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For Independent Software Vendors (ISVs):

A Research-Backed Checklist for Creating High-Quality Immersive Experiences

Immersive learning experiences can be engaging for students, but many do not deliver real learning value. Our research report *From Engagement to Impact* provides an overview of our evidence-based process for identifying and evaluating the elements of a quality learning experience. This guide for Independent Software Vendors (ISVs) is designed as a checklist to support XR developers to evaluate, refine or build XR learning experiences that deliver the quality standards educators are looking for.

Immersive experiences in the classroom

With over 800 XR content providers on the market, teachers have no shortage of immersive learning content to choose from; yet, identifying quality learning experiences remains a real pain point. Teachers want content that does more than just capture their students' attention. In our research, we found that teachers who rate their XR experiences as high quality use XR more, feel more positively about it, and are more likely to believe it meaningfully improves student learning. The following guide, grounded in the perspectives of educators and learning scientists, aims to make that standard of quality explicit for XR content providers through four guiding principles.

Identify what your XR experience can do that other pedagogical tools cannot

When a teacher is considering adopting a new technology- one that involves set-up, tear down, and potential troubleshooting- there needs to be a clear value-add. A useful, known tool for determining XR value-add is the D.I.C.E. framework: consider whether your experience addresses something that is Dangerous, Impossible, Counterproductive, or Expensive or rare to replicate through traditional instruction.

If your experience could be better replaced by a worksheet, a physical model, or even a 2D video, most will reconsider the XR investment. The strongest experiences have a clear, defensible answer to the question, "Why should I use XR for this?"

Articulate the primary learning purpose(s) your XR learning experience serves

Before an educator selects your product, they need to know what it is for. And it needs to go beyond the initial "wow" factor that may be achieved by impressive visuals or controls. As outlined in our report, high-quality XR learning experiences tend to be intentionally designed around one or more of the following learning purposes:

1. **Introduction of new concepts**
2. **Application and practice**
3. **Complement core instruction**
4. **Supplement or extend learning**
5. **Experience-based exploration and simulation**
6. **Assessment**

Consider which of these purposes your experience genuinely supports (or could support with intentional adjustments). It may serve more than one, but be wary of trying to do too much. The more purposes you build in, the more you need to support the instructor in delivering them effectively.

Know and understand the core elements of high-quality learning and design

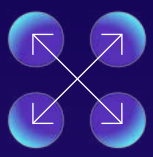
While elements of high-quality learning design are intuitive to educators, these principles are not top of mind for most other sectors yet. Design your experience to extend what teachers do best by incorporating key learning principles, as laid out in the Criteria for Immersive Learning Quality (CILQ).

These principles include:

Cognitive & Physical Engagement

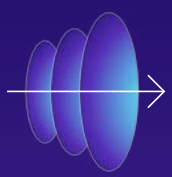
Is your experience more active or passive? Quality learning experiences should require students to create, interact, explain, or collaborate, ultimately allowing them to go beyond just reading and watching.

Holistic XR Value



What is the value of using XR instead of other pedagogical tools? Can teachers answer the question, "Why should I use XR for this?"

Learning Goals & Intention



Does your experience outline what learners should know or be able to do as a result of their participation? Learning objectives should be clear for both the teacher and learner.

Instructional Support & Scaffolding

Does your experience guide learners progressively through a concept, or does it require a base level of knowledge and skill before participating? Consider including onboarding, instructions, hints, and pacing.

Experience Design & Cognitive Load

Are learners appropriately challenged without being overstimulated? Are the controls and actions in the experience intuitive? Is text, audio, or visual stimulation coordinated to highlight key concepts or relationships?

Accessibility & Safety

Can all students learn through this experience? Can students make adjustments to fit their sensory needs or preferences? Is the language in the experience appropriate for the intended age group? Consider how your experience performs on accessibility and safety standards.

Consider what sets your experience apart

Beyond the core components of the CILQ, some experiences offer assets that aren't required for quality learning but can be significant differentiators depending on what an educator is trying to accomplish. Consider whether your product supports any of the following, and highlight them clearly in your materials:

- **In-experience assessment or progress tracking (can be formal or informal)**
- **Practice and/or mastery of skills or concepts**
- **Feedback in real time or immediately following the experience**
- **Reflection and meta-cognition (i.e., thinking about and/or monitoring your thought processes, knowledge, and learning)**
- **Adaptivity and personalization**
- **Collaborative or multiplayer experiences (teamwork, peer learning)**
- **Use of non-player characters (NPCs; specifically highlighting the purpose that characters serve in your experience)**

Teachers are excited about the possibilities of XR in education but need support to make the experience worth the time, expense, and opportunity-cost of implementing. The more you can intentionally design for a clear learning purpose and signal the features that support that purpose, the more likely teachers will be to incorporate the experience into their classroom.

Access our report *From Engagement to Impact* and learn more about the CILQ at pearson.com/efficacy.learning-evidence.html