

Towards a Competency Based Curriculum: A Pedagogic Perspective

Richard Owino Ongowo¹

¹Maseno University, Department of Educational Communication Technology & Curriculum Studies

Corresponding author: ongoworichard@gmail.com

Published online: 5th July, 2023

Abstract

Education remains the powerful tool to engender competencies in the learners to make them adaptable to the context of work, personal and professional development. The competencies are significant for achieving sustainable development. This calls for the world education systems to rethink and re-orient their educational curricula in terms of pedagogies from early years' education through higher education to make them adapt the learners to the demands of the century and future societies. The Kenyan national philosophy of education focuses on the acquisition of knowledge and skills as well as provision of lifelong learning. In pursuit of this philosophy, the government has made a bold step in adopting the Competency Based Curriculum (CBC) designed by Kenya Institute of Curriculum Development (KICD) which is at the infancy stage in terms of implementation in the lower grades at primary school level. The key competencies emphasized in this curriculum are communication and collaboration, critical thinking and problem solving, imagination and creativity, citizenship, learning to learn, self-efficacy and digital literacy. In addition the core values of this curriculum are love, responsibility, respect, unity, peace, patriotism and integrity. The implementation of the curriculum content will consequently lead the evolution of pedagogy to increase the quality of teaching and learning. The CBC demands a shift of emphasis from teaching to learning. This paper provides a conceptual understanding of CBC while drawing from the conventional concept of the curriculum; Describes a repertoire of pedagogic strategies and how they can be employed to engender these competencies based on decades of pedagogic research, presents some of the challenges that are likely to stand on the way of implementing CBC drawing examples from past experiences of curriculum implementation in Kenya and other countries and offers some suggestions on how to surmount some of these challenges.

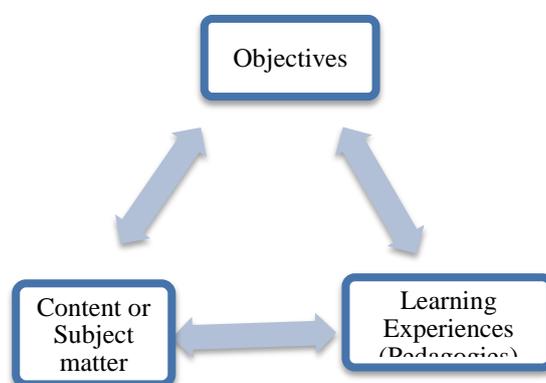
Key Words: Competencies, Curriculum, Pedagogic strategies, Challenges

Introduction

Professionals in the discipline of curriculum do not have a unitary definition of the term curriculum due to the dynamic nature of the concept (Shiundu & Omulando, 1992; Wiles, 2009; Otunga, Odero & Barasa, 2011; Shao-Wen Su, 2012). Some understand the curriculum as the body of subjects or subject matter prepared by the teachers for the students to learn. This is synonymous to a course of study and a syllabus (Zais, 1976). This definition relates to the traditional thinking of the curriculum. Tyler (1949) described the curriculum as all of the learning of students which is planned by and directed by the school to attain educational goals. Some understand the curriculum as a set of desired goals or values that are activated through a development process and culminates in successful learning experiences (Wiles & Bondi, 2007). This definition relates to the progressive thinking of the curriculum. Other definitions exist between these two extremes. Objections have been raised about the tylerian definition since it does not recognize the hidden curriculum which is not planned and guided by the school but simply happens (Shiundu & Omulando, 1992). It is important to note at this point that all these definitions have elements that constitute the curriculum.

Due to the many conceptions of the curriculum, there are also differences as far as the elements of the curriculum are concerned. According to Lunenburg (2011), regardless of the definition or approach, the curriculum can be organized into three major components which are Objectives,

Content or Subject matter and Learning Experiences. This paper will adopt this simplistic model of the elements of the curriculum which is conceptualized as existing in a triangular relationship.



