

## **Synchronising the Vocational Subjects Pedagogy with their Assessment Approaches: A Case of the Ordinary Level Agriculture in Masvingo Urban Schools**

Mandiudza Leona & Jinga Nyaradzo

Great Zimbabwe University, School of Education and Culture

### **Abstract**

*Vocationalising the Zimbabwean schools' curriculum, especially making Agriculture compulsory, was, among other things, meant to make non-college bound Ordinary Level graduates leave school with some skills. Attention should, therefore, be paid to the assessment process of that curriculum so that it is suitable for these graduates in order to measure what matters. With special reference to Ordinary Level Agriculture, this paper explored the suitability of the assessment approaches used vis-à-vis its pedagogy and curriculum goals. The research was a case study of two purposively selected schools in Masvingo urban area. Interviews and document analysis were used to collect data about the nature, content and assessment approaches used to facilitate skills acquisition in Agriculture. The study found out that, due to shortage of resources and unsuitable learning environments, the assessment procedures used are rather theoretical and summative. This contradicts the subjects' pedagogy and aims which demand authentic assessment. The formative assessment done by the subject teachers is insignificant as it contributes very little to the learners' final grades. The assessment procedures are quite challenging thereby not catering for all, as they exclude learners with special needs. The study recommends that teachers be trained to use assessment approaches that suit their unique situations and that the assessment is done regularly in order to check on the learners' progress. It is also recommended that the continuous assessment by the teachers should contribute more to the final grades and certification so that the learners are encouraged to actively participate in the learning process thereby facilitating the acquisition of skills.*

**Key words:** *Authentic assessment, Competence based assessment, vocational subjects, vocational pedagogy, summative assessment*

### **Introduction and background**

Vocational education is meant to prepare learners for the workplace, for the life they will eventually lead when they leave school. Most countries, having established the value of this education, included it in their educational programmes. (Swanzy, 2010; Umunadi, 2012; Puyate, 2008). In America, the subjects were introduced as a result of low student achievement in academic subjects (Duncan et al., 2011) and in support to the federal legislation, 'No child

left behind'. This clearly shows that the subjects are meant to equip all learners with skills in preparation for the workplace hence, the need to assess the acquisition of these skills.

In Britain, the link between schools and industry gained momentum as the government strove to make schooling relevant to economic prosperity (Lewis, 1994). Likewise, the Zambians introduced vocational education combined with entrepreneurship education to address the unemployment problem, (Mubango, Hock, Karim, Senteri, Mulenga & Preckler, 2019). Most scholars show that vocational education helps in equipping learners with skills but they say very little about how the assessment is to be done. It is the objective of this study to assess whether the assessment approaches used for the Agriculture curriculum synchronise with the pedagogy used and also assist learners to acquire the needed skills. In Zimbabwe, vocationalisation of the schools' curriculum was, among other things, meant to cater for the non-college bound Ordinary Level graduates so that they at least, leave school with some skills suitable for the ever accelerating changes in society; a society which is in need of constant reconstruction. Having embarked on an agrarian land reform, it was imperative that learners acquire the necessary agricultural knowledge and skills and, as such, Agriculture was made compulsory. Whilst these educationists are striving to make their curricular relevant for all learners, attention should also be paid to the assessment process of those curricula so that they are suitable for all, especially for those non-college bound learners. The assessment has to measure what matters to them, which is the acquisition of skills. Approaches are to be developed that can be used to prepare the vocational education students for the changing workplace (McTighes, 2018). People must therefore, look at the assessment procedures used to define the outcomes and the effectiveness of these programmes, thereby assisting in determining whether what is assessed is what they teach and what they require their students to master. Assessment should influence teaching methods and our priorities, thereby facilitating good learning environments. This study is aimed at determining how the Agriculture curriculum is assessed in schools and how valid and reliable it is in measuring the desired competencies for the subject. Curricula and their assessment strategies need to be revised in order to adequately address and reflect the skills needed for survival/life in the 21st century. Not only has the learning process to be renewed, but also the assessment procedures. By examining the Agriculture curriculum and the assessment procedures used, the researchers

intended to establish whether the pedagogy used synchronise with the assessment procedures done and also measures what matters.

