

## A Five Dimensional Model for Educating the Net Generation

**Ronald Noel Beyers**

Young Engineers and Scientists of Africa Programme, Meraka Institute, Pretoria, South Africa // ron@yesa.org.za

### ABSTRACT

This paper proposes a multi-dimensional concept model of an ICT enabled classroom to highlight potential similarities and differences between where teachers perceive themselves relative to their learners. Some teachers and learners may be at the two dimensional text-book level, while others are operating in at a globalization level. Being armed with this type of information, educators may be empowered to rethink their educational strategies especially where ICTs are employed in an educational context.

### Keywords

Net generation, Model of education, Knowledge society, Digital divide, Globalization

### Introduction

The world in which our children live is significantly different from that of yesterday. Today's youngsters use laptops, pagers, instant messaging, and cell phones to connect to friends, family, experts, and others in their community and around the globe. They are bombarded with visual messages from the media – messages specifically targeted to tap into the billions in discretionary spending they control and/or influence. This is a generation that expects to actively participate in and through their media, hence the decrease in time spent by teens in viewing television and the corresponding increase in time spent on computers, gaming, and the Internet. Our children now have at their fingertips a virtual world – with all its promises and pitfalls (Lemke, 2003:5).

Schooling today is an attempt to make mini-scholars out of students by giving them doses of what was meant by scholarship in the eighteenth and nineteenth centuries. The theory of knowledge implicit here is that the educated person knows something about all the great books. This idea works when there aren't that many books in print (or at least it seems to work). But in an age when no one could possibly know something from every book that has been written, when there are enough books to go around, and when there are so many other forms of knowledge available to students, these ideas are outmoded. We must look to concepts that relate to today's world, one where there's so much to know that it is likely that students will have to direct their own education out of practical necessity (Schunk & Cleary, 2008).

Public education is struggling to adapt to an intellectual, social and cultural transformation that has begun to emerge during the last thirty or forty years. New understandings on the frontiers of science, a growing awareness of the threats to planetary ecology, and a disruption of local communities and economies by the rise of globalization have made it necessary to rethink many of the basic assumptions that guided the development of modern industrial culture. It is increasingly evident that humanity faces the task of moving from an age of modernity into an uncharted post-industrial or post-modern future (Miller, 2000).

Figure 1. presents a diagrammatic representation of the relationship between an education system and on society in general. The formative years of schooling are aimed at preparing learners for an exit point into society after they successfully complete up to twelve consecutive grades. A mechanistic view of the education system demands that a feedback loop is essential to ensure that the needs of society are met through the system and is embedded in the contents of the formal curriculum which is managed by the government of the day. Change in society is inevitable resulting in a demand for learners with a new set of skills implying the need for these changes to be reflected in the curriculum of the day.

The curriculum in any contemporary democratic society always reflects the definition of democracy which that society has accepted as legitimate and true. Similarly, attempts to challenge the validity and legitimacy of a society's dominant definition of democracy always find expression in attempts to challenge the form and content of the curriculum of that society's schools. In this sense, the debates about the curriculum that occur in a democracy at any given time will reveal both how that democracy interprets itself, *and* how that interpretation is being challenged and revised in order to bring into being a more genuinely democratic form of life than that which currently exists. The curriculum in a democracy is thus always a curriculum for democracy, incorporating both a record of its past and a message for its future (Carr, 1998).