From the simplified model of the curriculum elements above, there exists a relationship between the objectives and subject matter, subject matter and learning experiences, objectives and learning experiences. According to scholars in curriculum studies (Shiundu & Omulando, 1992; Wiles, 2009; Otunga, Odero & Barasa, 2011), the prevailing social, political and technological values of the society determine what is taught (content or subject matter), the reasons why it is taught (objectives), and How it is taught (Learning experiences or pedagogies).

According to Kouwenhoven (2003), competence is the capacity to accomplish up to standard the key occupational tasks that characterize a profession. Rychen & Salganik (2008), conceptualize competence as an ability to meet complex demands by drawing on and mobilizing psychosocial resources in a particular context. Cedefop (2008) defines a competence as the ability to apply learning outcomes adequately in a defined context of education, work, personal or professional development. The KICD conceptualized a competency as the ability to apply learning resources and outcomes (Knowledge, skills, values and attitudes) adequately in a defined context (Kabita & Lili, 2017). From these conceptions of a competency, it appears that a competency is manifest when one puts to use an integrated combination of knowledge, skills, attitudes and values that have been acquired in the context that demands it. A competency based curriculum is therefore characterized by the development of clearly defined competencies and emphasizes what the learners are expected to do rather than what they are expected to know (Kim, 2015; Kabita & Lili, 2017; Likisa, 2018). The CBC responds to the dynamic world of work and the society and focuses on both the course and the consequence of curriculum implementation. The implication is that such a curriculum is learner centered and adaptive to the dynamic needs of learners and the greater society.

The Kenyan competency based curriculum is designed around seven core competencies which are envisaged will make the learner to fit within the environment of work and society. These are Communication and collaboration, critical thinking and problem solving, Imagination and Creativity, Citizenship, Digital literacy, learning to learn and Self-efficacy (KICD, 2017). The adoption of appropriate pedagogy is one of the vehicles through which the core competencies will be developed and experienced by the learners. The pedagogic strategies convert the written curriculum into action. This involves the teacher and the learner to take actions to facilitate learning. Different pedagogic strategies provide learning experiences that engender different competencies.

Pedagogic strategies for developing the competencies

This section of the paper presents a repertoire of pedagogic strategies that can be applied in the learning environment to enable the development of the core competencies of the CBC.

Case Based Learning is a multidisciplinary pedagogic strategy in which students apply their knowledge to real world scenarios (Savery, 2006). This promotes higher order thinking ability and helps the students to acquire a deeper understanding of content (Blackman, Yi-chun, & Choi 2010). This strategy involves students working in groups on a case study, stories involving one or more characters and/or scenarios (Herreid, 2007). The cases present a disciplinary problem or problems for which students devise solutions under the guidance of the teacher. Cases are fact driven and deductive where there is a correct answer or they can be context driven where multiple solutions are possible (Blackman, Yi-chun & Choi, 2010). A well constructed case helps the learners to understand important elements of the situation so that they are better prepared for similar situations in the future (Savery, 2006). Embedded in case-based learning is discussion which provides opportunities for deeper understanding of content to be learnt. As students work in groups on a case, they develop communication and collaborative, critical thinking and problem solving competencies. As they work on a case, their creative and imaginative skills are also built.

Game Based Learning refers to the borrowing of gaming principles and applying them to real life situations to engage users. It involves infusion of subject matter (knowledge) and skills into games. All the types of games become learning processes with defined learning outcomes. (Plass, Homer, & Kinzer, 2015; Trybus, 2015; Pho & Dinscore, 2015). The game based learning when viewed from a motivational perspective emphasizes the ability of games to engage and motivate players by providing experiences that they enjoy and want to continue (Plass, Homer & Kinzer, 2015). When playing educational games, interactions with the game will motivate them and foster cognitive processing of the game content thereby improving learning (Ryan, Rigby & Przylski, 2006). This is because the designers of games usually take into consideration the game elements that contribute to cognitive processing of learning content (Kalyuga & Plass, 2009). The principle behind Game Based Learning is to allow students to engage with educational materials in a playful and dynamic way. Game based learning involves designing learning activities that incrementally introduce concepts and guides users towards a goal. Games promote higher order thinking skills such as creativity, critical thinking, collaboration while increasing digital skills (Michael & Chen, 2006).

