Examining the Ideal 21st Century Teacher-education Curriculum

Cosmas Maphosa[1] and S. Takalani Mashau[2]

[1]*Faculty of Education, University of Fort Hare, South Africa*
[2]*School of Education, University of Venda, South Africa*

ABSTRACT In this paper the researchers argue that socio-economic and technological changes in the world today have serious implications on the type of a teacher who should be found in the classrooms in the 21st century. Exposing children to teachers who have not been trained to deal with changes in the outer world is tantamount to having wrong men and women in charge of learners in the ever-changing world. In the paper we interrogate the ideal 21st teacher education curriculum in training a modern day teacher. The researchers examine the changes in the 21st century socio-political, economic and technological environment and how it demands a responsive teacher education curriculum. The researchers further explore the aims of education in the ideal 21st century teacher education curriculum. The researchers also examine content, teaching approaches and assessment techniques consistent with the modern day teacher education curriculum. In the light of issues raised in the discussions, recommendations are made.

INTRODUCTION

Teacher training is a very important aspect of education system in any country. The quality of an education system, among other factors, depends on the quality of teachers who implement the curriculum. The OECD (2005) acknowledges that teachers are the school variable that influences student achievement. Darling-Hammond (2000) establishes the link between teacher qualifications and student achievements by also taking into account other school inputs. The way teachers are trained, to ensure quality products, in vital in ensuring effective teaching and learning and the attainment of learning outcomes. Musset (2010: 14) observes that "teacher education does have a fundamental impact on both teacher effectiveness and student outcomes".

The 21st century due to globalisation has brought about changes in the socio-economic and political environment. Schools, being microcosms of society, have to change accordingly. It is, therefore, important to have a calibre of teachers who are able to serve in the 21st century in order to ensure that education remains relevant and keeps abreast with changes in the outer world. Schwille and Dembélé (2007: 33) argue that with the ever-changing world, a teacher education curriculum should be "based on what is needed to keep the overall knowledge, skills and dispositions of practicing teachers solidly based, up-to-date and effective." It is, therefore, important to reflect on the ideal teacher education curriculum that produces a teacher who is suitable for the 21st century and its complexities.

What is a Teacher Education Curriculum?

Teacher education involves the training of teachers. Teacher education is a programme that is related to the development of teacher proficiency and competence that would enable and empower the teacher to meet the requirements of the profession and face the challenges therein (Fieman-Nemser 2001). In a teacher education curriculum there is a body of knowledge, skills and values that trainee teachers should possess in order to develop proficiency and competency to teach. Teacher education encompasses teaching skills, sound pedagogical theory and professional skills.

On what teacher education curriculum involves, Nakpodia and Urien (2011: 350) state that:

Teaching involves the use of wide body of knowledge about the subject being taught. Teachers at all levels of the educational system are very important in the overall development of any nation. Teachers' education is the process which nurtures prospective teachers and updates qualified teachers' knowledge and

Address for correspondence:
Prof. C. Maphosa
University of Fort Hare
Faculty of Education
East London campus
East London, 5201
South Africa
E-mail: maphosacos@yahoo.com

skills in the form of continuous professional development.

A teacher education curriculum, therefore, should include discipline content and how the content is taught. Trainee teachers should be equipped with the knowledge, attitude, behaviours and skills they require to perform their tasks effectively in the classroom and school. Teacher education curricula should prepare teachers to produce students who can operate in the 21st century socio-economic and political environment.

The Standing Committee for the Education and Training of Teachers (SCETT) (2011: 10) observes that:

The teaching profession needs knowledge about the complex and compelling forces that influence daily living in a changing world. This includes understanding the political, economic, technological, social and environmental factors that shape society, to ensure that teacher know what pupils need to learn - both in the present and for the future.

The above shows that the modern-day teacher should be prepared to deal with the ever changing environment in the 21st century and in turn assist students to handle the complexities of the political, technological, economic and social environment.

What is Unique about the 21st Century?