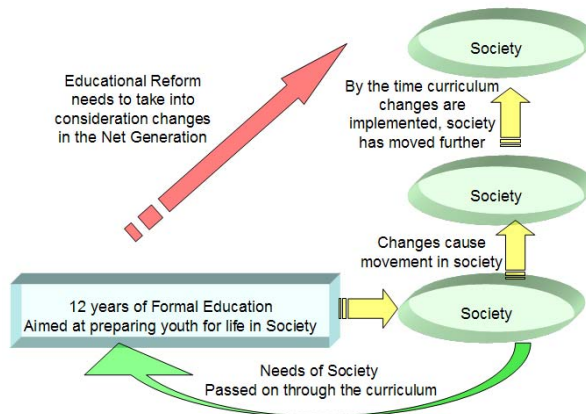


Figure 1: The education system, society and the curriculum

One of the primary functions of an education system is to convey and ensure a mastery of a set of knowledge, skills, attitudes and values that a particular society regards as desirable. During the formative years an individual will also be exposed to a cultural framework, which will supplement their survival strategies for the rest of their lives in a given society. One of the problems that many societies are facing especially where there is a transition from an industrial and manufacturing based economy to a knowledge society, is the rate of change. The reform processes in education, as portrayed through the curriculum, are seldom able to keep pace with the change resulting in students exiting the formal education system being inadequately prepared as the world that they were prepared for may no longer exist. To address this problem it is proposed that curriculum changes need to be visionary and project the activities within the classroom to intersect with the future needs of society as portrayed in Figure 1.

Teachers in the classrooms of today are facing an educational dilemma. The world that they grew up in and were trained in is also rapidly evolving around them. In a third world country like South Africa, these permutations are even more exaggerated by such a diverse variety of schools ranging from classrooms under trees with no running water, toilets or electricity in deep rural areas to modern digital classrooms with laptops and campus-wide radio networks found in the more affluent private institutions. The apartheid era has left a legacy which will take generations to rectify leaving many learners with very little chance of crossing the digital divide. The net effect for these individuals is a life of economic misery where they are excluded from many benefits that a technological world has to offer.

On the other hand 'wiring the schools and populating them with computers is necessary but insufficient to ensure equal opportunity to share in the digital revolution' (Tapscott, 1988:262). They need a redesigned education system and teachers who have been retrained and reoriented. Innovative technologies cannot make up for educational professionals who lack innovative methods and merely replicate learning models that don't work (Hooper, 2002).

A lack of sustained and meaningful professional development for teachers coupled to a stagnant curriculum can leave learners uninspired and unmotivated to extend themselves. This phenomenon is common as some teachers may not have, for whatever reason, had any in-service training or been exposed to new teaching methodologies and a phenomenon of 'ignorance is bliss' is perpetuated. The learners at the end of the day lose out on the benefits that educational reform has to offer such as the recently introduced Outcomes Based Education in the fledgling democracy of the South African education system.

A learner growing up in a first world environment has a very good chance of being nurtured on a digital diet acquiring the necessary skills to cope with life in a technological world. Children may be developing greater digital literacy than siblings who are just a few years older. For example, over two million American children (ages 6–17) have their own Web site. Girls are more likely to have a Web site than boys (12.2 percent versus 8.6 percent) (Oblinger & Oblinger, 2005). Individuals raised with the computer deal with information differently compared to previous cohorts: they develop hypertext minds, they leap around (Prensky, 2001).

## **Learning Theories**

Gone are the days of working with the unformed, featureless minds of learners of the philosopher of John Locke's 'tabula rasa'. Pavlov's classical conditioning as part of behaviourism together with Thorndike, Watson and particularly Skinner's operant conditioning have been superseded by Jean Piaget's constructivism. Though their relevance has been surpassed by constructivism previous philosophical underpinnings laid the foundation for the new paradigm to understand the nature of learning.

Constructivism is a philosophy of learning which articulates mechanisms by which knowledge is internalized by learners. Constructivism is an epistemological view of knowledge acquisition emphasizing knowledge construction rather than knowledge transmission and the recording of information conveyed by others. The role of the learner is conceived as one of building and transforming knowledge (James, Applefield, & Mahnaz, 2001).

Constructivism has multiple meanings. In philosophy it is an epistemological theory, in cognitive psychology it describes human learning, and in curriculum it is a set of design principles. Constructivism is an overarching theory that can incorporate a number of teaching practices such as co-operative, collaborative and inquiry-based learning... Constructivism is basically a theory based on observation and scientific study about how people learn. It says that people construct their own understanding and knowledge of the world through experiencing things and reflecting on those experiences. When we encounter something new we have to reconcile it with our previous ideas and experience, may be discarding the new information as irrelevant. We are active creators of our own knowledge (Mechlova, Konicek, & Balnar, 2003).

