The evolution of e learning for higher education in cultural heritage

Valeria Sciarretta

Starting from MOOC and OER (2013)

OER and MOOCs

Open Educational Resources (OER) are digital learning materials available online at no cost, intended for teachers, educators, students, and independent learners to use in teaching, learning, and research. Massive open online courses (MOOCs) are free and flexible online education programs designed for a broad audience.

Open Educational Resources (OERs) encompass a wide range of educational materials that are available to the public or distributed under an open license, allowing for unrestricted use, modification, and sharing.

OERs are a part of the larger "Openness" movement, which is founded on the notion that information should be freely shared online for the good of society as a whole. The free availability of the resource and the absence of any usage constraints, whether they be technological, legal, or financial, are the two characteristics of openness that matter most. Openly accessible, cost-free educational resources, or OERs, are available for a variety of uses, including teaching, learning, and research. OER materials are made accessible under a license that allows for unlimited use and repurposing by others. **Tests, crosswords, flashcards, animations, interactive maps, timelines, and other learning tools. Audio lectures, audio video, lectures are among the learning tools that have been referred to as OER. Images, textbooks, audio files, the whole of a course, collections of journal articles, and institutional repositories**.

MOOCs are usually associated with open educational resources because of their theoretical focus on open education. MOOCs **involve interaction, feedback, and evaluation (by peers or automated quizzes)**, but they do not presently earn credits or lead to recognized degrees. Open licensing are the defining feature of open educational resources which permit usage and reuse. The number of participants who complete a MOOC is frequently large, even when there are several enrollment factors that lead to low completion rates. Despite the fact that the course contents are free to access, MOOC platform **providers typically charge for completion certificates**. While the school supplies the course materials and reputational value, MOOC platforms provide universities with cloud-based hosting infrastructures for delivering courses. These settings come in various sizes and capacities. Despite Coursera, there are a number of smaller platforms. edX, Canvas, and Future Learn are the main suppliers of English-language MOOC platforms. Every platform has a unique technological setup and economic plan; some

platforms, for instance, coordinate with universities, while others give independent instructors more latitude.

MOOC Platforms : coursera, edX , Udacity , iversity , CognitiveClass , Moodle , Udemy , Future Learn

Even though MOOCs are often supplied for free and have open access, they differ significantly from open educational resources (OER) in that their content is typically not **made available under an open license**.

Key differences between OERs and MOOCs are:

OER • Most content may be remixed and disseminated again.

• Free course resources like syllabuses and course descriptions, but not whole courses.

• No faculty involvement - After putting their resources online for your access, the **faculty stops interacting with you**.

MOOCs • MOOCs cannot be altered in any manner.

• Complete or brief courses having a set beginning and ending date.

• Participation of graduate or faculty assistants.

Is OER the same as e-learning? Even though many individuals make the error of using the words interchangeably, OER is not the same as online learning or e-learning. Any format, including written text, audio, video, and computer-based multimedia, can be used to create material with an open license. In fact a lot of the free materials being created right now are printable as well as shareable in digital form. Is OER an open education/learning? It may be used to support open learning and open education, although these concepts are distinct from one another. To ascertain the degree to which they promote or obstruct openness, it takes a rigorous review of assessment and certification systems, student assistance, curricular frameworks, procedures to recognize past learning, and so forth. In order for students to get better success in a training course tailored to their unique requirements and dispersed throughout various learning domains, a teaching method known as "open learning" tries to remove any unneeded barriers to learning.

Moocs for higher education

Do you think MOOCs will be the future of higher education? There are differing opinions on the role of MOOCs, but there's a general consensus that they will become increasingly significant.

For most, the true value of MOOCs lies in their capacity to open up access to knowledge that was previously the preserve of a small elite. Whether preparing for or supplementing a traditional course, or just learning for the sake of learning, MOOCs offer an incredible and unique opportunity which just five years ago would not have existed.

A well as opening up access, MOOCs may also have a role to play in improving universities' delivery of course materials, and ability to track the effectiveness of different teaching methods. It's early days yet, but the massive impact MOOCs have already had in a short space of time suggests we may well be witnessing something of a revolution in higher education delivery. Whether in the improvement of access worldwide, or the supplementation of programs within existing university communities it seems MOOCS may well be a leading element in the future of higher education.

