France Immersive Learning

agefiph

IMPROVING THE ACCESSIBILITY OF IMMERSIVE LEARNING

Excerpt from a mini-guide based on work carried out in collaboration with Agefiph, our members, and numerous external contributors.

France Immersive Learning

https://www.fil-asso.fr/

SUMMARY OF BEST PRACTICES

During this work, we did not address accessibility issues related to the ergonomics of the hardware used in immersive experiences, such as headsets or controllers. Instead, we focused on topics where we, as members of the Immersive Learning ecosystem, could each have an impact at our own level.

Indeed, it is easier for a designer of immersive experiences to integrate a feature that enhances accessibility, or for a trainer to adapt the structure of their session or even the layout of their room, than it is to modify a headset produced in millions of units.

Nevertheless, we hope that manufacturers will take up this guide to work with their engineers on improving the accessibility of their products and adopt a universal design approach. In fact, 15% of the global population lives with a disability, representing a potential user market that should not be overlooked.

The 10 Key Tips for Accessible and Inclusive Immersive Experiences

- **Adopt established accessibility standards**

Such as the XAUR standard defined by the W3C, the Immersive Technology Standards for Accessibility, Inclusion, Ethics, and Safety by Cyber-XR, or those from the XRAccess community.

- **Ensure consistency in visual design and interactions**

To help learners focus on the actions they need to take and reduce the cognitive load related to understanding how the experience works.

- **Allow for personalized experience settings**

So that each learner, regardless of their context, can precisely adapt the immersive experience they will participate in (text, colors, duration, interaction methods, etc.).

- **Include a tutorial at the beginning of each experience**

Because it is not always easy for learners to understand what is expected of them, and the fear of making mistakes can be a source of stress that amplifies barriers to participation.

- **Offer multiple interaction methods**

To prevent learners from struggling or getting stuck (e.g., providing instructions both in written and spoken form, offering the use of a controller or a visual pointer, etc.).

- **Design a learning sequence with breaks**

To give learners time to recover between activities, and more importantly, to give them the choice to either take a break or continue to the next sequence.

- **Offer at least two pedagogical approaches to achieve the same goals**

In Immersive Learning, it is not possible to adapt teaching methods “on the fly.” Everything must be anticipated during the design phase in order to offer several alternatives to learners.

- **Include an accessibility reminder during the learner briefing**

To help change the perception of disability among learners and ensure that those concerned do not feel stigmatized.

- **Train teaching teams and trainers in accessibility**

To reduce representational bias and showcase existing solutions.

- **Make accessibility a prerequisite in calls for tenders and requests for proposals**

Because Immersive Learning is, above all, training — and all training should be accessible.

Best Practices for Designers of Immersive Platforms or Environments

- **Inclusive Design**

Integrate accessibility options from the initial design phase of platforms and immersive environments, such as seated modes, 2D alternatives, co-user/buddy modes, and varied interaction or movement modalities.

- **Personalization**

Allow for extensive customization of the avatar and interface, tailored to users' specific needs—for example, text size, voice command usage, or activation of visual or interaction aids (magnetic hands, assisted grabbing, etc.).

- **Consistency**

Ensure consistency across all aspects of the experience—from how interactive elements are displayed to the types of interactions offered.

- **Adaptive Technology**

Whenever possible, rely on hardware that can operate with or without controllers, and that supports hand and/or eye tracking as well as voice commands.

Best Practices for Project Managers and Content Designers.

- **Content Flexibility**

Ensure that all content can be adapted and remains accessible by offering alternatives for physical activities and using multimodal formats to present information.

- **Clarity and Simplicity**

Apply clear and simple instructional design principles, such as the Easy-to-Read method (FALC – Facile à Lire et à Comprendre), to make instructions and information easily understandable for all users.

- **Testing and Feedback**

Involve users with a variety of disabilities in the testing process to ensure content meets a broad range of needs

Best Practices for Educators

- **Adaptive Learning Sequencing**

Organize activities to minimize cognitive and physical fatigue, include regular breaks, and offer the shortest or most segmented sessions possible.

