The Compatibility between Teaching Methods and Competence-Based Curriculum in Tanzania[1]

F. TILYA

School of Education, University of Dar es Salaam
Email: tilya@edu.udsm.ac.tz

F. MAFUMIKO

Dar es Salaam University College of Education
Email: smafumiko2001@yahoo.co.uk

Abstract

This paper discusses the classroom problems of implementing the competence-based, learner-centred curriculum. The paper first describes the confusion with respect to teaching methods in Tanzania. Then it links the confusion with the recently introduced competence-based curriculum. The paper elaborates on the problems facing the teacher in implementing the curriculum that requires learner-centred teaching approaches. The paper ends with some reflections which put forward some recommendations.

The context of the discourse

Tanzania is experiencing a very serious and prolonged confusion with respect to the choice of instructional or teaching methods in the education system, and especially at lower levels. The catch-phrases or popular buzzwords in teaching are in what have come to be called "participatory Methods". The buzzwords were common in some in-service training workshops we had the opportunity of attending or in schools where we send our students for teaching practice. Though the method is held in high esteem, and supposedly signifies being modern, there is no evidence in Tanzania of its superiority in enhancing learning outcomes. Its implementation in schools is depressing; it is invariably reduced to putting pupils into groups of often more than 5 children, to discuss something as vague as "how democracy is practised, or "find the mean of a data set", or

[1] *This paper is a modified version of paper presented at the Forum on Community of Practice on learner-centred Learning in Tanzania organized by Oxfam at Tanzania Episcopal Conference (TEC), Kurasini, Dar es Salaam from 18th to 19th August, 2008*.

to discuss the sources of lighting. The groups formed lack organisation and are nowhere close to what is propounded or propagated in the social construction of knowledge (Vygotsky, 1978; Nuthall, 1997).

The worst part is that there is total confusion as to what it is and when it should be applied. When used, it is so badly done as classrooms are not organised for any meaningful form of discussion, and what students are told to discuss is so mundane, too simple and often a waste of time of both students and teachers. It is often preferred by teachers for the wrong reasons. Instead of the participatory method being associated with mental involvement, thinking, and cognitive processes, it has been reduced to physical and verbal involvement only. This is unfortunate, but apparently, this is the popular interpretation of participatory teaching and not learning, which cuts across all lower levels of teaching and all subjects.

Recently, the O-level curriculum was revised, which has added even more confusion to teaching methods, as the introduction to the revised curriculum documents clearly states, "The revision process has observed a change in paradigm from a content to a competence-based curriculum. The teaching and learning process to be used in the reviewed syllabus should be student centred and activity oriented. Students are expected to engage in a variety of activities which culminate in learning" (URT, 2005). The introductory part of any syllabi clearly indicates that the student-centred teaching approach is the key to the implementation of the competence-based curriculum, which requires teachers to change their focus from the teacher to the student while at the same time focusing on developing competences and not emphasizing content only, which is a big challenge for teachers. Teachers have to reorient their teaching philosophy to student or learner-centred teaching/learning.

However, the revised curriculum was never piloted, no training was provided initially for in-service teachers on how to use the new curriculum and no teacher-support materials were available to guide practising teachers on the implementation of the new curriculum.

Though the revised syllabi have defined the general competences to be acquired by students at each level of schooling, they bear no direct relation to the content to be taught. Not only that, not every school has the new syllabus for each subject. In some, the new syllabi were supplied late.

Therefore most teachers are not implementing the curriculum because of lack of implementation knowledge or curriculum materials.

The revised curriculum asserts that it is competence based rather than content based, implying that the emphasis will be on developing competences and the content will be used as a means to an end and not an end in itself. The curriculum being too content-based was one of the criticisms of the one that was phased out (Chonjo, Osaki, Mrutu, & Possi, 1996; Ottervanger, de Feiter, Osaki & van den Akker, 2005). A content-based curriculum emphasises the content to be covered rather than the competences to be acquired by students. However, browsing through the revised curricula documents, not much has changed in terms of reducing the content to be covered in O-level secondary education. Overloaded curriculum content is still a big problem and teachers still mention it as an obstacle to participatory teaching (Mwanga, Jensen, Magnussen, Aagaard-Hansen, 2007). Selecting the content that will give children the knowledge and skills that are essential for future personal development is still a challenge and usually, it is not easy to find out what to add or remove from existing syllabi. The consequences of covering such a large amount of content are dire for teachers and learners alike. In fact the overloaded curriculum has been a major complaint of teachers for years now.