The 21st century is marked by great developments as evidenced by high industrialization and technological advancement. There are reasons to believe that industrialization will continue to be one of the major engines of growth, transformation, and socioeconomic development. Industrial development enables a more rapid advancement toward developed country living standards (Szirmai et al. 2013).

Technological Advances

Mallik (2004: ix) notes that:

In the 21st century technology is advancing very rapidly, converting yesterday's fiction into today's reality. The most effective users of technology have become the advanced group of nations, while in the less privileged 'third world' some progressive developing nations have moved faster in this respect than others.

It is clear from the above assertion that technological advancement has resulted in the socio-economic development of countries through the use of appropriate technology to promote and sustain such development. Developing countries have not been left out in embracing technological advancement with the rest of the world.

Sharma (2006: 2) argues that modern technology in the 21st century has become pivotal in enhanced productivity and easing of life by stating that:

Modern technology has resulted in shorter and comfortable working days, higher agricultural and industrial productions, better transportation facilities and what not. Every time we work out, we make use of technology. Technology has become the medium of daily life in modern society and will always be seen as 'prime mover' in history.

Technological inventions continue and the school system should produce graduates who are able to operate in a world that makes use of modern technology and also assist in further inventions.

The Digital World

The 21st century is marked by significant developments in the use of information technologies. Poole et al. (2009) state that today's teachers-in-training need to be ready for the paradigm shift that is coming to education in terms of the use and teaching of information literacy by ensuring that the use of internet and other network resources effectively to develop learning and learning skills. Information literacy and fluency in the 21st century also entails problem-solving, communication and collaboration skills in addition to the ability to the 3 R's (Poole et al. 2009).

Of importance for the 21st century education educator is to take learning from the classroom by embracing new technologies and utilising them in teaching and learning. E-learning is a very important type of learning in the 21st century and the teacher should be acquainted with this type of learning. Through e-learning, learning does not depend on the physical presence of the teacher in the classroom. Learning takes place anywhere and anytime and content is available in multiple media (Poole et al. 2009). Garrison (2003) argues that students who participate

in computer-connected learning networks show increased motivation, a deeper understanding of concepts, and an increased willingness to tackle difficult questions. This ensures higher cognitive learning through collaboration and problem solving. Informed by the constructivist theoretical model, Tavangarian et al. (2004) observe that through e-learning one's learning should result in some transformation of an individual's experience into the individual's knowledge through the knowledge construction process. The 21st century teacher should, therefore be able to utilise learning management systems to engage students in deeper learning.

The World as a Global Village

The world has become a global village due to technological advancements and the quick dissemination of information between and among people and nations. Mallik (2004: 117) observes that:

Globalization, as well as unprecedented transparency because of instant worldwide media coverage, has transformed technological awareness all over the world. Even a poor villager in a remote area of a developing country is today more aware of world events and, among other things, of what the richest can afford.

The realisation that communication due to technological advancements has reduced the distance between the countries in the world entails that education should be an agent in ensuring that products from the school system are able to function in a world that has become a global village.

Understanding and appreciating diversity is one issue that teachers in the 21st century should emphasise to ensure that products from the school system are able to operate in the global village that the world has become. Understanding diversity through tolerance minimises conflict. Galeotti (2001: 274) defines tolerance as "the disposition to refrain from exercising one's power of interference on others' disliked actions and behaviours which are considered important for both the tolerator and the tolerated." In the context of a global village learners meet people from different backgrounds, interests and persuasions and they should be able to claim their space while tolerating others. A typical example is how gay rights are increasingly given attention and

learners should be adequately prepared for such issues.

Knowledge-based Economy

Emphasis of knowledge-based economy is underlined by Toffler's (1990: 9) assertion that:

The most important economic development of our lifetime has been the rise of a new system for creating wealth, based no longer on muscle but on mind.

