



EDUCATION REFORMS TOWARDS 21ST CENTURY SKILLS: TRANSFORMING STUDENTS' LEARNING EXPERIENCES THROUGH EFFECTIVE LEARNING ENVIRONMENTS

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Abstract:

This paper reviews literature on learning environments with a view to making recommendations on how teachers could create effective and high-quality learning environments that provide learners with transformative learning experiences as they go through the process of education. An effective learning environment is critical because quality education, which is essential to real learning and human development, is influenced by factors both inside and outside the classroom. Learning institutions have a responsibility to create an effective learning environment that is capable of mitigating the factors that can impede students' learning as they also enhance those that promote learning. The qualities of a learning environment such as leadership style, physical and psychological security, availability of learning resources, curriculum content, objectives, models of curriculum delivery, assessment and the school culture contribute significantly to student learning either positively or negatively depending on how they are shaped. This implies that teachers have an awesome responsibility of establishing structures that systematically address these qualities to ensure that learning institutions promote individualized learning that is inclusive of all learners. The paper recommends reforms in education with a view to ensuring that learning environments provide learners with opportunities that enable them to go through transformative learning experiences that nurture them with the desire for lifelong education.

Keywords: transformative education, individualized learning, lifelong education, learning environment

1. Introduction

The fact that students spend most hours in school makes the school a significant personal and social environment in their lives. It is therefore critical that schools provide learners with an environment that is physically safe, emotionally secure and psychologically enabling to enable them go through stimulating and fulfilling learning

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experiences that could motivate them to pursue their educational goals to their potential. This is important because the definition of education spells out its purpose clearly as *“transmission and acquisition of knowledge, skills, values and attitudes to enable the learner to impact the society positively”*. In line with this definition, Ozturk (2008) argues that education is one of the fundamental factors of development, noting that no country can achieve sustainable economic development without substantial investment in human capital. He further observes that education enriches people's understanding of themselves and world and improves the quality of their lives and leads to broad social benefits to individuals and society. He outlines other benefits of education as raising people's productivity and creativity, promoting entrepreneurship and technological advances as well as securing economic and social progress and improving income distribution. UNESCO considers teachers as the most important factor in achieving the 2030 sustainable development goal. However, if education is to achieve the benefits outlined above, learning institutions are expected to facilitate the infrastructure, facilities and resources for enhancing quality education. In addition, teachers have to effectively play their role of organizing learning environments to ensure that individual learners access holistic quality education without discrimination. This notwithstanding, however, most schools in developing countries do not provide a conducive learning environment due to the numerous challenges facing education. For instance, the formal education model which was inherited from Europe does not address the needs of the learner and the society. Nyerere in Kassam (2000) criticizes it noting that its intellectual focus benefits only a few learners with intellectual inclination and excludes the rest, labelling them as failures. He further laments that the education divorces learners from the society and fails to involve them in productive work, and thus deprives the society of their contribution to economic development.

Okwach & Okwach (2005) assert that formal education has contributed to underdevelopment in Africa as it does not address African needs. In line with the discussion, Mayo (2003) argues that Western formal education was aimed at propagating a hegemonic discourse in education that is more concerned with marketability at the expense of social justice and development; it also projects the image of learners as consumers and producers, rather than social actors. In agreement, Migori (2009) observes that formal education lacks linkage with society because research projects and dissertations do not address societal needs as they are rarely in consultation with the community, industry, stakeholders and development partners. The model does not also meet the needs of today's dynamic world, despite its popularity in many countries across the globe (Scott, 2015). An alternative model is critical if education is to play its role of economic and social development as argued above.

It is worth noting that fairness and justice in access to quality education remains an illusion in many countries despite the call on governments to build an inclusive society where all citizens have equal opportunities to quality education without discrimination on the basis of gender, ethnic origin, language, religion, nationality, social origin, economic condition and ability (Education for All, United Nations, 2015). Learning institutions should promote a culture of inclusivity to ensure that all learners

are accessed to education and motivated to achieve their individual goals (according to ability and interest) without being compared with peers. This is crucial because students learn best when their needs, backgrounds, perspectives and interests are reflected in the learning programme (Principles of Learning and Teaching, 2017).

The following section briefly discusses the qualities of an effective learning environment.

2. An Effective Learning Environment

A learning environment comprises of the diverse physical locations, contexts, and cultures in which students learn as well as the physical and social/cultural setting in which learners carry out their work. It includes all the tools, documents and other artefacts found in that setting (What is a learning Environment/IGI Global.). UNESCO (2009) argues that an effective learning environment adapts and integrates classroom teaching to accommodate learner contexts and create a school culture and a learning environment in which individual learners thrive and unleash their potential. This does not only uphold individual learners' right to education, it is also one way of accelerating sustainable development as all learners have an opportunity to develop skills they can use to participate in economic development at their individual level and ability. Further, the learning environment provides learners with incentives and networks, and diversifies their educational experience (The Four Pillars of learning, UNESCO, 2013).