Project Based Learning refers to a teaching and learning strategy that engages the learners in complex activities that require multiple stages and an extended duration. Projects focus on creation of product or performance. It requires learners to choose and organize their activities, conduct research and synthesize information (Han & Bhattacharya, 2010). The students acquire knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging and complex question, problem or challenge. In the process, the students integrate knowing and doing, they learn elements of the core curriculum and also apply what they know to solve problems and solve problems that matter (Markham, 2011). The project involves pursuit of solutions to non-trivial problems by asking and refining questions, debating ideas, making predictions, designing plans and/or experiments, collecting and analyzing data, drawing conclusions, communicating their ideas and findings to others, asking new questions, and creating artifacts. The artifacts include writings, art, drawings, 3 dimensional representations, videos or technology based presentations (Blumenfeld et al., 1991). During project planning and execution, the learners work cooperatively and in the process acquire communication and collaborative competencies. Projects by their very nature connect the learners with the real world outside the classroom to the community members and mentors. This builds in them the sense of belonging to the community (citizenship).

Problem based Learning. This model of learning cannot be successfully defined by a single statement. A description of this pedagogic strategy helps to understand it and differentiate it from other modes of learning. This model of learning enables the student to learn new knowledge by facing the problems to be solved instead of being burdened with content to solve problems (Glazer, 2010). According to Hmelo-Silver (2004), problem based learning is a teaching strategy in which students learn through facilitated problem solving. This involves students being presented with real, complex problems which are ill-structured with multiple solutions. The students work collaboratively to identify what they need to learn in order to solve a problem, they later engage in self-directed learning, applying their new knowledge to the problem. It ends with a reflection on what has been learnt. In problem based learning, the problem is the focus for acquiring knowledge and reasoning strategies (Hmelo-Silver, 2004). In Problem based learning, problems are not investigated by students not for problem solving experiences but as a means for understanding the subject area. The problems must also relate to real issues that are present in the society or students' lives (Glazer, 2010). The following are the stages in the problem based learning process. The students are presented with a

problem scenario (which they don't know until it is presented); the students discuss the problem and identify the facts, generate hypotheses based on prior knowledge; identification of knowledge deficiencies relative to the problem. These will later become learning issues that students research during their self-directed learning; after self-directed learning, the students apply new knowledge and evaluate their hypotheses in the light of what they have learnt; at the end, the students reflect on the abstract knowledge gained (Savery & Duffy, 2001; Hmelo-Silver, 2004, Glazer, 2010,). Generally, problem based learning creates opportunities for meaningful activities that engage students in problem solving and critical and creative thinking in situated contexts. This has an effect of preparing students for active and responsible citizenship. The collaborative efforts towards problem solving engender communication and collaborative competencies.

Computer Based Learning refers to the use of computers as the key component of the learning environment for instructional purposes (Aduwa-Ogiegbaen & Iyamu, 2005). Education systems around the world are under increasing pressure to use new information communication technologies to teach students the knowledge and skills they need in the 21st century (UNESCO, 2002). This is necessitated by the fact that children presently access and use computers earlier than before for playing games, sharing hobbies, participating in social networks, email or chats (Gunn & Pitt, 2003; Carmona & Marin, 2013; OECD, 2015). This implies that students go to school with a wide range of technological skills even before formal lessons on computer skills begin (Gunn & Pitt, 2003; Carmona & Marin, 2013). These technological skills can be built on together with use of computers at school to foster quality experiential learning. In this regard, teachers need to rise to the expectations of students and make use of the opportunities that computer technology affords (Gunn & Pitt, 2003). Some of the opportunities that computer use contributes to learning include: First, computers can be used as teaching and learning tools capable of activating the senses of sight, hearing and touch of users since computer packages are designed to appeal to a wide range of learning styles (Gunn & Pitt, 2003). This is likely to empower students to become independent active learners and develop creative, innovative and problem solving abilities (Roblyer & Edwards, 2000; Aduwa-Ogiegbaen & Iyamu, 2005). Secondly, computers are versatile for simulation of scientific phenomena which cannot be illustrated in a real world context (Bitter & Pierson, 2005). Computer use is very significant in developing competencies of digital literacy, learning to learn and self-efficacy.

