

Impact of Innovation and Change on Contemporary Teaching and Learning as an Advancement from Myth to Reality

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Abstract *This paper addresses the impact of innovation change on contemporary teaching and learning as an advancement from myth to reality highlighting creativity in education, change and innovation and teachers as catalysts in improving critical thinking skills. Also from myth to reality in teaching and learning, the end of conventional instructional design: types of learners and contemporary teaching and learning were treated. Since the society is dynamic and need to move from imagination to reality so as to stand the test of time, it is therefore suggested that modern approaches to teaching and learning be introduced like emphasizing on learner-centred teaching to encourage life long learning, adapting to fit into the digital world by getting acquainted with information and communication technology (ICT), the use of computer and being abreast with electronic-learning and electronic-library for convenience and to reflect modernity.*

Keywords: *Innovation, change, creativity, teaching, learning.*

Introduction

Creativity in education is not just an opportunity but a necessity. First, several emerging trends entail an alteration in the way young people learn and understand. The generation of the 'New Millennium Learners' is characterized by multitasking, short attention spans, gaining information in non-linear ways. Teachers have to attract their interest and attention in a new way, and as a result the development of creative approaches is called for. (Redecker, 2008, Pedro, 2006, and Simplicio, 2000 cited in Ferrari, Cachia and Punie, n.d.).

Change and innovation are probably two major concepts that must be built into an organization that is aiming at standing the test of modern period when dynamism is fastly replacing conservatism. Change has been described as the alterations that occur in persons, structures and technology. Innovation on the other hand refers to any thought behaviour or thing that is new because it is qualitatively different from existing forms. (Fadipe and Adepoju; Bassey (n.d.) cited in Babalola and Ayeni 2008:487, 433).

Teaching is to impart knowledge or skill and learning is to acquire knowledge or skill by study. (Wiki.answers.com).

Teachers need to be skilled in the specific process necessary to cultivate learner centred environments and changing the focus from teaching to learning. Though existing instructional skills are still potentially valuable in the initial orientation of novice learners, teachers need to appreciate how to work across the spectrum from such conventional guided instruction to self-directed discovery learning. Moreover, teachers are to develop the skills to be able to effectively nurture individual approaches to learning, to design generative and ill-structured learning experiences, to cultivate individual relevance by harnessing the experiences and understandings of learners as they are (and as they evolve) and orientate to an emergent and inductive instructional practice. Consistent with constructivist design, it is critical teachers develop a capability to developing generative topics and related content that build on the existing knowledge,

understandings, and emotions of learners. (Darwin, n.d).

Myths and Realities attempts to clarify the importance of academic and vocational integration in relation to emerging pedagogy, teaching and learning practices and school-to-work efforts. Current research on teaching and learning supports constructivist pedagogy which contends that people construct knowledge through their interpretive interactions with and experiences in their social environments. In constructivism, the focus of teaching is on empowering learners to "construct new knowledge" by providing opportunities for them to test academic theories through real-world applications of knowledge in settings that are socially relevant to their lives. (Brown, n.d).

This paper therefore seeks to highlight the impact of innovation and change on contemporary teaching and learning as an advancement from myth to reality.

The Concept of Change and Innovation

Change connotes something different from what used to be or a variation in the status quo. Educational change therefore means a variation or deviation in educational policy, practices, objectives or methodology from what it used to be. The change may be quantitative or qualitative and it may be an improvement (positive) or deterioration (negative) in the existing status quo. Also, it can either be deliberately brought about (planned) or accidental (unplanned), all that matters is that there is something new.

Innovation on the other hand is a positive planned and specific change that is initiated to facilitate the achievement of some defined goals. Educational innovations are planned changes in the educational objectives, policies, programmes, methods or practices with the intent of improving educational goal achievement. It is a type of educational change designed to modify only some feature of the educational system. (Agabi cited in Agabi and Okorie, 2002:1).