UNESCO (2009) carries the discussion further emphasizing that teachers should provide learners with interesting learning opportunities; enhance their motivation and confidence; provide adequate resources; provide healthy, hygienic, safe, inclusive and free services (with adequate water and sanitation facilities and healthy classrooms, healthy policies, practices, health services; and life skills-based health education). However, teachers cannot effectively provide learners with the outlined services without support by the school administration, students, community, professionals and other stakeholders in education. This demonstrates the need for learning institutions to network and collaborate with parents and other education stakeholders to enhance continuous improvement of the quality of education at all levels of learning. As noted above, the formal model of education does not enhance an effective learning environment due to its elitist nature and approach that focuses on the teacher and the content rather than the learner. Thus, reforms in education are imperative if learning institutions are to establish learning environments that offer individual learners holistic quality education that addresses the needs of today's society.

Child Friendly Schools, UNICEF (2012) describe an effective learning environment as one that promotes good quality teaching and learning processes with individualized instruction appropriate to each child's developmental level, abilities, and learning; provides structured content and good quality materials and resources; enhances teacher capacity, morale, commitment, status, and income, and their own recognition of child rights; and promotes quality learning outcomes by defining and

helping children to learn what they need to learn and teaching them how to learn. However, UNICEF laments that providing effective and high-quality learning environments is a challenge in most developing countries due to limited financial resources. It recommends that the scarce resources should be invested with support by a national and local policy on the need to invest in learning to enhance success. In addition, individualized learning is a challenge because most public learning institutions in Kenya for instance have huge student-teacher ratios that do not render themselves to individualized learning. As such, the institutions do not seem to provide learners with effective learning environments.

Fulfilling the outlined demands of an effective learning environment requires government's good will in the financial investment needed to establish effective and high quality learning environments.

Contributing to the discussion, UNESCO and UNICEF (2013a, p. 5) argue that effective learning environments demand that schools have well trained teachers with enhanced teacher capacity, morale, commitment, status and income. They further observe that improving teachers' training, conditions of service and deployment; and offering them ample professional development opportunities is critical because Education 2030 Sustainable Development Goal includes a target on teachers as a key means of its implementation. In agreement, *Children's Learning Styles-Ability Path* states that effective learning environments require teachers to employ varied teaching approaches such as group discussions, role play and projects in order to address learners' different learning styles among other things. Success in employing such engaging approaches in learning institutions in Kenya requires addressing student-teacher ratios which are currently too huge, particularly in public universities.

Also, implementing the ideals of an effective learning environments outlined in this paper is a major challenge in developing countries due to many impeding factors. In Kenya for instance, basic resources that enhance curriculum delivery including textbooks are meagre (Njui, 2010); teacher capacity is lacking due to outdated teacher training programmes (Kafu, 2011) and professional development for teachers is random (Njui, 2010). In addition, teachers in public schools and universities have huge classes that do not render themselves to individualized learning due to very high student-teacher ratios (Bunyi, 2011). Further, most teachers do not integrate technology in teaching due to lack of the skills needed to operationalize it (Ochangi, Ayot, Kamina, Ondigi & Kimemia, 2015). This is compounded by the fact that most schools, particularly in rural and informal settlement areas have not yet installed technology. These and other challenges influence teachers to opt for transmission modes of curriculum delivery to ensure that they prepare learners adequately for national examinations, which has been the focus of education in Kenya since independence in 1963 (Wamahu, 2015).

Carrying the discussion further, UNICEF argues that teachers are responsible for creating effective learning environments. They achieve this by building consistent, comprehensive and improved pedagogical approaches that enhance flexible and innovative learning. This requires them to be responsive to the values, needs and

interests of individual learners, to strengthen learning communities and employ pedagogical approaches that support different ways of thinking and learning in order to enhance inclusion of all learners. This is crucial because, inclusion is among the essential components of an effective learning environment (Child Friendly Schools, UNICEF, 2012).

Effective learning environments also require that learners are involved in making decisions concerning their learning and in planning curricula activities, taking cognizance of their different learning styles (Rodriguez, Evans, Allam, Barrett & Forrest, 2010). Involving learners in curriculum decisions is particularly important in advanced levels of learning because learners are familiar with the content. Hence, they can make sensible suggestions with appropriate guidance by the facilitator. The author's experience in university teaching confirms that learners' suggestions enrich curriculum by either removing content overlaps across various programmes and disciplines or beefing up shallow areas of a course. It also helps them to get the full benefit of education as it trains them to take full responsibility of their learning. In addition, individualizing learning ensures that learning is conveyed in a way that best suits each learner, and lessons are also adapted and integrated in the learner context to make it understandable and meaningful.