Teaching in Tanzania for many years has been teacher-centred, in which the teacher is the major provider of information, skills, and inspiration (Chonjo et. al.). Participatory teaching methods were expected to complement the teacher-centred approach and eventually dominate, but that is yet to happen. Borich (2007) contends that, traditionally, the main role of the teacher in teacher-centred education is that of a teacher just passing on facts, concepts, rules, managing action sequences, and thinking for students in the most direct way possible. According to Flanders(1970), teacher-centred education is where the teacher does the structuring, questioning, anticipating, focusing, motivating, and clarifying the goals, but students also have the opportunity to ask questions as well as restructuring the discourse, for instance, when they ask for clarification of a particular point made by the teacher. The dominance of teacher-centred teaching is seen partly to be caused by the overloaded curriculum. During the past three years, teaching in lower secondary schools was expected to be in transition. The dominance of the

‘knowledge transmission’ paradigm was expected to give way to new student-centred ‘process-oriented’ teaching and “competence-based” paradigm.

It is against this backdrop that we explore the problems of teaching in Tanzania in the light of the competence-based curriculum that incorporates learner-centred learning approaches. This discourse is expected to highlight the experience gained by teachers in-service training courses of the competence-based curriculum that will effectively improve teachers’ classroom practice and interactions.

Competence-Based Curriculum (CBC)

These are the buzzwords in the pedagogy vocabulary, advocating the development of competences in terms of the knowledge, skills, attitudes, and motivation for planning instruction and evaluating of performance. Competence generally refers to the ability to do a particular activity to a prescribed standard. It is the ability of students to accomplish tasks adequately, to find solutions and apply them in classroom or work situations. It is concerned with what people can do with what they know rather than what they know. In more general terms, competence is regarded as the integrated abilities required to cope with complex tasks. The competence-based learning strategy puts students in a realistic situation in which they have to demonstrate whether they can solve certain problems and how they do it. Absorption of cognitive knowledge is considered insufficient. The key objective is to be able to use knowledge to solve realistic problems. Competence consists of components that are trainable (knowledge and skills) and components, that are more complex (attitudes and beliefs). Such an educational curriculum includes a set of learning objectives that are clearly specified so that their accomplishment can be understood in the form of specific learner behaviours, knowledge and skills. Minimum levels of achievement of these objectives are established as the criterion of success.

Competence-based education (CBE) is an instructional system in which performance-based learning takes place. The learner demonstrates his/her level of attainment in a subject. Grant, et.al. (1979) defined CBE as follows: “Competence-based education tends to be a form of education that derives a curriculum from an analysis of a prospective or actual role in modern society and that attempts to certify student progress on the basis of demonstrated performance in

some or all aspects of that role" (Grant et al., 1979, pg. 6). According to Velde (1999) the concept of CBE can facilitate learning in a society characterised by rapid change and complexity, like today's society. CBE is, by intent, student centred, but in practice the teacher ends up doing most of the thinking. Proponents of this approach presuppose that lower-level skills have to be mastered before complex skills are attempted. They capitalise on a minimum package of competencies based on clear behavioural objectives and training for performance that meets these objectives. Like mastery of learning, it emphasises the step-by-step learning of one concept, skill, or task thoroughly first, before moving on to more difficult ones. This is what makes it student centred. Competence-based approaches usually start with analysing a task, in which jobs are broken down into single tasks, resulting in skill-based instruction and training. Competence-based learning has received much attention from a didactical perspective, in which predominantly the effectiveness of the learning process of students is addressed.

