The Adoption of Agile Software Methodology with Team Software Process (TSPI) Practices in the Software Engineering Undergraduate Course

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Abstract— *In computer science, software engineering courses expose the undergraduate students to both the technical and methodological aspects of software development. The traditional software development methods and techniques represent a huge proportion of the courses and hence contribute an essential part of software engineering students' development process. This plan-driven development is dependent on a set of predefined phases and ongoing documentation which found to be problematic; such as time-consuming, slipped requirements and complicated processes. The main aim of this paper is to study and review the adoption of Agile Software Methodology and Team Software Process (TSPi) practices in the undergraduate course focus on software development. The framework and course plan will be designed to apply and observe the implementation. Furthermore, this study will help to gather the teams' viewpoint regarding the importance of Agile and TSPi practices in handling small projects with real clients.*

Keywords: Software Engineering, Team Software Process, TSPi, Agile, Scrum, Software Estimation, Software Planning.

1 Introduction

In computer science, especially in software engineering courses, the success and failure of students' project depend on the collaboration between the members of the project team. The software engineering students must not only be taught on the theory and technical aspects of the software development discipline, but also the effectiveness of teamwork and social capabilities. The TMP3413 Software Engineering Laboratories (SELab) course at the Faculty of Computer Science and Information Technology (FCSIT), UNIMAS offers to the third year students of Software Engineering programme students who have grasped and self-equipped with the fundamental of various programming languages, software modelling and database management system (DBMS). These skills and knowledge help the students to develop a different kind of systems.

The main aim of this paper is to study and review the adoption of Agile Software Methodology and Team Software Process practices in the undergraduate course focus on software development. The framework and course plan will be designed in order to apply and observe the implementation in future.

This paper organised as follows. The next section introduces the background study and overview of the Agile software methodology and Team Software Project, while Section III discusses the problem statements and construct the research questions based on the study. Section IV discuss the methodology used. Section V summarised the initial research outcomes and drawn up the contribution and future works of the study.

2 Background Study

2.1 Team Software Process (TSPi)

Team Software Project (TSPi) is a pint-down academic version of the Team Software Process (TSP) that is a huge scale, cutting-edge, mechanical quality, a coordinated structure that aides improvement groups in delivering amazing programming concentrated frameworks (Chick et al., 2009) (Humphrey, 2000). TSPi method provides a series of operational processes to the software engineers which can help them to achieve more efficiently and effectively software development and improve the quality and productivity of their software development project. The general concept of TSPi is an iterative and evolving development process, and the phases are shown in Fig. 1.