This shows that education should not place emphasis on acquiring knowledge for knowledge's sake. George (2006) states that while the relationship between increasing levels of knowledge and economic growth is not clear, most industrialised countries have invested much on new knowledge creation, dissemination and adaptation to production.

In further showing the importance of knowledge-based economies in the 21st century, Psarras (2006: 85) states that;

Society is entering into an era where the future essentially will be determined by people's ability to wisely use knowledge, a precious global resource that is the embodiment of human intellectual capital and technology. The knowledge-based economy places great importance on the diffusion and use of information and knowledge, as well as its creation.

It is imperative for teachers themselves to be aware of the role knowledge plays in the socio-economic and political development of a country and the various ways of teaching students to be knowledge creators. Such an awareness deliberately inculcated through teacher training enables teachers to use appropriate teaching approaches and information technologies to make students relevant in contributing to development through their knowledge.

Multi-cultural Society

Gollnick and Chinn (2002) are of the opinion that multicultural education is the educational strategy in which students' cultural backgrounds are used to develop effective classroom instruction and school environments. It is designed to support and extend the concepts of culture, diversity, equality, social justice, and democracy in the formal school setting.

If a country cannot afford the duty to educate every child, other areas of education will

not succeed. For this reason, it is necessary to create equal educational opportunities for students from different races, ethnic group, social station and inter-cultural group, to help all students grasp knowledge, attitude and skills in meeting the cross-cultural communication's demands and to create common civic and moral interests of society which is the ultimate objective of education, while teachers are the key factor of it. It contains two points in the socio-cultural education's enlightenment: the first is that teachers need to have sufficient cultural sensitivity to treat more fairly students from different cultural backgrounds and to assume more instructional responsibility for gradually diverse population, and the other is to design a suitable curriculum, teaching materials, teaching methods to cultivate teachers' ability to face students of different races, different nationalities, different cultural backgrounds (Dicko 2010: 36).

Lemmer et al. (2006) state that education plays an important part in equipping people to recognize, accept and appreciate differences in attitude, lifestyle, language, religion, ethnicity, culture or gender. It is a great challenge for schools worldwide to accommodate diversity in the fullest sense without prejudice. Even mono-cultural schools are fundamentally characterized by diversity, which includes all kind of differences related to such matters as gender, class, religion, and intellectual and physical ability.

Diversity brings richness to the school that needs to be treasured and built upon. In practice, schools are often characterized by tension, ignorance, misunderstanding and aggression, as a result of mismanaged diversity. Schools therefore have a grave responsibility to prepare learners for adult life by educating them about a society free from bias. If learners are made aware of and duly informed about diversity and the needs of other people, then the stage is set for them to develop mutual understanding and trust. A key strategy in which greater understanding among people may be brought about is through the various approaches of multicultural education (Lemmer et al. 2006).

Aims of Education

One of the main objectives of education is the capacity to deliver a democratic existence that guarantees basic political rights for all the citizens. Labaree (1997) as quoted by Tshivhase-Phendla and Mashau (2010: 120) states those basic political rights include democratic equality, social efficiency, and social mobility. From the democratic equality approach to schooling, Labaree (1997) in Tshivhase-Phendla and Mashau (2010: 120) argues that: democratic society cannot persist unless it prepares all its young with equal care to take full responsibility of citizenship in a complete manner. Schools must promote both effective citizenship and relative equality. Schools must prepare children to play constructive roles in a democratic society.

The second goal of education is social efficiency. Labaree (1997) cited in Tshivhase-Phendla and Mashau (2010: 120) asserts that education should prepare the young to carry out useful economic roles with competency for the economic wellbeing of the country. Therefore, education is a public good designed to prepare workers to fill structurally necessary market roles. In the same light, schooling should provide people with skills that will enhance their productivity, to promote economic growth. As a result, education is not just a moral matter or political correctness but a matter of good economic sense.