Constructionists believe that knowledge is constructed and learning occurs when children create products or artefacts. They assert that learners are more likely to be engaged in learning when these artefacts are personally relevant and meaningful (Bhattacharya & Han, 2001). In a more traditional teacher-centric classroom where information transfer is prevalent learners are less likely to be engaged as the meaning is being interpreted for them by the teacher. Modern youth often find themselves immersed by a range of technological devices that provide them with access to information through a broad range of media. The challenge for the teacher is to capitalize on this by engaging the in the content of the curriculum through the use of the 'tools' of the Net Generation.

The Net Generation is defined as the population of about 90 million young people who have grown up or are growing up in constant contact with digital media (Tapscott, 1988). Born between roughly 1980 and 1994, the Millennials have already been pegged and defined by academics, trend spotters, and futurists: They are smart but impatient. They expect results immediately. They carry an arsenal of electronic devices - the more portable the better. Raised amid a barrage of information, they are able to juggle a conversation on Instant Messenger, a Web-surfing session, and an iTunes playlist while reading Twelfth Night for homework. Whether or not they are absorbing the fine points of the play is a matter of debate

Millennials expect to be able to choose what kind of education they buy, and what, where, and how they learn. To meet the demands of these new students, they say, colleges must rethink how they operate. Imagine classrooms that incorporate more videos and video games, classes that meet electronically to fit students' schedules, students who choose to learn from each other rather than a professor, and courseware, search engines, and library databases that are animated, image-based, and interactive (Carlson, 2005).

By contrast many practicing teachers grew up without computers and the chances of them being formally trained to use them in the classroom as slim. Teacher training programmes are having to be implemented for both in-service and teacher training institutes to bring them up to speed.

## **A Proposed Conceptual Model**

It is easy to criticize an education system which is inherently about learning but at the same time it is critical to look at the teachers who form the engine room of the system. This proposed Five Dimensional Model suggests a contextualization of possible differences between the traditional teachers in the classrooms who may be unaware of the needs of the net generation that they encounter. The model proposes a multi-dimensional perspective of

comprehending possible similarities and differences which could be used to empower teachers to make greater use of technology in the classrooms while addressing the needs of the learners.

These learning theories fall short of encapsulating the complexities of the net generation. The need is to present a model which may provide for a differentiation of a multitude of dimensions which is indicative of the ability of the modern learner to operate on a number of different levels and their ability to multitask within such an environment. This model is a new approach and must not be seen as being in conflict with such theories as constructivism but rather supplements them. The model was based on a number of years of exposure to innovative learners including a variety of information communication technologies (ICTs) and educational pedagogies ranging from drill and practice to blended learning, teacher training and e-learning opportunities. It is envisaged that the model could provide educators with the means to comprehend the 'differentness' and 'complexity' of the net generation. A tool to graphically plot individuals within this 5D model is being developed which will serve to highlight similarities and differences between teachers and pupils especially where ICTs are deployed in the classroom. The intention is sensitize teachers to this information so that they are encouraged to grapple with these issues to better understand them for the benefit of their learners.

The prevailing technologies of a particular place and time have always been intimately linked with education, because a society's tools are both the subject and the means of its learning. Today, the fact that technology pervades almost every sphere of life – from home to work to play – results in profound implications for learning, both in schools and throughout life (Partnership for 21st Century Skills, 2007:6)

The challenge of evolving pedagogy to meet the needs of Net-savvy students is daunting, but educators are assisted by the fact that this generation values education. These students learn in a different way than their predecessors did, but they do want to learn (Barnes, Marateo, & Ferris, 2007).

This five-dimensional model of viewing an educational system suggests that education is no long a linear process of information transfer, but rather that it has dimensions which can range from two dimensional textbook scenarios as well as a time and space dimension where ICTs are concerned. Each of the five dimensions have a predefined characteristics. The model is a mental picture that helps us understand something we cannot see or experience directly (Dorin, Demmin, & Gabel, 1990).