Partnership for 21st Century Learning contributes to the discussion noting that learning environments in the 21st century should create learning practices, human support and physical environments that support the teaching and learning of 21st century skill outcomes such as collaboration through creation of professional learning communities to enhance best practices and integration of 21st century skills into classroom practice. It further recommends that learning environments should enable learners to learn in relevant 21st century world contexts and allow equitable access to quality learning tools, technologies and resources as well as support expanded community and international involvement in both face-to-face and online learning. In line with the discussion, the 21st Century Education-Center for Curriculum Redesign (2016) maintains that curriculum should offer holistic education based on knowledge, skills, character and metacognition. It also recommends that education should be interdisciplinary in order to nurture learners with the 21st Century skills and also help them to connect different disciplines in the curricula to gain an integrated view of knowledge and broaden their mind to enable them to cope with the challenges of today's interconnected world. Delivering education in this new approach requires learning institutions to establish learning environments that support differentiated instructional objectives, content and assessment in order to enhance individualized and personalized learning. It also places demands on individual nations to align their education with the 21st century education to ensure that learning institutions produce competent graduates who can work and live anywhere in the world.

However, aligning education with the 21st century standards is a major challenge in many developing countries as most learning institutions lack the qualities of an effective learning environment outlined in this paper. For instance equitable access to quality learning tools, technologies and resources is hampered by the social

stratification of schools into private, international, national, provincial, district and harambee schools (Kibera and Kimokoti, 2007); where national, international and provincial schools enjoy the best facilities and resources while district and harambee schools lack the basic facilities and resources including textbooks. It is worth noting that the status of the schools has not changed with the new dispensation of County Governments. Most schools have not also integrated technology due to lack of the infrastructure needed. Fairness in access to quality education demands dismantling the class system in schools to allow for equitable distribution of the learning resources and ensuring that all schools have adequate facilities and infrastructure. Government good will and commitment to investment in technology is also critical if learning institutions in Kenya are to provide learning environments that can offer relevant education for the 21st century.

In addition, learning environments should provide learners with support services (including mentorship; student advisory services such as academic advising and guidance and counselling; sports and games; clubs and societies; and financial services) to enable them concentrate in their studies and make their academic life more effective and comfortable. The services significantly enhance formal learning and also provide learners with avenues for developing personal and professional skills sought for today by employers (such as teamwork, cooperation, leadership, responsibility and respect for diversity). The support services can also be used as avenues to strengthen values taught in the classroom through participating in activities including debates on topical issues, writing essays for competition, discussions and other forms of competitions. The following section briefly discusses the nature of learning, the process of learning and conditions for learning in relation to effective learning environments.

3. The Nature of Learning and the Learning Process

The objective of learning is to produce desired change in the behaviour of the recipient. To achieve this, the teacher is expected to create a learning environment which exposes learners to experiences which will enable them to produce the desired changes. Planning an effective learning environment requires that teachers factor in and adequately address the various elements of the learning process namely learner involvement, learning experiences, the teacher, the climate or the environment in the classroom or learning institution, needs of the learner, readiness to learn and interaction (Chelule, 2009, p. 16).

Involvement of the learner is critical because unless the learner is enabled to learn, learning cannot take place. Teachers have to create a learning environment that enhances self-discovery because "All genuine learning is self-education" (Nathaniel Cantor). On the other hand, learning experiences are the activities provided by the learning institution. The teacher is expected to organize them in a meaningful way to meet learners' psychological, professional, personal and physical needs (Chelule, 2009). This holistic approach to education challenges learning institutions to provide a variety

of activities in and outside the classroom to enhance the development of the educational needs that shape a whole person.

As the key person and resource in the learning process, the teacher is expected to influence learners to learn. This, however requires the teacher to understand that her/his personality, attitude towards learning, learners, teaching subject, and the teaching career has a significant impact on the learner's learning which can be positive or negative. The teacher must be positive in the stated aspects in order to influence learners to learn. In addition, the teacher should assume the role of a facilitator in instruction to enhance learner involvement in learning to enhance mastery of learning. Playing the role of a facilitator requires teachers to organize learning experiences and create a conducive learning environment by arranging facilities, providing materials, managing social relationships and activities (Chelule, 2009).

In line with the discussion, *Principles of Pedagogy/Ed Tech Now* (2013) emphasizes the need for teachers to play their roles well in establishing an effective learning environment. This requires them to select suitable activities and analyze them to ensure they are relevant to the learning outcomes; select learning activities that are appropriate to learners and constantly monitor the extent of learning achieved by learners at each stage of the course; select varied activities that respond to the learning; repeat and review the activities to ensure mastery of learning; sequence the activities logically to ensure incremental increase in difficulty in order to maximize the chance of success at each stage. They should also ascertain that the activities they select illustrate the same principle in a range of different contexts, to help the learner to recognize and apply the abstract principle in unfamiliar contexts, and broaden their minds and ability to transfer knowledge to problem solving. This integrated approach to learning aligns well with the 21st century interdisciplinary teaching.