Teachers as catalysts in improving critical thinking skills

Articulation and Reflection (A&R) are methods of instruction connected to cognitive apprenticeship and fall under the umbrella of situated cognition theory. The methods are associated with a move away from viewing the learning process as mechanistic and towards the conceptualization of learning as something "emergent and social". More directly, Articulation and Reflection are two parts of cognitive apprenticeship that strive to 'place teaching and learning and within a rich and varied context that is meaningful and authentic to students'. Articulation and reflective work together as a pedagogical strategy. Reflection skills promote critical thinking and students construction of knowledge, articulation skill give students the ability to communicate that knowledge with others. These methods of instruction give students the opportunity to express what they are learning as it relates to their own learning experiences and to self-evaluate their process. (Brill, 2001; Brill, Kim, and Galloway, 2001:20 cited in Harkness, Porter and Hettich, n.d).

Articulation and Reflection can be used to improve learner's critical thinking skills. Students should be able to ask questions, solve problems, investigate, analyze, and develop new knowledge. Reflection and Articulation are methods which are designed to help learners focus. By allowing them to focus, the teacher encourages the learner to more closely observe expert problem solving and to understand their own problem-solving strategies. This process encourage students to "develop a reflective practitioner' stance and to think critically about what they do". (Kraus, 1996:20 cited in Harkness, Porter and Hettich, n.d).

From Myth to Reality in Teaching and Learning

Beane (1998) in Brown (n.d) highlights several factors reflecting support of the pedagogy of construction: (1) Growing support for active learning and knowledge construction in place of rote memorization and the accumulation of knowledge constructed by others. (2) Interest in patterns of brain functioning as related to

learning. (3) An emerging awareness that knowledge is socially constructed, influenced by one's prior knowledge and social, cultural, and academic experiences.

Student centered teaching, project-oriented instruction, problem based learning and contextual teaching and learning are currently promoted as strategies for implementing constructivism. However, they also reflect the philosophy upon which academic and vocational integration is based: that education must forge connections between knowledge development and its application to workplace. Learning in context and constructing knowledge through socially based experiences are two teaching/learning concepts that draw upon principles of curriculum integration. When these reformed pedagogical approaches are incorporated in cross-disciplinary, multidisciplinary, interdisciplinary and work-related integration models, they not only help students to see the connections between subject areas, but enable them to recognize the interrelated aspects of all learning and life experiences. (Brown and Pritz, forthcoming cited in Brown, n.d).

The End of "Conventional" Instructional Design: Teaching from Industrial to Information Age

Conventionally, instructional design as a discipline is understood primarily through its past manifestations: generally behaviourist-cognitivist in emphasis, highly linear in form, abstracted from the teaching/learning process and grounded in systematic rigidity. (Darwin, n.d). However, as Smith and Ragan (1999 in Darwin, n.d) assert, instructional design in essence is a "reflective process of translating principles of learning into plans for instructional materials, activities, information resources and evaluation". Hence, as understandings of effective learning has changed, in particular over the last decade with emerging consensus around constructivism, so instructional design has evolved to reflect this changed understanding of learning.

Reigeluth (1999) in Darwin (n.d) succinctly characterizes this change in instructional design as moving from "monologue to a dialogue" reflecting a focus on learning (as opposed to instruction), encouraging the exploration of multiple perspectives, centered on social collaboration and the building on individual learning. Inevitably, this change to instructional design represents a significant departure from convention paradigms of systematic practice and notions of controlled learning processes.

Darwin (n.d) opines that the magnitude of change in contemporary and future work place environments has necessarily profound implications for how learning is designed, delivered and sustained into the future. Therefore, this is by necessity a shared change, needing to be manifested equally in the work place as well as learning environments. **Table one** broadly illustrates the enormity of the challenges presented by this transformation from industrial to the information age and suggesting some of the shared characteristics of the future workplace and by inference, future learning.

Types of Learners

According to Mc Carthy (1987) cited in Zhang and Bonk (2008) in extending Kolb's (1984) experiential learning approach, she developed the 4MAT system which also addresses four types of learners: (1) innovative (2) analytic common sense and (4) dynamic.

Innovative learners are primarily interested in personal meanings and try to connect their learning situations to their daily lives. Instructional approaches that might be effective in this regard include cooperative learning, brainstorming and content integration activities. Such innovative learners deeply appreciate personal reasons and connections within their learning environments. Analytic learners tend to focus on acquiring facts to understand concepts and processes, they might prefer lectures, independent research projects, opportunities to analyze real-world data and listening to expert viewpoints and advice.

