MANAGING FUTURE EDUCATION WITH TECHNOLOGIES

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INTRODUCTION

With the rapid emergence of so many technologies certain things are becoming irrelevant and obsolete and as such different strategies of management are required to deal with the situation. Satellite communication is accelerating the process of globalizing education and it is also entering that phase of education where not only the education will have the common curriculum but also the technologies to realize the objectives. The future education will have entirely different courses with more flexibility and modularity. Bill Gates in his book The Road Ahead has rightly remarked, 'We are all beginning another great journey. We are not sure where this one will lead us either.'

A combination of computer mediated education and on-line education provides a unique domain which through the aid of computer conferencing allows more open structured curricula. Technological tools would help the specific needs of the individual making learning not only active but interactive in the field of continuing education and short duration educational needs of the future. As technologies can make information available to anyone, anywhere, anytime, this will create such a situation where different management has to be in place. Virtual reality access to the Internet and voice activated environment controls are just a few of the features offered by the latest technological tools. The principles of management which found their application in business have in the recent time virtually pervaded all fields where human, professional and material resources have to be effectively coordinated. Technologies are breaking the barriers of time and space. Science and technologies have however immense potential for improving the quality of life through education

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The future technologies will surely make it easier to disseminate ideas facilitating education. 'Our future schools are likely to break all the barriers which bind them today. They may mean a complete change in their shape. This shape will be open.'[1] The traditional academic institutes will have a changed complexion in the time to come. 'The maximum use of scientific technology will be made in the enrichment of the knowledge of the persons.'[2] At present certain future changes may sound quite impractical as well as dreary but their probability can't be ruled out on the basis of our likes and dislikes.

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'Thirty years ago man's putting his foot on the moon was a utopian dream. Today it is a reality. Hopefully, in the next decade the schools without barriers may also become a reality.'[3]Today things are changing at a very fast speed under the impact of science and technology. At times the teachers of today can't cope up with the changing situations. They can't sustain the interest of their students. The students today like to rely more on technologies than on teachers about learning and consultation. It is being felt increasingly that teaching and learning have to be a collaborative effort to achieve the objectives. Traditional classroom teaching at educational institutes does not elicit the desired result.

PRINCIPLES OF MANAGEMENT

Future education can be managed through interdisciplinary approaches and technologies. Management institutes at higher stage will have to incorporate futuristic methods in the process of imparting education in the time to come. The concept of universities catering to the elite class has changed and institutes have to become more responsible to the society at large. The education system has undergone a radical transformation from an elite system to a mass system attempting to meet the requirement of a large chunk of the world. Effectiveness and efficiency are required for good management.

The degree of flexibility of the institution, social, administration and economic, is necessary to its survival in the changing context. In deciding the management pattern of the future education, it should be recognized that the academic administration is based on the principle of participation of prominent academicians as well as the masses. It must have the inbuilt flexibility to adapt itself quickly to the changing aspirations of the people. The basis of the future education is its utility to the individual as well as to the mankind in the time to come. 'Nothing should be included in the curriculum unless it can be justified in terms of the future.'[4]

Managers are supposed to be the visionaries who are capable of leading the society. The precise dates or years with regard to future education anticipated today don't matter. The underlying idea is that visualization helps us to make the psychological as well as physical preparation. Toffler suggests, 'In dealing with the future, it is more important to be imaginative and insightful than to be one hundred percent right.'[5]

Realistically, when we say about the future education that really does not mean 2020, 2050 or 2100 AD. 'Nor does that mean the scenario that could be visualized more on realistic basis-rather than as prophesies keeping in view the assets of good practices along with those which are archaic, outdated and outmoded having lost relevance in the context of the changed and fast changing scenario as also the traditions which are more obstacles than paving ways to effective functioning of the system.' [6]

SCIENCE AND TECHNOLOGY VIS-A-VIS FUTURE EDUCATION

'Due to advanced science and technology man has acquired such powers as could be helpful in wiping out poverty, ignorance and sickness from the society. As teachers it is our duty that we must be modern and also we have to walk with such steps which lead to gradual changes in the pattern of education."[7]

