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Getting Students' Preferences Right:
AI-Powered Macrolearning

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ABSTRACT

Led by artificial intelligence (AI), digital technologies are acting as a lever for significant change in higher education. Innovative formats such as macrolearning, the concatenation of a significant number of microlearning units, are consequently emerging. The purpose of this paper is to explore students' preferences for macrolearning programmes from a multidimensional perspective, identifying areas of improvement and how AI can be instrumental in enhancing the student experience. We contribute with evidence-based research to the exploration of how to design and implement an effective macrolearning. Results show that the most preferred dimensions of the macrolearning are those with a technical profile, first the technological platform, then the interface design, followed by institutional aspects, pedagogical aspects, and student support. We also explore the potential of AI to enhance multiple dimensions of macrolearning in the direction of the drawbacks identified, and we discuss how this can accommodate personalisation of training.

KEYWORDS

Macrolearning, Microlearning, Artificial Intelligence, Higher Education, Learning Value Proposition, Distance Learning, Digital Transformation

INTRODUCTION

The concept and phenomenon of microlearning arises when a significant number of microlearning lessons are accumulated (Zhang & West, 2020), offering a sequence of several modules and hundreds of microlearning units, usually consumed by students with a mobile device and at their own pace. The importance of macrolearning lies in its innovative learning value proposition, perceived by students as a potential alternative to a traditional master's degree by providing satisfaction and learning effectiveness (Rof, Bikfalvi & Marques, 2024).

As an instructional method that accumulates hundreds of usually video-based microlearning units, macrolearning is subject to the inherent complexity associated with microlearning (Alias & Razak, 2023). This fact increases the need to explore macrolearning instructional design from a multidimensional perspective, an area where there is still limited research even for microlearning

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(Lohman, 2024). To this effect, there have been calls for further research on the design and delivery of these new instructional formulas (Balasundaram, Mathew & Nair, 2024) and the integration of personalization (Kohnke et al., 2023), an aspect that may be especially relevant given the challenge of organizing hundreds of microlearning units, as required by macrolearning.

Despite its gaining importance, macrolearning is still an under-researched modality, with most existing studies focusing on microlearning (Balasundaram et al., 2024; Lee et al., 2021; Liew et al., 2023; Romero-Rodríguez et al., 2023; Sözmen, Karaca & Batı, 2023; Zarshenas et al., 2022). To our knowledge, this is the first study to explore how macrolearning should be designed from the perspective of student preferences. We propose the following research question:

RQ1: What are the most salient dimensions of students' satisfaction with macrolearning?

The importance of studying macrolearning as an emergent pedagogical innovation is framed within the massive and ongoing emergence of digital technologies, which is increasing pressure on educational institutions to digitally transform their strategies to remain competitive (Rahmadi, 2024). One of these digital practices is the use of artificial intelligence (AI) for educational purposes, as higher education students believe it helps to improve their learning (Benuyenah & Dewnarain, 2024).

AI, defined as computer systems with the ability to carry out human-like processes (Popenici & Kerr, 2017), has been minimally explored in the context of macrolearning. A notable exception is the research on AI integration in microlearning for the health sector, which acknowledges that the responsible integration of AI is still an emerging research focus (Fialho et al., 2024). In the case of macrolearning, the potential use of AI is a more pressing challenge as well as an opportunity, since it could add tremendous value to the task of creating and sequencing hundreds of microlearning units to fit students' learning goals, needs, and preferences. To address this knowledge gap, we propose the following research question:

RQ2: How can macrolearning integrate AI to enhance learner satisfaction according to their preferences?

To this end, this paper explores students' preferences regarding how a macrolearning program should be designed and implemented from a multidimensional perspective and how AI can potentially contribute to enhancing the program to offer a student experience that is better than the current one. With this purpose in mind, the paper makes an in-depth analysis of a single case that offers several macrolearning business programs.

The paper is organized as follows. First, the extant research on macrolearning design, implementation challenges, and the impact of AI is reviewed. Second, the methodological approach used to answer the research questions is explained. Third, the empirical results are presented, including students' preferences for a macrolearning program, and suggestions for the design of an innovative learning value proposition for an AI-enhanced macrolearning program. Last, the findings and conclusions are discussed.

THEORETICAL BACKGROUND

Macrolearning Design and Implementation Challenges

Macrolearning Design

Macrolearning can be defined as a grouping of a significant number of microlearning lessons to create a comprehensive training course that can be considered the equivalent of a master's degree (Rof et al., 2024). Since the components of macrolearning are microlearning units, macrolearning design