The third educational goal is social mobility. Labaree (1997) cited in Tshivhase-Phendla and Mashau (2010: 121) perceives social mobility as one of the objectives to be attained by education. Education is a commodity and it provides individual students with competitive advantage in the struggle for desirable social positions. Education is seen as a private good designed to prepare individuals for successful social competition for more desirable market. Social mobility means bottom up, to meet individual's needs (unlike social efficiency which means top down and collective needs). Social mobility emphasizes individual status attainment. Benefits of education are for specific individuals and are selective and differential rather than collective and equal. Moreover, while social mobility is a consumer's commodity, it also treats education as a form of exchange value in contrast with the use value. The value of education is extrinsic, that is, job, standards of living, financial security, social power and cultural prestige. In addition, educational value is not from knowledge symbolized but the kind of job that can be exchanged.

Holistic Approach in Human Development - Development of 3Hs

The 21st century education should also seek to develop a complete individual by addressing

a holistic education. Forbes (2003) claims that holistic education aims at educating the whole child, that is taking care of all the learner's parts, educating the student as a whole and seeing the child as part of a whole in the context of society, humanity, the environment, some spiritual whole. Nava (2001) identifies four pillars of holistic education which are learning to learn, learning to do, learning to live together and learning to be. In learning to learn, students learn to be curious about knowledge production as well as taking responsibility of their own learning. Learning to do entails changing society by taking responsible action and students should be productive by applying what they learn to solve societal problems. Learning to live together involves the ability to respect and cooperate with other people and with organisms in the environment. The social and moral responsibility of the individual is important in learning to live together and this minimises confrontation and war (Nava 2001). Learning to be entails 'learning to be human, through acquisition of knowledge, skills and values conducive to personality development in its intellectual, moral, cultural and physical dimensions' (Mohmoudi et al. 2012: 182). Character-building becomes an important aspect of learning to be. The educator in the 21st century should be morally sound and seek to impart such morality to the learners.

Holistic education also seeks to develop multiple skills in a learner and ensures that the learner is able to fit and serve in the socio-political and economic environment. Nava (2001) argues that holistic education is ideal for the twenty- first century as it produces human beings with a global conscience, a vision of peace, love, and intelligence. In view of environmental degradation in the twenty-first century, there is need to equip students with skills, knowledge and values that enable them to preserve and protect. Teacher education curriculum in the 21st century should expose trainee teachers to the need to develop multiple skills in learners and also ensure that learners are able to fit in society and serve for society's good.

Flake (2000) identifies the basic principles of holistic education which trainee teachers in the 21st century should be made aware of. These principles are, among others, educating for human development, honouring students as individuals, the central role of experience, educating for participatory democracy, educating for global citizenship and educating for earth literacy (Flake 2000). In honouring students as individuals trainee teachers should know that 'each learner is unique, inherently creative, with individual needs and abilities' (Mohmoudi et al. 2012: 184). The 21st century teacher should, therefore tolerate, respect and appreciate diversity in learners and seek to understand their differences and assist them accordingly to realise their full potential.

The principle of educating for participatory democracy is important in the 21st century where there are growing concerns for the upholding of democratic principles in countries. The modern day teacher should be aware of what democracy entails and incorporate democratic ideas in the way they teach and handle students. As Rose and Gallup (2000) note the purpose of education should be to prepare people to become responsible citizens hence they should be adequately prepared to claim their space in the political environment by making government accountable. Sherrod et al. (2002) observe that the students should develop civic skills and norms and the best way is to influence them when they of school going age. Mohmoudi et al. (2012) state that democracy is more than just voting for a government but criticising and holding the government accountable. A twenty-first century teacher should prepare students to acquire democratic skills and values (Levine 2007). The teacher must have been exposed to this through a carefully planned and implemented teacher education curriculum.

Educating for global citizenship is quite critical in the 21st century where the world has become a global village. The modern-day teacher should seek to develop competencies in learners that will allow them to actively engage with the world, and help to make it a more just and sustainable place. The 21st century teacher should be aware of his or her global citizenship status and what it means before they inculcate the same to learners. According to Carabain et al. (2012) the global dimension of citizenship is manifested in behaviour that does justice to the principles of mutual dependency in the world, the equality of human beings and the shared responsibility for solving global issues.

