

STRATEGIC EVOLUTION FROM CONFINEMENTS OF FACE TO FACE LEARNING AND SHIFT TO ONLINE LEARNING

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Abstract: Learning is shifting from traditional classroom learning to Online Learning. This is just beginning there are constraints and hurdles in this transaction. Adopting online blended learning in place of face to face learning has many pitfalls and mental barriers. Online learning is misconception with distance learning Streaming and virtual reality has changed the concept. Online learning in essence is learn anywhere and anytime. It has bridged the geographical and linguistic gaps. One can learn at own pace and place. Modern online learning involves multimodal form of knowledge transfer. But education is still in the grip of confinements of face to face learning. To opt online learning and offset confinement of face to face learning there is need of proper strategy and integration of all emerging technologies and unleashing full potential of technologies to make learning at par with face to face learning leaving old school instructional design principles and requires us to imagine a new world for online learning. We can educate more students with less cost and higher learnability. This could be achieved by appropriate strategies that resonate every individual. To address the question and building transformational framework using technologies in this paper we discuss the pitfalls and how to overcome them by changing the methodologies of education.

We propose framework integrating successful IoT design, cloud services, streaming, learning analytics, pedagogies, micro-learning, gamification and transformative methodologies to create new learning experience generate high learnability and sustained value creation. The framework includes learnability measure.

Keywords: Online Learning, Learning Analytics, ear Lablity, Micro-learning, Transformative Methodology.

I. INTRODUCTION:

Educational needs are enormous for increasing number of students throughout the world. There is wide gap between available resources and needs especially in populous developing countries and refugee camps in disturbed areas and gender biased societies. Online education can fill this gap. But the truth is that many fields are digitally transforming at pace but not the learning. A capital intensive technology approach can increase efficiency like it has done in E commerce. Although distance mode of education is in existence since 1850 but it was always taken as cheap mode of education and not got proper recognition. After 1971 use of means of television and development of multimedia emerged but could not generate effective learning experience. One of the biggest result of evolution of Internet is online education. Online learning in essence is learn anywhere and anytime. It can boost improvement across all fields of education and learning. There are certain constraints in transformation from face to face learning to online learning. This article minutely looks at this shift and offers holistic approach to address this problem and prepare action plan. The paper is organized as follows in Part II we discuss what Online learning is and what are advantages of Online learning. In Part III we discuss the constraints and hurdles in the path of transformation. In Part IV we discuss about storm of emerging technologies and transformative methodologies having capacity to improve learning experience. In Part V we talk about the implementation issue and framework to create unifying vision and procedure paradigm and foundation for technology enabled high learnability

Online Learning platform. In Part VIII Conclusion and Future research lines are outlined.

II. ONLINE EDUCATION:

First of all it is necessary to define exactly what online learning meant. It has been often misconception with distance education, correspondence courses computer based training and video lecture and PPT + classroom combo. Online Learning has come long ahead since. The technology has tremendous effect on education streaming and augmented and virtual reality have changed the concept online learning.

In essence it is learn anywhere and at any time. It has bridged geographical and linguistic gaps. One can learn at own pace and own place. There is much appetite for self-directed learning. Modern online learning involves multimodal forms of knowledge transfer. It offers ability to share material in all kind of formats. Popular social media can be integrated in online learning strategy. Lot of data is generated during online interaction it opens research area that tackles the challenge of creating technologies and pedagogies that go beyond the cognitive to include motivation emotion and affect. It provides effective way measuring learnability and individualized need assessments Indian government has appreciated the potential of online learning and considered it as one of nine pillars of digital India. NMEICT had been envisaged as a scheme under MHRD to leverage the potential of online learning. Amrita research lab developed, A View a multimodal multimedia online learning platform. IIT

Mumbai started IIT Bombay X free online courses using online tools. UNESCO education sector on International literacy day launch case study. The case study explore how digital solution can help low income group people to enhance skills ultimately advances their livelihoods. Despite all constraints online education is expected to grow in coming years and quality of online education is expected to be superior than traditional classroom by 2020.

Online Learning is essential and not overrated.

