Innovative and Creative Education and Teaching in The 21st Century: A Critical Analysis

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Abstract

Given the upsurge of innovations experienced in virtually every field of study in the 21st century, the need for creativity in our education system becomes inevitable if we must keep up with this fast-changing world. The advent of technology has reshaped human life and altered behavioural and learning pattern in individuals. The 21st century learners are born into a digital world and this has significantly affected the way they learn. If education is going to serve its purpose of preparing people to be functional and productive workers and members of the society, there is need for a change in approach to teaching. A learner centred teaching environment should be advocated rather than the traditional teacher centred classroom. There is also the need for teachers to migrate to using digital tools to enable them speak the language 21st century learners understand. This study, therefore, takes a critical look at the need for innovative and creative teaching in the 21st century to meet the need of the peculiar kind of learners in this age.

Keywords: Innovation, Creative Education, Teaching, 21st Century

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INTRODUCTION

The 21st century comes with a lot of innovations that cut across various spheres of human life. (Health, banking sector, agriculture, fashion, music etc). These innovations have altered behavioural and learning patterns in humans. Like other areas, education has had its fair share of innovations. Unfortunately, most teachers are yet to come to terms with these innovations and are still applying conventional or orthodox methods and materials in teaching students where the teacher is seen as "Mr know it all". He/she banks knowledge in the child, expects him to memorize all that has been taught and regurgitates it when tested or given an examination. Consequently, far too many students are struggling to learn because they lack motivation. This explains why there is a deterioration in our education system and the quality of students the system produces.

There is an urgent need for a shift to a more innovative and creative teaching strategy if we want to salvage our education system and survival of our nation at large. This change is necessitated by the fact that the crop of learners we have in the 21st century are very different from their predecessors. Prensky (2001) referred to them as "digital natives. These learners have peculiar characteristic as a result of the era and environment they were born into and this affects their learning to a great extent. Besides, the work environment and society that these students are being prepared to face is fast changing and the teaching method, content and devices must change if education will serve its purpose of making people functional members of the society where they find themselves. It is against this background that this paper examines innovative and creative education and teaching.

CONCEPTUAL CLARIFICATION

Concept of Education
Education is derived from the Latin word "educare" which means to "draw out". Education has enjoyed a wide range of definition from various authors. It has been defined as all experiences through which an individual acquires knowledge, develops his intellect and strengthens his will (Rogers in Ezimah 2009). Similarly, Rojagopalan (2019) defined education as a conscious and deliberate process in which one personality acts upon another in order to modify the development of that other by the communication and manipulation of knowledge. This definition lays emphasis on the formal and non-formal aspects of education without taking cognizance of informal type of education where learning may not be deliberate. It is in view of this that Rogers in Ezimah (2012) opined that "All experience is educative". Bearing this in mind, we can conclude that education is the transmission of knowledge, skills, attitudes, values, norms, culture, aptitude etc from one generation to another.

Teaching
Teaching is the process of imparting knowledge or to instruct (someone) on how to do something. Teaching is the process of attending to people's needs, experiences and feelings, and intervening so that they learn particular things, and go beyond the given. Hirst in Majuk (2001) makes two very important points in teaching. For him teaching should involve:

1.   Setting out with the intention of someone learning something.
2.   Considering people's feelings, experiences and needs. Teaching is only teaching if people can take on what is taught.

Shedding more light on the concept, Rajagopalan (2019) asserted that teaching is regarded as both an art or science. As an art, it lays stress on the imaginative and artistic abilities of the teacher in creating a worthwhile situation in the classroom to enable students to learn. As a science, it sheds light on the logical, mechanical, or procedural steps to be followed to attain an effective achievement of goals.

Concept of Innovation
Innovation is the act or process of introducing new ideas, devices or methods. The Webster Dictionary defines innovation as "the introduction of something new". It is the process of creating value by applying novel solutions to meaningful problems. According to Vikasconcept (2020), innovation involves a different way of looking at problems and solving them. It also improves education because it compels students to use a higher level of thinking to solve complex problems.

Innovation does not just mean the use of technology or new inventions, though these can contribute to innovation. Innovation involves a new way of thinking, thereby helping students develop their creativity and problem-solving skills.

