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EXPLORING NEW AVENUES OF TECHNOLOGY IN HIGHER EDUCATION

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Abstract

The higher education in India aims at creating a workforce which would strive for the development of nation and the upliftment of the Society. Unfortunately, due to the lacunas in the Higher Education System in India, the youths often fail to scale the height of success which is expected from them. Conventional patterns of education are one of the many reasons for the low productivity of talents in the Youth. Technology, if applied in higher education can replace the age old methods of teaching-learning, opening new avenues in the field of Academics where an individual will not only understand the concept, but also the real life applications of the same. The paper reviews the higher education system lacunas and the technological aspects which would be a substitute to the conventional teaching-learning methods and the shortfalls of implementing technology in human lives and its after effects.

***Keywords**: lacunas, teaching-learning, avenues, shortfalls*

Introduction to Indian Higher Education System

The Indian Education System follows a (10+2+3) pattern of Education. This includes 10 years of study in schools, 2 years of study in junior college and 3 years of graduation for a bachelor's degree. After completing the graduation, the learner can also opt for Master's Degree. The education is provided via government or private schools and colleges.

Higher education includes both the undergraduate and post graduate level. There is a great demand for highly educated and skilled employees in India and abroad. Hence, thousands of learners enroll for higher education every year, hoping for a successful career in their respective streams. Unfortunately, the quality of these undergraduates and post graduates is not up to the mark, as always a problem, according to the Industrial standards. Most of the learners don't know what careers they should chose, as they have not planned their respective career path. The primary reasons behind the gap between the industrial requirement and the

learner capabilities lies somewhere in the higher education system. Some of the obstacles of higher education system in India are:

- theory oriented syllabus
- exams conducted for marks and grades
- overloaded syllabus
- continuous evaluations causes shift of focus from learning to grading
- lack of favorable environment for creativity
- costly higher education
- learners expected to learn all subjects, irrespective of their interest
- non-cooperative government policies

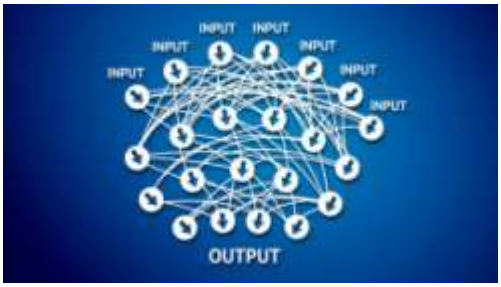
The new generation learner is not compatible with the tradition teaching learning methodologies, as they are surrounded by the technology all over. To develop interest among the students, the traditional pattern needs to be replaced with the evolving technologies. Focus should be on the creative abilities of the students which would only be developed by changing the way we learn.

Upcoming Technologies of Future

The following technologies can be implemented to open new horizons in the Academics sector:

1. **Machine Learning**: In recent times, the Machine learning is been used in every aspect of Human life. Machine Learning is a method of Data Analysis that automates analytical model building. It implements algorithms that iteratively learn from data. A rich set of data is required by the Machine Learning Algorithms for predictions, which then tries to identifies pattern in the data and transform it into a structural knowledge base for future. If the Machine learning is implemented in higher education systems, it will change the perspective of teachers as well as students. As the machine learning enables the computer to think and respond like human beings, the test cases fed to the systems will be yielding the outputs, as expected from a human evaluator. The faculties will be able to see how much the students can grasp the concept, can analyze and understand what teaching methods are not working, what are the requirements of the learners and will be able to design a syllabus based on students like and dislikes. The systems can analyze the learners on the basis of repetitive action and predict the weakness and strengths of the learners can organize the content and analyze what is best practice of teaching. The

evaluations can be unbiased and genuine feedback can be obtained by the learners if the machine learning algorithms are implemented thorouly. The learners will be able to adapt the best practice to grasp a concept in their syllabus.



2. **Knowledge Management**: Knowledge Management is the process of creating, sharing using and managing the knowledge and information. Management of knowledge at the individual level is called personal knowledge management. It deals with the idea of storing and managing knowledge obtained through previous experiences. Analyzing the previous problems and its solution enables us to deal with the problem at the grass root level make us understand the root causes of the problems and what could be the possible solutions of the problem. This methodology can be used to study the previous performance of the learners in lower classes, what are the likes/dislikes of the learner, designing a teaching plan which would make the learner grasp the concept faster than the traditional method. Some of the knowledge management strategies are:
    a. **Storytelling**: The concept of storytelling in the classroom sessions is an innovative method to understand the concept. The learners can be told a story and at the end of the story, the teachers can ask the conclusion, when they are nearby the concept, the teachers could explain the relevant concept and facts.
    b. **Project Learning**: Instead of merely teaching the concept, the learners can be made to do a project by actually trying to analyze the object/ scenario in question, when they submit their project, the faculty could ask them what they have learned during the entire project timeline.
    c. **Shareable Knowledge**: The normal teaching learning sessions can be converted into an open house discussion. Every learner would be given some time limit to express his/her views on a specific topic. The learners should be informed previously of such sessions so that they can prepare their notes and examples. These sessions will not only cultivate the habit of self-study but also help in raising the confidence of an individual. The entire proceedings could be recorded

and case studies of such sessions could be stored in the database, and could be made accessible to the other students so that they could learn from the entire records.

d. **After Action Review:** After Action reviews refers to the process of self-evaluating, after a particular event occurs. The event can be anything like analyzing the process of performing a practical when the output is not as expected. This strategy develops an error rectification and correction approach thus, minimizing the possibility to commit an error later on.