Education in the 21st century should teach students the 'Four Cs' which are critical thinking, communication, collaboration as well as creativity and innovation (Trilling and Fadel 2005). Ball (1989: 10) cited in Hager and Kaye (1992)

talks of critical thinking as higher level competencies 'enterprise skills' and states that these are:

… those personal dispositions, abilities and competencies related to creativity, initiative, problem solving, flexibility, adaptability, the taking and discharging of responsibility and knowing how to learn and relearn.

Critical thinking, therefore, allows products from the school system to apply what they would have learnt and also to be adaptive to changing environments. In a teacher education curriculum trainee teachers should be taught to place emphasis on higher order cognitive skills in students' learning. This gives no room to memorisation and rote learning. Teachers have to incorporate new ways in their teaching to ensure emphasis on critical thinking skills (Finn 1991).

Communication is also very important in the highly technological 21st century. Teachers, through an appropriate teacher-education curriculum, should be able to teach students meaningful ways of communication. Students require skills to communicate ideas effectively with diverse audiences (Boix-Mansilla and Jackson 2011). Buckingham and Willet (2006) contend that the 21st century has witnessed changes in communication and social practices due to increased use of new digital technologies. Trainee teachers ought to be exposed to the use of the different digital technologies and in turn incorporate them in teaching and learning. This will ensure that students are taught communication using appropriate digital technologies used in outer society. Information literacy and ICT literacy are the key tools for working in the 21st century (Gee 2007). As Anderson (2008) observes the 21st century society is fast becoming an information or knowledge society and schools have to respond accordingly.

It is also important for teachers to embrace collaborative teaching approaches so as to inculcate the value of collaboration, which is important in the 21st century. Working with others is an important part of the learning process and should learn to work together in classrooms, networks and communities of practice. Smith and MacGregor (2010: 1) state that collaborative learning:

… is an umbrella term for a variety of educational approaches involving joint intellectual effort by students, or students and teachers together. Usually, students are working in groups of two or more, mutually searching for understanding, solutions, or meanings, or creating a product. Collaborative learning activities vary widely, but most centre on students' exploration or application of course material, not simply the teacher's presentation or explication of it.

Teachers should be aware of the various collaborative learning techniques and an ideal 21st century teacher education curriculum should adequately prepare them to understand, appreciate and make use of such techniques. This teaches students the importance of working together in classrooms, schools and in life after school. Creativity and innovation are also critical skills to be developed by teachers in students who operate in the 21st century society.

Approaches in Education

The 21st century teacher should be able to apply appropriate teaching approaches based on relevant theory. The social constructivist theory posits that knowledge is constructed by learners. Social constructivism sees learning as a social process whereby students acquire knowledge through interaction with their environment instead of merely relying on the teacher's lecturers (Nieman and Monyai 2006: 6). In this regard, the 21st century teacher should be prepared for the role of facilitating learning and ensuring that learners are actively engaged in learning. The 'telling' methods are not consistent with social constructivism and learning in classrooms today. Dewey (1916: 46) argues that 'education is not an affair of 'telling' and being told, but an active and constructive process.' If student teachers are to be effective facilitators of learning they need to be trained to reflect on what they learn during training.

Social constructivism places emphasis on the collaborative nature of learning and the importance of cultural and social context. Learning is understood in a social and cultural context and learners should learn to work together. Proponents of collaborative learning claim that the active exchange of ideas within small groups not only increases interest among the participants but also promotes critical thinking. The shared learning gives students an opportunity to engage in discussion, take responsibility for their own learning, and thus become critical thinkers (Totten et al. 1991). In showing the

importance of awareness of the teacher's role in collaborative learning, Gokhale (1995: 1) states that:

For collaborative learning to be effective, the instructor must view teaching as a process of developing and enhancing students' ability to learn. The instructor's role is not to transmit information, but to serve as a facilitator for learning. This involves creating and managing meaningful learning experiences and stimulating students' thinking through real world problems.

