ABSTRACT
Education in 2013 has changed from what it was 2 decades ago. There is a paradigm shift that is absolutely systemic in the way all aspects of education are being implemented. The pivotal force in the change is technology. It is very dynamic; as recent history suggests, a transformation to technology-based education is changing how students learn. In less than two decades, learners and instructors are faced with varied options to meet their needs (Open Online Education, Blended Learning, Massive Open Online Courses (MOOCs)). The implication is that faculty everywhere should be sensitized about the fluidity technology has invoked on the education process. Instructors have a vital role in transferring knowledge to their learners; they must, however, understand their role in the whole process of change as implement the transformation in the classroom.
Change has come to stay in the educational sector – it is an unchallengeable fact and a motivator factor learners and instructors!

Keywords: system, educational technology, transform, information age, teaching

INTRODUCTION
Education in 2013 has changed from what it was two decades ago. The change is no longer piecemeal; it is holistic and systemic. It is connected with the transition that is taking place in the social space. According to Tuomi et al (2011), the knowledge society transformation is again impacting the system of education. To understand these changes and their implications, we have to understand the fundamental needs that education addresses in society.
The change may be obvious to most faculties in schools and educational institutes across the world. The disposition to change might be different. This willingness to adapt, however, determines how each faculty reacts or responds to change in the sector.

Prior to the new millennium, two forms of educational models were known and operated. These are:

- traditional classes (face-to-face)
- distance education (correspondence)

Every form of schooling was operated based on the systems of these two models. There were several shortcomings to both of these. Increased research about learning, especially from the field of educational psychology and cognitive sciences, shows that these do not adequately address the learning needs and styles of the diverse student population.
The theories from John Dewey’s (1859–1952) constructivism to Benjamin Bloom’s (1913–1999) Taxonomy were at best theories in most schools until technology started to pave way for the practical adaptation in the classroom. Change started to occur little by little; it was minimal and didn’t affect the core transformation – the learner’s own style variations. Technology, though aided experimentation, evaluation and establishment of new learning paradigms.

However, in the course of the last decade of the twentieth century, several educational experts including Bela H. Banathy (1919–2003), advocated a complete overhaul of the educational models which were predominantly handed down by the Industrial Age shift. Since society was changing, the style to educate the populace too, must undergo a systemic change (Banathy, 1991).

At the twilight of the twentieth century, new models started to emerge including Online Education. As at the present time, we have four new models replacing or ready to replace the two older educational models i.e. traditional classroom and distance education.
The question posted is whether these changes are known, understood and acceptable to the major players in the industry, i.e. the educators/faculty?

The understanding through previous surveys (Lindow, 2011; Deacon, 2010; Howard, 2007; UNESCO-UIS, 2006; Bennie et al, 1999) is mixed and in a host of the developing world it is well below average. In several cases the adoption style by educators is piecemeal; invariably it represents putting the new wine into an old wineskin. For quite a number of instructors, knowledge of change is still shrouded in the dark. Educators, who have the knowledge, lack the understanding of the intricacies of the classroom transformation (what is at stake for them or what they are to bring to the table).

This paper, therefore, seeks to sensitize the educators of the new dispensation in education, specify via itemizing the several new models in place now thereby steering and stimulating a transformed thinking and action.

INDUSTRIAL AGE VERSUS INFORMATION AGE

Each historical era creates a system of education that addresses its needs (Tuomi, etal 2011). Also, Tuomi et al (2011) based their argument on the need for transformation on the basis that education addresses fundamental needs of social life that exist across time. A simple look at the differences outline by the following authors will expand the case.

Piecemeal change may (would) not work for societal change in dispensations as Reiguluth (1994), pointed out in the review of the imperative for systemic change in the education sector. By his account, it is clear why so many interventions of Information Technology into schools have failed and keep failing across the globe. According to him, systemic change is what can truly bring forth the transformation the sector direly needs. Kozma et al, (2011) compared Education tuned for Mass Production with Education Tuned for Knowledge Creation (transformation that involves unfreezing the various components applying change to each and then freezing them up back in order to truly experience change). Since the educational sector functions to feed the requirement of the society, a change in societal ways and culture places an urgent demand on the sector to transform to the new order. This has caused a lot of chaos between the advocates of change and those convenient with the status quo.