## **Statement of the problem**

Vocational subjects, Agriculture included, are aimed at equipping students with the necessary life skills. Their proper instruction and assessment is therefore mandatory. All the same, these subjects are not taken seriously and are assessed like academic subjects thereby defeating their purpose. The study investigated the pedagogy and assessment approaches used for Agriculture in order to establish whether they synchronise and promote skills acquisition.

## **Research questions**

As already stated above, the purpose of this study was to understand the connection between the pedagogy for Agriculture and its assessment approaches. Specifically, the study answered the question: Are the assessment approaches for Agriculture appropriate for achieving its purpose? The study was further guided by the following research questions:

- What curriculum is there for Agriculture as a vocational subject?
- What teaching and learning methods are recommended for the subject?
- How is the curriculum assessed?

## **Rationale for the study**

The rationale of the study was to enhance the proper assessment of the Agriculture curriculum through an investigation of how it is learnt in order to acquire skills. The study was informed by the following objectives:

- To identify the curriculum content and pedagogy for 'O' Level Agriculture.
- To establish how the curriculum is assessed.
- To explore the relationship between the subject pedagogy and its assessment approaches.

## **Definition of terms**

### **Vocational education**

This is education given in order to acquire the practical skills, knowhow and understanding necessary for employment, in particular occupations or trades (Afeti, 2013). This is offered through subjects such as Agriculture, Bakery and Textile technology and so on. It is the type of education aimed at the development of skills so that the beneficiaries are competent in their areas of work (Lucas, Spencer & Claxton, 2012).

### **Vocational pedagogy**

Vocational pedagogy is a theory on how vocational subjects are to be taught (Lucas et al, 2012). It refers to how one engages learners to understand the particular kinds of learning on which they are embarking on in order to achieve the desired vocational outcomes. It is an effort to organise the learning environment, to develop knowledge, skills, attitudes and learning settings which are able to present a real learning situation as in the work field. It is, therefore, the science, art and craft of teaching and learning vocational education (Lucas, 2014).

### **Assessment**

Assessment is measuring the learners' performance against the set standards or benchmarks as defined by the curriculum planners. (Ministry of Education Curriculum Framework 2015-2022) This assessment can either be formative or summative. **Formative assessment**, according to the Ministry of Education Curriculum Framework 2015 – 2022, involves tracking learner behaviors and performance on an ongoing basis. It is therefore, used to assess knowledge, skills and values at school level. It informs the teaching and learning process and enables the teachers to measure skills. **Summative assessment** is a type of assessment that measures the learner's performance at the end of a programme. This is mainly used for grading, placement or selection.

### **Authentic assessment**

This is an assessment that emphasises the application of knowledge and skills in a real world context (Waugh & Gronlund, 2013). It is, therefore, a form of assessment that meets the demands of a particular discipline. In Agriculture, it means assessing whether learners are acquiring the necessary agricultural knowledge, skills and positive attitudes.

### **Theoretical Framework**

The study adopted the Vocational Pedagogy theory, a theory on how the vocational subjects are taught and learnt. It is, basically, how one engages learners to understand the particular kinds of learning on which they are embarking, in order to achieve the desired vocational outcomes (Lucas et al., 2012). The vocational pedagogy frame, assists when planning the vocational subjects reforms to make them effective instruction. According to Boateng (2012) vocational pedagogy ensures the satisfaction of the rationale for offering vocational education. Based on the philosophy of realism, a school of thought that stresses that, the knowledge that students gain, must be based on the realities of life and this will then govern teaching. Realism brings the child into contact with real things which alter verbal knowledge into practical knowledge (Doolittle & Camp, 1999). Teaching should not be a form of spoon-feeding by the teacher, but should be a direct method that brings students into contact with reality on their own.

The theory is multifaceted and directs students to the attainment of universal knowledge which enables the child to improve life. It enables judging the extent to which teachers are able to bring the child into contact with the real world. Knowledge is not gained in a passive way but by actively interacting with it. The theory acknowledges the learner's active role in creating personal knowledge. Under the constructivist theory teachers have to make sure that:

1. Learning takes place in an authentic and real world environment. They should, therefore, create situations in their teaching that present the real world to the learners.
2. Teachers have to provide classroom instructions which meet the student-trainee's job needs, making whatever teaching given, relevant to life.
3. Students are formatively assessed for the development of other future experiences which are necessary for modifications to be done on the part of the student in order to master the relevant skills progressively (Doolittle & Camp, 1999).