Readiness to learn entails that specific learning cannot occur until the learner is ready for it. This requires teachers to select learning materials that are within the level of the learner, not too easy or too difficult, and to also creatively and systematically organize them to enhance holistic quality learning. It is incumbent that teachers effectively organize the learning environment because it provides opportunities for learning and also determines the quality and speed of learning. Interaction is another crucial element which demands that the learning environment offers the learner opportunity to interact with the environment and peers to achieve quality learning experiences. This requires teachers to provide sufficient resources to enhance learning. It also requires them to employ engaging pedagogy with understanding that the more satisfying the interaction, the better and more effective the learning (Chelule, 2009).

Principles of Learning and Teaching (2017) add its voice to the discussion stating that holistic quality education requires learners to move beyond superficial understandings to develop higher order, flexible thinking learning. This requires teachers to employ teaching methods that challenge learners to explore, question and engage with significant ideas and practices. It further requires that teaching sequences promote sustained learning that builds and emphasizes connections between ideas; promote substantive discussion of ideas and emphasize the quality of learning with

high expectations of achievement. It also requires teachers to use strategies that challenge and support learners to question and reflect; develop investigation, problem solving, imagination and creativity skills. The methods and strategies above should be embraced by learning institutions because they align with the the 21st century education skill based education. However, success in employing them in instruction in many countries across the globe demands a total paradigm shift from the popular teacher-centered formal modal of education to a learner-centered model with technology support. It further requires diversifying curricula to embrace interdisciplinary education to broaden the mind of the learner.

Teaching Methods-Teach.com supports the discussion and emphasizes the need for educators to understand that 21st century education prefers a learner-centered approach which is supported by high tech materials unlike the traditional model of education which inclines more on teacher- centered approach and use of low-tech material. This understanding should help them to create a digital compliant learning environment to make learning interesting, effective and relevant. In agreement, Andrew Churches (2008) observes that educators should integrate mobile technologies in instruction because 21st century learners are exposed to an engaging, dynamic and instant electronic and digital environment with an instant communication medium. This is crucial in enhancing learner motivation and interest because the learning environment relates to their context. Psychologists agree that effective learning relates to the context of the learner. For instance, Ingule (2011) and Woolfolk (2014) emphasize that educators should be cognizant of the learners' environment so as to base teaching and learning on what is familiar to them for the purpose of enhancing motivation and interest in learning; and to also enable learners to identify with what is taught and make meaning out of it. This requires teachers to be analytical and creative so that they organize the learning environment that enhances meaningful learning to the recipients.

3.1 Conditions for Learning

Chelule (2009) argues that for learning to be enjoyable and to result in high attainment of the learning outcomes, it must fulfil critical conditions such as motivation, psychological security, experimentation, feedback, practice, belongingness and configuration, and integration. Each condition is briefly described below in relation to an effective learning environment.

3.2 Motivation

Motivation is the process that arouses, sustains and regulates human and animal behavior (Ingule, 2011). With reference to learning, motivation is the derive/interest/desire to learn from the learning environment. A strong and continuous desire to learn from the environment leads to sustained learning which is achieved through continuous and deliberately sustained learners' inspiration by the teacher (Chelule, 2009). This confirms UNESCO's assertion that the teacher is the single most important factor in improving education. However, teachers must be adequately trained and regularly empowered if they are to have a positive impact on education.

3.3 Psychological Security

Psychological security entails making the learning environment stimulating and friendly. This is important because, research indicates that warm and considerable teachers generate great interest in school work and all learning activities. Further, research shows that learners rate highly teachers who respect their rights and wish, and encourage their growth towards independence. Such teachers treat learners in a dignified manner, which makes them to relax and feel secure. This helps the learners to love and enjoy learning (Chelule, 2009). On the other hand, an authoritarian teacher who is strict and unfriendly does not inspire learners to enjoy learning. Teachers should be deliberate in setting a democratic classroom climate in order to enhance an effective learning environment.

3.4 Physical security

An environment where learners feel safe and well nurtured is critical for the development of each individual and the society as a whole because learners in supportive environments have high levels of self-efficacy and self-motivation and use learning as a primary transformative force (UNESCO). It is therefore necessary to address the issue of learning environment in a comprehensive and systematic way if education is to effectively play its role of transforming learners into empowered ethical citizens who significantly contribute to the welfare of the society. In this connection, safe, clean, and comfortable surroundings are crucial to a positive school climate that enhances students' learning (Physical Environment/Safe and Supportive Learning).