The technologies of future education require such managers who can make critical judgments, who can weave their way through novel practices. Tomorrow's incompetent managers will not be the man who can't read; he will be the man who has not learned how to adapt to the situation properly and precisely. Managers have to sensitize the students and all the stake holders to the trends of change, to probabilities for alternative futures to an array of future possibilities, to modes of adaptation, to corrective and innovative action. They have to encourage them to transcend past experience to

creatively create the future. Personalized teaching, multiple learning, active answer-seeking, flexible schedules, building desirable attitudes, child initiative and group planning, interrelated content; problem awareness of various media in addition to the texts, active stimulus of intellectual faculties are some of the answers to the present educational problems.

CUTTING EDGE TECHNOLOGIES

Technologies such as cloud computing, augmented reality (AR) and 3D printing are going to shape the future education. They shall pave the way for the future of education in ways other than we find it today. Just as the original intentions for new technology, however, often give way to innovative and unpredictable usage, none can be too sure if a twist is waiting for these new technologies. 'The future schools will neither have any boundaries nor will follow any predetermined curricula.'[8]

By its very nature, technologies change at a very fast pace and as such, making them accessible to students, teachers and other stakeholders is a herculean task. They play a very significant role in dissemination of information, thus spreading education. 'Technologies make information available, anywhere, any times' 'The Cyber suite will answer the increasing needs and demands of our guests, completely redefining how we accommodate.'[9] The very nature of technologies keep on evolving and as such new technologies are likely to emerge from time to time '. For me, the future is not about one specific device. We don't know what will be the current technology in another four years. Perhaps it will be wearable devices such as Google Glass, although I suspect that tablets will still be used in education'[10]

There are other technological advancements which are accelerating the changes and among these technologies nanotechnology is very revolutionary. 'Other applications of nanotechnology would supposedly make our

cities obsolete as floating microscopic robots with lots of arms and hooks sticking out from all angles would compose a system that could turn itself into ancient Rome one day and the Emerald City the next.'[11]

From the viewpoint of the managers it is very necessary to know the changes likely to be faced. 'The future is about access, anywhere learning and collaboration, both locally and globally. Teaching and learning is going to be social. Schools of the future could have a traditional cohort of students, as well as online only students who live across the country or even the world. Things are already starting to move this way with the emergence of massive open online courses (MOOCs). For me the future of technology in education is the cloud.'[12]

Future education has to be managed with some cutting edge technologies as mentioned hereunder:

TOUCHLESS TECHNOLOGY

The managers will have to integrate data with interactive adaptive learning systems in a manner that adjusts the content to best suit each student's learning style. Alternatively, the eye movement patterns may also guide the delivery of the content, taking into account concepts students might have trouble understanding evident in the longer time they spend gazing at that particular section. Over the past few decades, we've seen the transition from blackboard to whiteboard, to overhead projector and to video projector for computers in schools. If you're guessing that the next in line will be something that is akin to our smart phones and tablets, you may be right. Specifically speaking, the next "board" is likely to be a giant touch screen LCD screen which allows a greater amount of interactivity.

After all, we're talking about a screen that will be attached to a computer capable of generating infinite combinations of images, sounds and

videos, just like our smart phones. The major difference with this new "board" and our smart devices is that it will be capable of detecting multiple touch inputs from many students simultaneously. Instead of the traditional big board in front of the classroom, it will probably be just like the Samsung SUR40 for Microsoft Surface, a giant tablet with its LCD screen lying flat atop a table-like structure. Students will sit around the table tablet, swipe on the board to manipulate and drag images around the screen, or type notes with their onscreen keyboards.

Think of the possibilities if every pupil gets one of these desks. 'Along with the social networking feature, these multi-touch surfaces will also allow students to collaborate live with peers around the world by manipulating virtual objects in real-time. The Multi-touch project by Synergy Net in Durham University is a great existing example of how such technology can be used by school children.'[13]

3D PRINTING

A 3D printer can be managed for the teacher and the taught. In some subjects, it is indispensable and the class must have it by all means. Instead of being restricted to what they can play with, students in the classroom of the future can print out 3D models for various purposes, including show-and-tell. The students and teachers of engineering and the like could directly benefit from 3D printing technology. Some elite institutions have already started making use of 3D printer students to create design prototypes.