There is increasing demand of online education. Online education has multifaceted advantages. On one hand it is enabling educational institutes to address lack of highly Qualified and experienced teacher especially in remote rural areas on other hand enabling collaboration and resource sharing and virtual partnership between international universities, prestigious institutes and research centres and industry. Educational institutes and governments are starting to realize how impactful and rewarding it can be. Even AICTE encourages students to pursue 20% of courses through online MOOC. It make organization better and stand out of competition. Online learning is empowering learner it can benefit learner who want accelerating learning or who need to take online classes because on campus classes may conflict with their personal timings. Learner are empowered in number of ways. It provides opportunity to them even they have short time and hesitate to hop on board. They are free to access material whenever and wherever they want. They have choice how to explore content. It foster interaction among students and with their teachers and also outside world. The interaction expands the source of knowledge. Virtual labs enable to complete lab anytime and anywhere and gives first hand practice. By reducing the time taken to move from one place to another and removing travel cost it is saving their money and time. Online learning supports both organizations goal and learners development. It speed up learning and reduce cost of learning and maximize knowledge retention and collaboration. Specially adult education where adults needs to enhance education find campus inconvenient and does not accept the authority of teacher in class as supreme authority and students as subject have opportunities to expand skills and build vital knowledge at own pace.

III. PITFALLS AND MISSTEPS IN SHIFTING FROM FACE TO FACE LEARNING TO ONLINE LEARNING:

In this section we discuss the key obstacles in widespread adoption of online mode of learning. There are many hurdles and mental barriers are on this way. A shift from one way learning to active learner participation, teacher centred to learner centred, assessment to awareness, courses to modular resources, prolonged learning cycles to immediacy solving problem. Little data exist to compare traditional learning and online learning still we

have compared and compiled it. Here we have summarized some of insights.

Most of learners and teachers especially non-millennial are happy with traditional mode of teaching and avoid challenge to status quo. Faculty often fear of this initiative as strategy to reduce staff size. This reluctance is prime reason because of which online learning initiatives lose their momentum in start itself. It is necessary to identify these guys who do not to accept change. Either motivate them or separate from system. Differing understanding of participants motivation and expectations with different level of enthusiasm. CFO and executive management may be concern with return of cost of investment especially when business has never tried before. The educational technology side is under funded by many institution. Teachers may be reluctant and not familiar with technology not have tried earlier they prefer to teach the way how they have learned and they also fear it will distance them from their students. Learner are said to prefer online learning but research suggest opposite many students strongly prefer face to face learning. Enrollment rate in online learning format might be higher but withdrawal from course is much higher. Accreditation bodies are not recognizing online mode. Big difficulty is different regulatory bodies define online learning differently. Overrating the cost of adopting online education without considering cost of not adopting online education.

Content copyright landscape is also discouraging the delivery of content Online. Assumption about learners without research. It is difficult to step into shoes of online learner. Chances are that learners may be from different background and linguistics may have different taste of learning experience. Learner might be guided down to wrong learning Path due to a simple mistake. This applies to research and analytics of learners. Lack of consideration how learners access their programs and which device and platform they use work best. Unavailability of bandwidth and lack of virtual classroom solution in starting. Sometime technology is adopted because of its flash and later struggle how to best use them. Sometime institute buy learning platform so complex that no one could even figure it out. Poor internal communication between eLearning developers, educational technologists and instructional designers. Difficult students with characteristics like lack of manner, demanding instant and multiple responses, Questioning teacher skill and expecting special attention often create hurdles. Cheating is bigger problem in online learning. Basic problem is verifying the person on keyboard is actual enrolled person. Most of learners are millennials have grown up in digital world in contrast teachers have learnt in different environment. This is the Period of enormous transaction. The staggeringly low completion rate is biggest hurdle in success of online courses. False belief and myths about online education is holding us back from moving forward. These are holding back even from consideration of breaking status quo. There is need to flip phrase yeah but to yeah and. And many more

pitfalls and missteps must be distilled before laying solid foundation of Online learning. Challenges are more conceptual, organizational, and administrative rather than technical.

