FCE (Technical), Umunze, Nigeria, September 15 -18, 2008.

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- Obiwusi, B. (1981). Principles and practice of Education for Grade II Colleges. Ibadan: Oyedoyin and Oyelade Printing Service.
- Okoro, O.M. (2005). Vocational and technological education in developing countries: The place and role of the teacher. *Ebonyi Technology and Vocational Education journal (ETVET)*, Vol. 1 No. 1, 1-8.
- Okoye, K.R.E. & Eze, T.I. (2008). Instructional delivery system in technical and vocational education at the secondary school level in Nigeria. A keynote address presented at a seminar organized by Nigeria Association for Teachers of Technology (NATT) at FCE(Technical), Umunze, Nigeria. September 15-18, 2008.
- Olaitan, S.O. and Agusiobo, N.O. (1981). *Principles of practice teaching Education in Africa*. Toronto: John Wiley and Sons.
- Onwuegbu, O.I. (1979). Discover teaching. Enugu: Fourth Dimension Publishers.
- Oranu, R.N. (1992). *Instructional techniques in industrial technical Education*. Nsukka: Unpublished M. Ed. Lectures, Vocational Teacher Education Department, UNN.
- Schutte, F. & Van der Sijde, P.C. (Eds) (2000). University and its region. Examples of Regional Development from the European Consortium of Innovative Universities. Twente University Press.
- Silvius, GH. (Ed) (1967). *Teaching successfully in industrial Education*. Ohio: McNight and McNight Publishing Company.
- Simpson, E. J. (1966). The classification of educational objectives: the psychomotor domain: *Illinois teacher* Vol. 10 No. 4.
- Singh, G., O'Donoghue, J. & Worton, H. (2005). Study into the effect of e-learning on higher education. *Journal of University Teaching and Learning practice*, 2 (1), 13-24.
- UNESCO (2008). *ICT competency standards for teachers*. Paris: Composed and printed in the workshop of METIA, fontenoy France.
- UNESDOC (2001). Revised recommendation concerning technical and vocational education. Paris: UNESCO Press.
- Wipawin, N. (2004). *Students' response to new learning technologies in Thailand.* Thailand: Sripatum University Press.
- World Bank (2002). *Globalization, growth and poverty*. Washington DC: World Bank and Oxford University Press. Internet accessed at http://econ.worldbank.org/prr/globilization/text-2857/>