The basic steps in the mastery or competency learning include:

- Specification of the learning tasks in a given lesson, developing precise objectives and reaching the standards, defined by the criterion for assessment.
- Breaking down the course/subject into learning units closely aligned with the instructional objectives.
- Preparing lesson plans and instructional procedures in order that deficiencies and learning difficulties can be identified early so that corrective feedback can be given to students if they are not achieving the set standard, e.g., 90 percent of the set objectives. Thus the remedy is built in through the provision of supplementary materials, additional tutorials, and individual/small group instruction.
- Administering end of course/subject or term test that evaluates whether each student has mastered all the tasks to an acceptable level.
- Using feedback from evaluation to improve mastery

CBE is applicable in all levels of education, though more popular in vocational and higher education. An important reason for the popularity of the concept of competence is the expectation held by stakeholders that the gap between application (e.g. the labour market) and education can (and will) be reduced through CBE. The underlying idea is that education should

enable students to acquire the competencies needed in their future professions, and in society as a whole (Jenewein, Knauth and Zülch, 2002) at a higher level, but it should also enhance reading, writing, numbers and communication skills at lower levels. There is a growing recognition of the need for education to be directed at developing competencies, and not just at acquiring a certificate; the emphasis has to be on capabilities and not on qualifications. Capability is an important prerequisite for employability. Shifting the emphasis to developing capabilities is therefore assumed to improve the link between education and the labour market (Mulder, 2004).

In Tanzania the competence-based curriculum is still in its infancy, having been introduced in 2005. However, perusing the curriculum materials, the curriculum does not exactly fit the above prescription. The curriculum has competencies based on behavioural objectives, but there is no evidence of an emphasis on step-by-step learning of one concept/skill/task thoroughly first and assessing its mastery before moving on to more difficult ones. The expectation of decision makers is that secondary school leavers will be capable of doing more with the competences acquired through the knowledge, skills, attitudes and motivations embedded in the curricula.

Learner-centred teaching approaches for competence-based curriculum

Let us begin by first discussing learner-centred education. The learner-centred approach is the perspective that couples a focus on individual learners with attention to learning. It begins by understanding the educational context from which a student comes. It continues with the teacher evaluating the student's progress in the learning objectives. Helping the student acquire the basic skills to learn ultimately provides a basis for learning throughout life. As Weimer (2002) explains, learner-centred teaching focuses attention on what the student is learning, how the student is learning it, the conditions under which the student is learning, whether the student is retaining and applying the learning, and how current learning positions the student for future learning. It therefore places the responsibility for learning on the student, while the teacher assumes the responsibility for facilitating the student's education. In this approach the role of the teacher declines from being an expert to becoming more and more of a facilitator and coach or guide. The approach is grounded on the understanding that students are not mere recipients of information in a passive setting but can actively be involved in the learning process.

The learner-centred approach is associated with the notion that, in learning how to learn, students take charge of their education through direct exploration, experimentation, contextualisation, expression, experience in a democratic manner. The teacher presents students with some content, materials, objects, and events, and asks them to attempt to go beyond the information given so that they arrive at their own conclusions and generalisations, looking carefully and discovering patterns, relationships, new knowledge, and making new conjunctures. It is assumed that the students transform or construct the stimulus materials into meaningful knowledge that differs from both the content used to present the learning situations and any previous response given by the same student (Schuh, 2003).

In learner-centred teaching, students are helped to learn how to learn and are given opportunities to work together in constructing knowledge, with assessment becoming an on-going activity that drives instruction rather than being the culmination of it. The assessment is also made more authentic as it involves problem-solving and real-world tasks. In addition, learner-centred teaching is associated with real-life situations, and individualised and indigenous knowledge.

Learner-centred instruction, therefore, is the ultimate objective of high quality and relevant education for all. Good learner-centred education should go beyond regurgitation. It should promote social skills that value hard work, creativity, professionalism, skills, entrepreneurship, participating in democracy and decision making, the courage to doubt everything and question ongoing practices, and the capacity to generate new ideas and solve problems instead of just talking about them. To achieve these ends, the education system must provide opportunities to explore new alternatives rather than lamenting about seemingly intractable problems.

However, many teachers who are not used to it will always need to control, talk, tell, and instruct students. Many teachers experienced in traditional teaching methods, in which they are experts and in control, find it difficult to change, for student-centred learning proposes a shift away from instruction that is fundamentally teacher-centred, at times glibly termed “sage on the stage,” focusing instead on learning outcomes(Hermann, Ratherfield, Dayton, Amershek, 1969, Weimer, 2002). Truly gifted students find no problem with student-centred methods but in fact get very excited. Yet average-level students have often been found not to be sure of what was going on,

although they may appreciate the intellectual freedom to experiment, and freedom to explore and exchange ideas. However, the bulk of students, especially the hard working and achievement-oriented ones, are often excited by this new mode (McCombs, 2004; Weimer, 2002).