The limitations of free online courses

Despite many exciting developments and applications, free online courses do still have many limitations – meaning MOOCs are a long way from being able to replace traditional university degrees. This is largely due to the challenges of providing support and assessment for MOOC students. A single academic may be able to develop and teach a MOOC – but s/he will simply not be able to interact with and assess the thousands of students around the world who take the course.

In addition to the lack of faculty support, limitations also include the lack of face-to-face interaction with other students, and lack of access to lab facilities and other resources.

However, MOOC providers are working to tackle these challenges. Coursera, for instance, uses a system where questions can be asked in a forum for other students to answer. Regularly asked questions which cannot be tackled by other students move to the top, where they can be addressed by professors. Students who perform well in a course are invited back as volunteer 'community teaching assistants', helping to coach others.

EdX operates a similar system, with forums monitored by teaching assistants and program managers, who look out for trending topics or specific challenges which cannot be solved by users. An experimental format where students are grouped into small sections with a teaching assistant is also being trialed.

1 Case Study G.D'Annunzio University – Disputer CAAM

Eurotech Project European Technologies for the safeguard of Cultural Heritage at risk - Erasmus + Programe KA2 Strategic Partnership 2018

The project concerns the creation of an innovative EU curriculum of a professional and specialist figure of 'Archaeologist Technologist' who can deal with diagnostic mapping, research, valorization and publishing for the safeguard of Cultural Heritage at risk, specifically Archaeological Heritage.

EuroTeCH intends, first, to establish a network among academic partners and not academic ones, specifically finalised to open a table of common discussion as a base to project a

curriculum and a protocol which can be tested during the 30 months of the project on students chosen by the partners.
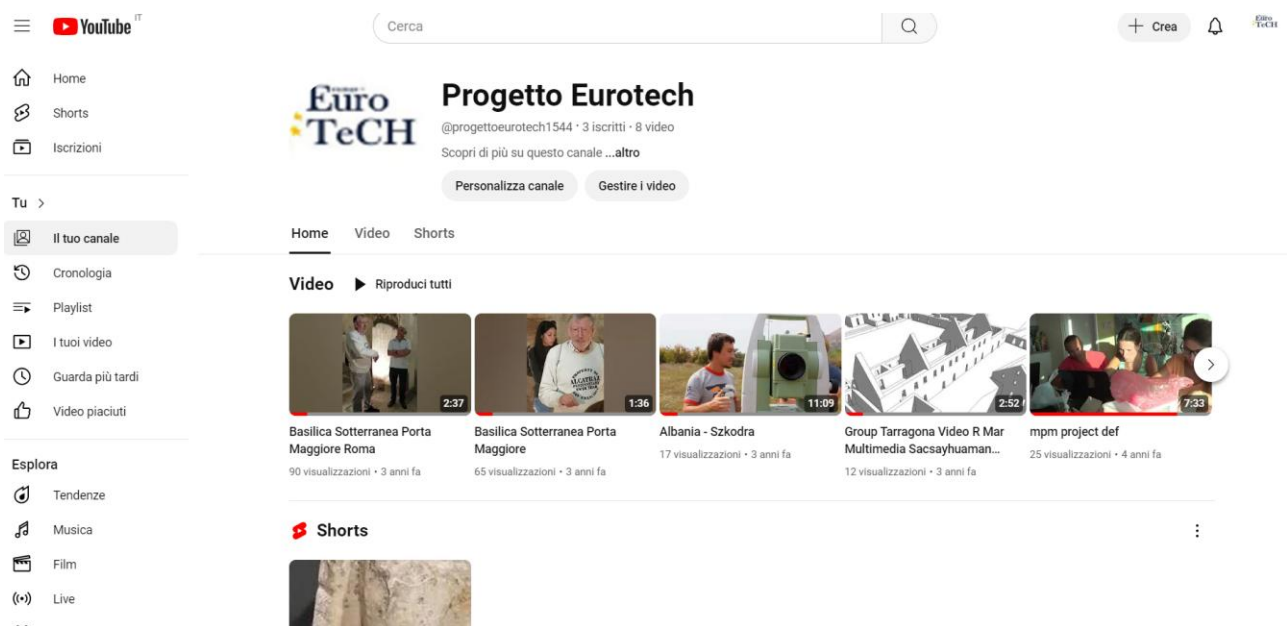
The project developed open e learning resources – by promoting the joint development of curricula, OER courses and materials such as video, photos, text, webinars supported on learning technologies, some example of tools and OER developed :