The vocational pedagogy framework informed this research on the appropriateness and effectiveness of the instruction and assessment procedures for vocational subjects and also checked on their suitability for the attainment of the set goals.

### **Related literature**

The literature examined here is aimed at reflecting on vocational education and its assessment approaches. The review is guided by the following subheadings: nature of vocational

education, rationale for offering vocational education, pedagogy for vocational education and vocational education assessment.

### **Nature of Vocational Education**

According to Cobb and Preskill (1983) an overall attribute of vocational education is that it is uniquely distinctive from all other disciplines in the education system as it needs to be delivered in separate, secluded buildings from the general education settings; and that it requires its own budget, laboratories and in some cases large equipment. This makes it very expensive in nature. Vocational education is competency based and as such, its assessment should also change from the conventional assessment to an authentic one, that is, an assessment that emphasises the application of knowledge and skills in the real world (Umunadi, 2012). Teachers have to use forms of assessment that meet the demands of competency based education. Schools are required to simulate workplace situations in the schools' facilities for the benefit of students.

Vocational education has to engage learners in community projects. This is mainly, community work undertaken voluntarily to help students understand work more broadly than merely in the traditional sense of vocationalism, (Lewis,1995). The element of entrepreneurship has to be included as well. Learners are to be provided with information on how to start companies as a class, thereby giving them the experiences they may use at graduation.

Lewis (1995) views the nature of vocational education in terms of the content to be included. Traditionally, content was based on an analysis of the tasks to be done. The classroom had to mirror what actually happened in the job market. Lewis further argued that the new jobs require problem solving techniques; hence, the educationists must adopt, at all times, the concept of vocational education for work as no aspects of work endure forever.

### **Rationale for offering vocational education**

Justification of vocational education emanated from the fact that academic education was found to be unrealistically exaggerating the educational and occupational aspirations of the school graduates, thereby causing high unemployment rates especially among the youths (Psacharopolous& Loxley, 1985). The different countries' educational ministries became duty bound to make their products useful in society, hence, the inclusion of vocational education (Swanzy, 2010). Boateng (2012) also gives five justifications for governments worldwide to invest in vocational education, among them being to increase relevance of schooling by

imparting skills and knowledge necessary for making individuals productive members of society (Boateng, 2012).

Afeti (2013) supports the inclusion of vocational education by stating that it supports industrialisation, economic growth, wealth creation and poverty eradication by training the skilled and entrepreneurial workforce that is needed. There is need therefore, to ascertain that the school graduates come out of schools equipped with these skills. The assessment of these subjects therefore, has to measure what matters by adopting procedures that enable acquisition of the required skills.

In Zimbabwe the search for a relevant curriculum concluded that vocationalising the curriculum was the best way forward. The high failure rate, high unemployment rate and production of unemployable graduates from the school system supported the introduction of these subjects in the curriculum. The move was seen as one way of preparing learners for post-school economic survival. There is, however, need to assess these skills appropriately in order to ascertain acquisition of the necessary competences.

### **Pedagogy for vocational education**

Being unique, vocational subjects' teaching and planning is not to be done haphazardly. It is informed by a theory that guides how these subjects are to be taught. Vocational pedagogy or instructional methodology, involves real time, real world activities with an opportunity to have a guide who acts as a guiding hand throughout the process of instruction (Lucas et al, 2012). It is how one engages learners to understand the particular kinds of learning on which they embark in order to achieve the desired vocational outcomes. (Lucas et al, 2012). What is taught in schools should not lag behind what school leavers have to do in the real world and as such, the content and methodology should be suitable to enable learners to acquire skills and be able to meet the life challenges (Chinyamunzore, 1999).

### **Assessment**

The field of assessment in education has been researched on by a number of researchers (Mohammed, 2004) especially its impact on the learner and the overall learning process. The way assessment is done in any subject shapes the way students learn. Implementers, in most cases, have to comply with the assessment requirements expected or stipulated. Assessment should aim at improving student learning (Jenkins, 2009). It should measure learner

performance against the set standards or benchmarks as defined by the curriculum planners (Curriculum Framework for Primary and Secondary Education 2015-2022). The assessment objectives should be used as the yardsticks for measuring achievement.