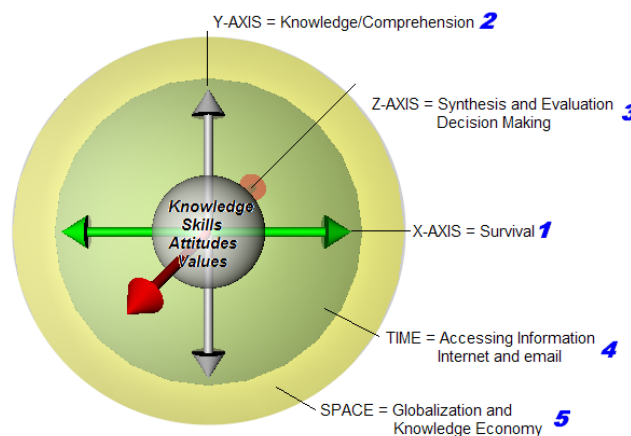


Figure 2: Five Dimensional Model of Education

### The First Dimension – X Axis (Survival Strategies)

This dimension is characterized by the hunter-gatherer leading to the period of farming which brought about an improvement in the quality of life during the agricultural era. The young were trained to fulfil the roles needed for this agrarian society. Education outside the farming community was limited to a small population of chosen people and selected professions, such as the Clergy (Miller, 2000b).

One of the main functions in life was to scan the immediate environment to find food and these basic skills had to be handed on by word of mouth. Survival of the fittest was the order of the day and it provided an essential platform for youth to acquire essential skills for life. This is characterized by the stone masons who were able to pass on the skills from generation to generation often with sons completing the work on a cathedral which their fathers had started. The Three R's of Reading, Writing and Arithmetic form the foundation stones of all education and learners are expected to have a firm grounding in these basics in order to progress successfully through the grades.

### **The Second Dimension –Y Axis ( Knowledge and Comprehension)**

During the Industrial Era the economic power of a person, city or country came from the capacity to manufacture products. With the Industrial Revolution and vast numbers of inventions especially in the areas of mechanics, huge factories were erected everywhere to manufacture all kinds of products (Miller, 2000b). This era needed a class of citizen who was equipped to deal with the monotony of operating machinery resulting in a simplistic 'factory model' of education.

A characteristic of this dimension is rote learning based on a Pavlovian behavioristic model which required an education system to equip the masses with a fundamental education. The observable changes required that new behavioral patterns were repeated until it became automatic (Mergel, 1998). Society needed a cheap labour force to operate the machines for the capitalistic society. The 'thinking' was left to the people in power and education was simply a sausage factory where individuals were not encouraged to rise above the masses and where conformity was the order of the day. Teachers in such a system were viewed as gatekeepers and the source of all knowledge and where text books were regarded as all important.

Education is generally aimed at providing efficient and effective schooling for the masses who could perform a minimal set of skills on command in the factories. Creative thinking, problem solving skills and entrepreneurial endeavours were not required nor envisioned for an educational outcome in the industrial based economy and world picture (Miller, 2000c).

### **The Third Dimension –Z Axis (Spatial Orientation)**

The third dimension raises an interesting possibility. If one had to compare the former two dimensions to travelling along a road, the curriculum would offer learners with choices at key stages in their development. The rest of the time would be spent following a predetermined, well-trodden paths which would lead to a possible reward system at the end of the road. It can be argued that many teachers are unable to make the transition to the third phase due to the nature of their own training as well as a lack of exposure to broader educational issues. Many teachers remain at the second level as they tend to operate at a two-dimensional level relying heavily on the 'security blanket' of the syllabus bound prescribed text book.