A place for Learning: The Physical Environment for learning (2014) observes that classroom physical environment affects morale and student learning. It further recommends that the environment should match learning outcomes. Also, it considers the arrangement of seating as a major variable in enhancing learning and argues that including learners in creating the physical environment can enhance the learning environment, increase the feeling of classroom community, and give students a sense of empowerment. This is a significant way of training learners to take full responsibility of their learning, a principle embraced by modern pedagogical practices. In line with the discussion, UNESCO (2009) argues that effective learning environments promote the physical and the psycho-socio-emotional health of teachers and learners. They also defend and protect learners from abuse and harm, and provide them with positive experiences. Learning institutions have a responsibility to enhance the psychological and physical security of learners in school to ensure that they create and sustain effective learning environments that support holistic quality education.

3.5 Experimentation/Discovery Learning

Discovery learning is an inquiry-based, constructivist learning theory that takes place in problem solving situations where the learner draws on his or her own past experience and existing knowledge to discover facts and relationships and new truths to be learned (Bruner, 1961 in *Discovery Learning (Bruner)- Learning Theories*, 2017). In this theory, learners interact with the world by exploring and manipulating objects, wrestling with

questions and controversies, or performing experiments. Discovery learning is likely to enhance learning more compared to transmission model (Bruner, 2009). Chelule (2009) adds his voice to the discussion stating that learning is an active process of exploring, conceptualizing, experimenting and interacting. He further observes that learners need to experience with the concrete situation in order to understand as they can only learn by doing-by being active participants. Chelule pursues the discussion further stating that intimate contact with real objects amasses learner experiences and this helps to clarify theoretical concepts and principles. He thus recommends that teachers should help learners to discover principles and concepts rather than memorize facts as the tradition is through the formal education model. However, effective delivery of education through discovery learning demands that learning institutions embrace learner-centered teaching approaches and structure learning environments that promotes learner engagement.

Although critics of discovery learning believe that it creates cognitive overload and result in potential misconceptions, making it difficult for teachers to detect problems and misconceptions, its benefits outweigh the weaknesses. Teachers should embrace it for its potential to encourage active engagement; promote motivation, autonomy, responsibility and independence; develop creativity and problem solving skills and tailor learning experiences (Discovery Learning (Bruner) - Learning Theories, 2017). The outlined benefits of discovery learning develop learners' personal and professional skills that align with the skills sought for by the 21st century industry. Teachers should exploit the benefits. However, discovery learning does not just happen. It requires teachers to create a learning environment that renders its self to discovery learning. For instance, they have to embrace teaching methods that engage learners in inquiry.

3.6 Practice

Practice entails repetition in bringing certain habits or skills to a point where they are fully mastered and internalized by the learner. Thus, teachers should incorporate opportunities for learners to practice what they learn cognizant of the fact that practice makes permanent (Chelule, 2009).

3.7 Belonging and configuration

Belonging refers to the learners' sense of well-being, belonging, and personal safety in the learning environment. Configuration entails restructuring of learning experiences. This entails that processes and structures are perceived in a new relation, a new pattern and learning takes place after experience is restructured (Chelule, 2009). This requires teachers to organize learning experiences in a manner that helps learners to integrate and organize the experiences in certain required relations in order to get the meaning of the concept or principle.

3.8 Integration

Integration is the utilization of the acquired knowledge in a holistic manner to enable the learner goes beyond understanding of separate facts or subjects to seeing them in a unified manner. This could further help them to make connections across curricula and broadens their understanding of the concepts and application to problem-solving. It could also enhance their transformation as they go through the learning process. Achieving integration requires teachers to organize learning activities to help learners connect concepts with related disciplines as opposed to knowledge compartments influenced by the traditional model of education (Chelule, 2009). However, effective integration requires that curriculum is diversified to accommodate interdisciplinary approach to education. Embracing integration is critical if learning institutions are to offer quality education that relates to the 21st century society.

3.9 Feedback

Feedback is information or knowledge about performance that helps teachers, students, parents and other stake holders to know where they stand. To effectively enhance learning, feedback should be a two-way dialogue which provides learners with ongoing formal and informal feedback on their performance throughout each module, along with support on how to use the feedback to improve learning. However, learners should be made aware whenever they are to be assessed for feedback. They should also be given an opportunity to give teachers feedback on what they have learned. This helps teachers to know whether their teaching is helping them to achieve the expected learning outcomes for their course. Feedback should also be tied in with wider course design and formative assessment structures to ensure that the course is structured in a way that allows students to reflect on and use the feedback they receive. In addition, for feedback to be effective, it should be a continuous process of conversation and reflection (Formative Feedback: Feedback for Learning. University of Sheffield). Reflection is critical in enhancing continuous improvement.