3. **Augmented Reality:** Augmented reality is a technology that layers computer generated enhancements on top of an existing reality in order to make it more meaningful through the ability to interact with it. Imagine a learner to be able to view and manipulate objects, while learning the same. This technology will change the age old tradition of learning. Learners will be able to visualize the object while a theoretical explanation is being given. Following can be the fields where Augmented Reality can be applied:
    a. Writing skills and grammatical mistakes can be improved as the augmented reality will be suggesting the sentence before a user can write it.
    b. In Architecture, we will be able to see how plans look on a physical plane, helping greatly with planning and development. The architects can design the models keeping in view, the geographic conditions and test the same design with real factors like heat, rainfall, humidity, earthquake, tsunami and cyclone and can study the effects on the model.
    c. In Medical field, the augmented reality will allows us to view 3D x-rays while looking at the patients. The interior surface of the body can be seen without exposing the body to harmful radiations.

d. Augmented Reality based apps can be used in Tours and travels where an individual visiting a new country with an entirely different language would be interpreting the language just by scanning the words with the smart phone.
e. The technology might change the learners' perspective as it will be very much easier to the students with special needs to make understand a concept, as the learner would get all necessary information just by scanning the word or image.
f. It can also be used for simulations of Air flight and space expedition and what exactly would go wrong when an emergency may arise. It will save the expensive equipment and the loss of human life during the risky training operations.


4. **Internet of Things:** Kevin Aston coined the term "IOT is a network of physical objects that are connected to the Internet" in 1999. IOT enables devices such as smart phones & computers to connect with each other. The things can be addressed uniquely using a Uniform Resource identities or an IP Address. The objects can transmit data to each other and even perform physical acts using sensors. IOT influences and improves the education in many ways, providing campus security, operational efficiency and classroom learning. IOT systems are comprised of sensors, microcontrollers, relays, motherboard and smart phones. Using these components the following activities can be performed:
    a. **IOT controlled boards:** Whenever the learners require some explanation or an image of a keyword, they have to simply write that keyword on a specific area on the blackboard, the IOT systems will be able to read the keyword, submit it to the search engine, and instantly the images and explanation will be projected on the board without any individual interactions. Also, if the blackboard requires cleaning the content written on it, the faculty can simply send a command through the smart phone and the robotic arm will clean the board without the teacher being

physically present in the class. The command can be given from wherever Internet can be accessed.

b. **Security:** The IOT devices could be wore as a wrist band or a small chip can be encapsulated in learner's bag or in their shoes. The chip will be connected with the IOT systems which in turn would be connected through the Global Positioning Systems technology. The learners can be tracked and their last known location can be predicted in case of emergency. The technology is very effective as systems can be developed which will be able to send danger alerts to the family members, security personnel in case the learners have to travel from far off places.

Shortcoming of the technologies

As every coin has two sides, technology is in no way different. Along with the future altering technologies which would be having a great impact on human life, there are some disadvantages that follows.

1. **Expenditure:** Technology does not come free of cost. The equipments required with every evolving technology are costly. Not all the sections of the people can afford to implement the evolving technologies as it may include purchasing or upgrading computer hardware, updating the software, other components like display units, smart phones, and other required components.
2. **Poor Learning Methods:** Technology provides ease of access to resources, the learners can access the resources from anywhere with cloud computing, this develops a careless approach of being inattentive in classroom sessions. Learners are trying to find the shortcuts in almost everything, how a specific problem can be solved using minimum efforts, preventing the in depth study of a particular subject/concept thus, the tremendous capacity of the brain is underused. Also, the quick solution weakens the decision making ability of the learners in unfavorable conditions, making them psychological weak resulting in a quick quitting attitude. The language proficiency of the learner is also affected drastically as the spell checkers apps in smart phones and on the internet do not allow the learners to check for grammatical mistakes and sentence formation. Good Hand writing is extinct nowadays as most of the content is typed and not written, making the learner lazy and dependable on technology.
3. **Misguidance & Inappropriate Content:** Not all information available on the internet is true, or authenticated. Profit making websites may upload wrong content to

get their websites to be among top searches in the search engines. Also, as all the content is easy accessible to the learners, they will also have unrestricted access to inappropriate content which would be not meant for them. The Youth would be a vulnerable target to the anti-social elements as they are not focused and are unorganized.

4. **Distractions:** The culture of a united & large family has become extinct as all the members want their space and privacy. Most of the youths and family members spend most of their time on social networking sites and apps. A healthy conversation does not take place now days, as it used to be previously. The influences of technologies have distracted the learners greatly as they don't find time for their family and friends. This develops psychological diseases among the youth.

Findings

From the above discussion, we can interpret that technology is inevitable, we cannot avoid it, sooner or later we have to embrace it whether we like it or not. It's true that technology will open new dimensions of learning, and Academics will never be the same. The future requires technology which makes human life more simple and cozy. It enables us to learn and adapt quickly. At the same time, technology makes human beings lazy, dependable and self centric. Sooner or later we will be so immersed in the virtual world that we would not be able to distinguish between virtual & real worlds. Learning experience is going to change forever, but at the expense of the learner's social, professional and family life. Learners have to draw a thin line between self reliance and dependency, or else they will be losing their basic arithmetic skills, decision making power and confidence building abilities.

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