Interestingly, some students and teachers have resisted the change elsewhere. There are students who thrive under teacher-centred instruction and many claim to prefer it. Weimer (2002) suggests that this happens because it makes less demands on them, until the evening before an examination, whereas student-centred pedagogy requires a more active role in the classroom and doing homework. Student-centred teaching is in-class strategy, which encourages students' interaction with the content, with one another and the teacher, and with the learning process. It encourages students' reflection, dialogue, engagement, fanfare and requires a reliable assessment of their content mastery.

Critics say that there is too much emphasis on the learning process and not enough on academic content, facts, principles and concepts, and learning outcomes. Some say it takes much more time, hence it is inefficient and expensive, especially in the more structured areas where a solid body of knowledge has to be covered within a limited amount of time. As a result, and in practice, most good teachers use elements of both student-centred and traditional teacher-centred methods, judiciously selecting experiences and approaches that make classroom learning more positive and proactive learning experiences for most children, rather than being a slave to a method or approach (Bain, 2004; Weimer, 2002).

Nonetheless, the shift towards student-centred teaching is a change in emphasis that will cause teachers to rethink how they teach and assess their teaching toward the goal of a realistic appraisal of student learning. Content remains important but it is no longer of sole importance. Content can be used to develop learning skills—a repertoire of strategies both general and content specific. With regard to content teachers need to ask: What do students most need to be successful in subject content? How do we change content from being an end to a means? When the focus of a teacher is less on teaching and more on facilitating learning, greater attention is paid to measuring and monitoring the amount of learning taking place. It may require a re-

centring of assessment practices to include more and different evaluations of the learning experience. The central purpose of assessment is to answer the question, "How do we know our students are learning what we think we are teaching them?" and to improve our educational programmes so that they learn more, more effectively. What and how students learn depends to a major extent on how they think they will be assessed. The assessment practices must send out the right signals. No teacher will spend time on something which will not eventually contribute to success in the final examination.

Status of Teaching in Schools in Competence-Based Era

Teaching in Tanzania generally has remained mainly traditional, which is teacher centred, incorporating elements of what is dubbed participatory teaching methods. The traditional teaching approach we are referring to is the *lecture method*, which most of the time in the classroom is teacher talk-and-chalk while students listen and write. Mental engagement can always be engendered by questions such as "How if? What if? Why are we doing xyz, how come that never happened? Why do you think so, etc.", followed by explanations, elaboration, tasks, and questions so that students are left with something to think about. To complement the lecture, you will always find learners being put into groups in the name of participatory teaching, with many students looking bored, and confused as to what was the point, and some obviously wharfing (Chonjo et al., 1996; Osaki and Njabili, 2004). A number of reasons have been given as to why teachers prefer this method. The reasons include: first, to cover the content of the curriculum within the time set by the school timetable. Consequently lecturing is seen as the most efficient method to cover it (we have to note that if teachers have to "cover" a lot of content then it is not possible to uncover much of it at deep levels of understanding and learning); secondly, there are too many students in some classes and that works in favour of lecturing as other methods require a lot of time to attend to individual student's needs. Thirdly, teaching resources that support interactive and student-centred teaching methods are lacking, especially in science subjects and languages. Fourthly, teachers do not know a better way to teach as they have experienced nothing better as students and in their career (e.g. Chonjo, *et. al*, 1996; Mafumiko, 1998). Other reasons given include limited opportunities for regular in-service training (INSET) and other peer-related staff development courses, and the lack of a proper

induction/mentoring system to ensure that new and long-serving teachers acquire and are able to use effectively emerging professional skills.