Concept of Creativity

Creativity is the kind of thinking that leads to new insights, new approaches, fresh perspectives and news ways of understanding and conceiving things. Sternberg (2001) opined that creativity is a cluster of skills that are needed to produce ideas that are both original and valuable and teaching creatively has to do with '*teachers using imaginative approaches to make learning more interesting, exciting and effective*'. Teaching creatively requires both the 'right' set of skills and dispositions. One way to teach more creatively is to look at teaching as a problem-solving activity and to adopt a growth mindset (Dweck, 2017).

Franken (2014) further defined creativity as the tendency to generate or recognize ideas, alternatives or possibilities that may be useful in solving problems, communicating with others and entertaining ourselves and others. Creativity demands you look at things in new ways or a different perspective. Among other things it involves the ability to generate new possibilities or new alternatives. Creativity in the context of education, therefore, would mean the ability of teacher to come up novel ideas and insights in teaching and learning that would suit the learning needs of the dynamic sets of learners that are in our schools.

The 21st Century Learner

Prensky (2001) called the 21st century learners 'digital natives". These are people born in the 1980s forward and he referred to those born before 1980 as "digital immigrants. According to him Digital Natives are the children who have grown up into a world surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all the other modern technological toys and tools. He says that they are the product of the new culture that has emerged as a result of the aggressive penetration of digital technology in the lives of young people born since the last two decades of the 20th century. In contrast, for "Digital Immigrants" when it comes to using technology, they are in the process of learning a new language.

As a result of exposure to digital technological devices of the digital world, children of this era think and learn differently from their predecessors. According to Viskaconcept (2020) growing up with this level of technology means growing up with a completely unprecedented amount of information at their fingertips. These are kids who are just a few seconds away from the answers to their questions, with everything just a quick search away. They are able to teach themselves about any topic they are interested in without even leaving their bedroom. They are digital natives, as comfortable using apps and code as their grandparents were flipping pages. This explains why the orthodox method of rote learning becomes boring to them.

Why go to school when you could learn the same information faster by watching a You tube video or playing a computer game? Why memorize facts for a test when you have all the information in the palm of your hand anyway? Past methods make little sense to today's students who learn and think differently, and they make little sense in relation to the changing workplace, where making use of information is now far more valuable than simply knowing things. Schools are failing to teach students to respond to rapid change and how to handle new information because they are clinging to obsolete methods. Tapscott (2009) identified some characteristics of the 21st century learners to include:

1.   They love to customize things, make them their own.
2.   They're natural collaborators, who enjoy a conversation, not a lecture.

3.   They'll scrutinize you and your organization.

4.   They want to have fun, even at work and at school.

5.   They have a need for speed and speed is normal for them.

6.   They are innovators and for them innovation is part of life.

7.   They instinctively turn first to the Net to communicate, understand, and learn.

8.   They are constantly creating or changing online content.

9.   They seem so fast on technology and have an appetite for all things digital that is sometimes mind-boggling.

10.   They seem to lack long attention spans, at least when it comes to listening to lectures.

11.   Growing up digital has had an impact on how they think and even changed the way their brains are wired.

12.   The generation is smarter and quicker than their predecessors.

13.   In education, they are forcing a change in the model of pedagogy, from a teacher-focused approach based on instruction to a student-focused model based on collaboration.

14.   They use the programmable web to create their own content, collaborate with others, and build communities.

15.   They don't just take what they are given. They are the active initiators, collaborators, organizers, readers, writers.

16.   They do not just observe, they participate.

17.   They inquire, discuss, argue, critique, investigate, seek and inform.

18.   For once in our civilization, children are educating older people. Adults are looking to children for information and help with computer related stuff.

19.   In Finland, the government has chosen 5,000 Net Geners to train the country's teachers in how to use computers. For the first time ever, in one domain, the students will be the teachers and the teachers the students.

20.   They want to learn, but they want to learn only what they have to learn, and they want to learn it in a style that is best for them.

21.   Sitting mutely in front of a teacher doesn't appeal to them.

Defect in Nigerian Education System and Teaching Method
Our education system and teaching is still characterized with the old ways of teaching where a teacher is the centre of attraction. "The know it all" teacher banks subject matter in students while they sit down attentively and memorize all they have been taught so they can regurgitate it as tests or exams. This puts students in a box and it is not suitable for the 21st century learner.

