The Changing Face of Education Methods of Learning in a digitally disrupted world

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Abstract : With the coming of the digitally disruptive economy, we see that Artificial Intelligence and Machine Learning would play a big role in transforming the way in which we learn and how education will be perceived by the existing and coming generations. Everything will go for a change, right from the medium of education, to how learners understand, learn, and practice educational material–to even the role of the instructor in our society.

With the advent of Industry 4.0, the entire ecosystem of how we learn and where we learn, would undergo a massive shift. Artificial Intelligence would be a reality in the coming years and an unavoidable and indispensable solution to a host of ideas we envisage today. It is thus, imperative, that students today are exposed to the usage, benefits, and applications of AI -- something that will be a reality of tomorrow. Even in the present times, we have seen a paradigm shift in education, which has made some far-fetched concepts such as personalization, social learning, and immersive learning experiences possible.

We have embarked on a fourth industrial revolution, which will give technology a new breakthrough with the coming of high-end fast-paced computational powers, interconnected intelligent devices through IoT, artificial intelligence and machine learning, automation, robotics and data analytics. In the previous industrial waves, we built machines and programmed them to perform automated tasks. Now, the coming age is of machines, which can think with logic and reasoning and make humans learn from them.

1.INTRODUCTION

Disruption by its very essence means disturbing the existing state and causing change, interruption, and commotion in the otherwise stable environment. Transformation in Education and ways of learning due to this digital disruption would mean coming of new ways, evolved practices, and a complete shift in the learning paradigm. Traditional practices and outdated technologies would be forced to give away to newer methods, collectively brining in advanced capabilities, wider acceptance, and ease of use by the learners.

II. EVOLUTION OF OUR LEARNING ENVIRONMENT

Let us look at some of the modern-age learning delivery channels that are changing the way we learn.

Personalized and Adaptive Learning: As of today, with the coming of Social Learning and Web 2.0, it is possible for learners to personalize their learning experience by joining communities, weblogs, forums etc. that enable them to learn whatever they want, whenever they want, and from whomever they want. Education as a whole and techniques used by academia to teach students is changing from a 'one size fits all' approach to a more personalized, adaptive, and customized learning practice. Learners can now join various learning communities, expert's networks, forums, blogs, wikis, and online discussions to enhance their learning experience. Dedicated communities and forums help address learner issues, discuss solutions, and arrive at the answers to questions. All this happens at almost real time, without having the learner to wait for instructor's time and availability. Courses are available and suggested to the learner, according to their interest area, through the various feeds that are available to the content providers or companies managing online content. For example, one can have access to unlimited information through digital learning academies like Lynda, SkillSoft, Khan Academy, Udacity etc. While majority of the content is available on a pay per use model, you would be re-directed to courses that suit your interest and level of expertise.

Interactive and Engaging E-Learning or Online Training: One of the most common ways in which learners understand, comprehend, and even practice different concepts is through self-paced learning modules that are available for study online. Organizations and academic schools are rapidly adopting the use of advance learning management systems, through which learners can have access to formal courseware in digital mode, interact and learn through the course, perform the practice scenarios, and attempt assessments for evaluation and competency certification. Learners can also share their research, academic papers, and assignments with instructors through the online portal/ learning management system. At the same time, they also have access to updated online content through an interactive learning medium, which allows them to learn at their own pace, anytime and anywhere.

Mobile Learning: With the advent of mobile as a channel of communication and a way of life for fulfilling day-to-day needs, why must education be left behind utilizing the benefits it has to offer! These days, a lot of learning content is being pushed for learner consumption through channels of delivery such as mobile, handheld devices, iPad etc. This is being made possible by publishing courses for mobile-compliant delivery in the form of micro-learning nuggets, videos etc. which users can access with ease. A majority of leading learning management systems also have a mobile app, through which content can be streamed via a mobile device.

Gamification: From casual games for inducing learning interest and engagement, we have now moved to more serious games, wherein learning happens through a game. Games can be scenario-based, which are meant for teaching a specific process/ area and learners play independently, focused on building their analytical understanding. This Scenario-based or case-based learning approach is achieved by creating immersive games in 3D, or business simulations that deeply engage and involve the learner in the overall learning process by providing a competitive spirit. The other way in which games can be introduced to the learners is by having the E-Learning modules to be embedded within a gamification framework. Users enter the learning framework through a game interface and overcome hurdles/ pass stages only when they go through the required learning module/ assessment. In such games, learners play independently or as teams and leaderboards/ dashboards are published on the portal/ LMS to motivate others to play even better. Such campaigns are being widely used in the corporate stream to engage and teach their new-age workforce.

