

THE EFFECTIVENESS OF CROCODILE CHEMISTRY 605 IN E-LEARNING EDUCATION 2021 IN KUWAIT

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ABSTRACT

As conventional learning is transforming into new virtual forms, there seems to be a concern of how much virtual labs are effective in terms of developing science process skills of the students. This study, therefore, aims to evaluate the effectiveness of Virtual Chemistry Labs Programme, named Crocodile Chemistry 605 in E-learning Education 2021 in the College of Health Sciences (HSC) in The Public Authority for Applied Education and Training in Kuwait (PAAET) Kuwait. 150 students of the programme have participated in this and share their experiences. The results suggest that Crocodile Chemistry 605 was found effective in terms of successfully simulating realistic Lab tools, easier to change experiment parameters, enhancing the experiment safety while observing the elements interact, and allow students to repeat experiments without substantial resources wastage. The students, however, needs more time using and understanding the program to improve their skills, related to the chemical reactions, reports, and presentations to further enhance their skills and take fully advantages of the program's effectiveness. These finding are important for the overall theory and practice of using virtual labs and highlighting the areas of success as well as the areas which need improvements.

Keywords: Chemistry, Visual Learning, Traditional Laboratory, E-Learning, Virtual Laboratory, Virtual Simulation Program (Crocodile Chemistry 605) .

1. INTRODUCTION

The process and nature of education is evolving, with a relatively persistent objectives of facilitating learning, acquiring new knowledge & skills, and development of some positively perceived values of freedom and civic conscious (Belentsov et al., 2017).

These potential outcomes of education process prepare students for a successful life, work, and more importantly a good citizenship as deemed necessary by a society (Blazauskas et al., 2017; Bransford et al., 2000; Wittich et al., 2017). This process is a socially conscious attempt to promote learning (Rajendran et al., 2010), among the members of a society.

Over the years in Kuwait, the science teaching was prevailed as a more teacher centric phenomenon. In such a teacher centric approach, educators were constantly giving instructions to perform various activities and desired students to exhibit pre-conceived good and right behaviours (Kain, 2003). Such a teaching approach has the foremost limitation of knowledge transfer being mostly dependent upon the rhetorical skills, knowledge type, knowledge level of a concerned educator.

Therefore, an educator plays a sole and prominent role of being knowledge authority in the class and such a knowledge authority does have potential to be irrelevant, limited, and may be overestimated in various episodes of considering it as a source of knowledge (Neuman, 2007).

The science curricula in Kuwait was also considered only as a mean of knowing or as a process for increasing the knowledge of natural world only. In this approach of using curricula is not sufficient, because it only helps students to read the science alone. Whereas a science must be substantially realized in terms