

ICT + RBL + TPCK + UDL + OER = INNOVATIVE INSTRUCTIONAL DESIGN FOR BLENDED UNDERGRADUATE CHEMISTRY COURSES

Charisse Reyes^{a,c}, Gwendolyn Lawrie^b, Christopher Thompson^a

Presenting Author: Charisse Reyes (charisse.reyes@monash.edu, charisse.reyes@upou.edu.ph)

^aSchool of Chemistry, Faculty of Science, Monash University, Clayton VIC 3800, Australia

^bSchool of Chemistry and Molecular Biosciences, University of Queensland, Brisbane City QLD 4072, Australia

^cFaculty of Education, University of the Philippines Open University, Los Baños, Laguna 4031, Philippines

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ABSTRACT

The rapid advancement in information and computer technology (ICT) has contributed to massive development of new pedagogies for the enhancement of teaching and learning across all fields of education, at all levels, including tertiary chemistry education. For the most part, the worldwide web (WWW) has afforded chemistry educators vast opportunities to improve their teaching practices towards better student learning experience. From a static traditional text-based content delivery, chemistry educators nowadays may take advantage of a dynamic, learner-centered, multimodal instruction that caters to 21st century learners. A wide range of learning resources for chemistry education in various media formats have been made available through the internet and can be harnessed not only for content delivery but for assessment as well. To maximise the benefits of these affordances, an appropriate instructional design is however imperative. This paper discusses various educational models such as resource-based learning (RBL), technological pedagogical content knowledge (TPCK) and universal design for learning (UDL) which may serve as foundations for an innovative instructional design for use in the delivery of an undergraduate chemistry course/unit in blended learning mode. The use of web-based open educational resources (OERs) in the field of chemistry will likewise be discussed in this paper.

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