Feedback can be offered prior to the teaching (pre-test/diagnostic test), in the course of teaching (formative) and at the end of the teaching/cycle (summative). Effective use of feedback requires teachers to establish clear structures on how it is to be integrated with the curriculum design and the necessary support on how it is to be used for continuous improvement of learning (Formative Feedback: Feedback for Learning. University of Sheffield).

The following section briefly discusses a class culture in relation to an effective learning environment.

3.10 Class Culture

A class culture refers to the social organization of the classroom which sets the tone and direction of the learning activities accorded to learners. Jacobsen, Eggen & Kauchak (1993, p.269) identify three types of classroom social organization namely competitive, cooperative and individualistic. The competitive pattern stresses individual excellence and achievement that urges learners to do better than their peers and to reach higher for

a better position on the academic ladder. In this pattern, the teacher (the initiator and director of the learning tasks) sets the pace of the class based on the average or slightly above average ability level in the class. Thus, the low achievers suffer neglect and exclusion, and this jeopardizes their right to education.

Cooperative pattern emphasizes the need for learners to work together and considers all members of a group important and capable of making unique contributions regardless of their ability levels. Learners are encouraged to set group goals and tasks, to divide and assign work equitably, to listen to all view points and to weigh alternative solutions. They are also expected to participate in various tasks which call for creativity, initiative, and application of previous knowledge to the present situation, organization and evaluation. This pattern increases learner achievement and improved relationships between learners of different ethnic backgrounds, sexes and academic abilities (Slavin, 1990 cited by Jacobsen, Eggen & Kauchak, 1993, p.270). Teachers should create learning environments that promote this pattern to facilitate learners with holistic quality and relevant education that has the capability of transforming them into empowered ethical citizens who participate in the welfare of the society. It can further develop learners with the 21st century skills including problem solving, creativity, initiative and decision making.

On the other hand, individualistic pattern influences learners to work at their own levels and paces to achieve individual cognitive tasks which may be different from that of their peers. The pattern expects learners to follow directions, accept repetitive practice (drill), and interpret self-evaluations. Also, the teacher (the director) diagnoses and places learner at their correct levels, evaluates and encourages progress, and serves as a source of information. While the pattern enhances mastery of cognitive material with steady progress, it tends to confine learning to the cognitive dimension and to also influence learners to depend on the teacher to transmit knowledge to them through lecture. This narrow approach to education raises concerns to an educator because education is a multi-dimensional activity that cannot be confined to one dimension (cognitive). Rather, as Njoroge and Bennaars (2000) ably argue, for an activity to qualify to be called education, it must fulfill the four dimensions of education namely the cognitive, the normative, the creative and the dialogical. These dimensions represent a broad and holistic view of education that has the potential of transforming learners as they go through the education process.

Jacobsen, Eggen & Kauchak (1993) further observe that classrooms use a combination of the three patterns above, noting that the decision on choice of pattern like other considerations in teaching depends on factors like teacher's style and curriculum goals. Teachers should analyze the implications of each of the three patterns to learning in order to determine the approach to employ and in turn establish an effective learning environment to enhance it. This paper recommends that teachers embrace the cooperative pattern because of its ability to engage learners meaningfully in collaborative activities that enhance inclusion of all learners and ability to provide them with experiences that expand their learning beyond the curriculum prescription. However, they should enhance the pattern with technology to give learners an

opportunity to learn at their pace in and out of school and to also influence them to embrace lifelong learning.

The following section briefly discusses technology integration in learning in relation to providing learners with an effective learning environment that is in tandem with today's dynamic world of technology.