Zoom WEBINAR FOR STUDENTS ON EGYPTOLOGY ISSUES
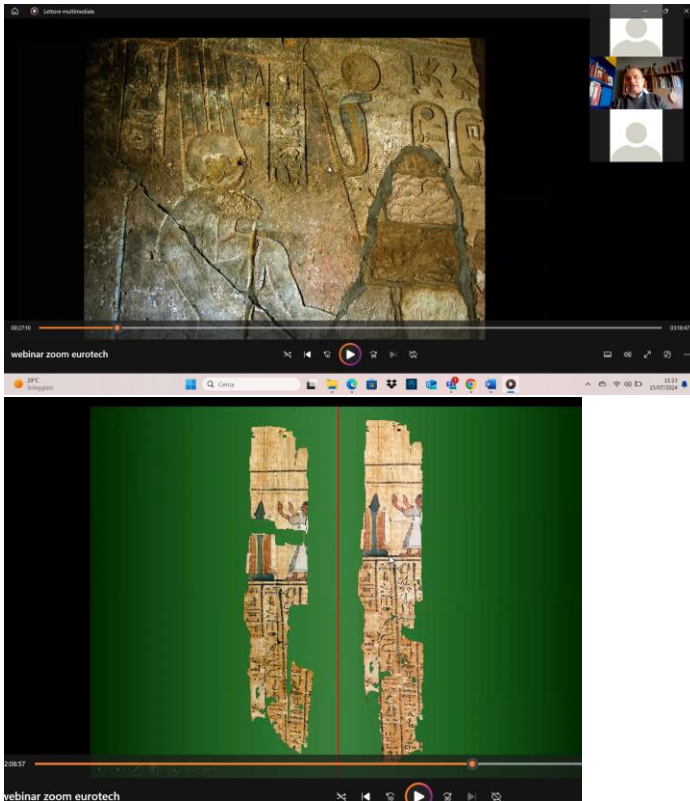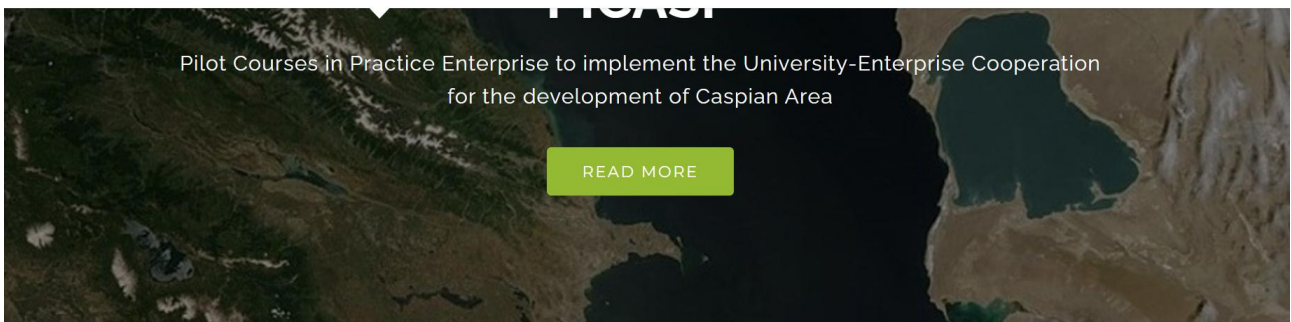

EUROTECH YOUTUBE CHANNEL

Workshop and Roundtable share on website and social networks

2 Case Study Picasp Project - Capacity Building in the field of Higher Education – ERASMUS+ G.D'Annunzio University – Coordinator

2020 and Virtual word in higher education

The past three decades have seen the rise of online learning, with the year 2020 marking a significant surge in its popularity. It is projected that by 2023, 93% of global firms will transition to online learning. The Covid-19 pandemic compelled educational institutions and training facilities worldwide to shift to digital platforms, making distance learning the new norm. Teachers conducted classes from their homes and transmitted them to students via computers, facilitating the widespread adoption of e-learning. This shift has provided students with more tailored training and increased flexibility in managing their time.