IV. EMERGING TRENDS IN ONLINE LEARNING AND GROWING TECHNOLOGY STACK:

There is storm of emerging technologies. Educational community can take from this storm. Present days hottest emerging Technologies like gadgets, innovative collaboration tools and cutting edge equipment's are offering brand new ways of knowledge sharing and content delivery. Understanding of technology factor can help in dealing with challenges of transaction. In this section we have taken a close look at these emerging technologies and presented summary.

- **Learning Management System (LMS):** To deploy and maintain online learning at peak efficiency it need solid teamwork both in terms of human resources and software assets. LMS is tool to team up these resources. It is a application software for deploy and track online learning initiative documentation recording validation and reporting. Assets can be uploaded which may be accessed by learner anywhere. They automate student registration, learning workflow, online assessment and resource management. They provide online built in library assets save time of starting from scratch. They provide gamification support. They provide reporting and analytics. They provide responsive design tools, data integration and brand tools, Certificate and compliance tools. Predictive analysis and machine learning have been integrated with LMS to engage learners and map their learning journey. Adobe captivate prime UpsideLMS, TalentLMS efrontpro, docebo are few of top LMS.
- **Cloud based LMS:** Cloud based LMS are hosted on cloud. They more suitable for online learning. Online learner can access anywhere anytime. There is no need to install. There is no upfront cost. They provide free updates and upgrades. They have advance data encryption and safety protocols.
- **Authoring Tools:** Tools enable educators and instructional designers create multimedia hypermedia contents. Adobe Captivate 8, Articulate storytelling, Adapt 1.1, gomo, ispring suite etc are authoring tools having ability to add quiz test and interaction that led highly interactive experience. They offer simplicity through WYSIWYG interface where contents can be rearranged and authored instantly.
- **White Board:** Online whiteboard screens allow students to join the drawing screen shared by teacher. Examples are sketchnot Aww, Stoodle, Draw it Live. Flockdraw.
- **Presentation Tools:** Online tools exists that can be used for presentation Prezi, Glogster Edu, Kizoa.
- **Interactive Videos:** Videos for teaching has been established practice since 80's. But long videos cannot retain learner's attention lack of engagement become major problem when cognition level is high and learner need to analyze and apply learning. Interactive and interview style videos are not one way videos they are high impact high learner engagement meet the required cognition level allow inclusion of gamification.
- **Whiteboard Animation Videos:** Whiteboard animations are great for online learning. Whiteboard animation is process of recording story is drawn on white boards. The teacher will record himself while writing on whiteboard. This animation style is very engaging. It engages due to back to school effect. When learner see whiteboard and a hand writing on it they feel like in classroom.
- **Infographics:** Learners are visual beings Brain process visual information 60000 times faster than text. Adding infographics to online learning add enjoyment to learning. Infographics add to memory retention. Infographics great tools are piktocharts easel.
- **IoT and Wearable Technologies:** IoT enabled small devices. Like home automation IoT will make learning more interactive and convenient. It will change the learning habits. Learner interact in multi dynamic way with subject. Google glass, Apple watch, moto 360 are few innovations. The purpose of such technologies is keep learner immerse in subject.
- **Virtual Intelligent Assistants:** They allows to enquire about anything google assistant. siri, amazon echo.
- **Augmented Technology:** Places virtual objects in real world create ideal simulation environment.
- **Virtual reality:** Virtual reality if used in Online learning it gives amazing experience it gives learner 360 view of learning environment.
- **Streaming:** Streaming is biggest technology breakthrough in communication and internet technology. Video conferencing live classes, integrated scheduling are result of streaming.
- **Migration from Flash to HTML5:** Today's learner want to learn on device of their choice.

Flash does not support all devices. HTML5 supports internet of everything's.

