

ABSTRACT

User Acceptance Testing (UAT) is a critical stage to ensure that software meets user requirements. However, traditional methods face challenges such as time constraints, high resource demands, and difficulties in recruiting representative users. This study develops and evaluates an asynchronous, crowdsourcing-based UAT framework to address these issues. The framework involves three main actors: Client, QA Specialist, and Crowdworker, operating through six structured stages without real-time coordination. A controlled experiment with 10 participants tested an inventory management application. The crowdsourcing framework achieved a bug detection effectiveness of 80.0 per cent compared to 73.3 per cent in traditional UAT, with 100 per cent bug report accuracy in both methods and no false positives. Each method also identified two unplanned bugs, demonstrating the ability to find unexpected issues. Follow-up interviews revealed that differences in effectiveness were more influenced by individual meticulousness than by the method used. The crowdsourcing approach offers advantages in time flexibility, organised documentation, and sustainability of the testing process. These findings indicate that the asynchronous crowdsourcing UAT framework is a viable alternative to traditional UAT, delivering comparable and competitive performance while offering the additional benefits of the crowdsourcing process, making it relevant for modern software testing.

Keywords: *software testing, user acceptance testing, crowdsourcing, asynchronous testing, framework development, software quality assurance.*