

Improvement of Students Abilities for Quality of Software Through Personal Software Process

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Abstract— The personal software process (PSP) is a personal improvement of individual engineers in software process. The goal of PSP to develop the software with high quality software on time and in budget. We have research and found some topics for researchers, Ph.D students and others organization such as IEEE, ACM and ISO. In this paper, we discussed the topics that will help the self-improvement of student, individual business man, engineers, developers and others (ones they new in software engineering field) to develop the personal skills for managing the quality of software through PSP because software development has changed continuously. We describe the new view of the personal software process (PSP) in which maintains the quality of software. The authors analyzed the future evolution direction of PSP. They think modern software engineers will depends on personal software development skills.

Keywords-Personal software process (PSP), Improve personal performance, Architecture Design in PSP, Testing Defect, and PSP Certification, personal software Project Management, Entrepreneurship, Marketing and Management Communication (MMC).

I. INTRODUCTION

Most people agreed that quality of the product is depend to quality of the process. The personal software process (PSP) is the process for improving software development capabilities for the individual engineer. The PSP aims to guide to the students how to develop the software personally. The PSP was proposed by SEI in Carnegie Mellon university by Watts Humphrey [1]. This paper deals with personal software process (PSP) and others research topics that, we considered combine with PSP. The advantages of these research with PSP is that the individual students can lead the project without any difficulties and also defact. This thing will help in product quality of each students. When students deal with personal software development skills and improve their productivity, it will impact on business, organization academia and also others.

II. BACK GROUND

“The personal software process addresses the lack of personal commitment to build quality work “[2]. At the

university of texas at El Paso (UTEP), did the experimental developments targeted student’s commitment for creating quality work. The goal was to create a habit within students to do the quality work. And also, other says, PSP course treated as a project commitments [3]. Implementation in PSP with model view controller (MCV) This paper proposed the guide for instructions in both personal and team performance for improving software construction [4]. Hybrid personal software process (HPSP) “defined, repeatable process for two programmers working collaboratively”. The HPSP is obtained by both PSP and pair programming techniques [5]. And the other automated web-based tool to support teaching the PSP techniques [6]. In this research done by Hilburn [7], it is discussed the problem in software engineering profession. and “The Capability Maturity Model (CMM), created at the Software Engineering Institute (SEI) in 1989, provides a structured framework for an organization to assess the current level of maturity of its software development processes and plan for improvement and advancement” and watts Humphrey has developed the personal software process (PSP) to help individual engineers. And through PSP many students trained, and training is starting to show positive results in industry. They did also explore into computing curricula.

III. CURRENT OPEN RESEARCH IN PSP

These research topics need to research new students, engineer, developers and business man. When engineers improve their performance within small organization, He/she will apply these techniques also for big organization. The basic premise is that improved individual skills for software development of any students.

A. Research in personal software Project Management performance.

Researchers should focus on how to improve personal software performance. First of all, students should know and understand the project management, and then they can implement it. Performance can be measure through the software quality. PSP researchers and senior manager should provide the personal software project management performance techniques for young generation and engineers

because customer does not satisfy without seeing the good performance of any product. They want to receive a good product with each perspective.

B. Research in software requirement specification (SRS) in PSP.

Software requirement engineering is the broad field and very important phase in every software development process. The software requirement specification (SRS) template is to guide the engineers for their product. But no one tells how to write standard SRS for student's levels or individual student. When students want to make a report of SRS documents, No one SRS present for PSP. Industry requires software requirement engineers. When they have no idea with SRS personal how they will deal with SRS in industry. Personal requirement specification (PRS) needs to understand the proper template for individual students and also new engineers.