Most schools are failing to help Digital Natives learn because in the main, they have not changed the way they organize instruction for children. They have operated along what is called the TTWWADI approach whereby they have continued to do what they do because "**T**hat's **T**he **W**ay **W**e've **A**lways **D**one **I**t". While doing things the way we have always done them is not necessarily wrong, the problem is that such an approach alone fails to enhance learning among Digital Natives and to prepare them for the digital workplace in which they should be productive citizens, which, according to Fullan (2001) is the moral purpose of education. The consequences of this disconnect

between Digital Natives and schools operating along the TTWWADI approach was well articulated by Bill Gates when he said:

> America's high schools are obsolete. … By obsolete I mean that our high schools, even when they're working exactly as designed, cannot teach our kids what they need to know today. Training the workforce of tomorrow with the high school of today is like trying to teach kids about today's computers on a 50-year-old mainframe. It's the wrong tool for the times (Gates, 2005).

This problem is even more pronounced in Nigeria as a developing nation where the adoption of innovations in education has been relatively slow. This view was supported by Moemeke (2011) who observed that the peculiar situation of Nigeria today makes adopting innovations difficult. In spite of the awareness of the revolutionary effects of technologies in today's world, integrating these technologies into the classroom for learning purposes by students is hindered by a number of factors. According to Moemeke (2019) these factors are:

Institutional Factors: Institutional factors play key role in determining teachers' acceptance and use of learning technologies in their classrooms (Mueller, Wood, Willoughby, Ross & Specht, 2008). Certain institutional factors such as inadequate attention to technical problems that arise while using technologies (Jones, 2004), institution's objectives and vision, and provision of system support for learning technology users are major hindrances to teachers and students acceptance and use of technology in learning.

Inadequate amount of training for teachers in the use of 21st century learning technologies
Mueller et al (2008) has expressed the view that for successful integration of technology into the classrooms, teachers need to be properly trained on designing modern lessons suitable for learning through technology, use of learning technology devices, modern communication and accessing, disseminating knowledge via modern technologies and educational benefits of modern technologies. Most Nigerian teachers were not trained with technology. Evidence from studies has revealed ambivalence and unwillingness to accept and use technology by teachers. Most teachers lack the necessary skills to innovate in teaching, to build and use blog, to access the internet, to use Google sites, wiki sites and high- tech device such as mobile phones. Poor digital literacy skills due to poor teacher preparation techniques are responsible for teacher ineffectiveness in the application of modern technologies in Nigerian classrooms.

Availability of constant energy supply to power technological devices for learning: Even when some teachers are willing to use innovative technologies in their classrooms, the issue of epileptic power supply is always a hindrance. Most electronic devices need power for charging and for use.
High cost of High Technology devices such as advanced computers, ipads and other mobile devices with the necessary applications and web 2.0 tools for learning. Most of these devices are out of the reach of learners and their teachers. Most schools have no internet connectivity for students to use freely.
Fluctuating Transmission signals makes the use of internet- based technology frustrating to both teachers and learners.

Perception about What Constitutes Learning: Learning in the 21st century is not merely internalizing and memorizing texts but consists of the 4Cs – critical thinking, communication,

collaboration and creativity. These constructs are quite flexible, multi-dimensional and adaptable to technology use. Viewing learning in the didactic form constitutes impediment to 21st century learning through devices.

Curriculum structure: The present structure of the curriculum gives little or no room for innovativeness and creativity on the part of teachers and students. The curriculum is not only time-framed but also highly sequenced and teacher- centred. Curriculum of the 21st century should give room to multi- dimensional learning from diverse activities and devices to meet students' needs. Along with the highly sequenced and rigid curriculum, school timing and time table and fixed place/ space concept of learning environment are the rigid assessment practices. Continuous reliance on paper and pencil test as means of assessing learning outcome (cognitive) neglects digital literacy and the learning that emanates from it and denies the educational system the opportunity to avail itself of the rich resource provided by modern learning technologies. Until the Nigerian educational system departs from age long assessment stereotypes, keying into learning technologies-use for classroom. (Omoemeke, 2019)

21st Century Education

21st century education is about giving students the skills they need to succeed in this new world, and helping them grow the confidence to practice those skills. With so much information readily available to them, 21st century skills focus more on making sense of that information, sharing and using it in smart ways. The coalition P21 (Partnership for 21st Century Learning) has identified four skills for today:

- Creativity
- Critical thinking
- Communication
- Collaboration

These four themes are not to be understood as units or even subjects, but as themes that should be overlaid across all curriculum mapping and strategic planning. They should be part of every lesson in the same way as literacy and numeracy.