Situated Learning is hinged on situated cognition theory which emphasizes provision of authentic contexts for learning and encouraging social interaction and collaboration in the learning environment (UNESCO, 2002; Besar, 2018). By definition, situated learning refers to a pedagogic strategy in which learning occurs in authentic contexts that reflect the way knowledge will be used in real life. These contexts are characterized by authentic activities or tasks, collaborative construction of knowledge, reflection, cognitive coaching and scaffolding and integrated assessment of learning (Lave & Wenger, 1991; Herrington & Oliver, 1995; UNESCO, 2002; Brill, 2010). According to Schell and Black (1997), there should be a close relationship between the learning environment and context of application of new ideas and behaviors in case the real context is unattainable. The collaborative characteristic of situated learning does not only involve students and teachers but also a community from the school, the business and local community. Immersion into the community engenders a sense of belonging to the community in which one lives. The learning community is a dynamic one in which members assume different roles at different times depending on the needs of the learner (Brill, 2010). According to Dede (2007), situated learning addresses the challenge of low rate of knowledge transfer by making the setting in which learning takes place as similar to real world context for performance in work or personal life.

Challenges of implementing CBC and ways to overcome them

Curriculum implementation is part of a delicate process of curriculum development. According to Okello & Kagoiren (1996), curriculum implementation is a network of activities involved in translating curriculum designs into classroom activities and changing peoples' attitudes to accept and participate in these activities. Shiundu and Omulando (1992), hold that implementing a new curriculum is a highly complex one that requires an extremely skillful assortment of participants and relevant content for effective results. In this section the author brings to the fore some pitfalls national implementation of CBC.

First, both teacher beliefs and attitudes about the new curriculum affects implementation (Thomas, 2013). Scholars in the field of curriculum hold that teachers play a pivotal role in curriculum implementation (Shiundu & Omulando, 1992; Otunga, Odero & Barasa, 2011). Paradoxically, the teachers are also major impediments to curriculum change due to their traditional beliefs and attitudes (Prawat, 1992; Stofflett, 1999; Levitt, 2002; Funda, 2009; Vuga, 2018). Aubusson and Watson (2003), hold that teachers exert a significant influence on the quality of curriculum implementation in the classrooms. Donping (2009) opine that

teachers tend to teach the way they were taught, therefore to implement teaching innovation, there is a need for a paradigm shift in their teaching philosophy. The implication is that there is a need for continuous professional development of teachers if any meaningful change is to reach the classrooms. Teachers themselves need to be 21st century learners. Teachers need competencies for creating a psychosocial environment that is conducive to learning which provides opportunities for active engagement (Rauch & Steiner, 2013).

Secondly, a new curriculum has unavoidable fiscal demands in terms of cost of learning materials, cost of professional development of teachers and cost of monitoring and evaluation. Mkandawire (2010) observes that the economy of a nation determines the success of curriculum implementation. According to Shah (2019), Kenya as an agro-based economy has not experienced a steady economic growth which is due to unpredictable weather patterns. This implies that curriculum implementation becomes costly and difficult. Given that one of the core competencies of the Kenyan CBC is digital literacy, there would be logical reasons to acquire digital infrastructure for this competency to become a reality. Large scale acquisition of digital infrastructure would require a huge capital outlay not to mention the concomitant maintenance costs. The challenge of cost can be surmounted by the government recognizing the returns from education to the growth of the economy and therefore channeling resources in that direction.

Thirdly, CBC de-emphasizes time-based training (Fitzgerald et al, 2015). The CBC requires sufficient time for its implementation in terms of the time spent in any learning area to develop competencies. In knowledge based curriculum, time is fixed in terms of semesters, terms and content to be covered but the outcomes are characterized by diversity. In CBC, the outcomes are fixed in terms of competencies and values however the time for acquisition of competencies remains diverse. According to Rose-Fisher (2017), self-paced learning which is a cornerstone of CBC implies that some learners will progress at a faster rate than others. Park, Hodges, and Tekian (2016) observed that this poses challenges in addressing individual learning differences. On the other hand, development of competencies takes more time as opposed to acquisition of knowledge. To overcome this challenge, the teachers need to differentiate pedagogy and individualize teaching while adapting the new philosophy of the curriculum.