The 3D printer is helpful to produce working mini-models to test out engineering design principles. The students can then strive to achieve perfection in their design before making an actual prototype. Together with CAD (computer-aided design) modeling software, 3D printing can be managed for the students to experiment freely with their designs without spending too much and wasting too much time.

In many subjects the teachers and the taught require the visuals to enhance learning and the decreasing cost of 3D printers means that managers can enable teachers and the students to reconstruct complex concept models to teach theoretical concepts. To illustrate, 'the concept of molecular structures and configurations may be difficult to understand, but by printing out physical versions of these structures, students will be facilitated to put a form on abstract thought, and get a better understanding of the subject.[14]

CLOUD COMPUTING

This technology can be used very skillfully by the managers to enable students to learn independently and in their own way. There is also a massive amount of resources online that students can find and use themselves, without the help of the teacher. This of course means the role of the teacher will change 'Teachers can use the cloud to set, collect and grade work online. Students will have instant access to grades, comments and work via a computer, smartphone or tablet. Many schools are already doing this. Plus, services such as the educational social network Edmodo offer this for free. This is where devices come in. All devices, not matter, which ones we will use in the future will need to access the cloud. Each student will have their own. Either a device specified by the school or one they have chosen to bring in themselves.'[15] The students of future education may just require an electronic device to access all their homework and all other learning resources in the Cloud. This amounts to the fact that the students need not carry heavy textbooks to educational institution.

The personnel managing the institutes are sincerely exploring the possibility of making institutes bag free and paperless. At the same time the students have a constant access to their reading materials as long as there is an Internet connection. Such convenience, when provided to students will put them at liberty to work on their

projects or homework anytime and anywhere. The digital library is a boon as it is accessible even when the campus library is not so. The digital library will also help students to skip hitching a ride there, or to the bookstore or even to class. Surely, this will save time and money of the students and others. 'Cloud computing technology aims at virtualizing the classroom. Educational institutions can now leverage on cloud technology and set up online learning platforms for students to log on and attend classes in a virtual environment'[16] For instance, the concept of cloud-based virtual learning environment (VLE), lets students access learning content and participate in discussions in forums. Home Assignments or even tests can also be easily distributed among the students, minimizing the need for them to be physically present, but to encourage interaction and discussion, educators require another channel.

AUGMENTED REALITY (AR)

The new technology like Augmented Reality is likely to impact the world in a big way through Google Glass, gaming and awesome apps for astronomy. This has to be managed to allow students to see additional information layered over what they see through the lens. At present, however, access to AR technology for educational purposes is normally limited to smart phones, Apps such as Sky Map lets the teacher and the taught scout the night sky for constellations. Their integration as a component of education has to reach the stage of seamlessness. The AR experience has to be managed to blend information readily with the reality for the educational purpose.

Virtual field trips can be managed to materialize with AR. Andrew Vanden Heuvel, physics teacher, taught from inside the Large Hadron Collider in Switzerland, streaming what he 'sees through a beta Google Glass to his students thousands of miles away. They see him, and he sees them; it's as if they are in the same classroom! The

"Hangout" feature in use here is particularly promising for team collaborations in projects and assignments'[11]. This technology is very important for the students of management and science. This will enable students to see supplementary and interactive information for them to get to know more about their areas of interest. It is just like how this AR advertising app can recognize images in the real world and interact with them

ONLINE SOCIAL NETWORKING

Managers will have to get educational institutions registered themselves with the online virtual world. 'It is a feature of the second Life to provide students with an online platform to socialize with each other.'[17] Such social networks enable students to share their ideas freely, while teachers moderate as a big part of the cloud platform. This notion is very empowering because it will imbue students with a new perception-that learning is a subjective responsibility and not that of the teacher's.