Technology has changed the way schooling and job training are understood, giving students the opportunity to learn elastically, according to their own needs and time. But the future of education may lie in a new virtual world, combining reality and digital, with the creation of an alternative place where one can act through an avatar of oneself, making the **virtual experience completely immersive.**

Metaverse

The term Metaverse refers to a collection of technological components that enable individuals to engage and participate in an alternate virtual world from the physical realm. It provides a personalized space for users to interact and carry out various activities using three-dimensional avatar representations, allowing them to engage with other avatars, move, speak, and express their unique identity in the digital environment.

The Metaverse could become the next frontier of technology. Various technologies, such as augmented reality and artificial intelligence, used with the aim of bringing users together within an immersive alternative world, could intervene to enable interaction in the virtual world. People could work, visit a museum, talk to their friends or even take a trip simply thanks to their avatar, which would perform all these actions in a parallel digital world.

Following the increasing introduction of new technologies that have invaded people's daily lives, the Metaverse could represent the evolution of the Internet, entertainment world, museum, **archeology** , as well as a future form of elearning . Computers may become the tools needed to access virtual spaces shared with physical ones in which to live a parallel life.

The metaverse and didactics

Despite the widespread impact of new technologies on the daily lives and routines of workers and students globally, traditional teaching and training methods continue to prioritize in-person interactions in physical spaces such as classrooms. While some flexibility exists for educators to customize their approach, the overall structure of education remains largely standardized.

Due to the Covid-19 pandemic, schools, universities, and training facilities have shifted to digital platforms for teaching, leading to worldwide adoption of distance learning, where teachers conduct classes from home and students attend from their own residences. This condition has certainly given greater impetus to e-learning as well, which has developed in recent years in both school and work settings, giving students the opportunity to receive training tailored to their needs and to be able to manage their time more flexibly.

Thanks to new technologies, the boundary between the virtual and physical worlds has become increasingly thin, and digital has often supplanted face-to-face teaching. It is possible that, with the Metaverse, videos typical of the e-learning experiences will give way to immersive situations, thanks in part to the use of augmented and virtual reality. Thus, as we have already covered in a previous article, the Metaverse could be the new frontier of e-learning. This new virtual world, in fact, could make it possible to go beyond the physical limits, imposed by the real world and, to a certain extent, also by the digital world as it is understood today, and could help to step into immersive realities, which "offer new learning paradigms."

In education, humans have always been tied to the physical environment of the classroom. With e-learning, however, classrooms have moved online. But the Metaverse has an edge: it would allow us to go further, combining the advantages that traditional learning offers with those of virtual education, all in a single platform, for real experiences in a parallel universe.

By combining different technologies, the Metaverse would provide users with a space in which they can study, interact with their classmates and teachers, and simulate real-life situations, so as to make understanding more effective and immediately test practical skills learned.

Applications

The **application areas** of the Metaverse are many. But given the possibility of making digital experiences immersive, this virtual universe certainly also lends itself to a number of applications in the field of e-learning. In particular, it could be useful for:

- **Creating virtual simulations**, to allow users to practice with real scenarios, but in a controlled, risk-free environment. In this way, students can develop practical skills at the very moment of learning and can learn right away how to handle complex situations, which they might face in the real world.
- **Test skills**, through the creation of practice tests, useful for verifying skills learned not only in theory, but also in practice.
- **Use virtual collaboration spaces**, where they can find each other to exchange opinions, share doubts or make decisions collaboratively. Although this practice is already widespread in the digital environment, the Metaverse would make them more engaging and interactive, as if the whole thing were happening in a real environment, but with the advantages that technology offers.

The Metaverse applied to training, then, will help maintain **immersive learning**, fostering immersion, sociability and the emergence of new tools. Learning will be **more immersive** because students will no longer have access only to static audiovisual documents, but will be able to make use of more immersive content, typical of virtual and augmented reality. Thanks to these tools, simulations will become more and more like real life, making them increasingly effective at learning. The Metaverse, moreover, could foster **sociality**, even more effectively than e-learning tools are already doing. Finally, the application of a parallel virtual universe to the educational sphere could lead to the dissemination of **new training tools** and the creation of increasingly student-friendly learning paths, offering effective and engaging learning that can also foster the social aspect played by schools today.