The teacher education curriculum should adequately prepare trainee teachers for their role as facilitators of learning consistent with social constructivist teaching approaches.

Social constructivist learning environments emphasize knowledge construction instead of knowledge reproduction. Teacher education curriculum should inculcate in trainee teachers the importance of utilising teaching approaches that promote knowledge construction. The Southwest Consortium for the Improvement of Mathematics and Science Teaching (1995: 2) observes that:

The constructivist teacher sets up problems and monitors student exploration, guides the direction of student inquiry, and promotes new patterns of thinking. Classes can take unexpected turns as students are given the autonomy to direct their own explorations.

The use of problem-solving approaches to teaching and learning in which students bring in prior knowledge and experience to make meaning of knew knowledge is the hallmark of social constructivism. A teacher education curriculum for the 21st century should adequately prepare teachers for facilitation of learning roles.

Trainee teachers should also be prepared to assess learners in line with social constructivist teaching approaches. Stressing the importance of effective assessment of learners, Boud (1995: 35) observes that 'although students can, with difficulty, escape the effects of poor teaching they cannot escape the effect of poor assessment' and Rust (2007) argues that assessment of student learning should be done well. Assessment should involve collaboration between the teacher and learners'

Price et al. (2007) state that learners should understand assessment procedures that are used to assess their work. The need to truly understand the requirements of the assessment process, and the criteria and standards being applied, they need implicit as well as explicit knowledge (O'Donovan et al. 2004). This implies that before any assessment task is given, learners should be given an assessment rubric which shows clearly how their performance will be assessed. This enables learners to know the teacher's expectations and how they can meet such expectations.

The Language of Instruction

Language is central to the lives of people. People communicate and understand the world through language. Language defines people's identity and knowledge. Language serves various purposes such as personal, communicative, educational, aesthetic, cultural political and critical purposes (Nieman and Monyai 2006: 25).

Nieman and Monyai (2006: 25) further argue that the importance of language for effective learning becomes evident if people consider that the ability to use language determines not only the nature of a person's relationship with others and the ability to communicate, but also the ability to think, since language is the medium of much of human thought. In addition, language serves as the medium for learning that takes place at school. Language and learning are interdependent as language is the means to access all study material.

Language is often subjected to dependency. Each subject has its own vocabulary and terminology peculiar to it, and the words, language and vocabulary are often used in very specific ways. Learners should acquire and use the language specific to a particular subject. As language plays such an important role in learning, educators have to make sure that there is a common understanding in the language used in the classroom (Nieman and Monyai 2006).

CONCLUSION

The 21st century is marked by rapid changes in the social, economic, political and technological spheres. In order to ensure relevance, education has to respond to these changes and possibly spearhead further changes. In line with changes characteristic of the 21st century teacher education curriculum should be aimed at training teachers who are fit to serve in the fast-changing environment. The way teachers are

trained should ensure that teachers teach learners who are able to function meaningfully in the modern world that has become a global village. Information technologies should be utilized effectively to enhance teaching and learning and assist in producing problem solvers from the school system. Learning itself should cease to be teacher centred and confined to the classroom. Appropriate teaching approaches derived from relevant theories should be utilized to ensure meaningful learning and assessment.

RECOMMENDATIONS

In the light of the foregoing discussion, the following recommendations are made:

* Teacher education curricula should be redesigned to assist in producing a teacher who can operate in the 21st century environment.
* The teaching methods utilised in training teachers should be based on reflection and problem solving to inculcate in trainee teachers the same approaches they should utilise as teachers after training.
* Teacher-centred approaches that aim to transmit knowledge to learners should be discouraged and learner centred, active-learning and problems solving approaches should be emphasised.
* Information technologies should be fully utilised to enhance teaching and learning in and out of classrooms and with or without teacher presence.

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