Adhering to the first two levels of the model can produce outstanding results but there is still the need to allow learners to expand their minds into the realms of creativity and innovation which may only be possible in the third, fourth and fifth dimensions. The transition to the third dimension also implies the ability to convey a richness to the educational journey that was not previously possible. By having the ability to fly as opposed to driving, learners are encouraged to transcend the two-dimensional mode of the text book. Such systems encourage a learner-centered approach by pushing the boundaries in which the students are able to safely discover far more of their own talents. The principal goal of education is to create men who are capable of doing new things, not simply of repeating what other generations have done (Burkhalter, McLean, & Jones, 2004:50)

The term learner-centered refers to environments that pays careful attention to the knowledge, skills, attitudes, and beliefs that learners bring to the educational setting. This term includes teaching practices that have been called "culturally responsive," "culturally appropriate," "culturally compatible," and "culturally relevant" (Ladson-Billings, 1995:465-491). The term also fits the concept of "diagnostic teaching" (Bell, O'Brien, & Shiu, Designing teaching in the light of research on understanding, 1980): attempting to discover what students think in relation to the problems on hand, discussing their misconceptions sensitively, and giving them situations to go on thinking about which will enable them to readjust their ideas (Bell, Diagnosing students' misconceptions, 1982:6-10) Teachers who are learner-

centered recognize the importance of building on the conceptual and cultural knowledge that students bring with them to the classroom (Bransford, Brown, & Cocking, 1999).

The third dimension favors a constructivist approach to learning based on the premise that learners all construct their own perspective of the world, through individual experiences and schemas. Constructivism focuses on preparing the learner to problem solve in ambiguous situations (Mergel, 1998). Taken a step further this includes the concept of constructionism in its simplest form one only knows something if one can explain it (Yager, 1991:52-57).

Intimately connected with experience is a more educationally descriptive meaning of constructivism. Students come into a classroom with their own experiences and a cognitive structure based on those experiences. These preconceived structures are either valid, invalid or incomplete. The learner will reformulate his/her existing structures only if new information or experiences are connected to knowledge already in memory (Hanley, 1994). It is therefore imperative that educators must provide a richer learning environment for learners to attach meanings to new learning experiences.

Modern ICT intensive organizations expect employees to have a new set of digital skills. These skills are often not promoted in an information overloaded curriculum to the detriment of many prospective employees. On the other hand programmes like Formula One in Schools, Green Power and the 4X4 Challenge (4x4 Challenge Project , 2009) actively promote the use of ICTs to supplement the curriculum through extra mural activities.

The transition to the third level implies that the country as a whole is making or has made the transition to a knowledge-based economy. Organizations at the same time need to embrace this change and encourage the educators in the classroom to catalyse this reform process from a grass-roots level.

The dilemma facing outcomes based education is that employers of today are dissatisfied even with the high achieving graduates who have passed through the school system. Graduates tend not to be adequately prepared for the demands of today's more complex society which requires such competencies as creative thinking, group problem solving and decision making, as well as the capacity to learn more and more efficiently and effectively which is inherent in 21<sup>st</sup> century skills. This means that a more sophisticated view of knowledge and learning is required than the one held in the previous industrial era because the economy is now based on selecting, processing and applying information and creating new knowledge and applications (Miller, 2000a).

### **The Fourth Dimension – Time**

Extending the learning process beyond the confines of the core curriculum and the walls of the classroom should be the goal of all educators to overcome the time constraints imposed by traditional classes and restrictive timetables. Many teachers have personal limitations which may inadvertently restrict the natural progress of many learners. By employing such educational tools as the internet, CD Roms, email and other modern technological teaching aids, these technologies may, if carefully planned, have the potential to circumvent some of these personal limitations. By applying creative methodologies the teacher can empower learners to internalize the learning process and embark on a journey of self-discovery well beyond the confines of the minimum standards imposed by the prescribed curriculum.

Exposure to other curricular material, searching for information to supplement lessons through collaborative projects and web publishing can transform dull lessons into stimulating educational encounters that may motivate students to extend themselves beyond what was achievable in a two-dimensional traditional teaching environment.

In such a four-dimensional environment the emphasis is on communications including both synchronous and asynchronous methods. Students are able to access the wisdom of experts around the world and receive an answer in a relatively short period of time. This feature can go a long way to allowing students to become motivated to actively utilize the power of such things as Text Messaging, Blogs, Wikis, etc. Access to mobile learning devices and educational portals may suite the learning styles of many more learners in relation to face-to-face traditional teaching. This is embedded in the Web 2.0 phenomenon where learners are able to combine their collective intelligence through the use of social software (O'Reilly, 2005).