We are witnessing a dispensational transition that is absolutely affecting education paradigms (Reiguluth 1994). Initially, it was from Agrarian Society to Industrial Age in the nineteenth century. Now it is from the Industrial Age to the Information (Knowledge) Age. There are peculiarities to the transitions as regards the education sector hence; we will consider it in the light of the shift between the Industrial Age and Information Age. This is an assessment based study under the sub-themes need assessment, quality assessment and impact assessment.

Needs Assessment – This is a systematic process for determining and addressing needs or “gaps” between current conditions and desired conditions or “wants” (Wikipedia, 2013). In line with the needs of the educational sector, table 1 illustrates the core areas of differences between Industrial Age school system and the Information Age.

Table 1 – Needs Assessment

<table>
<thead>
<tr>
<th>Need</th>
<th>Industrial Age</th>
<th>Information Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economy System</td>
<td>Mass Production. Ability to “fit in,” follow orders (chain of command) think inside the box, perform as directed; expectation that tasks/assignments would not vary much in one job description (Bluestein, 2012)</td>
<td>Knowledge Creation. Higher priority on networking, people skills, communication skills, creative thinking (“outside the box”) and problem solving, initiative, flexibility, adaptability; ability to multi-task, shift gears, change to shifting demands of the workplace; people with “vision and attitude” (Bluestein, 2012)</td>
</tr>
<tr>
<td>Information</td>
<td>Minimum requirement is to work at a routine, repetitive task, since available jobs don’t change in pre-requisite. Information type are hard in designated places e.g. libraries and it is not always available except by association or subscription. It takes a minimum of 5years or more for information to change so it can be relied upon for double the time</td>
<td>Information is dynamic and changes for each work types as technology and knowledge advances. Can't rely on static information. Information type are predominantly soft and and are available on the Internet. It can be accessed anywhere with PC, Laptops, mobiles etc. most information are free or with considerable/minimal subscription through logins. Rate of change is impacted by rate of use and this is in approx. 2years.</td>
</tr>
</tbody>
</table>
### Quality Assessment (Assurance)

Quality Assessment (Assurance) – is the systematic measurement, comparison with a standard, monitoring of processes and an associated feedback loop that confers error prevention (Wikipedia, 2013). Table 2 uses the standard as depicted in the UNESCO Report (Kozma et al, 2011).

**Table 2 – Quality Assessment**

<table>
<thead>
<tr>
<th>Components</th>
<th>Industrial Age</th>
<th>Information Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policies</td>
<td>Static</td>
<td>Dynamic</td>
</tr>
<tr>
<td>Professional Development</td>
<td>Mastery can be achieved once</td>
<td>Continual development is key</td>
</tr>
<tr>
<td>Curriculum</td>
<td>Centralized, regulation-based</td>
<td>Decentralized, need-based</td>
</tr>
<tr>
<td>Pedagogy</td>
<td>Teacher-dependent, as much as the teacher knows</td>
<td>Learner centered, teacher provides several styles for a diverse class</td>
</tr>
<tr>
<td>Assessment</td>
<td>Standardized testing</td>
<td>Several forms of assessment is employed including peer to peer.</td>
</tr>
<tr>
<td>School Organization</td>
<td>Designated place, time and period</td>
<td>Options available as long as learning is attained. Learn anything, anytime and anywhere</td>
</tr>
<tr>
<td>Technology/Infrastructure</td>
<td>Minimal technology required. Hi-tech is optional</td>
<td>Strongly dependent on technology video, audio, mobile etc</td>
</tr>
</tbody>
</table>

### Impact Assessment

Impact Assessment – is a process aimed at structuring and supporting the development of policies. It identifies and assesses the problem at stake and the objectives pursued. It identifies the main options for achieving the objective and analyses their likely impacts in the fields associated (Wikipedia, 2013).
In a bit of a twist, let us consider the impact of continuing the industrial age system in the information age. Table 3 tries to depict a few of what we may be neglecting but is affecting our products the graduates of the Industrial Age schools.

**Table 3 – Impact of Industrial Age on Learners**

<table>
<thead>
<tr>
<th>Industrial Age System</th>
<th>Impact on the Learner in the Information Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rote Learning</td>
<td>Non creative learner, increased unemployment, integration problems in industry, unprepared for school-to-work migration, untrained to collaborate</td>
</tr>
<tr>
<td>Teacher has Master/Authority</td>
<td>Passive Learners, no knowledge is added, disengaged and distracted learner</td>
</tr>
<tr>
<td>Traditional Classroom (without technology)</td>
<td>Limited information, difficulty learning, too theoretical, time limitation, non-progressive</td>
</tr>
<tr>
<td>Standardized Testing</td>
<td>Cuts off creativity, not true test of learning, instills competitive mindset</td>
</tr>
<tr>
<td>Information</td>
<td>Obsolete and non-current, becomes unusable in the real word</td>
</tr>
</tbody>
</table>

