BRINGING SCIENCE TO LIFE: THE ROLE OF 3D MODELS AND ANIMATIONS IN GRADE 6 EDUCATION

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The incorporation of technology in education has provided exciting possibilities when engaging students, particularly in Science, where abstract concepts can pose challenges for young learners. Virtual 3D models and video animations are among the most effective digital tools a teacher can use to augment traditional instructional materials inside the classroom (Barut Tugtekin & Dursun, 2022; Mustafa, 2022; Teplá & Šmejkal, 2022). Due to its more visually-appealing nature, these resources offer a more interactive and fun way of delivering Science lessons to the students.

In Grade 6, students begin exploring more complex topics such as the solar system, ecosystems, energy transformation, friction, and the human anatomy. These lessons are quite challenging to deliver especially if you want the learners to imagine the concepts you are trying to teach. Traditionally, teachers have been using heavy encyclopedias and books to allow students to picture out complex concepts. Today, with the availability of video animations and 3D models, teachers can utilize them to provide a clearer and more comprehensive visual understanding of the lesson.

Video animations complement these models by demonstrating processes in motion. For example, instead of only reading about blood circulation in the body, students can observe an animation that depicts each stage of the process. These visual aids help the teacher simplify complex processes and make the students more engaged during discussions. Likewise, educators improved their creativity and communication (Kleftodimos, 2024).

When it comes to learning styles, both 3D models and video animations a wide range of them. For instance, visual learners may gain from seeing movements and detailed images. Meanwhile, auditory learners, will understand better through narrated explanations that are often included in video animations. Kinesthetic learners, on the other hand, might enjoy the interaction of rotating, zooming, and examining of digital 3D models. These tools allow teachers to offer differentiated instructions and cater different student learning styles while using the same material.

Using 3D models and video animations in the classroom also creates excitement and curiosity among students. They are more likely to ask questions and engage in discussions when they can see and interact with the material being shown on a computer or television screen.

Students retain information better when they are actively engaged and this is particularly true with Grade 6 learners. Video animations and virtual 3D models hold the students' attention and by turning textbook concepts into visual and more understandable experiences.

The only pre-requisites of using virtual 3D models and video animations, are the availability of television and internet connectivity inside the classroom. While most video animations can be downloaded and be transferred in a flash drive, 3D models on the other hand sometimes requires internet connection. In the Philippines, most teachers use their own pockets to purchase data for connectivity. This is one area where the teachers can benefit from government support in providing internet connectivity in schools as well as the distribution of larger TV screens that will surely be beneficial for both the teacher and the students.

For teachers, the key is to use these tools strategically. The integration of the use of technology should align with the learning objectives and be integrated into a well-

structured lesson plan. Teachers may need capacity-building and relevant training to use these tools effectively, but when implemented correctly, the benefits are clear.

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