C. Research in the Architecture Design of PSP

Different expert architecture designers should share their knowledge for PSP architecture design. And make different techniques tool and procedure. We know very well collaboration process is better than individual [8], but if one person has good architecture design techniques it will be helpful for collaboration team. Our motivation is to enhance the one-person abilities. Basically, architecture of the software is the non-functional requirements and non-functional requirements are the back bone of any product. When individual engineers deal architecture design itself in software development process, they do not know how should architect the system, what are guide line and tips and others thing for students and new engineers. Scanner architects should share their knowledge and experiences to new architect's students for PSP

D. Research in Process Model for PSP

Software development process model plays important role in order to complete the project and get high quality software. Looking backward on the history there are many process models some are traditional and some are modern. But our aim to describe the personal software development process, that will deal to students individually, software stages should be simple and helpful for both new engineers and new businessman

E. Research in the coding standard of PSP

Design and code reviews impact on software quality [9][5]. Research in the coding standard will improve small organization and small teams. Our motive is PSP engineers start their development process with standard such as big organization coding standards. Each student should know each method of coding standard. The PSP0.1 defined coding standard in baseline personal process. But this is not too much simple to understand for individual students. PSP

researchers should guide in proper format and techniques also structure such as pattern and tactics in architecture design.

F. Research in the Testing Defect of PSP.

There is a general need to understand software defect in the PSP [10]. But our main objective is testing defect of PSP how to find test defects, how to over comes these defects, which techniques should use and what are the cause? Researcher should focus to provide the answers of these questions to guides new students. These answers will help to increase the quality of testing of individual students. Previous researched in testing defect, such as [11][12][13][18].

G. Research practical software development in PSP

PSP will enhance if proper guide schedule provides to the new engineers from any big organization as a practical perspective [14]. PSP in practice defined two case studies [15]. And also, it will help in estimation [16].

IV. PERSONAL SOFTWARE PROCESS TECHNIQUES

Researchers should provide the proper personal software process techniques for individual students through these techniques many general problems can solve by given general standard solution. PSP techniques can solve the project complexity, and decrease the complexity of software development process. How? When every individual person is well expert through PSP this thing automatically increase the quality of the system and decrease the complexity of the system. Software development process model describe the steps under normal condition, people will follow the steps for development of software. But techniques should provide in each step for PSP. Our main focus on each phase of process model has its own techniques or may be separate from models. Researchers should see on this perspective.

V. PSP CERTIFICATION

IEEE, ACM, ISO, CMM and researchers, Scholars and Sinner developers should make PSP certification. Students or individual engineers, developers and also new business man can get it to show their product is quality oriented. It's a proved, when new business man will start their own business and measure individual performance of software activities. This certification will provide proved that his/her product made with quality process. this certification will also show this product or this system is reliable, high-quality. On the other hand it will develop the students self-confidence because he/she has proud through PSP certification like PMP certification.

VI. PSP AND ENTREPRENEURSHIP

PSP is the self-improvement process for development the software. And the entrepreneurship also concerned with build their your own business, work with your abilities and skills. These combination of PSP and entrepreneurship concepts, in project management will solve technical skills problem such as business issues, high level requirements. Previous research found entrepreneurship help in project management [19]. We hope PSP and entrepreneurship will build the students abilities in Marketing and Management Communication (MMC).

A. *Marketing and Management Communication (MMC)*

PSP professional, and entrepreneurship experience people should write and guide, share their knowledge to new students in their Ph.D research to new students and new entrepreneurship business man about marketing areas and should tell them how to deal it individually.

VII. THE FUTURE EVOLUTION DIRECTION OF PSP

The PSP is not only important nowadays, it will take more concentration in future because software development organization need to quality management. There are many challenges in modern software engineering. This course is being more important every day and how it relates to software quality, this is also another challenge. Today many organizations are going through software process and everything that we do, Touch or use, we used computer. In others words we can say business depends on software system. When individual person does not know personal software process skills, how he/she will manage the team. PSP provides the personal development skills. This program will help to maintain, manage and assure the quality of product through individually. Software maintainability is the business issue in large scale software application [17] to solve this problem need to adoption of PSP practices, during engineering study.

VIII. CONCLUSION

In this paper has focused on research topics in personal software process (PSP) that we now need to consider self-improvement of students, developers, engineers, and also business man, because software quality depends on personal development skills. Today organization need of software engineers and there are many engineers in society but they have no personal development skills therefore students are jobless, and other thing if students produce their own product, it will not quality oriented. This article will help engineers to improve the software quality and reduce the PSP issues. This paper focused on research topics in personal improvement of students throughout the project. These research topics highly recommended to Ph.D students, researchers, IEEE, ACM, organization and others experience person to do the research on these topics for improving individual students performance and to solve the students

problems and also should guide to students, new business man, and engineers for individually improve the quality of software.

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