

Exploring the Measurement of Productivity in Agile Teams in the University Context: Acceptance and Comprehensive Qualitative Assessment

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Abstract. *Productivity measurement in agile software development (ASD) teams is an important topic in industry because it provides essential information for decision-making and helps adjust team behavior to support continuous improvement. However, developing the necessary competencies in undergraduate students to incorporate this process through a Software Engineering course has become a challenge due to the high level of abstraction involved. This article presents the main findings from the adoption of a productivity measurement process implemented with 110 students from Higher Education Institutions in Colombia. Organized into agile teams, the students developed a software product. The results show a high level of acceptance of the proposed measurement process. The main difficulties encountered were related to the practical implementation of metrics. Regarding areas for improvement, the use of a computational tool to support the proposed process is suggested in order to reduce its level of complexity.*

Keywords. *Agile software development, Agile team, Productivity Measuring, Software Engineering.*

1. Introduction

Productivity measurement has become an increasingly important topic in organizations and remains an area for exploration due to the multiple factors and subjective perspectives involved in its evaluation (Guerrero-Calvache and Hernández, 2022). In academic contexts, incorporating productivity metrics into Software Engineering education has shown benefits by enhancing students' analytical skills and better preparing them for real-world environments (Vallejo et al., 2023). In this context, the present study evaluates a productivity measurement process proposed by Guerrero-Calvache et al. (2025) through its application with university students in Colombia.

2. Methodology

This study evaluates the acceptance of a team productivity measurement process in an academic context. It was conducted as an exploratory study with Software Engineering students in Colombia, following the phases shown in Figure 1.

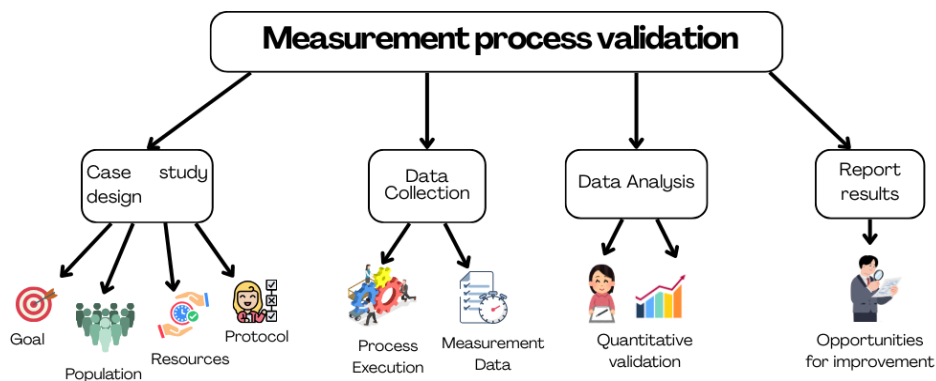


Figure 1. Stages of the validation of the measurement process

3. Results

The technique selected to evaluate the level of acceptance and to conduct a comprehensive qualitative assessment of the applicability of the agile team productivity measurement process proposed by (Guerrero-Calvache et al., 2025) was a workshop-based approach. In its design, the objective was to evaluate team productivity within an ASD context. The study involved 110 Software Engineering students in Colombia (2024–2025), who worked in teams over six weeks developing a software product using agile practices. Results showed high acceptance, with students valuing the structured artifacts and guidance provided, although difficulties were noted in operationalizing metrics and data collection. Participants also suggested automation support and highlighted the relevance of productivity measurement as a professional practice.

4. Conclusions

The study evaluated the adoption of the agile team productivity measurement process proposed by Guerrero-Calvache et al. (2025) with 110 students, achieving high acceptance and positive feedback. Challenges in operationalizing metrics highlighted the complexity of measurement processes, with future work proposing gamification and the development of a software product to support the process.

References

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