E-learning and the Metaverse: the plus

PICASP
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Since the Metaverse combines virtual and real-life experiences, it can bring several advantages when used in school and work training. Here are some advantages:

1. **Engagement**, fostered by an immersive experience in a parallel universe, which promotes concentration and understanding of learning topics.
2. **Creativity**, which would be enhanced by the use of new technologies that can combine the real and virtual to give a completely new face to training.
3. **Personalization** of the course of study, which could be tailored to the user. To do this, the use of artificial intelligence could be crucial, because it can analyze the performance, preferences and behaviors of each student, so as to understand his or her real needs and build ad hoc pathways.
4. **Interactivity** among users and between students and professors. The Metaverse, in fact, could be the meeting place between people who work or study remotely and who, therefore, cannot interact with each other live. Thanks to the virtual world, avatars will still be able to exchange ideas, projects and carry out activities together, going beyond digital learning and meeting places already present on the web, such as chat rooms.
5. **Assessment**, which will be able to be done more precisely, easily testing students' practical skills as well, thanks to simulations, which will be increasingly similar to real situations. In addition, the technologies used in the Metaverse will allow real-time assessment.
6. **Increased inclusiveness**, fostered by the possibility given to everyone to carry out any activity within this parallel universe, without the physical limitations that the real world imposes.
7. **Speed of learning**, fostered by the involvement of immersive virtual reality, which will create an effective union between gaming and teaching, making training more enjoyable and faster.
8. **Practicality**, which will be fostered by the possibility of stepping into real-life situations to put the knowledge learned in theory into practice. This will give the training an effective practical facet.

In conclusion

The Metaverse could represent the new frontier of education, in a union between traditional learning, linked to the physical presence of students in the classroom, and e-learning. Thus, the student could find himself catapulted into a parallel virtual world, in which he himself in the form of an avatar will be able to talk to other people, move around and observe that digital world that projects him into another dimension. This situation would represent a further change in education, which would be enriched with

new technologies, tools and strategies, useful for making virtual learning more engaging and effective.

Metaverse Training

The metaverse refers to an online environment where Augmented Reality (AR) and Virtual Reality can coexist. It provides a fresh digital world to collaborate, solve problems, and practice in, with an interactive engagement method. The metaverse allows people to learn faster, retain information better, and manage their own learning experience. This environment simulates the physical world while incorporating digital tools and allowing learners to interact as avatars. Metaverse activities can replace real-world experiences, and with the development of the metaverse learners may have increasingly authentic experiences of being present in other realms.

Technologies That Play A Major Role In The Metaverse

1. Virtual Reality

Virtual Reality refers to a 3D and computer-generated virtual environment that either replicates or creates the illusion of a real world and has the potential to deliver a truly immersive and engaging learning experience. Using VR as part of the training experience will allow learners to learn and develop in ways that go beyond a classroom setting. VR allows learners to experience true-to-life situations without risking their safety in the real world. One of the most notable usages of VR is seen in the video game industry.

2. Augmented Reality

In Augmented Reality, objects are created and enhanced with text, graphics, audio, and virtual information in real time. It enhances the digital experience by combining the natural environment and the virtual space where the objects interact with the world. AR is most suited for specific technical training where learners may require quick reference to technical information to make a repair or use machinery. By lowering the distractions and capturing the learners' attention, it enhances physical engagement with digital content.

Impact Of The Metaverse On The Learning Domain

Industries dealing with high-risk environments such as manufacturing, energy, and construction are already leveraging the benefits of metaverse learning. Now other industries are showing interest and exploring the space to enhance their training programs. The metaverse offers an infinitely expansive learning environment that provides a learner-centered experience because of the emotional and cognitive effect that can be achieved by creating true immersions. With the increasing number of organizations moving to remote or hybrid

workplaces, executives not only appreciate the need but are embracing new approaches to train and develop their teams in order to stay agile and competitive. Metaverse collaboration techniques allow learners to engage in any environment or situation. Using the metaverse in conjunction with Learning and Development (L&D), learners will be able to put their physical limitations aside and experience new ways to learn.