Fourthly, the essential challenge to CBC is an assessment method that accurately and reliably determines the learners' competence (Fitzgerald et al, 2015). On the other hand, Vallejos, Morel and Tusing (2017) hold that formative assessment of competencies needs to be done

using well-defined criteria and indicators of which students are aware of. This is further complicated by the diversity of learners in terms of their backgrounds, inherent capabilities, and prior or pre-existing competencies (Fitzgerald et al, 2015). To overcome this challenge, there is a need for a concerted effort to develop assessment criteria that reflects these competencies. At the same time, there is a need to differentiate and individualize the assessment process due to the diversity of learners in any environment.

References

- Aduwa-Ogiegbaen, S.E. & Iyamu, E.O.S. (2005). Using Information Technology in Secondary Schools in Nigeria: Problems and Prospects. *Educational Technology and Society*, 8 (1) 104-112.
- Aubusson, P. & Watson, K. (2003). Packaging constructivist science teaching in curriculum resources. *Asia Pacific Forum on Science Learning and Teaching*, 7 (2), 1-25.
- Blackman, M., Yi-Chun, H., & Choi, I. (2010). Case-Based Learning. In M. Orey (Ed.), *Emerging Perspectives on Learning, Teaching and Technology*(pp.174-182). Jacobs Foundation, Zurich, Switzerland.
- Besar. Pengiran Hajah Siti Norrainia Binti Pengiran Haji (2018). Situated Learning Theory: The Key to Effective Classroom Teaching? *HONAI: International Journal for Educational Social, Political & Cultural Studies*, 1 (1) 49-60.
- Blumenfeld, P.C., Soloway, E., Marx, R.W., Krajcik, J.S., Guzdial, M., Palinscar, A. (1991). Motivating Project Based Learning: Sustaining the Doing, Supporting the Learning, *Educational Psychologist*, 26 (3 & 4), 369-398.
- Bitter, G.G. & Pierson, M.E. (2005). *Using Technology in the Classroom* (6th Ed.). Allyn & Bacon, Boston, USA.
- Brill, J.M. (2010). Situated Cognition. In M. Orey (Ed.), *Emerging Perspectives on Learning, Teaching and Technology*(pp.50-54). Jacobs Foundation, Zurich, Switzerland.
- Carmona, M.G. & Marin, J.A.M. (2013). *ICT Trends in Education*. 1st Annual International Interdisciplinary Conference, AHC 2013, 24-26 April, Azores, Portugal.
- Dede, C.(2007). Transforming Education for the 21st Century: New Pedagogies that help all Students Attain Sophisticated Learning Outcomes.
http://www.gse.harvard.edu/~dedech/Dede_21stC-skills_semi-final.pdf

