Should scrum be used in schools to teach software development classes to enhance game industry standard?

Proposal:

My essay will be on whether scrum can be used as an effective medium to teach students in primary and higher education. I have chosen to write about this because teaching has changed from the traditional methods of learning to more active learning activities such as having students participate in activities rather than just having them listen to a lesson or lecture. scrum would be an effective way to do this, it can also be applied to lessons very easily. Where in scrum there are customers who can change their mind about a product such as in game development. In a school or university, the lecturer can take over this role to present challenges to pupils. This engages them and helps them to learn.

**Introduction**

In this essay, I, will talk about whether scrum should be taught in software development courses to do with games in more detail. As a way of possibly enhancing the industry standard, this would provide students with some knowledge of how the games industry works and what kinds of techniques are going to be used in this industry.

The Agile movement seeks to make a change to outdated project management by introducing a new method in which to control and structure projects, whether they are in the games industry or in schools. The way the Agile movement does this is by introducing a concept called scrum, which is to be introduced when managing projects. The basis of scrum is to promote critical feedback, team self-management and to make playable or working prototypes within a short amount of time [1].

Within the games industry the use of scrum is very prominent because it is implemented by many companies as a risk management protocol. This is because of how involved the teams need to be to initiate a Scrum, they need to be updating the Scrum master almost every day with information on what they have done the day before, what they are doing that day and what is hindering them from doing work. This promotes flexibility to a project because of how easy it is to respond to a change within the project [2]. The reason this is important is because it allows the team to reflect on how they can become more effective, this reflection should allow them to tune and adjust the behaviour of the group consequently [9].

Therefore, Scrum should be used to further education in schools and bodies of higher education. In the study by Kropp, Meier and Biddle [3], they applied agile to a real classroom environment, in this study the most difficult segments of the agile methodology to students were customer interaction and skills and culture. The way this can be counteracted within the school environment is that the teacher be the customer and provide specifications to a project this would allow the students to sculpt the project that they are doing with the teacher, perfectly because the teacher would be the ideal customer.

One other problem that has been observed in this study is with the use of Agile movement in classrooms. Students have less experience in agile product management than a professional, at the beginning of the project. Meaning that it takes them longer to learn agile principles and implement them. The author thinks that this can be overcome though by introducing Scrum in schools from a young age and having it done by the whole school as a new method of teaching. This means that students can gain the experience they need passively, instead of the methodology being a whole new concept to them.

This was tested by a university in Slovenia who found that when they introduced scrum as the framework for a new course that they had made, the results from the students showed that as they participated in each sprint, their perception of scrum increased. The course was conducted in their final semester and lasted 15 weeks, at the end of the 15 weeks the results from the course showed that the students had mastered the most important aspects of scrum and that the student’s perceptions of scrum were like that of professionals [5]. The author thinks that this shows that even if scrum is taught for as little as 15 weeks a huge boost in perception and mastery of important aspects of scrum are achieved. This would allow someone from this course to transfer into the games industry without having to be trained and possibly slowing down production. This also allows the students to become used to real world strategies used by large games companies.

The author thinks the problem with this however is that the school curriculum would need to be changed to better match the Scrum ideology, this would mean that if students learn scrum a particular way in school and become too familiar with it, they won’t be able to cope as well as their fellow members of the team. The reason for this is, if the project manager decides to tweak the scrum described in the agile manifesto to suit their project or needs [1], the student may be too familiar with the way they have learnt scrum in school, this may make it harder for them to adapt to another version of scrum. The author thinks that a way to overcome this however, is to adapt scrum for different projects so that the students can learn different versions of scrum.

A point brought up in the study by Kropp, Meier and Biddle [3] is that students are not co-located, the author thinks that this problem can be easily overcome using the internet and programs such as Trello, which allows students to post their work onto it and check who is doing what during a collaborative project. Also, Skype can be used, which let students conduct stand-up meetings even though they are not in the same location.

**Conclusion**

In conclusion, what I have found is that students who took up scrum enjoyed it and gained perception on par with that of a professional. But the positives of teaching scrum to students before entering the industry outweighs that of the negatives.

Paper 1

Title: The Agile Movement

Citation: [1]

Abstract: “In 1970, Dr. Winston Royce presented a paper entitled “Managing the Development of Large Software Systems,” which criticized sequential development. He asserted that software should not be developed like an automobile on an assembly line, in which each piece is added in sequential phases. In such sequential phases, every phase of the project must be completed before the next phase can begin. Dr. Royce recommended against the phase based approach in which developers first gather all of a project’s requirements, then complete all of its architecture and design, then write all of the code, and so on. Royce specifically objected to this approach due to the lack of communication between the specialized groups that complete each phase of work.”