With the introduction of the revised curriculum, teaching in schools has continued to be appalling, as the new syllabi are more demanding, requiring a new set of skills that practising teachers do not have. A recent survey in Tanga region to find out how mathematics teachers were faring with the revised curriculum established that none of the teachers had received any training on using the 'new' curriculum, and all teachers were still using traditional teaching methods to deliver the content (Shemwelekwa, 2008). The researcher also found out that most teachers implementing the curriculum, from planning the lesson and instruction to assessing the student, have not changed at all, though the 'new' curriculum claims or implies that. The findings are an indication the inability of teachers to select experiences that have features of student-centredness and are appropriate to specific lesson objectives, and the mental ability or age of the learners. Though the study did not cover the whole country, it suggests that similar results could be found in other subjects throughout the country, because there is no support system in place to help teachers teach in a way directed or expected by the competence-based curriculum.

In Tanzania, the teaching practices that currently dominate in our classrooms can be modified to accommodate ideas of student-centred teaching. There are challenges to face. It is not possible to reduce the number of children in our classrooms, acquire the necessary teaching and learning materials or have qualified teachers to teach the curriculum in a short time, taking into consideration the current expansion of enrolment in secondary schools. It is impracticable to expect teachers to suddenly change from teacher-centred to student-centred teaching in a short time; it has to be a gradual process. As a starting point, the lecture method can be modified to become more interactive and participatory. Together with other methods the lecture could be transformed to gradually yield what is expected by the revised curriculum, through an in-service programme. These other methods that could work hand-in-hand with the lecture are: demonstration; discussion; debate; viewing and listening; drills and practice; problem solving; study visits, exploring nature, discovery method; laboratory work; practicum; role playing;

games and singing to stimulate the imagination; cooperative and collaborative learning; and independent study.

Any one of these methods could be made either highly participatory or an active learning situation through a variety of strategies or could remain an inactive teacher-talk affair. There can be participatory and non-participatory strategies, but not every method can be made participatory. Practising teachers can be introduced to teaching strategies which promote active mental engagement in constructing meanings and new knowledge through INSET. The challenge as Borich (2007) put it, is how to plan instruction, establish a learning climate, improve strategies for instruction, and make teaching as interesting, effective, and efficient as possible. Different disciplines require different teaching methods and strategies. For example, for science subjects, the prediction, explain, and observe (White and Gunstone, 1992) strategy or a variety of modified versions, could be used in teaching content that requires using demonstration and/or laboratory work as a teaching method. Debate can be a great method in the classroom, where the concept being discussed is interesting and students have prior knowledge that may need consolidation, and a teacher can clarify issues through asking questions.

Assessment processes also need to change to make them more authentic. Currently, the processes are geared towards passing examinations and not to assess the level of competency attained by the student during secondary education. Njabili (1999) observed that if the goal of examinations and the curriculum are not clearly stated and linked, the curriculum will be the servant of examinations, and also pointed out that examinations, which are being designed by teachers and implemented in Tanzania do not emphasize critical thinking and problem solving in real-life situations, which means that such examinations do not reflect real life. Currently the examination system puts more emphasis on memorisation and routine forms of reasoning that are not in line with the complex skills that are actually used in science and real life (Shemwelekwa, 2008).

In-service Training Initiatives to address teaching problem

Many stakeholders in the education sector in Tanzania, including universities, teacher education colleges, government ministries, Development Partners, and Non-Government Organization, have tried to address the problem of lack of in-service teacher support and professional

development for teachers in several ways but on a small scale. For example, the Government through its Ministry of Educational and Vocational Training (MOEVT) in collaboration with Development Partners has since 1996 been running a number of projects designed to improve the teaching and learning of secondary school science and mathematics (O-saki, 2007). Examples of such projects are two science education-based projects, one known as SESS (Science Education in Secondary Schools) and Education II. The SESS project was jointly funded by the Tanzanian and German governments to work with 27 pilot schools countrywide and improve the condition of textbooks and laboratory facilities. It also launched a Training of Trainers programme which was based in zones and supported by a national resource person. By 2006, the project had been mainstreamed into the secondary education department, but its focus now is on HIV/AIDS. An internal evaluation in 2000 showed an improvement in the number of textbooks and laboratory facilities that were available in the project schools, but classroom practice had changed very little (Osaki, 1999).

