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Transforming and Personalizing Learning with Immersive Technologies

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Abstract. Immersive Reality platforms have the power to enhance and extend learning by removing barriers of physical space, improving collaboration, encouraging hands-on learning, and providing individualized learning opportunities for students. In this session, we will demonstrate how we have purposefully used CoSpaces as part of our Interconnected Systems unit which focuses on UN Goal 15 – Life on Land. Students will showcase their finalized Merge Cube and explain how they used augmented reality to bring their ideas to life. In this session we will also be showcasing how students have used FrameVR to experience Meta Verse Scavenger hunts, virtual field trips and present their work in new and innovative ways. In this session, we will demonstrate how immersive technologies enhance student engagement, increase collaboration and develop greater accessibility.

Keywords: Immersive Learning, AR, VR, XR.

1 Introduction

Digital technologies are continuing to transform the field of education. By embracing immersive technologies students develop authentic, technological, future-focused skills that will be necessary for them to succeed in our ever-changing world. The immersive technologies that we provide our students, offer a hands-on, personal, interactive learning experience. By promoting the United Nations Sustainable Development Goals, and utilizing AR, VR and XR platforms, our students can explore and understand the world in new ways. As the future's innovators, activists and leaders are in classrooms today, immersive technologies promote critical thinking, collaboration and creativity. They too, allow our young minds to think of creative solutions to real problems with global reach and ambition.

CoSpaces is a platform that we use for students K-6. It provides our students with opportunities to create and explore virtual worlds (VR) and interactive storytelling (through the use of AR). By using this platform across the preparatory school, students are able to build upon their knowledge each year.

We have introduced FrameVR to our students in Years 3-6. FrameVR is a powerful XR platform where our staff and students can create immersive, interactive learning experiences. We have found that FrameVR provides beneficial learning opportunities for students to explore and experience new concepts. The purpose of this workshop is to highlight how learning with immersive technology allows students to collaborate, share, create, engage and solve problems in new ways.

1.1 Enhanced Engagement

Learning through immersive technologies allows students to engage in new ways. A study by Lee and Park (2020) explored the benefits on how immersive platforms can increase engagement and improve motivation in the classroom.

As part of our Interconnected Systems unit, students needed to demonstrate their understanding of the concept, cause and effect. By using CoSpaces, students were able to show how specific ecosystems are interconnected as

well as the impact humans have on the environment. When constructing their Merge Cube, students relished in the wide range of possibilities available to them, thus enhancing their engagement.

Scavenger hunts are a great way for students to promote engagement, yet can be difficult in small classroom spaces. Within my virtual classroom, I was able to create an XR scavenger hunt by adding objects, clues and instructional videos for students to interact with. Following this, students were then given the opportunity to create their own XR scavenger hunt using the many tools available on FrameVR. Following this lesson, every student in my class indicated that their level of engagement had increased substantially when using FrameVR as a learning tool.

1.2 **Improved Retention**

As part of his Cone of Experience, Edgar Dale theorised that we retain around 10% of what we read, yet 90% is through what we experience. As existing multimedia systems used in classrooms mostly address only two communication channels (visual and audio) learning through experience is limited.

Immersive platforms improve student retention by providing a more engaging, interactive learning experience for students. As my students explored and experienced concepts on CoSpaces and FrameVR, I noticed they developed a better understanding of the skills and concepts being taught. By having the opportunity to create and explore with these platforms, students developed their ability to articulate their views and provide justified reasoning.

1.3 **Enhanced Collaboration**

Using immersive technologies such as Frame VR and CoSpaces can improve student collaboration by providing students with a shared virtual environment in which they can work together. This shared environment allows students to collaborate on projects, work on tasks together, and have conversations without the need for physical contact. Additionally, with so many different features, these technologies can also allow students to visualize their ideas more effectively, making it easier for them to communicate and share ideas. Whether students are creating or exploring virtual worlds, participating in digital scavenger hunts or creating an interactive presentation, student collaboration is enhanced with the endless possibilities of immersive technologies.