### **Methodology**

The purpose of the study was to explore the implications of the assessment approaches used for Agriculture vis-à-vis its pedagogy and goals. The study adopted the qualitative research approach which allowed the gathering of data on natural settings, that is, the implementation and assessment of Agriculture in schools (McMillan & Schumacher, 2010). Being naturalistic, the study warranted the use of the case study design. The design enabled the researchers to answer the questions on how and why Agriculture is implemented in schools thereby establishing whether the pedagogy and the assessment procedures used synchronize and allow students to acquire skills (Gray, 2009).

Purposive and convenience sampling strategies were used. The researchers purposively chose the nearest individuals (two Agriculture teachers) in the urban secondary schools to serve as participants to the research study (Cohen, Manion & Morrison 2007). Convenience sampling was used to select two schools out of the four that offer Agriculture and were also easy to reach (Moore, 2009). The data were collected through an analysis of the official Agriculture curriculum document and interviews with two Agriculture teachers at the selected schools. Data were, therefore categorised into two sets, that is, data from the Agriculture curriculum document analysis and from interviews.

### **Findings and Discussion**

The findings of the study are harvested from the explored Agriculture curriculum content, pedagogy and assessment approaches. The findings are discussed in relation to the themes that emerged from the data analysis.

#### **Nature of the Agriculture curriculum content**

The Agriculture syllabus document was supplied to the researchers by Teacher A, when asked if they had the document at their school. The teacher cited that the problem of the subject not being properly taught emanated from the content to be covered. The teacher had this to say,



*“The syllabus is too wide especially for the weak learners. I can hardly cover all the work well.”*

Teacher B also concurred with Teacher A, *“For our weak students, the work is too much and they can hardly grasp all the concepts. Most students, especially at Form One level, have negative attitudes toward Agriculture. This is because the subject is difficult for them.”*

### SYLLABUS CONTENT

TOPICS	SUB-TOPICS
1. General Agriculture	<ul style="list-style-type: none"> <li>a. Land use</li> <li>b. Environmental factors</li> <li>c. Forestry</li> <li>d. Wildlife</li> </ul>
2. Soil and Water	<ul style="list-style-type: none"> <li>a. Soil formation</li> <li>b. Soil texture, structure and profile</li> <li>c. Soil types</li> <li>d. Soil constituents</li> <li>e. Soil temperature</li> <li>f. Soil fertility</li> <li>g. Soil erosion and conservation</li> <li>h. Water loss and soil drainage</li> <li>i. Water conservation</li> <li>j. Irrigation</li> </ul>
3. Crop husbandry	<ul style="list-style-type: none"> <li>a. Classification of plants</li> <li>b. Structure of flowering plants</li> <li>c. Plant processes</li> <li>d. Crop improvement</li> <li>e. Crop production</li> <li>f. Crop protection</li> </ul>
4. Animal husbandry	<ul style="list-style-type: none"> <li>a. Types of livestock</li> <li>b. Anatomy and physiology</li> <li>c. Animal nutrition</li> <li>d. Small livestock production</li> <li>e. Non-ruminants</li> <li>f. Ruminants</li> <li>g. Animal health</li> <li>h. Animal improvement</li> </ul>
5. Farm structures and Machinery	<ul style="list-style-type: none"> <li>a. Farm implements</li> <li>b. Fencing</li> <li>c. Farm buildings</li> <li>d. Farm roads</li> <li>e. Appropriate Technology</li> <li>f. Harnessing</li> </ul>
6. Agri-business	<ul style="list-style-type: none"> <li>a. Farm record and accounts</li> </ul>

	b. Principles of economics c. Farm budgeting d. Agricultural marketing e. Agricultural cooperatives
--	--

## **Nature of the syllabus content**

The syllabus content is wide and covers content for various vocations like engineering in different disciplines. This can be classified as content for education about work (Lewis, 1998); an education that is general and does not address specific job requirements. The curriculum addresses important aspects of work life, but does not engage learners in the jobs they will actually do in life. This can be complicated for the non-college bound students who are compelled to do the subject since it is compulsory. The learners, who are in school because of the policy of inclusivity, have limited abilities and find it difficult to cope with the demands of the syllabus. It seems Agriculture is being treated as 'general education' to be offered to all and hence, it is compulsory (Lewis, 1998). It is not to be a compulsory subject if it is to be an education for jobs where specific skills are to be mastered. Only the students who want to join the different agricultural sectors should be offered the subject. The goal of education in today's world is to develop people with entrepreneurial skills. The content has to be based on the tasks to be done thereby equipping learners with work experience.