In 2002, the then Ministry of Education and Culture established another science education-based project with financial support from the African Development Bank to improve the quality of teaching science/maths in schools through:

- Purchasing relevant textbooks
- Supplying science laboratory facilities
- Designing and developing science INSET courses and materials.

The Ed II project mainly targeted diploma science and maths teachers, most of whom had limited pedagogical skills for preparing and conducting interactive lessons. The main products of this project are the INSET courses and materials that were developed, focusing on interactive teaching, experimental work and fieldwork. After the initial design, these materials were tried out, revised and finally their development was completed in 2005 and have now been in use in schools (especially newly established ones) throughout the country since 2006.

This project also was different from others in the sense that it involved heads of schools to ensure trainees from the project could have the full support of the school leadership to implement the newly acquired knowledge and skills (O-saki, 2007).

A recent evaluation of the impact of the Ed II project indicates that to a large extent teachers who were trained by the project indicated having gained more confidence and having increased their subject matter knowledge and pedagogical content knowledge in the areas of specialization, though in practice they appear not to have greatly improved in relation to classroom delivery (Kabuje, 2009).

The third example of science-based projects is the Teacher Education Assistance in Mathematics and Science (TEAMS) project, which was established in 1995 at the University of Dar es Salaam (UDSM), with intention of improving the preparation of the teachers and teaching of mathematics and science in secondary schools (O-saki, 2007). The TEAMS project had three components: improvement of the undergraduate pre-service curriculum, UDSM staff development and capacity building in science education, and in-service education. The project ran an in-service education prototype programme, which developed lesson materials that were used for professional development, and later improved and exported to other projects including Zanzibar trainers' project. In regard to capacity building, the project trained staff in the skills needed to develop activity-based learner-centred curriculum materials in science, maths and ICT; and skills to conduct peer coaching within a school (Tilya, 2003; Kitta, 2004; Mafumiko 2006; Kafanabo, 2007). The project also initiated masters of education in science degree programme, with great emphasis on the skills to design, develop and carry out teacher professional development programmes. This project has produced over 30 graduates, some of whom are working with MoEVT, The Tanzania Institute of Education, Universities, and schools. The project ended in 2004.

The fourth example of INSET initiatives to develop learner-centred and competency-based education is the establishment of a non-science education project known as EQUIP (**E**ducation **Qu**ality **I**mprovement through **P**edagogy). EQUIP was a five-year project established in 2003 and implemented in two councils in Shinyanga region. The main goal of the project was to promote improvement in learning and the capabilities of primary school pupils through the provision of a range of initiatives that largely focus on changing in the teacher, her pedagogy, and her management of the classroom. In addition, four key areas of support for teachers included in this project are: supporting learner-centred learning, supporting good learning

environments, supporting good school governance, and dealing with factors that limit good learning. Among the initiatives, EQUIP is one of the most positive and successful.

All these initiatives are mainly in the form of projects, donor funded in nature, which address a small group (or a section) of teachers. The projects run as long as there is money, but without plans for sustainability, with no long-term plan to ensure that there are professional development programmes for teachers in mainland Tanzania. Not only that, but though all these projects had many good outcomes, documentation of all the good practices, lessons learned or materials developed has not been kept anywhere for future reference and sharing with a wider public. All this suggests that it is a high time that the MoEVT established a recognised and active unit that deals with teacher development, which includes INSET and other important aspects of the teaching profession. Such a unit could also be important for developing INSET programmes for orienting teachers to implementing competency-based curricular, especially classroom practice and formative assessment.

Reflections

From the narration, certain lessons have been learnt:

- Though the curriculum has defined the general competencies to be acquired in each subject and at each level (form), there is no continuum from one level to the other, and that may make the task of evaluation of each competency more difficult as competencies cannot be evaluated without relying on one's judgment. General competencies can continue to be defined for each subject, but then instead of using form (for level), a scale (ranging from minimum to advanced competency acquisition) can be used as an indication of the level of development achieved by a student, with the development of a competency therefore being part of a continuum but which is not prescriptive. At a specific level, judgment will focus on the particular learning and evaluation situations that form the basis for evaluation.
- The curriculum is still content driven and most teachers complain that there is too much to teach in the short time given. It is important to realise that knowledge is growing so rapidly that it is becoming impossible to teach it all within the short time period we have in school. Children can access that information on their own, which means that they need

information management skills. The content is important but information management skills are important as well as information acquisition skills. The content can be reduced but children can still learn more.

- Teacher-support materials are essential to ensure the new curriculum is well implemented. CBE and training is a new idea for most teachers, and without materials giving concrete examples of how to prepare and teach the curriculum it will result in teachers implementing it differently. Consequently the expected results will never be achieved.
- Teachers need to be oriented to student-centred teaching through pre-service and in-service training. For example, if the curriculum content is reduced and teachers do not know how to use it to develop student-centred competences they may teach a four-year content say in three years, and students may come out of the system worse off than now. In the past there have been sporadic INSET programmes across the country. In view of this background, there is a dire need to create a permanent in-service system and structures supported by the MoEVT.
- Examinations play an essential role in the implementation of any curriculum in schools. Teachers will focus their efforts on activities that contribute to the final evaluation of their students. The current examinations are not tuned to assess the competence-based curriculum. Shemwelekwa (2008) in his evaluation of 2007 form two examinations could not find much difference in traditional examinations in terms of assessing competencies specified in the form one and two mathematics curriculum. This could be because the competencies are defined without a standard or there is a content mismatch between the content of the curriculum and the competencies to be acquired, or a mismatch between the current curriculum and assessment standards.
- The implementation of the competence-based curriculum also faces a number of challenges, these include:
    - Lack of clarity amongst potential implementers (even some developers) on the meaning of competence-based curriculum and student-centred approach.
    - Fear of teachers of losing control in the classroom or some students fearing that they will not be able to take responsibility for their own learning if student-centred learning is implemented.

    - Lack of a supporting teaching and learning environment in schools.
    - A large number of unprepared teachers from pre-service training to practising teachers, and
    - Lack of a well established in-service programme
- There is a need for enhanced coordination and communication between key players. The Tanzania Institute of Education, National Examination Council of Tanzania, Inspectorates, Faculties/colleges of Education, and Teacher training colleges need a regular forum to jointly reflect on and be conversant with the innovations and reforms taking place in teacher education.
- Teacher mentoring and induction programmes are essential. Mentoring involves interactive, on-the-job coaching that allows newly recruited teachers to acquire the desirable skills and experience for teaching effectively. Mentoring will enable teachers to gain experience and confidence in what they do so that they do things better, but also to become more open minded.
- Research and development is an important element that has been the missing link in the implementation of the revised curriculum. Reflective action research, monitoring and evaluating skills are needed in order to gauge the impact of the initiatives. Such research will enable teachers to uncover the problems and issues pertaining to specific contexts, as well as the values, attitudes and behaviour of the community that affect students' learning.
- What is mostly happening in our schools is the teacher-centred approach supported by traditional assessment which is geared towards testing cognitive abilities but focusing very little on dispositions to mathematics, science and languages. We need to have assessment in which students use higher-order thinking skills, real-life tasks are used to assess a student's level of understanding, and individual students can be evaluated on a scale of performance standards, ranging from novice to experts. Students need higher-order thinking skills, and the ability to adapt to change, to solve problems, to produce products valued by society, to innovate and to collaborate.

Conclusion

A good teacher is key to the successful implementation of any curriculum. The problems facing the country in teaching the competence-based curriculum are many and are directly connected to other areas within the education sector, hence they will require a systemic solution. However, it is impossible to deal with all related problems in the system at once, as that requires lots of resources. Partial solutions need to be sorted out. Piloting of any curriculum innovation is an important step towards its proper implementation. With piloting, teacher support materials are necessary for training and concrete aids for classroom practice. Teacher preparation that focuses on competence-based education and student-centred learning should be part of pre-service programmes, but more deliberate efforts also need to be made to orient practising teachers to reach a critical mass of the teaching force. In addition, successful implementation of the competence-based curriculum will depend very much on the type of assessment and evaluation that is in place.

References

Bain, K. (2004). *What the best college teachers do*. Harvard University Press

Borich, D.G. (2007). *Effective Teaching Methods: Research based Practice*. New Jersey: Merrill Prentice Hall.