In addition to this, this many-to-many interactive learning where ideas are at full play will let the ideas flow freely and thus the learning will be more aligned with real-world scenarios where collaboration is normally the norm. Social networking tools can be made use to enhance collaboration and team-building initiatives. However, in case there is a need, teachers can lend some guidance in the form of responses to queries or by uploading useful information to the cloud community as soon as possible. Another benefit is that It also serves as a great feedback tool, to help improve the courseware. A social-based approach to education will seem more than relevant to students of the future.

FLEXIBLE DISPLAYS & PAPER THIN SMART PHONES

Note-taking on memo pads is still very much alive during lectures although there may be a shift from paper to laptops, netbooks or tablets. As

educational settings become more digitalized, the future classroom will reconcile the differences between pen and paper versus keyboard and screen. The answer might just be flexible OLED-based displays.' Just like regular paper, these displays will be lightweight, flexible and extremely thin. This means we can roll them up into tubes or fold them like newspapers.'[18] Unlike regular paper however, these plastic e-papers are not only durable ("unbreakable" is the correct term), but also provides interactivity. With swipes, taps and pinching (maybe), these flexible paper-thin displays can take over paper-centric industries.

GAME-BASED LEARNING

Managing future education with game based learning technology will be very useful to the students and the teachers. Growing up at a time when the world is connected by the internet, kids today seems to have very short attention spans. This is unsurprising, since their childhood revolves around YouTube, Face book and smart phones that provide them with on-the-go 24-hours updates and the answers to all their queries through Google and Wikipedia. 'To cater to such a fast-paced generation, schools will eventually abandon traditional teaching methods of rote learning to align themselves with the times. One great way to achieve that is to use what had always been considered as a major distraction to learning – video games'[19]

Kinect EDucation provides a one-stop online community for interested educators and students who want to use Microsoft Kinect for learning purposes. As can be seen from their video, some of the best suggestions on how educators and students can benefit from the motion-sensing technology include enabling students to learn sign language and how to play the guitar by detecting their hand movement. Another concept adopted by educators does not focus on the game play or interactivity; rather, it emphasizes on how learning the game design process can

educate students. In Gamestar Mechanic, the idea is to impart students with basic game designing skills (without the complexity of programming) to create their own games and consequently help them develop broad skill sets such as language, systematic thinking, problem-solving (through simulation, trial-and-errors, etc), storytelling, art and many more.

BIOMETRICS

Managers can make use of the biometrics to run the institutes quite smoothly and efficiently. Conventionally biometrics is associated with the security industry, as it uses what is unique to each one of us to authenticate our identity: fingerprints, facial recognition, iris patterns, voice. In terms of education, some institutes are only using fingerprinting to prevent truancy and for borrowing books from their library.

However, eye-tracking can be helpful for instance, in providing invaluable feedback for teachers to understand how students absorb and understand the learning content. As a matter of fact, advertising researches have been using eye-tracking technology to see how consumers respond to their advertisements and to determine what captures their attention. 'In the future, this technology will help intelligent software completely understand the physical and emotional state of children learning in the classroom. Course material presented to students can be altered on the fly and will be perfectly tailored to individual needs based on biometric signals from students'[20]

This illustrates how managers will have to move away from traditional managerial structure to the modern one adapting the new changes in their fold.

CONCLUSION

In the future, managing education will be heavily based on technologies. Managing online social networking AR, cloud computing, and adaptive

learning systems utilizing eye tracking technology will be very essential Innovations will also be encouraged as simulations are made possible through 3D printing and game-based learning without really incurring real-world consequences or costs. Chief among all, students will soon be groomed with the wisdom of seeing learning as not a chore, but as a critical and gratifying part of their life which requires their proactive involvement. Technologies will surely be a main factor in how education in the future differs from the present educational structure. However, it won't be the only influence. Efficient managers will realize that they need to rethink the entire model of education and redesign it so that it is more student-centered. This requires adopting new technologies, as well as giving up on archaic attitudes about what constitutes educational success and recognizing that educational competition is a reality. The modern science and technology may crop up new problems as well. Certain crises will erupt due to human selfishness, shortsightedness and lust for power. The competent managers will be able to apply technologies in future education successfully if they are able to make use of their head and heart properly.

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