- **Personalized Support**

Plan in advance for buddy systems or small group work to support learners with specific needs, and provide proactive facilitation throughout the learning experience.

Best Practices for Trainers.

- **Universal Approach to Needs Assessment**

Ask learners universally about potential disabilities during intake—using specific questions focused on barriers (e.g., “Do you have difficulty with…?”) rather than assuming visible disabilities.

- **Preparation and Briefing**

Address accessibility during briefings and debriefings so that available accommodations are seen as standard and expected, even by learners who may not be aware of their own needs.

- **Monitoring and Support**

Stay attentive to learner needs during the activity, offer real-time adjustments, and use monitoring tools to observe and step in when needed—a good standard practice regardless of accessibility.

Best Practices for Stakeholders (HR departments, public or private procurement teams, etc.).

- **Trainer Education**

Support trainers with training and awareness sessions focused on disability, accessibility, and universal design principles.

- **Supplier Selection**

Prioritize suppliers that demonstrate a clear commitment to accessibility and inclusive design in their products and services.

- **Accessibility in RFPs**

Include universal accessibility criteria in requests for proposals and contracts to ensure all immersive learning solutions are accessible to everyone.

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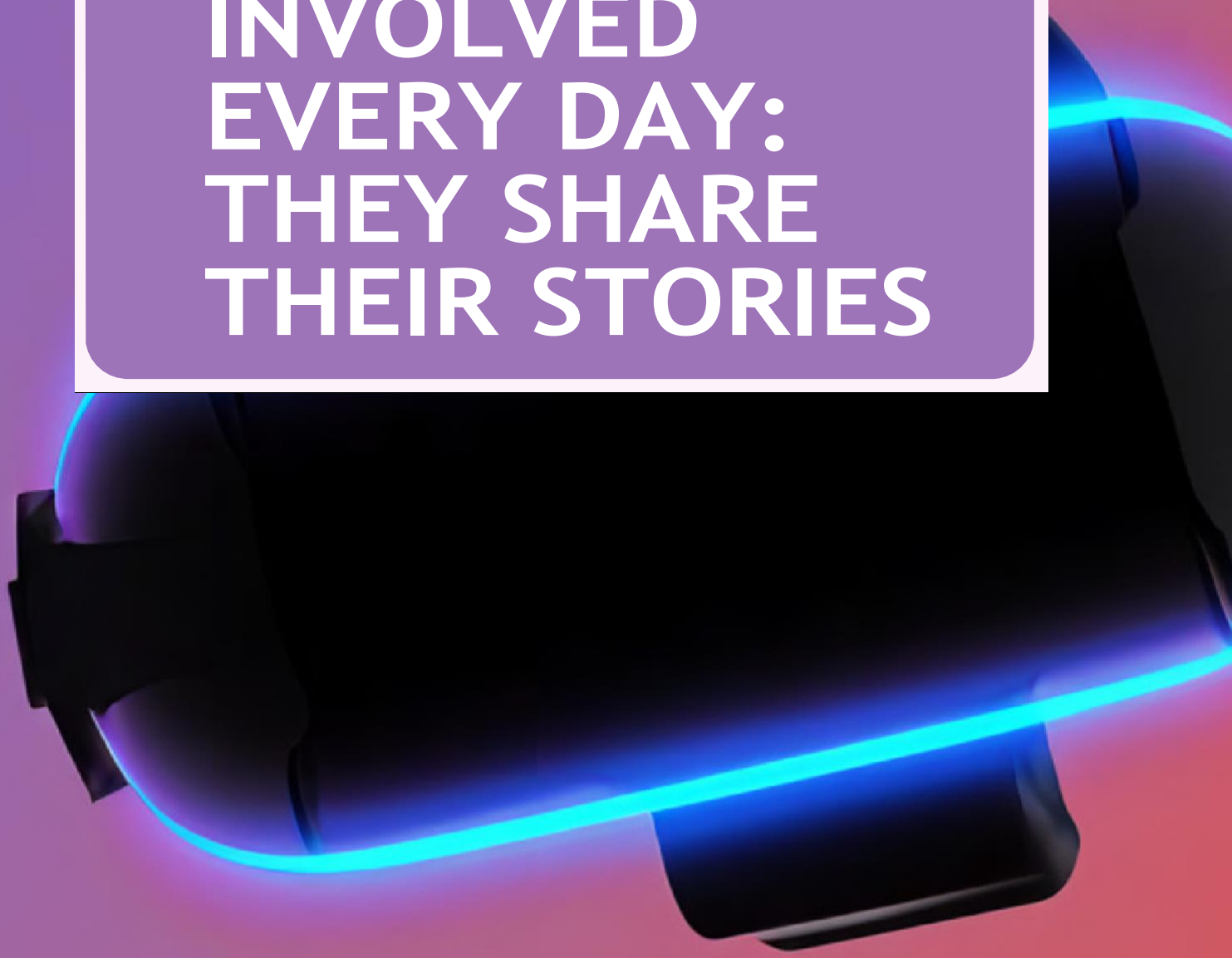
INVOLVED EVERY DAY: THEY SHARE THEIR STORIES