3.11 Technology Integration in Learning

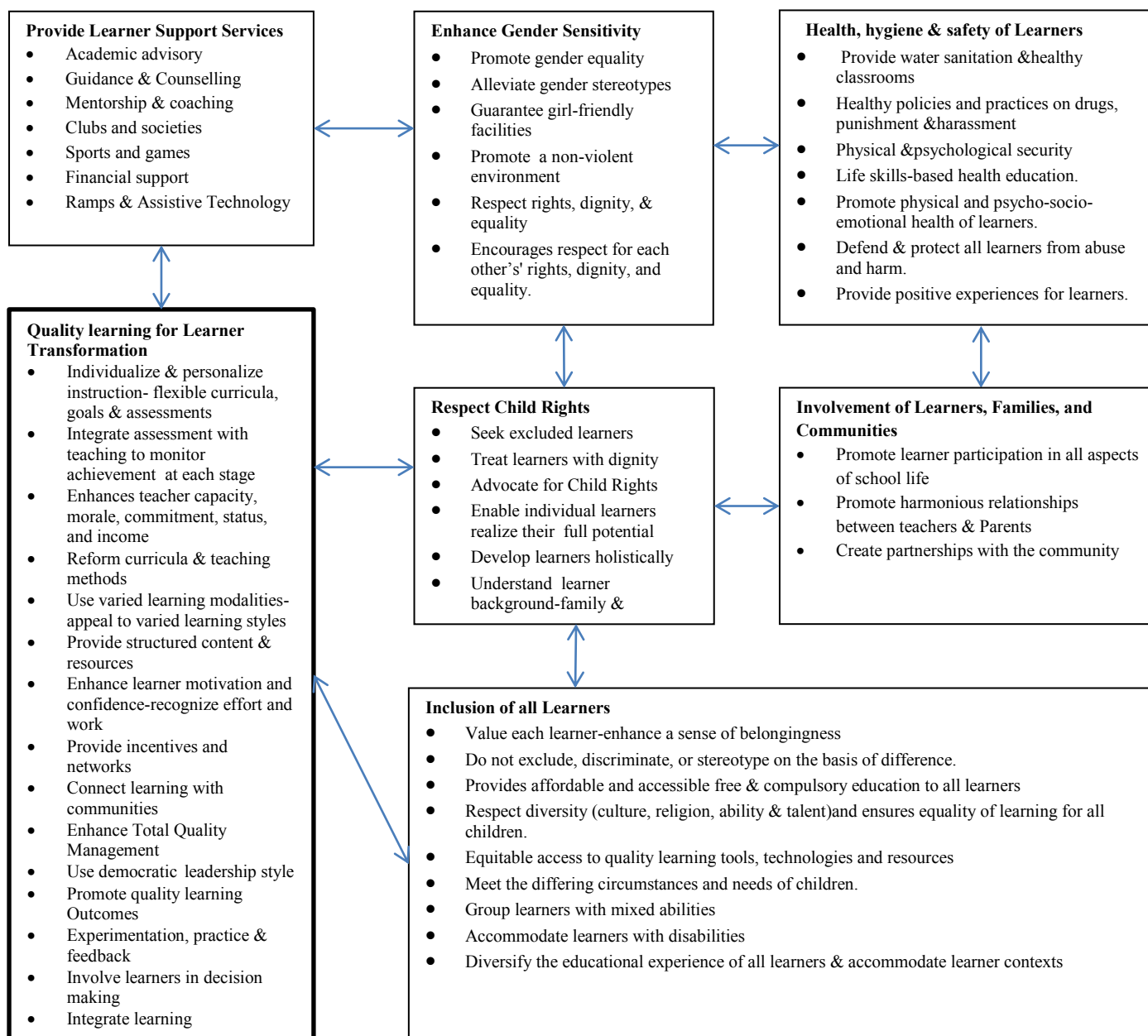
As a key driver of change in the 21st century, technology should be integrated with education if learning institutions are to maintain the symbiotic relation between education and society with an equilibrium. This is critical because the two influence each other in almost equal measure in that changes that take place in a society influence or force education as an institution to change in order to reflect and influence the changes. For instance, when education changes in form of curriculum or structure, the changes influence the socio-economic and cultural activities in society (Wilson, 2011; Sifuna, Chege &, Otiende, 2006). On the other hand, when either education or society does not keep pace with changes happening in the other, disequilibrium is created, either in school or society. Thus, technology integration in learning is imperative if learning institutions are to offer education that is relevant to the needs of the 21st century society. In addition, technology has the advantage of accommodate learners' unique needs, interests and individual learning styles through personalized instruction. This promotes inclusivity and also upholds children's right to education.

For instance, mobile technologies help learners with disabilities to gain access to the curriculum via applications that make text more readable or read text aloud, increasing reading speed and comprehension for students with dyslexia (UNESCO, 2013a). Further, the technologies transform schools and curricula as they facilitate feedback which allows learners to progressively revise their work and understand what they learn. Technology also increases educational opportunities for people in underprivileged communities (UNESCO, 2012). These align with the principles of the Convention on the Rights of the Child which require schools to help children realize their right to a basic education of good quality and also equip them with skills that enable them to cope with the challenges of today's complex world among other things (United Nations Convention on the Rights of the Child).

Creating effective learning environment is imperative if learners are to be facilitated with transformative learning opportunities that enhance equity in education (Personalizing the Learning Experiences. Providing Transformative Learning Opportunities as a Pathway Towards Equity, 2016). However, learning institutions should be cognizant of the hidden curriculum and its influence on learning. This requires creating a school culture in which learners thrive as they alleviate potential barriers to learning and assessment (Wisconsin Education Council). It is the view of this study that enhancing a positive influence of the hidden curriculum requires learning institutions to embrace total quality management style to ensure that every department in the school organization meets and exceeds customer expectations (Teklemariam, 2009, p. 49).

The diagram below represents the author's configuration of an effective learning environment.