## **Suggested syllabus methodology**

The interviewed teachers showed that, although the suggested methodologies were suitable, they could not implement most of them due to some problems. Teacher B had this to say; *"Yes the suggested methodologies are quite appropriate but we fail to use them because of shortage of textbooks, farming space and also the congested timetable."*

The suggested methods to be used as stipulated in the syllabus document analysed are as follows:

- Project based learning
- Research
- Educational tours
- E-learning
- Experimentation
- Problem solving

- Discovery method
- Collections
- Demonstrations
- Debates
- Discussions and many more

The syllabus stresses that the teachers have to use the learner centered and hands on approaches in developing concepts and skills. The approaches have to be inclusive and should also promote practical oriented learning. To develop an effective pedagogy, one has to look back to see what vocational education entails, especially why it is offered, (Boateng, 2012) after which the pedagogy used has to ensure the satisfaction of that rationale. The stipulated methods of teaching and learning Agriculture are suitable if the subject is considered as 'Education about work' (Lewis, 1998) since they do not address specific job requirements. Although it addresses important aspects of work life, it does not engage learners in the jobs they will actually do in life. With the aim of assisting the less able learners to gain skills, the curriculum planners have to move away from the general education but should adopt an education for jobs thrust, which, despite being criticised for being narrow, prepares learners for a single job. Learners are allowed to have actual work experience as the teaching is conducted in the same operations, using the same tools and machinery as in the occupations themselves. The suggested syllabus methodology is commendable as it is learner centered. There is, however, a need to create suitable environments for learners to acquire the required skills.

### **Time allocation**

The syllabus should be allocated eight periods of 35 – 40 minutes per week, two double periods for theory and a block of four periods for practical work. The learners should also be engaged in at least one educational tour and one seminar per year.

Agriculture is offered alongside a general school system with an academic orientation. This poses a challenge as the vocational subject will not get sufficient time to satisfy the practical goal. The lack of sufficient time for practical work also makes the assessment process weak. The portfolios and agricultural diaries to be kept will definitely not be authentic. These will be produced from the classrooms and not in the proper environments after engaging in some practical work.

### Syllabus scheme of assessment

The scheme of assessment for this Agriculture curriculum should be based on the principle of inclusivity and should be assessed through both continuous and summative procedures.

**Continuous assessment** involves projects, theory tests and practical tests given by the teacher.

The learners are also expected to produce a project portfolio at all levels of the course, that is, Form 1, 2, 3 and 4. The weighting for the different assessment components is as follows:

ASSESSMENT	WEIGHTING
a. 3 tests per year per level	10%
b. 1 project per year per level	10%
c. 1 Psychomotor test per term per level	10%

A profile must also be developed for every learner. This captures the attributes that cannot be measured such as the soft skills. A folio is also developed and this comprises the test results collected annually throughout the Ordinary Level period and the marks of the four prescribed projects. The observation schedules, checklists, tests and project tasks are set at district level and standardised nationally.

Summative assessment comprises two components which will also add to the coursework component as follows:

PAPER DESCRIPTION	MARKS	WEIGHTING
<b>Paper 1:</b> (Duration: 1 hour). These are <b>40 Objective</b> type questions and candidates answer all questions.	40	20%
<b>Paper 2:</b> (Duration: 2 hours) consists of two sections Section A: Six compulsory structured questions based on the whole syllabus (60 marks). Section B: Six questions will be set; three on Crop production and three on Animal Husbandry. Candidates answer two questions, one from each section. Each question carries 20 marks.	100	35%
<b>Paper 3:</b> Coursework. This is a practical coursework paper marked by the teacher and moderated by ZIMSEC.		15%

The assessment criteria reveals that summative assessment carries more marks than the formative assessment thereby disadvantaging the learners who are good at the practical component which is more important and necessary for the acquisition of skills. The assessment also needs trained assessors and yet not all the teachers are trained to do so. There is need, therefore, to pay attention to teacher preparation so as to produce the required skilled and proficient teachers who are able to assess the course professionally (Swanzy, 2010).