## **The Fifth Dimension – Global vision**

It is necessary to highlight a fundamental difference between the use of the term ‘teacher’ and an ‘educator’ in this paper. Anyone can teach through a process of information transfer and reinforcement strategies but not everyone has the ability to turn a teaching situation into a life-long learning experience. Teachers acting as gatekeepers of knowledge are threatened by the perception that learners may know more than them. Educators on the other hand strive to release these learners to construct their own knowledge so that the educator can focus on those individuals who really need their attention.

It is suggested that the transition to the process of life-long learning can take place without students being exposed to all the facets of the other dimensions. However, it is suggested that educators should also make this transition themselves. By actively promoting the process of life-long learning, educators may be able to make a greater impact on the lives of the students that have been entrusted to their care. Adaptability is a key facet of this stage for without it teachers are doomed to remain in a two-dimensional text-book bound world.

At its most fundamental level, globalisation is about the monumental structural changes occurring in the processes of production and distribution in the global economy. These structural changes are responses by many global enterprises that confront tremendous pressures and fantastic opportunities presented by the increased application and integration of advanced information and communications technologies (ICTs) into their core business processes. Through the application of information and communications technologies, enterprises have the ability to diminish the impact of space, time and distance (Cogburn, 1998).

Our children live in a global, digital world—a world transformed by technology and human ingenuity. Given the rapid rate of change, the vast amount of information to be managed, and the influence of technology on life in general, students need to apply current skill sets, as well as develop new skill sets to cope and to thrive in this changing society (enGuage, 2003:3).

In order for learners entering the market place to be able to flourish in a global society they need to have acquired an essential set of skills which can only come about through exposure to the concepts of globalization. Traditional education has the teacher as a gatekeeper of information but the net generation is demanding not the raw information but rather the tools to sift through large volumes of data in order to synthesize new knowledge. This shift from broadcast to interactive is the cornerstone of the N-Generation (Net Generation). They want to be users-not just viewers or listeners (Tapscott, 1988:3).

A key characteristic of the fifth dimension also involves group work and a division of labour where learners are challenged to explore lateral thinking, creativity, problem solving and innovative types of challenges. It is essential that learners are provided with real-world tools and real-world scenarios such as those that are embedded in the following types of competitions that promote science, engineering and technology.

- Formula One in Schools (F1 in Schools, 2008)
- Green Power (Greenpower, 2008)
- 4x4 Challenge (4x4 Challenge , 2008)

## **Implications for Teacher Training**

### **Too many teachers, too few educators**

- As technologies penetrate the classroom environment and are embraced by net generation students, what is the new role for the teacher? Since the new media is drastically changing the learning milieu, so must the teachers change their roles and become more adapted to the new system of learning (Tapscott, 1988).
- There is a need to transform education from a teacher-centered behaviouristic to a learner-centered constructivist model by empowering the teachers to empower the learners through the integration of modern ICTs into all aspects of the learning process as depicted in Figure 3.