Creativity is about thinking through information in new ways, making new connections and coming up with innovative solutions to problems. Critical thinking is about analyzing information and critiquing claims. Communication is understanding things well enough to share them clearly with other people. Collaboration is about teamwork and the collective genius of a group that is more than the sum of its parts.

There are other skills that are important, which fall within these four areas. Entrepreneurship can be considered a skill of its own. Inquiry and problem solving are key. Emotional intelligence (EQ) is one of the most important keys to successful work and relationships. The bottom line? Education needs to be all about empowering students with transferable skills that will hold up to a rapidly changing world, not prescribed content that has been chosen for its past relevance.

The Need for Innovation and Creativity

21st century teachers need to serve as a guide or mentor for their students, not as the all-knowing sage providing them with all their information. With so much access to resources of all kinds, children are invariably going to know more than teachers on different topics, and be a step ahead of

the technology in use. Teachers need to be empowered as facilitators and motivators for learning, so that they can empower their students in turn.

This shift is great news for teachers. Instead of struggling to give kids all the information they need to succeed in areas the teacher knows little about, they can support students as they make their own steps into different fields. It's about preparing kids to go beyond their parents and teachers, making sure they have the skills to do it, and then helping along the way as they build confidence to achieve.

This means teachers need to be forward-thinking, curious and flexible. Teachers must be learners: learning new ways of teaching, and learning alongside their students. Simply asking questions like "what will my students need twenty or fifty years from now? How can I help give them those skills?" can change your mindset, make you a leader, and help you bring about change in your classroom, school and community.

As Kagan (1988) argues, cooperative learning is more effective in increasing academic performance than individual or competitive learning. We should therefore take advantage of the digital technologies that Digital Natives communicate with in their daily lives and use them to communicate pedagogical content knowledge in a more engaging way. In sum, Prensky (2001, pp. 4-5) suggests the following ten ways to achieve this:

1.	Teachers/educators should learn to communicate in the language and style of the Digital Natives.

2.	Educators should carefully examine the content of the "traditional" curriculum – (reading, writing, arithmetic, logical thinking, and history) and select only content that is essential to knowledge construction in the digital era.

3.	Educators should embed digital and technological content in their teaching. This does not mean just electronic hardware and software, but it also includes the ethics, politics, sociology, languages and other content related to these.

4.	Educators should learn new content and teach it using new technologies that Digital Natives are familiar with and that make sense to the Digital Natives. Computer games are a good way to achieve this.

5.	Educators should replace traditional pedagogical language with contemporary, computer-aided terminology, consistent with Digital Native methodology. This should be applied to all subjects and at all levels of learning.

6.	Educators should think deeply and research into how to use computers and electronic, digital tools in teaching in ways that help our learners to instill knowledge that needs to be internalized.

7.	Use the skills of our Digital Natives to guide our search for Digital Native methodologies that can help us improve our effectiveness in the teaching of all subjects and at all levels.

8.	Be imaginative about how you can embed "edutainment" in your pedagogy. The fact that to date such attempts have not been successful should not deter further attempts.

9.	Educators must realize that the Digital Immigrant way is not the only way to teach; that in fact it is an ineffective way to teach; and change their methods and language to that of Digital Natives so as to reach their digital learners.

CONCLUSION
Given the kind of innovations we are bombarded with in the 21st century which has significantly influenced the kind of learners we have in our schools today, the need for creativity on the part of

educators become inevitable if our education system will produce who can effectively function in the world of work. This creativity should be in our method of teaching, instructional materials and teaching devices. The 21st century teacher has the enormous task of migrating into the digital age to enable him/her understand the language of the kind of learners he has now. This is the only way that teaching can be made effective.

SUGGESTIONS

1. For us to have a complete overhaul of our education systems, it starts with concerted efforts of all the stakeholders in creating awareness on the need for an innovative and creative change of teaching approach to keep up with the fast changing world we find ourselves in. This could be done through workshops, symposiums etc

2. The education planners and administrators are required now to initiative the processes of innovation in the education milieu. Furthermore, those involved in the education enterprise must begin to take advantage of these innovations in education and utilize them in teaching/learning and administration of schools.

3. There is a dire need for continuous on-the-job training for teachers by both public and private sector stakeholders.

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