- **Collaboration and Sharing Tools:** Video Conferencing, webinar, webcasting, wireless screen sharing, video break out rooms, sharing files, folders, photo. Sharing documents and forms are basic building blocks of Online Learning. YouTube is video sharing Platform. Google drive is file sharing platform.
- **Polls and survey:** Polls can increase collaboration between learners and increase critical thinking. Online learning removes face to face communication polls may fill this gap to some extent.
- **Holographic Projectors:** It is used to fully display three dimensional images without special aid of glasses.
- **Cinema graphs:** Photos with touch of movement they offer more opportunity to storytelling and connect emotionally with learner.
- **3D Printers:** Used to create modals may help in creating virtual labs.
- **Podcast:** Podcast is highly effective online learning tool. They give instant access to information. They increase learning engagement and enhance knowledge retention.
- **Digital and Online Libraries:** Digital Libraries can be integrated with online learning. Digital libraries can offer resources to online learning. It may help learner to refer anytime anywhere and teacher for preparation and content creation. E Books E pubs Interactive PDF and Flip books provide actual book experience along with interactivity. The national digital library of India is ocean of learning resources with single window search facility. It provides filtered and federated search facility.
- **Dashboards:** Dashboards are powerful way of arranging data visually on single screen. They helps in keep eye on learning event and individual learner. No longer learning measurement at the end of course but by engagement and sentiment scores. It provides actionable and useful information at a glance. Conveys clear story of learning process by making use of visuals, labels, progressive disclosure techniques and animation.
- **Learning Analytics:** Measuring effectiveness of learning is done by learning analytics. Measuring which device is more effective, completion rates, time spent per session etc. Metrics may lead to re-evaluate the coursework to create more engaging online contents.
- **Machine Learning and Artificial Intelligence:** Prediction and analytics machine learning and AI algorithms can create highly personalized learning experience. They can transform whole online learning landscape. Chat Boats are incredible learning tools create personalized learning by applying machine learning algorithms on data. Machine Learning and AI are taking over analytics.
- **Big Data:** Huge amount of data is generated during online learning as a result of each interaction this is called big data. Big data analysis methods may be applied to analyze the data generated. Big data analytics enable educators to improve efficacy of online learning. This data can be used to make instructional decisions. Big data may be made available at all level of educational system for continuous improvement.
- **Cloud Based Tools:** Online education can reap out the benefits of cloud technology for making knowledge Sharing. Cloud is next generation cost effective half cost, pay as you go, it grows as you grow and shrink as you shrink cloud do not come in box. They are not going to show your computer taller than you. Virtualization, democratization, scalability & fast provisioning and commoditization of learning.
- **Digital Certificates and Badges:** Digital Certificates and Badges on the completion of course certificates are issued. The only way to validate a certificate is if third party can quickly and easily verify the credential in real. Digital certificates and Badges are best proof of credentials. They can online learning to next level. They can serve as marketing tools and generate more referential and bring new Online learners.
- **Social Media Integration:** Various research shows that social media tools tops the list of learning technology. Earlier social learning and learning technology were considered distinct modes but now two are teaming up to transform future of online learning. Learning does not end when lesson time is over. Learning from one another continues after lesson time and even from outside world. Facebook, WhatsApp, LinkedIn, twitter etc. are social media tools. Social learning provides situational awareness.
- **SmartPhone Apps for Online Learning:** Smartphone's have eased the human life in many ways and learning is no exception. Learning is ongoing process and learner can learn many things on go with these apps. Some of the useful apps are Exam vocabulary builder, quizlet, exam

countdown, cold turkey, ever note etc.

- **File Sharing Apps:** File sharing is essential part of online learning. Apps like Dropbox, Google drive, Box, One drive etc.

This list continuously and exponentially growing. There is storm of advances in technology. This storm has overtaken the ability to decide how to use them. There is need of vision for how to leverage these cutting edge technologies for building integrated learning environment.

V. EMERGING ONLINE LEARNING METHODOLOGIES AND APPROACHES:

Educators often say it is hard to break classroom learning experience. To face this challenge technology alone is not sufficient but new pedagogy approaches and methodologies are required to bring about the required change. Age old Teach Try & Test model will not work in Online Learning. There is need of innovative format to invoke sense of belonging and collaboration. Here we summarized the new approaches to transform learning.