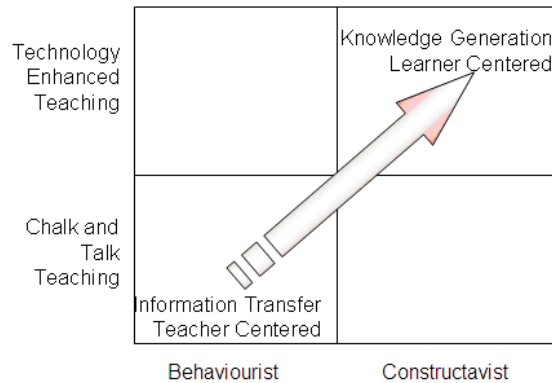


Figure 3. Moving from a teacher-centered to a learner-centered approach

- There is an opportunity to develop a system to plot teachers and learners on a grid indicating their relative position in terms of this model of education. A prototype tool is being developed and tested for self-assessment to plan personal growth rather than for formal evaluation purposes. By indicating the relative position of the teachers, coupled to specific professional developmental strategies, it is conceivable that teachers will be able to manage their own upliftment programs. In this respect, the skills development process will have a meaningful context.
- Re-skilling of teachers is needed to bring the vast majority of them up to date regarding modern pedagogies involving ICTs. Collaboration, group work, project and theme-based learning, and the integration of ICTs into all subjects are but a few examples of the processes that need to be conveyed. It is recommended that policy makers acknowledge that the vast majority of teachers are becoming burdened with administrative matters and are unable to find the necessary quality time for personal professional growth. If they are not exposed to the benefits of new approaches to education, they will continue to practice teaching in the tried and trusted armchair approach and not actively encourage learners to develop essential 21<sup>st</sup> century skills.
- The development of management skills need to be given a higher priority. This includes the management of people and information with the view to knowledge sharing in an open learning environment.
- The concept of Learning Communities that are connected to a National Grid of Learning needs to be cultivated. Far too often teachers assume that they are the only resource when the classroom door is closed. The sharing of teaching and learning material can be a powerful method of uplifting teachers to the status of true educators or learning facilitators especially with the availability of on-line learning materials.

Learning Communities are not simply another educational fad or a modest type of school reform but an attempt to rebuild society's educational system on a post-modern cultural foundation that is democratic and person-centered rather than mechanical, as well as ecological and life-centered rather than driven exclusively by economic forces. We offer the idea of the "cooperative community lifelong learning center" as a seed for social and cultural renewal - a form of education that reclaims the organic qualities of learning from pre-mechanistic times for a post-modern culture in the making (Miller A. , Differences between the 'Traditional' and 'Outcomes Based' Education, 2000a).

- Understanding the needs of the net generation especially as far as providing e-learning opportunities is concerned.

## Implications for Schools

- Access to the internet is no longer a nice to have but an absolute necessity for all schools. A telecommunication infrastructure needs to be developed to provide connectivity for all schools as outlined in the EduNet Concept for South African schools. Provision is made for this in the South African Telecommunications Act 103 of 1996 and amended in 2001 (Department of Education, 2004). Until the real cost of access to the internet is brought down to an affordable level, the information gap is going to widen, placing more and more learners at an even greater disadvantage with no real means of deriving benefits from the technology revolution.

- Schools in South Africa are facing large class sizes as a fact of life. New methodologies coupled to access to modern technologies, can be employed to allow the more able students to circumvent the limitations that such a system usually places on the teacher. Given the appropriate training, it is conceivable that an innovative educator may be able to 'reduce the class size' to a more manageable size while enabling the more able students to meet the requirements of their subject by employing open learning strategies and sound classroom management.
- The Ulwazi Concept (Beyers, 2007) has demonstrated the potential of providing virtual interactive connected learning classrooms with the means to share educational resources including access to top educators who are in geographically separated schools.

## Implications for Learners

- Education is what is left over when you forget all the facts that your teacher made you memorize when you were in school - Quote by Mark Twain. This implies that learners can and must take greater responsibility for their own learning. Leaving learners to their own devices is not being advocated. On the contrary. The educator must still be in control of the process, but their role is more a facilitator rather than physically dictating what happens at the learning interface where there is greater emphasis on self-discovery after the basic skills have been acquired.

## Conclusions

Responding to the needs of the Net Generation is an ever increasing challenge especially where ICTs and other technologies are being introduced into the classrooms. Teachers are having to adapt to these changes through a process of upgrading their own skills to empower them to become better facilitators. By doing so that are able to unleash the innate potential of the learners entrusted to them.

The proposed five dimensional educational model may be perceived as a tool for such teachers to comprehend the complexity of the situations they may find themselves in. The tool is aimed at raising the awareness of the possible similarities and differences that may exist between the teacher and the net generation in their class. Armed with this information the teacher will be better prepared to make the transition from the two dimensional world of the textbook to be able to operate in the multi-dimensional world of that the youth operate in to be able to capitalize on what these learning environments have to offer.

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