Sofia RUFIN: Founder of 5Discovery

Can you introduce yourself?

5Discovery is the first virtual reality-based training platform focused on soft skills. We also offer modules that combine soft and hard skills, particularly for high-demand or innovative professions, aimed at people with disabilities or those in vulnerable situations.

Can you explain the origins of the project and your target audiences?
I'm Sofia Rufin, founder and president of the startup 5Discovery Virtual Learning. I created 5Discovery based on my 20 years of experience in IT and training. 5Discovery is the combination of IT and education. I trained in behavioral methodologies such as Process Communication, Emotional Intelligence, conflict management, transactional analysis, and more.

My main goal was to democratize soft skills. Everyone needs to develop their behavioral and social skills. Soft skills are about developing communication abilities, empathy, and kindness. They also include social interaction, conflict management, emotional intelligence, etc.

These are essential skills for any professional career and, more broadly, for our society. Our training is aimed at all types of audiences, starting with those in vulnerable situations. Often, people with disabilities, from diverse backgrounds, or who have faced challenges integrating into society, suffer from a lack of self-confidence.
Developing their soft skills helps facilitate their access to employment.

How did you finance 5Discovery and the development of these immersive modules?
I founded 5Discovery with my own funds to be able to offer our training and modules to all types of stakeholders. Inclusion, disability awareness, and more broadly, soft skills are relevant to all sectors. Today, in addition to our catalog-based offerings, we also provide services for companies or institutions and respond to calls for projects.

How do you reach people with disabilities or those in vulnerable situations?
Generally, when we work with people in vulnerable situations, it's through associations and public or private organizations. For example, we collaborate with Etablissements et Services d'Aide par le Travail (ESAT – Work Assistance Establishments and Services)

particularly for people with psychological, cognitive, or mental disabilities. We help them, for example, prepare for job interviews or build job-related skills (e.g., in food service, personal care, etc.). Thanks to our training programs, they practice social interactions, learn to manage their stress and emotions.
As I mentioned, soft skills are essential for everyone.

Are your training programs only intended for people in vulnerable situations or with disabilities?
As I said, soft skills are essential for everyone. That's why we offer immersive training for managers, employees, students, and workers in general. Our programs aim to improve skills, enhance employability, or raise awareness about the realities faced by people in vulnerable situations or with visible or invisible disabilities.

More and more companies are seeking to improve their recruitment processes, especially in high-demand sectors. They want to raise awareness among their teams about disability and diversity. Without proper training, a recruiter might misinterpret a candidate's behavior as a personality trait, when in fact it could stem from an invisible disability.
We also offer training for caregivers supporting people in vulnerable situations.