- **Simulation:** Simulation are virtual lab and risk free environment where learner trial and error. Simulation provide safe hazard free environment and avoid dire situation. Simulation challenge Teach Try Test model and make learning immersive experience.
- **Branching and Scenarios:** Branch Scenario create interactive form of learning. It challenge learner to make decision leading many consequences out of it which produce more challenge and option before learner. It makes learning highly effective and engaging.
- **Social Learning:** Social learning is very popular way of learning. Actually human being learns from others. To get social in Online learning live chats, social streams, groups, social question and answers and surveys are best features. Most of people see social media as waste of time. It is up to one how to use it. In most cases setting social media profile is free. Focused Facebook and LinkedIn groups, Twitter hashtag for focused conversions blogs and collaborative calendar YouTube stars slide share and podcast create a personal learning networks. Personal learning networks is personally curated community with whom can share knowledge and discuss.
- **Storytelling:** Storytelling is key method in how we learn. Stories have capabilities of drawing in audience and engaging them with content. Stories have power to make fun and memorable. Strategic approach and seamlessly weaving story can create memorable learning experience. 30 storyteller pro

is one of many application to create digital stories and presentation.

- **Gamification:** Gamification is the process that incorporates games into learning and accelerate learning process. People love to engage with games. Gamification motivates learners, personalize learning experience. Gamification with simulation make learning immersive.
- **70:20:10 Framework:** This model is for skill transfer. 70% through working, 20% through others and 10% through formal learning. 70:20:10 requires a mind-set change it shifts from learning major to perform major. It requires new set of process, roles and task.
- **Authenticate Learning:** Learning by doing is basis of authentic learning. Authentic learning provide students with critical thinking problem solving creativity and collaboration skills. Research shows Authenticate learning raised test scores. This is considered as one of the most effective methodology.
- **Microlearning:** Microlearning is way of teaching in which the contents are delivered to learner in small bursts. Microlearning is digestible means provide small lessons with single learning objective. Microlearning is point of need learning available in time. Microlearning is action based. It is brain friendly way to learn. Microlearning should be through short videos of less than 4 mins and 120 words per minute this is specially suited for millennials who love short videos and share-point videos.
- **Translation and Localization:** To make online program globally successful it is necessary that contents must be translated in various languages and content must be altered to suit diverse learners. This is possible with the techniques of translation and localization. Translation and localization are twin techniques and need unified approach to make program global. The translation may be content, audio or video translation. Localization means selection of appropriate visuals and graphics neutral contents.
- **Learning Experience Design:** Millennial learners have specific needs one size fit all approach is not suitable. Better the individual learning experience higher will be the learnability. Online Learning is not just about prescribing lesson or content it is about tapping into their goal oriented mind-set but stick around for entire learning experience. It may be individualized by researching the needs and taste of different segment of learners using template to capture learners need. Proactively anticipate learners need and captivate their

attention.

- **Predict measure and validate Learnability:** Data analysis is affecting everything in digital world. Educational data mining can be used to predict measure and validate online learning. Learning analytics it will be imperative to make use of data and identify new data that presents new opportunities.

VI. FRAMEWORK FOR SHIFTING FROM TRADITIONAL TO ONLINE LEARNING:

The transition is not overnight job. Transition looks hard in starting. It seems messy in middle. And gorgeous in end. Transition has its associated challenges. A framework with in depth study of current state and change management required, pre-planning, rigorous evaluation of technologies and methodologies options discussed above, structured transformation and adequate checkpoints a ten step process will certainly help to create a fool proof disciplined and adaptable Online learning environment. Champion change vision guides and remove the barriers. Once various aspects of learning ecosystem are in place there will be gain learning engagement and learning effectiveness.

- **Current state assessment:** Identify stakeholders and their needs and expectations. Training and motivation required for them. Identify training resources. Current approach of learning. Key challenges and improvement area. Good practices from similar implementation. IT infrastructure network, connectivity, security and data centers. Capacity and skill sets and change barriers. Virtual classroom solutions available. LMS and other technology survey. Language and localization survey.
- **Change Management:** It is methodology that integrate change and ability to adapt online learning into organization.

Stakeholders should spend ample time to make sure that everyone knows the aim and understand objective of shift and everyone approve it so they are aligned with mission. The change need not only appreciated by faculty and learner but also by society, government recruiters, accreditation boards etc. A compelling vision is key to change management.