Web Link: http://agilemethodology.org/

Comments:

Paper 2

Title: Risk Management in Video Game Development Projects

Comments:

Citations: [2]

Abstract: “The video game software industry has a reputation for volatile, chaotic projects yet, in spite of dramatic growth in global revenues, surprisingly little academic work has examined these projects. This study reports a preliminary investigation into this under-researched area. We interviewed eight video game producers from a range of companies, using a critical incident method to explore risk management practices and risk perceptions. Our results revealed that in lieu of formal risk management practices, these managers relied on prototyping, pre-production decision points, and agile approaches to contain risk on their projects. Among the risk factors mentioned, two are specific to the unique context of video game development. The risk of failing to match the development strategy to the project was identified as a major cause of problems during the development process, and a new risk - the 'fun factor' - was a key element threatening the success of the final game release.”

Web Link: http://ieeexplore.ieee.org/document/6759136/

Full Text: http://ieeexplore.ieee.org/xpls/icp.jsp?arnumber=6759136

Paper 3

Title: Teaching Agile Collaboration Skills in the Classroom

Citation: [3]

Abstract: “Agile methodologies like Scrum or Extreme Programming have come a long way over the last fifteen years. Recent quantitative studies show that many companies have successfully adopted agile methodologies. It was found that in agile software development, experience leads to collaboration. It could also be shown that successful professional agile teams tend to use more collaboration practices. In 2013, the new Computer Science studies at the University of Applied Sciences were started. For this, a new curriculum was developed. This paper presents and discusses the lectures, labs and educational software projects in the programming and software engineering modules. It is discussed how agile collaboration and collaboration practices can be taught in the classroom. For this, the setup and observations of an agile student project are presented and different online collaboration tools are discussed. It is argued that software engineering education benefits significantly from embracing the modern collaboration tools the Internet has made available.”

Web Link: http://ieeexplore.ieee.org/document/7474474/

Full Text Link: http://ieeexplore.ieee.org/xpls/icp.jsp?arnumber=7474474

Comments:

Paper 5

Title: Students' perceptions of Scrum practice

Citation: [5]

Abstract: “In order to prepare students for increasing use of agile methods in industry, teaching these methods is becoming an important part of the Software Engineering curricula. At the University of Ljubljana Scrum has been systematically taught since 2009 in the framework of the software engineering capstone course. The paper describes the course content and analyses results of the survey that was performed among students with the aim of identifying those practices that students perceive most important for the success of Scrum-based software projects. Students' opinions on 12 typical practices representing possible success factors are described and compared to opinions of professional developers in order to find out similarities and differences in their perceptions. Both groups of respondents identified team-work and communication among team members, as well as good communication with the Product Owner, most important. Students also stressed the importance of strict adherence to the notion of “done”, while professional developers ranked third Sprint Planning Meetings and maintenance of Sprint Backlog. Accuracy of user stories and velocity estimation was rated least important by both groups of respondents.”

Web Link: http://ieeexplore.ieee.org/document/6240822/

Full Text Link: http://ieeexplore.ieee.org/document/6240822/?part=1

Comments:

Paper 6

Title: Problems in the Adoption of Agile-Scrum Methodologies: A Systematic Literature Review

Citation: [6]

Abstract: “Agile methodologies are focused on the people and functional product delivery in short periods of time. There are methodologies that change considerably the work habits of software developers. Scrum is an agile methodology that involves an iterative, incremental, and empiric process. Besides it is designed to add value, focus, clarity and transparency to the activities and products of a project. Nowadays, most companies are interested in the adoption of agile methodologies. Although Scrum is a light process and easy to understand, its adoption sometimes is difficult. Agile methodologies are not obvious by themselves, so they are difficult to introduce in the culture of a company. In order to identify the problems presented during the adoption, a Systematic Literature Review is performed focusing in Scrum. We found several problems, these are categorized in four groups: people, process, project, and company (organization). The results represent a basis to propose a framework to support the agile adoption.”

Web Link: http://ieeexplore.ieee.org/document/7477924/

Full Text Link: http://ieeexplore.ieee.org/document/7477924/?part=1

Comments:

Paper 7

Title: The agility of agile methodology for teaching and learning activities

Citation: [7]

Abstract: “This paper presents the review of literatures that shows the contribution of the agile methodology towards teaching and learning environment at university level. Teaching and learning at university has since migrated from traditional learning to active learning methodology where students are expected to learn by doing rather than listening passively to lectures alone. The agile methodology naturally has promoted the active participation of team members during system development phases. The nature of agile development methodology has been identified as abundantly compatible and supportive towards active academic learning. Some literature have proposed ways of adopting agile into active learning to improve teaching and learning processes and have highlighted this method as a great success. With the review presented in this paper, we would like to highlight how efficient the agile concept is in tackling several situations in academic learning as shown by an interesting mapping of agile principles to the classroom environment. With that, we hope to bring more options to improve active teaching and learning delivery by adopting agile methodology. On the other hand, few papers have used the academic environment to measure the agile principles. By highlighting this, we offer options for the agile evaluation framework to consider academic environment as a tool to obtain the agile performance feedback.”

Web Link: http://ieeexplore.ieee.org/document/6986024/

Full Text Link: http://ieeexplore.ieee.org/document/6986024/?part=1

Comments:

Paper 8

Title: The Agile Manifesto

Citation: [8]

Web Link: <http://agilemanifesto.org/iso/en/principles.html>

Comments: