

Producing Educational Mini Games: A Worked Example of the Agile Production Approach

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Abstract: This worked example is based upon empirical evidence drawn from a two-year ethnographic study of the ways in which sociological, economic, and technological manifestations of culture influenced the production of educational computer games within a large entertainment company. Primary data sources included 22 individual interviews, field notes, internal documentation, photographs, sketches, digital prototypes, and written correspondence related to the team's process for creating a large collection of mini games, designed for a popular massively multiplayer online game for children. Within this corporate system of innovation, core workforce competencies included the abilities to continually innovate, learn, and adapt under what team members collectively perceived as challenging conditions. This essay is an invitation to consider the ways in which the Agile production approach supported the continued development and maintenance of these competencies among team members within the context of educational game design and development.

Introduction

This essay explains some of the ways in which the Agile production approach influenced the process of creating a collection of over fifty educational computer games (Garner, 2011). First, the general principles of the approach will be described. Second, the use of these principles will be explained as they were observed over the course of a two-year empirical study.

Applying the Agile Philosophy

When applied in relevant development contexts, principles of the Agile philosophy were intended to serve as general guidelines for the strategic development of systems of technology and human organization (Hobday & Brady, 2000). Shaping many of the ways in which team members collaborate with each other and with clients, Scrum is a production approach that is rooted in the Agile philosophy and was designed to engage design teams in a highly productive and fundamentally human process of product development in consideration of the following culturally, professionally situated condition:

The people developing software all have different skills, intelligence levels, experience, viewpoints, attitudes and prejudices. Everyone wakes up in a different mood than the day before, depending on his or her sleep, health, weather, neighbors, and families. These people then start to work together, and the complexity level goes through the roof. (Schwaber, 2004, p.5)

Grounded in empirical process control theory, "the role of Scrum is to surface the relative efficacy of your development practices so that you can improve upon them, while providing a framework within which complex products can be developed" (Schwaber & Sutherland, 2008).

The Worked Scrum

Shaping many of the ways in which team members collaborated with each other and with clients, Scrum was designed to engage design teams in a highly productive and fundamentally human process of product development. Based on the Scrum framework, some combination of the team, scrum master, and product owner would begin production by conducting a Release Planning Meeting in which they answered the questions, "How can we turn the vision into a winning product in the best possible way? How can we meet or exceed the desired customer satisfaction and Return on Investment?" During the Release Planning Meeting, the team established the probable delivery date, costs, major risks, and overall features and functionality of the release.

In consecutive two-week periods, or sprints, the team consistently achieved its release goals. During each sprint, team members completed concretely defined projects, including what is to be built, the plan for building it, the actual work completed according to plan, and a resultant product. Game designers and developers were the only team members directly involved in and accountable for the release deliverables defined in each sprint. During each sprint, daily scrum meetings occurred in the same place and at the same time each day. The scrum master enforced a strict fifteen-minute time limit. The purpose of the daily meeting was to inspect the team's progress

toward the sprint goal and facilitate all necessary adaptations, based on the empirical inspection. Each team member explained (a) what he or she had accomplished since the last meeting, (b) what he or she was going to do before the next meeting, and (c) what obstacles were in his or her way.

At the end of each sprint and before the start of the upcoming sprint, the team presented the product's functionality to stakeholders, clarifying and answering questions about what was done, during the Sprint Review Meeting. Each product owner identified what had or had not been done, and the team discussed problems that arose, the ways in which problems would or should be dealt with, and what went well during the previous sprint. The purpose of the Sprint Retrospective Meeting was to inspect how the ending sprint went in regards to people, relationships, process, and tools; to identify and prioritize major items that went while and those items that, if done differently, could make things even better; and adapt to empirical inspection by identifying actionable improvement measures to be implemented in the upcoming sprint.

During the Sprint Planning Meeting, the team defined its goals for the upcoming sprint and collectively figured out how it would build functionality into a product increment during the sprint. Others were also invited to attend the Sprint Planning Meeting in order to provide technical or domain advice.

Discussion

The most powerful effect of the scrum process was that the team was able to generate a high quantity of games in a relatively short period of time (Garner, 2011). The more subtle, but equally important effect was that the process made visible each team member's strengths, weaknesses, progress, lack of progress, and needs, allowing leaders to give them the proper resources support needed to succeed in achieving their goal of satisfying the stakeholders. In the event of individual failures, the retrospective meeting provided the time and place for proper reflection and resolution among all team members. At minimum, the practice of scrum organized the team's production activities and standardized the practices of constant inspection and tracking of progress. The process empowered team members to take ownership of their own products and tasks, leading to a much more positive work experience and environment. Leaders' application of the Agile philosophy optimized team performance, reinforcing the argument that Agile approaches can be effective and useful when engaging in the design and development of educational games in corporate and non-corporate settings.

Next Steps

Because of an educational game's complex design constraint, that the final product must at once teach something and be played, the influence of educational game development *procedures* on the design strategy and quality of the outcome must also be further explained. The lived experience of the team members must also be described, as well as, the extent to which this process influenced team members' abilities to continually innovate, learn, and adapt in the complex corporate environment.

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