- **Capacity Building:** Teachers training along with incentives will motivate them help in breaking status quo and adopt online learning in place of face to face learning. Identify gaps between current state and competency level. Develop training strategy. A mass movement for educating teachers on E content creation and nitty gritty of online pedagogy. Prepare a well-rounded faculty that is

adaptive interdisciplinary in education and multiset skills. These training programs should be online.

- **Connectivity and Network:** We should recognize that high speed connectivity and communication are core of online education. It absolutely depend on widely accessible and low cost national telecommunication infrastructure. Leverage the NMEICT initiative to provide broadband connectivity to colleges and universities. Along with net connectivity unleash the power of unified communication. Unified communication is integration of all real time communication and collaboration services. 5G may evolve new learning models especially mobile learning model may be available in near future. The major challenge for universities or college have to ensure that every faculty have a computer connected to LAN in turn externally to Internet.
- **Learners Research and Segmentation:** The most difficult step towards online learning development is understand and Analyze learners. Because in face to face learning learner is ahead of your eye but online learner may never meet eye. It is necessary to analyze from the data what is their background, what are their skills, what their locations, what learning format is best for them What are their expectations, what motivates them. Based on the research they may be segmented into classes and most effective strategy for each segments of learners.
- **Platform Selection and Implementation:** Many emerging technologies have been discussed above. The technology landscape is broad. It is difficult where to begin selection and implementation is next. Consider the technology to be used. Selection of LMS, Authoring Tool, collaboration tools, Presentation tools, Virtual Classroom solution, integration of digital library and resource center. Video editing and screen recording tools. Selection of IoT, devices, wearables etc. Social media integration website and blogs. Implement at could combination of tools for delivery, collaboration, scheduling, social learning etc. It is sufficient to define them at broad level at this stage. A well placed platform can drive the newer form of learning.
- **Learning Approaches:** Using modern technologies with old model of learning will not work. Bandwagon of new approaches like Storytelling, gamification, branching simulation along with spicing up using social learning and microlearning. Including infographics and ability to track the progress and recognizing it can make feel learner rewarding. Will get from learning to performance. Online learning is in building stages most effective methods will continue to grow on

the top of technologies and adapt to online learning.

VII. CONTENT GENERATION TRANSLATION AND LOCALIZATION:

To achieve learner objective content generation is crucial step. First step is to enlist aid of the subject matter expert to get idea of what should be included. Next is creation of templates or using readymade templates. Use links to multimedia and resources. Avoid lengthy text and break them into bullet points. User generated contents may be incorporated with caution. Avoid procrastination zoom ideas and put them on pad. The content must be translated into local languages and altered to suit diverse learners. Translation and localization of content is required to make it global.

- **Learning Experience:** In learning and development weakest link happens to be learning experience. A program is only as effective as its weakest link. If learner cannot learn through learning platform all is lost. To create great LX it should be easy to use, need little training, fun to use, connect and online and offline functionality is available. Modern learner's habit have prompted from 'push' to 'pull' learning experience. The main objective of learning experience design is to generate new and better ways to engage Learner and create lasting impact through efficient use of technology.
- **Big Data and Learning Analytics:** The biggest shortcoming of Online Learning as compared to face to face learning is lack personal touch. The multi model data generated during interaction can used to listen learner. It is necessary to build data analytics into learning routine. Analytics revealed the knowledge gaps that need attention. Data rich system will provide actionable feedback to all Learners, instructors and administrators. Researchers will be able to use data to test and improve theories of teaching and learning.

VIII. CONCLUSION AND FURTHER RESEARCH:

High performance framework for Change Journey from Face to Face Learning to Online Learning has been proposed. A holistic approach from capacity building, selection and implementation technology, content creation, infographics, use of augmented technology, use of IoT, Learning Experience design, analytics and application of AI in education has been discussed. It can drive forward new vision. The widespread adoption of this framework may create culture of online learning. In all honesty technology cannot replace the teacher. It only creates collaborative core of faculty and academic unit to deliver personalized learning anytime anywhere mode. This also opens new multidisciplinary research areas like

AI in education, Technology enhanced learning, Learning Experience research and Design, Learning Analytics, natural language applications for education, implication of social media in education, economics of Online education, augmented technology, virtual reality and streaming and other so many areas.

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