- Donping, Z. (2009). Teachers as coaches: A teacher's perceptions and actions in a game-based virtual learning environment. *Second Language Studies*. 27 (2), 123-143.
- Fitzgerald, J.T., Burkhardt, J.C., Kasten, S.J., Mullan, P.B., Santen, S.A., Sheets, K.J., Tsai, A., Vasquez, J.A. & Gruppen, L.D. (2015). Assessment Challenges in Competency Based Education: A Case Study in Health Professions Education, *Medical Teacher*, 1-9.
- Funda, S.A. (2009). Teacher beliefs and practice in science education. *Asia-Pacific Forum on Science Learning and Teaching*. 10 (1), Article 12.
- Glazer, E. (2010). Problem Based Instruction. In M. Orey (Ed.), *Emerging Perspectives on Learning, Teaching and Technology*(pp.142-159). Jacobs Foundation, Zurich, Switzerland.
- Cedefop (2008). Terminology of European Education and Training Policy: A Selection of 100 key terms. Luxembourg: Office for Official Publications of European Communities.
- Gunn, A. & Pitt, S.J. (2003). The effectiveness of Computer Based Teaching Packages in Supporting Student Learning of Parasitology. *Bioscience Education 1* (1), 1-14.
- Han, S. & Bhattacharya, K. (2010). Constructionism, Learning by Design and Project Based Learning. In M. Orey (Ed.), *Emerging Perspectives on Learning, Teaching and Technology*(pp.127-141). Jacobs Foundation, Zurich, Switzerland.
- Herreid, C.F.(2007). *Start with a story: The Case Study Method of Teaching College Science*. NTSA Press.
- Herrington, J. & Oliver, R. (1995). *Critical Characteristics of Situated Learning: Implications for the Instructional Design of Multimedia*. In Pearce, J. E.A. (Ed). ASCILITE95 Conference Proceedings (253-262). Melbourne: University of Melbourne. 1995.
- Hmelo-Silver, C. E. (2004). Problem Based Learning: What and How do Students Learn. *Educational Psychology Review*, 16 (3), 235-266.
- Kalyuga, S., & Plass, J.L. (2009). *Evaluating and Managing Cognitive Load in Games: Handbook of Research on Effective Electronic Gaming in Education*. (Vol.3). Hershey, PA: Information Science Reference.
- Kabita, D.N., & Lili, J. (2017). *The Why, What and How of Competency Based Curriculum Reforms: The Kenyan Experience*. IBE-UNESCO

- Kim, J. (2015). Competency Based Curriculum: An Effective Approach to Digital Curation Education. *Journal of Education for Literacy and Information Sciences*, 56 (2), 283-297.
- Kenya Institute of Curriculum Development (2017). *Facilitators Training Manual for Early Years Education Curriculum*, KICD, Nairobi, Kenya.
- Kouwenhoven, W.(2003). Competence Based Curriculum Development in Higher Education: Some African. Retrieved from <http://dare.uvu.nl/bitstream/1871/15816/6/7%20competence-based-curriculum.pdf>
- Lave, J. & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.
- Levitt, K.E.(2001). An analysis of elementary teachers' beliefs regarding the teaching and learning of science. *Science Education*, 86 (1), 1-22.
- Likisa, K.D. (2018). Challenges and Prospects of Competency Based Education: The Case of Adama Science and Technology University Alumni Students and Hawas TVET College, Adama, Ethiopia, *Competency Based Education*, 1-7. <https://doi.org/10.1002/cbe2.1163>
- Lunenburg, F.C. (2011). Key Components of a Curriculum Plan: Objectives, Content and Learning Experiences. *Schooling*, 2 (1), 1-4.
- Markham, T. (2011). Project Based Learning. *Teacher Librarian*, 39 (2), 38-42.
- Michael, D. & Chen, S. (2006). *Serious Games: Games that Educate, Train, and Inform*. Thomson Course Technology PTR, Canada.
- Mkandawire, S.B. (2010). *Challenges of Curriculum Implementation in Learning Institutions*. Retrieved from: <https://sitwe.wordpress.com/2010/12/03/challenges-of-curriculumimplementation-in-learning-institutions/>
- OECD (2015). *Students, Computers and Learning: Making the Connections*. PISA OECD Publishing, Paris, France. <http://dx.doi.org/10.1787/9789264239555-en>
- Okello, V., & Kagoiren, M.A. (1996). *Makerere University Curriculum studies Module*, Kampala: Bezatel Design Studies.
- Otunga, R.N., Odero, I.I., & Barasa, P.L. (2011). *A Handbook for Curriculum and Instruction*, Moi University Press, Moi University, Eldoret, Kenya.
- Park, Y.S., Hodges, B.D., & Tekian, A. (2016). Evaluating the Paradigm Shift from Time-Based Towards Competency-Based Medical Education: Implications for Curriculum

