

THE ROLE OF VIRTUAL LABORATORIES IN THE CONTINUITY OF BLENDED LEARNING IN THE PHILIPPINES

by:

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Blended learning has emerged as a vital approach to ensure the continuity of education, especially in the Philippines, where the Department of Education has been eyeing its sustainability. Within this learning set-up's traditional and virtual framework, virtual laboratories may play a crucial role in providing students with viable science learning experiences. Let us explore the significance of virtual laboratories in the continuity of blended learning in the Philippines, highlighting their benefits and implications for science education.

Enhancing Access and Equity:

Virtual laboratories have a profound impact on enhancing access and equity in science education within the blended learning scheme. Virtual laboratories bridge the gap in a country with diverse geographical locations and varying access to resources by providing equal opportunities for all students. By incorporating virtual laboratory experiences, students from remote areas or schools with limited resources can access practical science learning without the need for physical infrastructure. This inclusivity promotes educational equity by ensuring that students have equal access to laboratory experiences, regardless of their geographic location or school conditions.

Promoting Safety and Cost Efficiency:

Virtual laboratories play a critical role in ensuring science education's safety and cost efficiency in the blended learning context. Safety is a primary concern in laboratory settings, and virtual laboratories address this issue effectively. By utilizing virtual

simulations, students can engage in experiments without being exposed to potentially hazardous materials or situations. This not only ensures the well-being of students but also reduces risks associated with traditional laboratory settings.

Moreover, virtual laboratories according to Potkonjak et al. (2016), offer cost-efficient alternatives. Traditional laboratory setups require substantial investments in equipment, maintenance, and consumables. In contrast, virtual laboratories eliminate the need for physical resources, resulting in significant cost savings for schools and families. By reducing financial burdens, virtual laboratories enable a more sustainable and accessible science education system.

Fostering Active and Independent Learning:

Virtual laboratories support active and independent learning, empowering students to take charge of their education. In the blended learning approach, virtual laboratories offer students the opportunity to explore scientific concepts actively. Through hands-on virtual experiments, students can manipulate variables, make observations, and analyze data. This experiential learning fosters critical thinking skills, problem-solving abilities, and a deeper understanding of scientific principles.

Additionally, virtual laboratories promote independent learning. Students can access virtual laboratory platforms outside the traditional classroom setting, enabling self-directed exploration and experimentation. According to the study of Sancho et al. (2006), virtual laboratories offer flexibility, allowing students to repeat experiments, modify parameters, and engage in self-paced learning. This autonomy cultivates a sense of ownership in students, as they actively participate in the learning process and develop scientific inquiry skills.

Undoubtedly, in the continuity of blended learning in the Philippines, virtual laboratories assume a pivotal role in ensuring access, safety, cost efficiency, and active learning experiences. By incorporating virtual laboratories, students gain equitable access

to practical science education, while schools and families benefit from reduced costs. Furthermore, virtual laboratories foster active and independent learning, empowering students to become lifelong learners and critical thinkers in the field of science.

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