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COMPAGNIE FRANÇAISE D'INFORMATIQUE

Practical Guide

Successfully deploy VR
in Education

Virtual reality is revolutionizing training by enabling the creation of truly innovative learning experiences. How can we make the right choices, and what are the best practices for deploying it successfully?

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> " VIRTUAL REALITY TRAINING ENABLES YOU TO LEARN

4 X TIMES FASTER

New virtual reality technologies offer tremendous possibilities for the educational sector. A study by PWC in 2020 has shown that learners who attend virtual reality training courses acquire knowledge four times faster than during traditional classroom training. In the United States, investment in virtual reality is already colossal, and 30% of usage is for educational content (source: Statista).

Summary

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Virtual reality: what opportunities for education?

The acceleration of innovations in this field means that we can now create innovative, immersive training experiences that accelerate skills development.

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Best practices and checklist for success

Practical advice on how to deploy virtual reality from Anaick Perrochon, teacher-researcher and head of the Health Virtual Simulation Center at the University of Limoges (France).

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Moving towards a technological world of digital training

Designing the digital environment as a whole from the outset is a key step to avoid overcomplicating the architecture and quickly finding yourself limited in possible use cases.

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Lenovo solutions, Uptale authoring tool and CFI's expertise

The wide range of solutions offered by Lenovo and CFI's expertise in the education sector guarantee a perfect response to your needs.

03

Virtual Reality: which opportunities for education?

The past few years made us rethink learning methods, and distance learning can no longer be seen as an accessory. Fortunately, technological innovations have been helping to transform pedagogy for several years now, with the rise of e-learning, audio-visual formats, gamification and more. However, none of these innovations has radically changed the way we learn **unlike virtual reality, an immersive way of learning immersive learning from a distance, which, given our new daily lives, could well revolutionize teaching...**

Many establishments and companies are taking an increasing interest in the benefits of virtual reality to offer more innovative and immersive training courses, whether in initial or continuing education. Today's professions are evolving so fast that we need to change the way we deliver training in order to accelerate skills development.

It is precisely the speed of learning and memorization that virtual reality will impact profoundly education thanks to its immersive, interactive dimension, which makes it easier to hold learners' attention. Learners can explore in their own way, test things out and make mistakes by "living" concrete experiences, whether in the classroom or remotely. In fact, the PWC study we mentioned on the previous page confirmed that learners who had taken courses including virtual reality found that they were up to four times more concentrated than during a traditional theory course or e-learning video.

The practical applications of virtual reality are well advanced, and could transform teaching methods and lead to a new era of learning. Training courses therefore need to be adapted, both in terms of content and evaluation processes: creating new media and adapted content are the keys to successful storytelling in virtual reality training.

That's why we've designed this guide based on real-life feedback from virtual reality specialists, manufacturers and educational establishments, to help you better understand the maturity of the various existing technologies and share best practices for successfully deploying virtual reality.

Switch to a **technological world** of digital training

Encouraging the use of virtual reality in the classroom or remotely represents a real opportunity to transform teaching methods, but it requires careful preparation if it is to be deployed successfully. Which technologies should be chosen? How should content be produced? What's the budget?

Virtual reality simulates the learner's physical presence in an artificial environment. Helmets reproduce a sensory experience associated with sight and hearing, giving learners a 360° view of their environment: they see and hear everything going on around them, and can explore at their own pace by turning their head.

However, integrating virtual reality into training courses is not just a matter of choosing the right headsets; it also requires careful thought about use cases, in order to produce suitable digital content in new formats. This project aims to combine a hardware solution - the headset - with application solutions for scalable management of the equipment fleet and use of the content created.

It is therefore essential to conceive the digital environment as a whole from the outset, anticipating a number of technical points in order to better coordinate the ecosystem of partners involved and gradually address all needs:

— Choose virtual reality headsets designed for professional use, with sufficient memory and processing capacity, and the greatest possible technological compatibility to guarantee their longevity.

— Centralize content in an LMS (Learning Management System)-style digital learning platform for easy access and simplified deployment to learners.

— Anticipate a perfectly scalable hardware and software architecture by ensuring the greatest possible versatility of the hardware selected, and integrating it within a remote management platform to simplify updates and security aspects.

The transition to a technological world of digital training may seem tricky at first, and requires a certain pragmatism. Indeed, if there are too many different hardware or video formats, the technological environment will quickly become complex, and the use of virtual reality will be limited. The key point? Rationalize and simplify, both in terms of project design and technological choices.

Choose the **right technologies** from the start

Building an immersive learning environment means bringing together different devices and technologies, which need to be well integrated. It's important to choose partners who already have experience of successful projects and are used to working together. Virtual reality headsets, for example, can be connected to classroom management software solutions to better monitor the assessment of acquired skills. Fortunately, the maturity of professional technology solutions today makes it easier to prepare content and distribute it to learners, thanks to the many services available without technical complexity.

Lenovo

The Mirage VR S3 headset from Lenovo is a 4K-quality all-in-one headset among the best on the market. Developed in partnership with Pico interactive for the training sector, it comes with a host of associated services.

Unleash unlimited learning

Microsoft

Microsoft Education enables personalized learning for every student, with devices designed for use both in and out of the classroom. Teachers can also control the immersive experience of their students.

Varjo

VARJO virtual reality headsets designed for professional use have a definition similar to that of human vision, thanks to the use of two screens for each eye, and incorporate finger-tracking functionalities for the latest models.

