SN Computer Science (2024) 5:694
https://doi.org/10.1007/s42979-024-03044-4

REVIEW ARTICLE

Challenges to Applying Role Playing in Software Engineering Education: A Taxonomy Derived from a Rapid Literature Review

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Received: 29 January 2024 / Accepted: 7 June 2024

Abstract

Role Playing (RP) serves as an instructional approach to enrich the learning experience for students and boost their learning by the effective application of their theoretical knowledge within a practical context. In Software Engineering Education (SEE), the utilization of RP proves beneficial in fostering the development of skills such as teamwork, problem-solving, and critical thinking among students and aids them in comprehending the intricacies and hurdles inherent in software development, instilling the significance of collaborative efforts and effective communication. To use role playing effectively, SEE teachers need to understand the challenges that arise from using it. This paper presents a taxonomy, resulting from the analysis of a *rapid review* developed to identify these challenges: a thorough review of relevant articles indexed by well-known digital libraries (Web of Science, Scopus, and IEEE Xplore) which, after inclusion/exclusion criteria, yielded a total of 23 papers. This taxonomy provides an organized structure for understanding the challenges in implementing Role Playiing (RP) activities in the context of Software Engineering Education (SEE).

Keywords Software engineering education · Role playing · Rapid review · Taxonomy

Introduction

The teaching of software engineering poses notable challenges [1, 2], necessitating a continuous exploration of innovative pedagogical methods that actively engage students. In this context, role Playing emerges as a promising teaching strategy, enabling students to immerse themselves in realistic situations and to apply theoretical concepts in a practical manner [7]. However, the successful implementation of Role Playing (RP) activities in the field of Software Engineering Education (SEE) encounters various challenges that require structured and comprehensive consideration. This paper addresses this need by presenting a comprehensive taxonomy, derived from a Rapid Review process, which classifies and organizes the challenges associated with the application of Role Playing in SEE.

The remainder of this paper is structured as follows: Sect. 2 provides an overview of the theoretical background, introducing key concepts such as Software Engineering Education (SEE), Role Playing (RP), and Taxonomy. Section 3 explores previous experiences in defining a Taxonomy within the context of SEE. Section 4 details the Rapid Review (RR) and the research protocol guiding our work. Section 5 outlines the methodological process used to develop our taxonomy. Section 6 presents the developed taxonomy derived from the literature review, both in its entirety and categorized by levels. Section 7 addresses potential threats to study validity and outlines the measures taken to mitigate them. Section 8 delves into a discussion of the obtained results, emphasizing their relevance. Finally, Section 9 offers a conclusion and outlines perspectives for future work.

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Published online: 03 July 2024