**THE NEW MODELS IN EDUCATION**

We will consider the following equation to describe the new models of education as it has been transformed.

\[
\log_{\text{Industrial Age}} \log_{\text{Information Age}} f(f_2 + DL) \rightarrow \log_{\text{Information Age}} f(f_2 + OL + BL + MOOC + \ldots)
\]

where

- \(f_2\) traditional classroom
- \(DL\) dis-taught learning
- \(f_2\) dis-taught classroom
- \(OL\) online learning
- \(BL\) blended learning
- \(MOOC\) massive open online courses

The following are characteristics of the outlined models above.

**Traditional Education** \((f_2 f_e)\) – This is purely a shift to electronic platforms in the traditional classroom.

Some of the highlights are:
- Use of projector
- Use of presentation packages e.g. powerpoint
- Use of electronic boards
- Use of TVs, recording slides, case-studies
- Use of the Internet

All the aforementioned are simply to amplify the regular class. In such case the status-quo and system remains.

**Online Education** \((OL)\) – This is a purely online school system. Every class and communication is done via technology including the relation between the tutor and the tutored. There is no physical contact. The highlights are:
- Use of virtual technology
- Use of Learning Management System (LMS)
- Use of computer based testing (CBT)
- Classes can be real-time or on-demand
- Online portfolios are provided for teachers and students
**Blended (Hybrid) Learning (BL)** – This model combines face to face and online classes in a convenient way. It integrates multiple media with the appropriate instructional strategies. The highlights are:

- Use of LMS and face-to-face
- Virtual technology is employed (video, audio etc)
- Classes are available in both online and offline setting
- Assessment is both ways too

**Massive Open Online Courses (MOOC)** – this is an evolutionary trend and it was recently added to the basket as an educational model. There are two types presently known i.e. cMOOCs and xMOOCs. Some of its core characteristics are:

- Use of virtual technology
- Peer learning
- Personalized learning

**INTEGRATING INTO THE NEW MODELS**

Integrating into the new philosophy of education requires a re-engineering in the faculty on several perspectives.

The faculty should expect to carry out the following:

**Transformed Mindset** – invariably the orientation of every faculty has got to change in this dispensation first in order to follow through with the transformation going on in the sector. The transformation can be in several ways including personal re-orientation which is more subtle and system-induced re-orientation which comes by policy changes.

**Readiness for Change** – from the analysis shown thus far, the only way to get along in the education sphere is simply to adopt the change mentality. It is no more a slogan and it is pervasive not just for the higher education but for k-12 too that we are in a transitory period. Every faculty has got to take the idea and ideals of change in this dispensation towards the future.

**Continual development** – the price for the Information Age i.e. to remain relevant, is continual development. The term lifelong learning means just that. Below are tips to continual development

- **Peer to peer learning**: this will always be a way forward in the Information Age. Collaborative and team spirit wins the day always for knowledge sharing and empowerment. More so, this is both a vertical and horizontal concept.

- **Active Forums Participation**: Information is everywhere but qualitative knowledge is mostly available on forums most of which are on the Internet. Since there is no limitation of space and time on the Internet, there is relatively no limitation to the knowledge shared on collegiate forums. Examples of sites to look for are below.

- **Professional Development**: This should be recognized by administrators as a benchmark in the wheel of progress for every faculty member. In the Information Age a faculty is distinguished by continually been subjected to standards that refines, updates and upgrades his skills in delivering to the learners.

Every faculty must get integrated into the new scheme of things to be relevant and impart relevant knowledge to the learners. Anything short of this is untenable.

**VACANCIES IN THE EDUCATION SECTOR**

In the 20th century, we understood by attending school because there is a master that passes down knowledge to us which we mostly can’t verify and will only do ourselves good by agreeing to the master even if it is wrong.

That has changed in the 21st century where a student has access to information sources even more than the teacher. We simply cannot afford to continue penalizing creativity and independence and rewarding conformity and mediocrity. What we need is not another myopic reform in education but an Education Revolution (Rethinking Education, 2013).

There is no moral imperative for a faculty in front of the class proving master but not ahead information wise. A faculty of the 21st century must be a lifelong learner, a facilitator and a change compliant leader. That is the vacancy been advertised, that is the impact of the paradigm change that has taken place.
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