- Assessment. In. Wimmers. P., Mentkowski, M. (Eds.) *Assessing Competence in Professional Performance across Disciplines and Professions*. Innovation and Change in Professional Education, 13. Springer, Cham
- Plass, J.L., Homer, D.H., & Kinzer, C.K. (2015). Foundations of Game-Based Learning. *Educational Psychologist*. (50), 4, 258-283.
- Pho, A. & Dinscore, A. (2015). Game-Based Learning. *Tips and Trends*, Spring 2015.
- Prawat, R.S. (1992). Teachers' beliefs about teaching and learning: A constructivist perspective. *American Journal of Education*, 100(3), 354-395.
- Rauch, F. & Steiner, R. (2013). Competencies for Education for Sustainable Development in Teacher Education, *CEPS Journal*, 3 (1), 9-24.
- Roblyer, M.D. & Edwards, J. (2000). Integrating Educational Technology into Teaching (2nd. Ed). Prentice-Hall, Inc., Upper Saddle, New Jersey, U.S.A
- Rose-Fisher, R.L. (2017). Implications for Educator Preparation Programs Considering Competency Education, *Competency Based Education* 2, 1-3.
- Ryan, R.M., Rigby, C.S., & Przybylski, A. (2006). The Motivational Pull of Video Games: A Self-Determination Theory Approach. *Motivation and Emotion*, 30, 344-360.
<http://dx.doi.org/10.1007/s11031-006-9051-8>
- Rychen, D.S. & Salganik, L.H. (2003). *Key Competencies for a successful Life and a Well Functioning Society*, Gottingen, Hogrefe & Huber.
- Savery, J.R. (2006). Overview of Problem Based Learning: Definitions, Distinctions. *Interdisciplinary Journal of Problem Based Learning*, 1 (1), 9-20.
- Savery, J.R. & Duffy, T.M. (2001). *Problem-Based Learning: An instructional Model and its Constructivist Framework*. Centre for Research on Learning and Technology, Indiana University.
- Schell, J.W. & Black, R.S. (1997). Situated Learning: An Inductive Case Study of a Collaborative Learning Experience. *Journal of Industrial Teacher Education*, 34, 5-28.
- Shah, V. (2019, May). Kenya Economic Outlook 2019. *Grant Thornton Kenya*. Retrieved from <https://www.grantthorton.co.ke>
- Shao-Wen Su (2012). The Various Concepts of Curriculum and the Factors involved in Curricular Making. *Journal of Language Teaching and Research*, 3 (1), 153-158
- Shiundu, J.S & Omulando, S. J. (1992). *Curriculum Theory and Practice in Kenya*. Nairobi: Oxford University Press.

- Stofflett, R.T. (1999). Putting constructivist teaching into practice in undergraduate introductory science. *Electronic Journal of Science Education, Vol 3*.
- Thomas, M. (2013). Teachers Beliefs about Classroom Teaching-Teachers' Knowledge and Teaching Approaches. *Procedia Social & Behavioral Sciences, 89* 31-39
- Trybus, J. (2015). Game-Based Learning: "why it is, Why it Works, Where it is going". *New Media Institute*.
- Tyler, R.W. (1949). *Basic Principles of Curriculum and Instruction*. Chicago: University of Chicago Press.
- UNESCO. (2002). *Information and Communication Technologies in Teacher Education: A planning guide*, France, UNESCO
- Vallejos, A.L.N.P., Morel, R.A.G., & Tusing, J. (2017). Implementation of Competency Based Curriculum: College of Philosophy, Universidad Nacional del Este, Paraguay, *Competency Based Education, 1-9*. <https://doi.org/10.1002.cbe2.1038>
- Vuga, G.S. (2018, July 06). Mentoring and Coaching Teachers Improves Teaching and Learning, *Uranana rw'abarezi* pp. 18-21
- Wiles, J., & Bondi, J. (2007). *Curriculum Development: A guide to Practice* (7th Ed.). Upper Saddle River, NJ: Prentice-Hall.
- Wiles, J. (2009). *Leading Curriculum Development*. Corwin Press, USA
- Zais, R. (1976). *Curriculum: Principles and Foundations*. Harper & Row Publishers, Inc. New Yo