Chonjo, P., Osaki, K., Mrutu, N., & Possi, M. (1996). *Situational analysis of science teaching in secondary schools. Dar es Salaam.* Ministry of Education and Culture and GTZ

Flanders, F. (1970). *Analysing Teacher Behaviour*. Reading: Wesley

Grant, G., Elbow, P., Ewens, T., Gamson, Z., Kohli, W., Neumann, W., Olesen, V. and Riesman, D. (1979). *On Competence. A critical analysis of competence-based reforms in higher education*. San Francisco: Jossey-Bass.

Hermann, W.L, Ratherfield, J.E., Dayton, C.M., Amershek, K.G. (1969). The relationship of teacher-centred activities and pupil-centred activities to pupil achievement and interest in 18 fifth grade Social Science Studies class. *American Educational Research Journal, vol. 6(2),* 227-239

Jenewein, K., Knauth, P. and Zülch, G. (2002). *Kompetenzentwicklung in Unternehmens-prozessen*. Aachen: Shaker

Kafanabo, E, J. (2006). *An Investigation into the interaction between multiple intelligences and performance of learners in open ended digital learning class*. Doctoral dissertation. Pretoria,: University of Pretoria

Kitta, S. (2004). *Enhancing mathematics teachers' pedagogical content knowledge and skills in Tanzania*. Doctoral dissertation. Enschede: University of Twente

Mafumiko, F.M.S. (1998). The role of practical work in chemistry education in Tanzania: Exploration of current practices and potential alternative. Unpublished Masters Thesis, University of Twente

Mafumiko, F.M.S. (2006). *Micro-scale experimentation as a catalyst for improving the chemistry curriculum in Tanzania*. Doctoral dissertation: Enschede: University of Twente.

McCombs, B.L. (2004). What do we know about learners and learning? The learner-centred framework; Bringing the system into balance. *Educational Horizons*

Mulder, M. (2004). *Education, Competence and Performance: On Training and Development in the Agri-Food Complex*. Inaugural address. Wageningen: Wageningen University.

Mwanga, J.R. Jensen, B.B.,Magnussen, P., Aagaard-Hansen, J.(2007). School children as health change agents in Magu, Tanzania: a feasibility study. *Health Promotion International, Vol. 23 No. 1* 16-23

Njabili, A. F. (1999). Practical Guide for Classroom Measurement and Testing: The Basic Essentials (3rd Ed.). Dar Es Salaam: Mture Publishers.

Nuthall, G. (1997). Learning How To Learn: The Social Construction of Knowledge Acquisition in the Classroom. Paper presented at the Biennial Conference of the European Association for Research in Learning and Instruction (7th, Athens, Greece, August 1997).

O-saki, K. M. & Njabili, A (2004). Secondary Education Sector Analysis. Research Report submitted to Ministry of Science, Technology and Higher education & World Bank. Dar es Salaam. WB.

Osaki, K.M. (2000). The science education in secondary school. Internal project evaluation. Dar es salaam, Ministry of Education and GTZ

Ottevanger, W., de Feiter, L., Osaki, K. van den Akker, J. (2005). The TEAMS Project in Tanzania: From Intervention to Capacity Building. *Journal of International Cooperation in Education*, Vol.8, (1),pp.111-123

Schuh, K. L. (2003). Knowledge Construction in the Learner-Centred Classroom. *Journal of Educational Psychology Vol. 95, No. 2, 426–442*

Shemwelekwa, R. (2008). The effectiveness of adoption of competence based education for teaching and learning mathematics in secondary schools in Tanzania. Unpublished Masters Thesis, University of Dar es salaam.

Tilya, F. (2003). *Teacher Support for use of MBL in activity-based physics teaching in Tanzania*. Enschede: PrintPartners Ipskamp

United Republic of Tanzania (2005). *Secondary Basic Mathematics Syllabus*. Dar es Salaam. Government Printers

Velde, C. (1999). An alternative conception of competence: implication for vocational education. *Journal of Vocational Education and Training*. London: Triangle.

Vygotsky, L. (1978). *Mind in Society*. London: Harvard University Press

Weimer, M. (2002). *Learner-Centred Teaching*. San Francisco: Wiley Co.

White, R. T., & Gunstone, R. F. (1992). *Probing Understanding*. Great Britain: Falmer Press.