Diagram 1: Configuration of an Effective Learning Environment



4. Conclusion

Advancement in technology has changed the delivery of education in the 21st century because learners have access to information anywhere any time through mobile technologies, social media and other avenues. This has significantly impacted the process of schooling and made provision for flexible learning modes such as e-learning and Open University which have given access to education to people whose programmes cannot allow them to enroll in the traditional education set up. These

developments demand that teachers create learning environments that shift education from teacher-controlled learning transmitted to passive learners (influencing learning on the surface) to engaging learner-centered practices where learners are active participants in the learning process (influencing deep learning).

Education also demands teachers to regularly reflect on their teaching practices in order to improve their teaching. This is crucial because in the 21st century, the role of the learner has shifted from a passive recipient of knowledge to an active participant in learning which requires learners to create new knowledge through collaboration with peers, teachers, community and professionals. Teachers are also expected to train learners to regularly reflect on what they learn. These demands require teachers to be analytical and innovative in establishing learning environments in order to provide individual learners with the resources, motivation, stimulation and morale needed to ensure that individual learners achieve their educational goals. However, if teachers are to succeed in achieving the demands of education today, it is incumbent that they are adequately empowered through pre-service and in-service training.

Establishing effective learning environments require reforms in curricula, objectives, teaching, assessment methods and resources that accommodate individual learner abilities, interests and talents through differentiated learning activities that enhance access to education for all learners without discrimination. Embracing interdisciplinary approach to learning is also critical in providing learners with a broad view of education to broaden their minds to enable them to cope with the numerous societal challenges of today's complex world. It further promotes a holistic view of education that has the potential to transform learners into empowered and ethical citizens who are capable of contributing to the development of the society.

5. Recommendations

The paper recommends the following with special reference to Kenya:

5.1 Promote Inclusivity of Learners in Learning Institutions

Learning institutions should institutionalize a culture of value and respect to make learning environments effective and to also enhance development of citizenship skills including co-existence of learners of different ability, religion, social class, culture or race.

5.2 Introducing Reforms at all Levels of Education

While the ongoing reforms in Basic Education in Kenya Promise a paradigm shift that is aimed at aligning education with the needs of the 21st century, it is crucial that reforms cut across all levels of learning to ensure continuity and consistency in the quality of education at all levels of learning.

5.3 Create Local and International Networks

Learning institutions should create community and international networks to enhance communities of learners in both face-to-face and online learning. This can enhance continuous improvement in the quality of education.

5.4 Investment in learning environments

There should be a clear policy by the government on investment in facilities and learning resources in learning institutions to ensure that they provide effective learning environments. This entails setting aside finances for building teacher capacity and procuring sufficient learning resources including technology.

5.5 Shift Assessment Emphasis from Summative to Formatives

Formative assessment should be emphasized above the summative because of its ability to facilitate continuous monitoring of learning and feedback. This could help to shift the focus of education from a narrow approach (cognitive development) to a more engaging and holistic approach that helps learners to experience deep learning.

5.6 Enforce Policy on Teacher- Student Ratios

Guideline policies on student-teacher ratio from the Ministry of Education and the Commission for University Education should be enforced to ensure that learning institutions operate within the standard (recommended) student-teacher ratios that enhance effective learning environments. This could provide opportunities for teachers to provide interventions for learners as they interact closely during instruction.

5.7 Build Teacher Capacity

Teachers should be enhanced with skills through pre-service and in-service training to build their capacity so that they can effectively perform their teaching roles and responsibilities. Pre-service training programmes should be regularly reformed to ensure they equip teachers with relevant skills.

5.8 Improve Teachers' Conditions of Service

Improving teachers' conditions of service, remuneration, housing, deployment and offering them ample professional development opportunities are important for their motivation.

5.9 Enhance Equitable Facilities and Learning Resources in Schools

Infrastructure, facilities and learning resources should be facilitated to all learning institutions to enhance equity, equality fairness and inclusivity to ascertain access to education to all learners without discrimination.

5.10 Investment in Technology

The government should be committed to installing technology at all levels of learning to promote technology integration in learning. This could enhance individualized learning

and also enhance development of learners with the 21st century skills to make education relevant. Teachers should also be trained on the skills needed in effective use of technology in learning.

5.11 Provide learner support services in Learning Institutions

Learning institutions should put in place learner support services including student academic advisory, guidance and counselling, student mentorship programmes, clubs and societies, and sports and games to enhance development of learners' personal and professional skills and to also strengthen some aspects of curriculum taught in the classroom.

5.12 Involving stakeholders in School Activities

Learning institutions should involve key stakeholders (including parents, learners, teachers, professionals and community representatives) in the life of the school to enhance support for the improvement of education. For instance, parents-teachers partnership in education is critical in supporting learners' progress in their academic journey in school.

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