The metaverse will revolutionize training and skills development, drastically reducing the time needed to develop and acquire new skills. Experiential learning is the most effective way to learn, according to a recent study, which has shown that learning through experience increases learning quality and retains information better by up to 75%. As a result of metaverse learning, simulations will become avatar-based, geared toward collaborative learning as well as interactive working. Research firm Gartner predicted that 25% of people will spend at least an hour a day in the metaverse by 2026. A few use cases for the metaverse that are emerging across every industry are:

1. Onboarding Training

Employee onboarding, and training employees on various services/products and company policies can be daunting and time-consuming. The metaverse is an intuitive solution where the new hires join in the virtual space and are familiarized to the organization's culture and ethics. Besides benefiting the new hires, the metaverse also helps the organization by reducing training time and creating lasting impressions.

2. Safety Training

Organizations apply this technology for crucial training to engage learners, providing practice and instant feedback. The metaverse provides learners with an immersive safety training experience in which learners can become familiar with the threats and risks at the workplace while remaining entirely safe.

3. Sales Training

Gone are the days of classroom-based training. The metaverse is leveraged to provide enhanced training to employees. Trainers and sales personnel along with their managers can meet in the metaverse for sales training. Using storytelling and branching scenarios helps employees to be prepared for various situations and also guides their learning experiences.

4. Skills Training

One of the direct costs associated with in-person training is materials. The metaverse allows learners to make mistakes without exhausting physical materials. This facilitates learning without hesitation and saves resources. Metaverse training is not only used for technical training but for soft skills training as well. Metaverse avatars help in nurturing important skills, such as communication, teamwork, customer service, and people-facing skills. The metaverse platform enables learners to gain hands-on experience that expedites their learning process and increases efficiency.

Moreover, the metaverse can be used to virtualize different kinds of training. It can be used to develop a complete training setup—classroom, stage, podium and seating desks for an experience like in real life. In training sessions, trainees can appear as avatars, as real as possible, or as fictional as desired.

How The Metaverse Adds Value To Training

In the age of eLearning, employers seek to create more interactive and engaging learning experiences for their employees. Learning through the metaverse allows learners to gain experience and exposure. It allows L&D teams to link immersive content and embed storytelling methodologies to express learning in new and exciting ways. With their 3D technology, and interactive design and modules, VR and AR provide a powerful vehicle for more meaningful learning. The metaverse can benefit eLearning in several ways:

1. Learner-Centered Solution

Learners today want contextual learning that they can relate to and stick with. Metaverse environments are engaging, exciting and interactive places to learn and practice, without limitation of time or usage of materials. It boosts employee engagement by creating a captivating learning environment that allows learners to learn and interact with colleagues, managers, and trainers in real time. The more actively learners are involved in learning, the more effective the outcomes are. This type of learning is an advanced form of active learning that creates a fully simulated environment for learning, using extensive role-play or situations where learners interact with the experience. These features have made metaverse technology a popular tool for creating immersive learning environments. Moreover, learning that is enjoyable will be more effective.

2. Better Decision-Making

With the help of the metaverse, organizations can provide more opportunities for learners to learn and access knowledge. The metaverse aids in decision-making as everything can be measured. Understanding learner behavior in the metaverse and how they engage and acquire information today will help identify opportunities where their experience can be improved. Learning analytics provide an in-depth understanding of how learners are progressing and achieving their goals. Measuring the effectiveness of training programs help organizations to find out what a learner needs when, and decide whether training courses are working for a particular set of employees or not. The virtual world will constantly grow and evolve based on decisions and actions made to increase employee engagement and efficiency.

3. Addressing The Hybrid Workplace

Organizations have changed the way they hire, work, and collaborate with their employees as a result of the pandemic. Since almost every organization has moved to a work-from-home or hybrid workplace model, connecting and collaborating with employees has become increasingly challenging. The metaverse has the potential to address all the existing challenges to remote work. It provides organizations the means to use it for department-centric training,

large-scale events and everything in between. It provides managers with a virtual environment where they can meet employees (their avatars), communicate with them, and retain in-person interaction. The virtual space can be dedicated to different teams for collaboration to help solve critical business problems. Utilizing avatars, the metaverse enables the organization's communication and collaboration to become much more interactive. It helps employees and employers grow together.

Final Thoughts

As technologies evolve, we need to keep a constant watch on more sophisticated modalities and their learning effectiveness. The metaverse is the next evolution of the internet and it has already begun. The metaverse will have a significant impact on eLearning, giving the virtual learning environment a more lifelike feel and making learning itself more engaging and experiential. Organizations must choose their learning modality wisely and ensure it aligns with what learners want and the business requirements.