How do you raise awareness of the challenges faced by people with disabilities or in vulnerable situations?
Through embodiment made possible by virtual reality, of course. The learner steps into the shoes of a person with a disability.
If we take the example of hearing difficulties, the learner realizes that an off-topic answer from a candidate isn't necessarily due to a lack of interest—it might simply be because the question wasn't properly heard.

More broadly, when we raise awareness of the challenges faced by vulnerable individuals, we make sure users understand that some reactions are not personality traits, but expressions of invisible disabilities.
I'm thinking, for example, of people living with diabetes. Everyone has heard of diabetes. However, few people know that it can sometimes be accompanied by irritability. I could also mention Crohn's disease, musculoskeletal disorders (MSDs), or bipolar disorder.

We create realistic scenarios that portray people's differences. This promotes acceptance and ultimately enables better collaboration.

How do you ensure that your educational scenarios reflect the reality of people with disabilities or in vulnerable situations?

We are members of the Disability, Employment, and Workplace Health Chair at the University of Paris-Est Créteil (UPEC) and collaborate with several organizations (such as Adapei). This gives us access to a large body of scientific literature on these topics. But academic research alone is not enough. We also work with experts, disability coordinators, doctors, and people living with disabilities or in vulnerable situations.

Can you give a concrete example of how your scenarios are created?
Let me take the example of a training module on collective catering, in a professional kitchen. We developed it in collaboration with our partners in the disability sector. We went on-site and scanned the kitchen and all equipment in 3D to immerse learners in an environment that closely mirrors their future workplace.

However, to make the module more accessible, we chose to modify certain elements. For instance, utensils are visible and easily accessible to learners, whereas in reality, they would be stored elsewhere. We also included more explanations—especially for objects that look similar.

We had our module tested by Grégory Cuilleron, a former contestant on the show Top Chef and a person with a disability. As with all our modules, we applied our expertise in behavioral science and disability. That means we reduced the amount of written text, added more voice guidance, and replaced some words with symbols. We also slightly slowed down the pace of the module to give learners more time to absorb the information.
All of these choices make the training more accessible to a variety of disabilities.

What other actions do you take to improve the accessibility of your modules?

We systematically avoid using certain color combinations that could confuse people with color blindness. The same goes for flashing lights and strobe effects, which can cause headaches or trigger more severe reactions. We also avoid fonts that may mislead or hinder comprehension for individuals with dys disorders (like dyslexia).

How do you support learners who follow your training modules?
Our training programs are designed for specific target audiences and include tailored support mechanisms. Learning objectives are always clearly stated. At the end of each session, we ensure the acquisition of skills through an evaluation questionnaire.
We've also developed a virtual coach that congratulates and supports the learner throughout the process.

Do all your modules offer the same level of accessibility?
All of our modules include built-in features that enhance accessibility. However, depending on the target audience and learning goals, we don't necessarily integrate the same accessibility options across the board—because that wouldn't make sense.
While striving to be as inclusive as possible, our main focus is to ensure that the learning objectives are met as effectively as possible. For each project, we work through the entire value chain: instructional design, accessibility, ergonomics, and differentiation based on the type of disability.
We offer our modules in different versions to best suit the intended audience.

When a specific disability is identified, how do you determine what accessibility measures to take?
Naturally, we rely on the experience we've gained since founding 5Discovery—but that's not enough. That's why we collaborate with several organizations, giving us access to experts, doctors, people with disabilities, and of course, numerous up-to-date publications and studies.
Above all, we test, modify, re-test, and rework… We use an iterative, agile approach. That's how we're able to create truly accessible modules.

Can you give an example of an accessibility feature that evolved based on user/tester feedback?
Actually, there are many. One that stands out is the clarity of the terms used in our dialogues. Initially, we had written dialogues that we thought would stimulate learners. But when working with a vulnerable audience, it was essential that the language used be as accessible as possible. So we revised the content to avoid putting people in a difficult situation.

In terms of ergonomics, we also realized that strictly replicating reality isn't always the best approach. That was the case, for example, in our training module on industrial kitchens.