Uptale

Uptale offers a software platform that makes it easy for institutions to create large-scale experiential training courses. Facilities can create technically straightforward content that guides learners through the learning process.

Best Practices
and **check-list** to succeed

Beyond the choices linked to the underlying technological infrastructure, successfully deploying virtual reality requires a number of considerations to be taken into account. To this end, we have sought to capitalize on feedback from the University of Limoges, which has undertaken to leverage virtual reality and Lenovo headsets to accelerate student training in research laboratories.
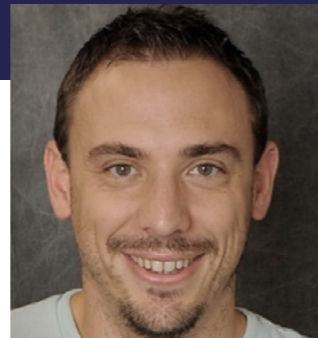
Practical advice from Anaick Perrochon, teacher-researcher and head of the Virtual Health Simulation Center at the University of Limoges.

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Université de Limoges

Start by putting together a multidisciplinary team

When starting a virtual reality training project, the project team should always be multi-disciplinary, with at least one professional referent to help understand the target profession, and trainers to involve them in training use cases. Ideally, the team should also include a virtual reality "specialist". You can also involve an educational engineer to help design the digital content.

Create a pilot project on a key ROI-generating need

The first meetings allow us to quickly validate feasibility and evaluate costs to prioritize and focus on a "Proof-of-concept" pilot project that will illustrate the potential of virtual reality to all stakeholders: trainers, students, school management and potential funding partners. During this first phase, the project team will discuss training and assessment methods for learners, in order to propose the storyboard and narrative for future virtual reality experiences.

Anticipate the pedagogical objectives to be measured

At this stage, it's important to identify the learning analytics you want to measure. Virtual reality training makes it easier to collect a multitude of data to better analyze the way students behaved, the time they spent in the environment, any mistakes they made... then compare them to assess the skills acquired and help them progress more rapidly. The pedagogical objectives and the information to be recorded will be fine-tuned at the scripting stage.

Design the solution and digital content

What's essential in virtual reality is the contextualization of learning. It's not a question of retrieving videos, but rather of offering a 360° environment to allow the freedom to explore it. We're no longer dependent on the cameraman's point of view, as in 2D, which also doesn't have to be in motion to avoid sensory conflicts later on. In 360°, it's the richness of the environment that's important, because interesting information isn't always where you'd expect to find it. Students will experience a real-life situation that will enable them to perform better later on when they find themselves in real-life conditions, as the brain is more easily influenced by these virtual environments. Innovative and relevant projects for learning include the "room of errors", where the learner must identify all the mistakes made on purpose by the trainer and the points of interest.

The establishment should aim for maximum autonomy in content creation, in order to remain within acceptable budgets. Software platforms like Uptale's make it easy to integrate 360° videos and tag them to create interaction points. In any case, films should not be made in motion, to avoid sensory conflicts later on.

uptale.

Prepare content distribution and class management

In the classroom, managing a virtual reality group means anticipating a number of important details. For example, the use of headphones and sound: for a class of around thirty students, it's ideal to use bone-conduction headphones to hear the sound coming from the virtual reality universe, and to have the ear free to hear the trainer's instructions too. Another example, which might seem a point of detail: four-legged chairs with backrests don't really facilitate 360° exploration, so it's better to use swivel stools, which are more suitable.

It's important to realize that everyone reacts differently to virtual reality and that cognitive overload is a very real thing; taking a two-hour course behind a VR headset is therefore excessive. It is therefore essential to anticipate human safety issues by asking each student if they have ever tried virtual reality on a private basis. If not, is he or she susceptible to motion sickness, i.e. getting sick while reading or looking at his or her smartphone in the car. If so, it's important to stay by his side at the start of the experience.

Virtual reality is a teaching medium like any other, but its advantage is that it is much more "memorable" for the learner. When you start a course by showing concrete results in the virtual reality headset, students are more likely to pay attention when the trainer moves on to the theoretical part, and this augurs well for its future success in the years to come.
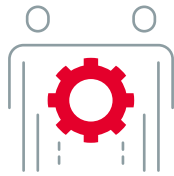
Lenovo solutions and CFI's expertise

Virtual reality is not intended to replace traditional classroom learning or e-learning, but rather to enhance it. Its enovo solutionspotential in terms of training speed, learner concentration and confidence in acquired skills is such that its use will undoubtedly explode in the years to come.

Drawing on its experience as the world's number one PC manufacturer, Lenovo is making colossal investments to become a leading player in virtual reality, offering the broadest range of technologies and partner solutions on the market.
on the market. Our headsets are already up and running in many schools, as is our platform for managing the hardware fleet, not to mention our VR Classrooms 2.0 and LAN School Air classroom management solutions in the Cloud, which offer a host of features. Our ambition is to provide students, learners and trainers with the means to stimulate and enrich learning capabilities, synonymous with long-term success.

CFI, as an expert partner in the field of Education, intervenes from the preliminary audit to the implementation of the chosen solutions, taking into account the existing situation and the solutions' lifecycle. Successfully deploying virtual reality requires the coordination of several players and technology suppliers: our teams are able to consider the issues as a whole to provide the best possible advice and deliver tailor-made educational universes for greater value creation.

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Lenovo's core mission is to design smart technology solutions for causes that matter.

Smarter technology for everyone is capable of delivering solutions that transform the way we live, learn and work.