Video-based Learning Channels or Micro-Learning: Youtube has made watching videos very popular. The reason why video-based learning is gaining so much popularity is because of its ability to completely mirror a real-life instructor-led session or a business scenario, work situation, and even provide a realistic and visual example to learners. Video-based learning is popular as there is least effort required from the student to read the content and watching the video could be a more enhancing experience. Video-based learning is popular as it gains acceptance from new age millennials who need short byte of instant information and learning on the go.

Immersive Learning Experience through Virtual World and Augmented Reality: Augmented Reality has made it possible to give the learners a real-world environment, without having to operate in one in reality. This is a next biggest advancement, which will lead to some of the most remarkable breakthroughs in the field of learning. Virtual world and immersive learning techniques have made it possible to transport students from a real world environment to a virtual environment where they can feel, interact, and respond to their environment full of challenges. Virtual reality has also made it possible for users take a tour of their favorite museums and be transported back in time (or ahead in time). Organizations like Unimersiv have even launched their virtual reality education app, which promises an enhanced and immersive experience to its learners. This experience can be achieved via gadgets like the Oculus Rift and Samsung Gear VR head-mounted displays. Similarly, the use of simulators for manufacturing, aeronautics, life science and surgical procedures has made it possible for learners to learn and practice at the same time, without having the risk of operating in a real world environment. This is made possible by developing tools that have helped develop practical scenarios and simulated environments.

Adaptive Learning: Adaptive learning gets its name from the way it helps the learners adapt to the learning sequence and pattern according to their preference and learning paths. This methodology collects information about learner behavior, responses, and ability and provides instant feedback to alter the learning experience for the user. Algorithms running on adaptive learning methodology, analyze student data in real-time and provide different alternatives, learning paths, sequence, and pattern according to the learner's response. For example, learning modules based on multi-path branching scenarios and decision trees run on a similar concept of adaptive learning. Learning happens according to learner's response and the entire learning path might differ from one learner to another. The concept of adaptive learning is personalized in nature, in that it provides every learner to understand the concepts and learn at the own pace and according to their respective learning capacities.

Artificial Intelligence: Not just in education, but in an organization's day to day operations, AI is playing a vital role. For example, one must have not realized, but AI led office assistants are replacing the need for having humans perform the routine tasks. Tasks such as writing emails, setting appointments, performing follow ups, organizing meetings, and even sending text/ voice messages is being now performed through Chatbots or AI-led office assistants. In a similar way, a Learning Chatbot or a Virtual Automated Instructor can help learners meet their personalized learning commitments, by providing them with a structured learning process that embodies behavioral teaching techniques, set achievable learning targets, measure performance and proceed on the pace of the learner. We can use AI to mirror a basic coaching conversation, which a live instructor would perform, by utilizing a messaging

platform for communication.

As we see more advancements in AI, gradually the gap between learning and teaching will be minimized. This does not mean that the requirement of instructors would ever become obsolete, but their contribution would be elevated to a level where expert knowledge is needed and mundane and routine enquiries would be handled by machines. An ideal situation is where AI would complement the learning process and instructors would be required to deal with situations, where machines may fall behind. These are aspects dealing with the emotional quotient.

With the coming of AI, what seems impossible today, may ultimately be achievable tomorrow. For example, the character impersonalizing an instructor of an e-learning online training module would be able to gauge the expressions of the learner, to customize or personalize the level of instruction. This would be made possible through the use of smart and intelligent machines, which can read facial expression, time to response, and level of interaction that learners make during the course of study.

CONCLUSION

While we understand the radical shift that the digital economy would pose on education services and channels of delivery, we also need to be cognizant of the fact that this change would face resistance from its consumers and providers, both. The cost of setting up advanced learning solutions, changing the business model and operational processes, re-defining the role of the student and the instructor, investments for incorporating these ideas -- would all mean undergoing an enormous shift. While early adoption into these advanced learning methods would have a far-reaching benefit, it will still take time for organizations and industries to adopt to the new learning methods for their employees. Cost of implementing such programs must also repay back as return on investment through quick enablement of employees with the knowledge and skills they are required to learn.

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