Common sense learners want to know how things work and tend to succeed when practical learning activities are used. Instructional methods for them include the use of manipulatives and other hands-on tasks as well as kinesthetic experiences.

Table 1: Teaching from industrial to information age

Industrial age	⇒	Informal Age
Atomized knowledge	⇒	Holistic understanding
Relatively constant and local	⇒	Rapid, dynamic and global
Prescriptive and deterministic	⇒	Prospective and probabilistic
Situational, incidental learning	⇒	Universal, life long learning
Single loop focus (reproduction)	⇒	Double loop focus (continuous improvement)
Planned, structured and homogeneous	⇒	Innovative, ill-structured and diverse
Direct, demonstrated and specific competence	⇒	Multidisciplinary and generic capability
Hierarchal, stable and stand alone	⇒	Networked, fluid and virtual
Privileged singular knowledge	⇒	Shared multiple intelligence
Determined (formal) mode of learning	⇒	Multi-modal (formal/informal) learning

Dynamic learners are primarily interested in self-directed discovery. Popular instructional methods might include independent study or self-selected experiences, games and simulations as well as interactive role-playing and debates.

Even though learners have their preferences, Mc Carthy contends that true learning strengths are evident in a learner who can move from one mode of learning to another depending on the requirements of the

particular problem or learning situation. Thus, the curriculum should be designed in ways that allow learners to shine as well as encourage them to stretch to new learning height. In effect, learners should learn within their comfort zones as well as in places beyond or at the edges of their learning envelopes. As a tool for both classroom management and organizational change, the 4MAT system attempt to shed light on learning at the individual, group and organizational levels. It is useful for explaining and demonstrating the diversity of learning approaches.

Contemporary Teaching and Learning

Ferrari, Cachia and Punie (n.d) assert that a major enabler for fostering creative learning and innovative teaching is certainly the teaching and learning format. If technologies for instance, are adopted on a large scale, but their usage is a plain reproduction of old, traditional teaching formats, their impact on creativity will be minimal.

Therefore, current educational systems need to adopt new methods and formats that are suitable for present and future learners, that grasp and expand students low concentration span that provide them with interesting, up-to-date and engaging materials. In line with this, fostering creativity also requires an active mode of learning and consequently a new teaching format where the teacher is a coach and supporter and learners are empowered to take ownership of their own learning processes.

However, Nwagwu, Ijeoma and Nwagwu (2004:222) posit that the development of information and communication technology (ICT) has fostered globalization which has literary reduced the world to a global village. It is therefore expected that the engine of change and progress in organization will be partly driven by an intelligent response to available technology and materials. For an organization to develop the skill and competence to meet the challenges of the modern world, it should select and use available information and technology. It should be guided in its choice by issues of relevance, easy applicability, affordable purchase price, low maintenance cost and a high degree of tested and guaranteed efficiency of machines and materials under well trained professional staff.

Summary

The concepts of creativity in education, change and innovation and teachers as catalysts in improving critical thinking skills were addressed, including from myth to reality in teaching and learning and the end of "conventional" instructional design: teaching from industrial to information age. Also, types of learners and contemporary teaching and learning were not left out.

Conclusion

It is therefore concluded that the importance of change and innovation to contemporary teaching and learning cannot be overemphasized as they enhance knowledge renewal through constructivism, thereby concretizing knowledge as an advancement from imagination/myth to reality.

Suggestions

Change and innovation are twin bedfellows necessary as approaches to teaching and learning that results in a transformative educational experience for both the teacher and the learner. Since the society is not static but dynamic, emphasis should be on constructing meaningful learning environment that are consciously learner-centered rather than instructor-centered and orientated to encouraging life long learning.

Globalization has implication for widespread systematic change and innovations in all aspects of education, from curriculum to teacher preparation, institutional structures, school calendar, teacher

certification and government policy.

However, science and technology has further bridged the gap between the imaginary and the real hence issues are substantiated. The indicators include information and communication technology (ICT), the use of computer against manual, electronic-learning and electronic-library among others, hence the digital world.

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