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Engaging Early Learners in a VUCA World.

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Abstract. The Kindergarten cohort at Knox Grammar Preparatory School have been discovering and inquiring about the world around them through purposeful play and research. After consolidating new knowledge through a hands-on approach to learning, they have transitioned their inquiry learning process into an interactive virtual environment through the use of several platforms including CoSpaces, Minecraft and FrameVR. Through a differentiated approach to learning, we have been able to explicitly model critical and creative thinking, by providing new and exciting means to enhance student reasoning and communication skills. Increasing the level of positive ICT engagement through an immersive virtual learning experience, has engaged Knox community members from around the world and allowed families to reflect on the learning process each student undertakes. Kindergarten students have taken a step into the metaverse through the uploading of inquiry research tasks consisting of hand drawn posters, oral presentations, video recordings, artworks, construction projects and coding to a collaborative FrameVR environment thus providing them with the opportunity to demonstrate their multifaceted learning process on one platform. Virtual learning environments are shared with the parent community to demonstrate the process of learning throughout each unit of inquiry.

Keywords: immersive learning, inclusivity, student agency, technological literacy

1 Introduction

In this day and age, it is imperative that students are exposed to, and become familiar with the changes in technologies that are moulding their future. Through the development of students' technological, problem solving and collaboration skills, they will graduate as well-rounded, technologically literate citizens who will go on to positively contribute to the ever-changing global community. The constraints that paper and pencil place on the next generation, hinders the experience of enhanced, engaging and inclusive study which can be achieved through the use of technology. Our aim must be to nurture adaptable learners that are prepared for a volatile, uncertain, complex and ambiguous world (VUCA). Digital literacy is not just knowing how to use a computer or device, but rather

it is the skill set needed to access different technologies, providing the opportunity to create content through different platforms and developing the competence of a digital citizen through inquiry, creativity, and collaboration.

2 Making connections to the world through Coding and Robotics

When introducing Kindergarten to coding at the start of the year, students built a range of transdisciplinary skills that allowed them to make connections to the world around them. At this point in their journey, it is essential that students enjoy purposeful play through digital learning experiences that expose them to coding and robotics. Explicit language introduction and structured tasks leads to development of computational thinking skills and consequently, higher student engagement in classrooms and increased rates of participation.

Throughout a study that explored how people work together in communities, students used Blue Bot Mats to develop their own community and created codes to move around this community. During this time, students were introduced to empathy as they identified how different people used different codes each day to meet their needs. Having a deep understanding of coding and the necessary language is an essential part of this process.

This hands-on approach increased retention of information levels and allowed students to make meaningful connections. Many of the skills required when using CoSpaces and Minecraft Edu were developed during this time. In 2022, we aim to connect students' learning experiences through the use of FrameVR. This will allow our family communities across the world to be a part of each child’s learning continuum from the time they begin at Knox Grammar School. Creating a virtual environment where students upload and share their knowledge will in turn broaden the school community and enhance collaboration of all school stakeholders.

3 The integration of CoSpaces in the Classroom to Demonstrate Understanding

Integrating CoSpaces in the classroom provided students with the opportunity to demonstrate their knowledge by building virtual interactive worlds. Throughout various units of work, students are explicitly taught the coding skills that allow them to apply their knowledge into the virtual world.

When exploring how forces impact the world around them through purposeful play, students develop a deep understanding of these concepts. As they move through the inquiry cycle, they are then able to explore open- ended questions and visualise, explain and justify their understanding through the use of CoSpaces. A study on Forces saw students exploring the process of falling and floating. This platform allowed educators to

create personalised learning opportunities and offer new ways to connect with the learning material through "embodied learning" and multi-sensory experiences. In line with the Universal Design for Learning Guidelines, these experiences enabled students to exercise critical thinking to observe, analyse and find solutions to problems.

Students were then able to apply multiple means of action and expression by creating scenarios demonstrating forces in action using coding on CoSpaces.

4 Incorporating Minecraft Edu to Promote Creativity and Collaboration

Minecraft is a platform that is easily accessible to students. It inspires confidence through exploration and increases creativity skills while encouraging problem solving through teamwork and collaboration. It is an added level of fun in the classroom, encouraging students to think outside the box and explore ideas of the future.

Chandra encourages the incorporation of structured approaches for developing solutions for real world problems, into everyday learning. During the course of the year, students delved into a study on Earth's oceans. After researching how people use and impact oceans, students were able to demonstrate their problem-solving skills through construction within the Minecraft Edu world. Prior to using Minecraft Edu, students asked questions, used books, the internet and various documentaries to research facts to consolidate their understanding. Google Slides was used to explain how Earth's oceans can be protected and then applied these solutions to their virtual ocean environment. Minecraft allowed students to view and experience something otherwise inaccessible and encouraged the development of 21st century skills necessary for their impending futures.

5 Recommendations

In order to equip early learners with a skill set that is needed in a volatile, uncertain, complex and ambiguous world, we must provide structured approaches and opportunities for students to explore and engage in a variety of platforms. The disruptions that teachers and learners alike have, and are continuing to face, can be mitigated with the introduction of students into the metaverse from such an early age. These practices will facilitate collaboration and encourage creativity and critical thinking, allowing an opportunity and nurturing diversity in innovative thinking. The inclusion of immersive learning in the inquiry cycle is vital. The reflection of in class student learning onto a virtual environment opens a highly inclusive manner where learning can be represented multimodally.

Age plays a big part in mastery of technological literacy, however, with explicit teaching, scaffolding and a bit of patience, students slowly but surely gain proficiency. The implementation of a buddy or peer teaching program is highly effective in achieving

this. Weekly visits from Year 6 classes to the Kindergarteners afforded a friendly informal time where older students could demonstrate and instruct the younger ones in how to manipulate and effectively use each platform. The promotion of platforms such as these, afford students agency over their learning, in turn developing a resiliency to keep moving forwards at all costs. It is these steps that aid educators to guide students in becoming a part of an inclusive and robust global community.

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