

Chapter 10

Design and Evaluation of an Adaptive VLE for a Flipped Classroom Emergency Care course

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ABSTRACT

Nursing students face several difficulties in understanding the material of an emergency care course. This study describes the design and evaluation of a virtual learning environment (VLE) integrated into a flipped classroom approach to address these

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issues. Using the ADDIE model, the VLE incorporated adaptive learning mechanisms to personalize content based on student progress and performance. The pilot implementation involved 56 second-year nursing students in Casablanca, Morocco, who accessed online resources and participated in class activities. Results showed moderate resource usage, with peaks before assessments, and highlighted multiple-choice questions as the most utilized and appreciated resource. Students expressed overall satisfaction with the course design, resource variety, and user-friendliness. However, limited use of interactive tools like forums was observed, and no significant correlation was found between content usage frequency and exam scores. The study suggests that flipped classrooms and VLEs can effectively support nursing education.

INTRODUCTION

The emergency care course is a major module in the training program for future nurses. It is composed of several foundational chapters that constitute the core of the nursing profession. The main objective of this course is to equip the student with the necessary resources to behave competently in front of critical clinical situations. Classically, each chapter of the course is taught in an academic setting. Subsequently, clinical simulation sessions are offered to students before they enter the clinical settings.

Many students find it challenging to understand the concepts covered in this course. The extensive volume of material to be covered within a limited timeframe hinders students' ability to integrate and apply the knowledge effectively. In addition, the invasive nature of the majority of chapters and the lack of learning opportunities in the clinical settings increase the frequency of difficulties. This situation often leads students to adopt “surface learning strategies”, as the knowledge learned does not remain in memory for long, and is quickly forgotten following exams (Charlin et al., 2003).

So-called traditional teaching methods are often suggested as one of the factors promoting these difficulties. (Chamberland et al, 1995; Billings & Halstead, 2012; Schwerdt & Wupperman, 2010). These methods encourage passive learning and provide little opportunity for feedback (Billings & Halstead, 2012). They are effective for delivering large volumes of information; however, they often fail to ensure high-quality learning experiences and do not adequately support personalized learning (Collins & Halverson, 2018).

As a result, several recommendations have advocated for the integration of virtual learning environments (VLEs) into nursing education programs, not only as a complement to traditional methods but also as a core component of the flipped classroom approach (French National Authority for Health [HAS], 2015; Liu et al.,

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