Game development as a Pedagogical Method

by

Robin Isfold Munkvold (robin.munkvold@nord.no) and

Helga Dis Isfold Sigurdardottir (helga.d.sigurdardottir@nord.no).

Publication on teachers' use of game-based learning activities and game design as a pedagogical method.

This short text presents the most prominent preliminary key findings regarding teachers' experiences using games and game development methods as part of their learning activities. It refers to a year-long process carried out through a project titled Let's Play, funded by the EEA grants. A more detailed research article is planned for an international peer reviewed publication at a later stage.

During the project, the participating teachers have been actively taking part in activities where they have learned about

- game based learning – as a topic in itself
- how to implement the use of games as a pedagogical tool
- the teachers' role during the implementation of games as part of the learning activities
- game design and game development
- using game lab as a practical approach to game development – with learners
- developing analog board games with clear learning goals

As part of the game development process, participants were taught the basics of a learning approach called Game lab. Game lab is an international concept and describes a development environment that links different types of people (technologists, artists, teachers, students, companies, researchers and so on) in a game development process.

Game lab is a continuous topic in the bachelor's program of Games and Entertainment technology studies at Nord university, where the students' learning process is centered around a Game lab each semester. The game lab entails collaboration in groups, guidance of teachers, and follow-up with external experts from the gaming industry.

With Game lab, students are offered an insight into the very basics of professional life. The concept is defined as a business simulator. This means that the student teams must organize themselves as a

small, functional games company and take on the various roles and responsibilities that this entails. The concept has a clear framework and rules for implementation.

The course is completely free of traditional classroom teaching and begins with the student teams pitching three different game ideas. Then, in collaboration with one or more external supervisors, the teachers choose one of the project ideas. The teams (students) then work on that idea concept throughout the semester. During the semester, the teams are supported by the teachers (and the external professionals) through weekly consultations. The progression of the game development is monitored and guidance is given to help the teams progress towards a fully developed game at the end of the semester.

All participants of the Let's Play project have taken part in the development of one analog board game during the project, where they have worked in teams and were given bi-weekly feedback on the progression of the project. Based on these experiences and a survey with open ended questions and reflection notes, the participants have provided their insights on learning experiences and motivational factors when using games and a game development process as a pedagogical tool for learning activities.

The most useful/inspiring things – and the most motivational factors

Based on the feedback given by the participants, two main themes emerged, when they were asked about the most useful/inspiring things and the most motivational factors during the game development project (process). These were *professional development* and *the game lab method*. Within each of these categories, their responses further revealed three main topics:

- Professional development
  - o Game based learning
  - o Game development
  - o Game testing

- The Game Lab method
  - o Group Dynamics
  - o Progression/progress
  - o Creativity

Simply put, the professional development theme evolved around increased professional knowledge and skills regarding these three prominent topics. Within the topic of game-based learning, participants commented that the project had given them a broader perspective on using diverse games in education, highlighting the importance of connecting in-game content to real world topics and how this is a suitably modern approach to teaching. Furthermore, some commented that when successful, game-based learning provides precious opportunities to approach teaching from a constructivist angle rather than a behaviorist one.

With regard to the game development topic, the participants emphasized their increased insight and understanding of game systems. They also reported improved knowledge on game development, in a broad perspective.

The participants also highlighted the importance of game testing for their professional development and how this was an obvious, yet surprisingly effective, approach. They further emphasized the importance of conducting testing sessions with the appropriate target audience (their own pupils in this case) and how the results from this were essential for the progress and further development of their projects/games.

A quote from one of the participants is a good example on how they felt that the Let's Play project and the working with game development (as a pedagogical tool/method) increased the professional development of the participants:

> *"Already during the lecture, I realized that for more than 13 years of my work as a teacher, what I have really cared about, what I have strived for and what I have learned was to transfer knowledge in order to achieve some educational goals 'by the way'. At various stages of our team's work, we returned in our conversations to the fundamental premise of moving towards constructivism rather than behaviorism when developing a game"*

The first topic identified was the group dynamics topic. The participants emphasized teamwork, which included the ability to compromise. The value of meeting other passionate people was praised, and the participants greatly appreciated discussions and reflections during the process with regard to both motivation and learning outcomes.

By highlighting progression/progress, participants called attention to the key role of experiencing the games' natural, yet structured, development through sequential stages in the development process. They felt that experiencing this with the game lab approach was highly engaging.

The creativity topic puts the spotlight on the significance of creating something and being creative. Being open for "surprise turns" during the development process was emphasized, as this supported the innovativeness of the product and how it increased the participants' motivation for working with the project.

A quote that emphasizes the focus on creativity:

> *"I can definitely say that Steven's lecture was one of the most inspiring things for me, as it encouraged me not to be afraid of my ideas and to experiment with my imagination"*

To summarize, the participants valued their increased insights and understanding of game-based learning, game development and game testing as vital elements for their own professional development through the project. They were able to reflect on this in relation to their own professional work situations, taking into account a broad spectrum of relevant factors, ranging from educational

theories to the simple reality of helping students understand somewhat abstract ideas related to real world topics, through something as tangible as an analog board game.

When it comes to the other main theme in the participants' feedback, the game lab method, the participants highlighted group dynamics, the observable progression of the game and the creativity that the method both allows for and, at the same time, is dependent on. Their personal experience and motivation were prominent in their responses regarding game lab, while their reflections also revealed an understanding of how the elements that made game lab valuable for them, can also be applied to create valuable learning experiences for their own pupils.

Final comments

To briefly recap and conclude, the participants' responses clearly indicate that the Let's Play project and working with the development of an analog board game (using the Game lab method – as a pedagogical approach) has increased their knowledge of game-based learning, and game development as a pedagogical method – and as a realistically potential part of their teaching activities.

The participants' feedback and reflections furthermore signified a change in their perspective when it came to learning approaches, thus emphasizing how a more constructivist approach to teaching and learning can be helpful on pupils' motivation for learning and their learning outcomes. Systematically working with developing a certain product (an analog board game) and working in teams (with peers that have similar interests and experiences) was something that motivated participants during the learning process.

It seems fitting to end this short article with a quote addressing the role of group dynamics topic and to some extent summarizing the essence of not only the group dynamic discussion but also of the Let's Play project:

"Alone you go faster, but together you go further"