### **Conclusion and recommendations**

The impact of assessment is negatively felt on the aim of acquiring skills as students fail to pass the subject. While the school curriculum aims at imparting skills, the assessment mode, done through examinations, defeats this purpose as it aims at assessing mastery of knowledge and not acquisition of skills. There exists a discrepancy between the assessment process and the curriculum aims and goals. The pedagogy used is time consuming and is, in most cases, compromised by examinations.

The Agriculture syllabus analysed includes quite relevant content connected to the study of the subject in general. It is suitable, if the curriculum's rationale is to study the subject as vocational education about work and not for a specific work or job. The suggested syllabus methodology cited is commendable as it is learner centered but there is need to create suitable environments for the learners to acquire the required skills. More time should be allocated for the subject if at all authentic assessment is to be done. Assessment must be suitable for the particular learning environments and should benefit all and allow the quality of both teaching and learning to be judged and improved. With the advent of automatic promotion, there is need for schools to develop policies that promote an inclusive educational environment where assessment for all is practised. The focus on inclusive teaching should also extend to a focus on inclusive assessment. Thereseachers made the following recommendations based on the findings of the study and related literature:

- There is need to reduce the academic composition of vocational curricula for the non-college bound students and emphasise the practical aspects for their chosen subjects.
- Educational planners have to enhance synergies between commerce, industry the community and the school in order to produce a relevant curricula which will enable the acquisition of relevant skills.

- Entrepreneurship is to be strongly integrated in the vocational subjects' curriculum.
- Institutions can hold job skills contests where learners can compete in performing job related skills and apply relevant knowledge from the vocational fields they are studying.

### References

- Afeti, G. (2013). *Technical and vocational education and training for industrialisation*. Available on [http://www.arrforum.org/publication/documents/Afet%20Technical%20 education PDF](http://www.arrforum.org/publication/documents/Afet%20Technical%20education%20education%20PDF).
- Boateng, C. (2012). Restructuring vocational and technical education in Ghana: The role of leadership development. *International Journal of Humanities and Social Sciences*, 2 (4).
- Chinyamunzore, N. N. (1995). *Devolution and evolution of technical/vocational education curriculum in Zimbabwe*. IDATER 95 Loughborough University of Technology.
- Cobb, B. & Preskill, H. (1983). Evaluating vocational education: A review of past practices and suggestions for future policy. *Educational Evaluation and Policy Analysis*, 5(4), 495-505.
- Cohen, L., Manion, L. & Morrison, K. (2007). *Research methods in education* (6<sup>th</sup> Edition). London, Routledge.
- Doolittle, P. E. & Camp, G. C. (1999). Constructivism: The career and technical education perspective. *DLA.E. Journal*, 16 (1), 01-14.
- Lucas, P., Spencer, E. & Claxton, G. (2012). *How to teach vocational education: A theory of vocational pedagogy*. City and Guilds Centre for Skills Development.
- McMillan, J. H. & Schumacher, S. (2010). *Research in education, evidence based inquiry* (7<sup>th</sup> Edition). New York: Happer Collins.
- Ministry of Primary and Secondary Education. *Zimbabwe Curriculum Framework for Primary and Secondary Education, 2015-2022*. Harare: MoPSE.
- Moore, E. (2009). *School public relations for student success*. London: Corwin Press.
- Mubanga, P, Hock O.Y., Karim A.M., Senteri, Z., Mulenga, I.M. & Preckler M.

(2019). *Harnessing technical and vocational education and training and entrepreneurship education to address unemployment in Lusaka Province, Zambia*. <https://doi.org/10.4236/jss.2019.75013>.

Psacharopoulos, G. & Loxley, W. (1985). *Diversified secondary school education and development: Evidence from Colombia and Tanzania*. London: The John Hopkins University Press.

Puyate, S. T. (2008). Constraints to the effective implementation of vocational education program in private secondary schools in Port Harcourt local government area. *Department of Science and Technical Education, Rivers State University of Science and Technology*. Port Harcourt: Nigeria.

Swanzy, P. (2010). Challenges in the implementation of vocational and technical education policies in senior secondary schools in the Sekondi/Takoradi Metropolis in Ghana. *Edulearn 10 Proceedings pages 1649-1656* 2<sup>nd</sup> International Conference on Education and New Learning Technologies, Barcelona, Spain.

Umunadi, K.E. (2012). Empowering vocational and technical education teachers and students through curriculum implementation reforms for attainment of Millennium Development Goal. *Journal of Education and Social Research*, 2(7), 158.

