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Using Games to Detect Positive Deviance in Crisis Training

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Abstract:

Using games for learning has been advocated by academics like Egenfeldt-Nielsen, Gee and Prensky for several years (Egenfeldt-Nielsen, 2007; Gee, 2003; Prensky, 2001). A game is defined as: "... a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome" (Salen & Zimmermann, 2004). When training crisis both in organizational settings and in education, the "quantifiable outcome" will be less important and the game will thus more be used as a simulation, which is defined as: "... something that is made to look, feel, or behave like something else especially so that it can be studied or used to train people" (Merriam-Webster, 2015). After the gameplay, it is important to what Schön refers to as "reflect upon practice" (Schön, 1987, 1991). This will support the learning process. This is similar to the process of "after action review" used in the Military (von der Oelsnitz & Busch, 2006). During "after action reviews" the focus is on what could be improved from the actions. However, always pointing out what went wrong and analyzing the situations with a focus on the negative outcomes can be exhausting. Many issues will have been undertaken in an exemplary way with good results. Also, sometimes the outcome will be positive even if all signs pointed towards failure (Vold & Kionig, 2015). This can be defined as Positive Deviance. Positive Deviance (hereafter called PD) is about exploring the deviants that in spite of different difficulties, they succeed (Singhal, Buscell, & Lindberg, 2010). Using PD is thus a way of looking at an issue from a different angle, and rather focus on what actually works and see if it is possible to transfer any behaviors or conditions to the areas that needs improvement. It is about analyzing and singling out the key features of what "works" and working out what of this can be transferred to other areas, and how (Singhal et al., 2010). This paper will discuss how PD can be used for learning purposes as a part of the learning process when using games and after gameplay.

Keywords: gameplay, game based learning, Positive Deviance, reflective practice

1. Introduction

On the 22nd of July 2011 terror struck on Norwegian soil. In one day, in a matter of a couple of hours, two places were hit, killing 77 and injuring over 200. The report after the incident sharply criticizes the crisis preparedness level not only with the call out services, but in general (Gjørsv, 2012).

To train for crisis has now become mandatory municipalities ((DSB), 2012), and the study of Crisis Preparedness and Management has become popular at Hedmark University of Applied Sciences, Campus Rena, Norway. The critique is still coming (Carlsen and Sandvik, 2015) and the study evolves continuously.

The study has a variety of different teaching methods, but the researchers are now in the process of developing a game to support the teaching methods and are engaged in an inter Scandinavian project where this is a part of the product (Skår, 2015).

Games for learning purposes are not something new. However, it seems to be difficult to merge good game design with good pedagogy (Michael and Chen, 2006). There are several attempts made to seek to solve this and the term "Serious Games" was coined by Ben Sawyer (Bergeron, 2006). Serious gaming is defined as; "... a game in which education (in its various forms) is the primary goal, rather than entertainment" (Michael and

Chen, 2006). Another definition that is somewhat broader is given by Bryan Bergeron: “A Serious Game is an interactive computer application, with or without a significant hardware component that

- Has a challenging goal
- Is fun to play and/or engaging
- Incorporates some concept of scoring
- Imparts to the user skill, knowledge or attitude that can be applied to the real world” (Bergeron, 2006)

The game that is considered implemented in the education at Hedmark University of Applied Science thus resembles what Akilli in Gibson et al. refers to as *game-like learning environment* (Gibson et al., 2007). The game can be used as a supplement to the lecturing and the results from the gameplay will be important. According to Prensky (2001) it is possible to learn from games (and game-like learning environments) due to the possibility of practice and receiving feedback, learning by doing (experiential learning), learning from mistakes, using goal oriented learning and task-based learning, role playing and multi-sensory learning. This take on learning from gameplay differs from most learning. Where the plans align, is in the general structure:

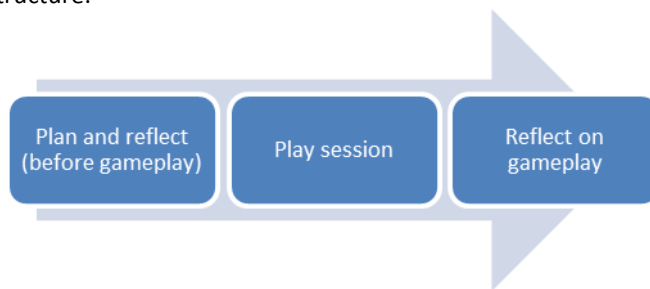


Figure 1 General structure of use of gameplay

The third and final “box” of figure 1 – the reflection on gameplay – resembles the “after action review” found in the military education (von der Oelsnitz and Busch, 2006). In this reflection it is an underlying focus of improvement. This improvement is based on the reflections on what went wrong or what could be improved (von der Oelsnitz and Busch, 2006).

This take is on what we can learn from what went right. The few situations where it was resolved, although it seemed to end in disaster, what can they teach us? This “twist” is called Positive Deviance (PD). PD is about finding out why situations that were statistically prone for disaster, turned out successfully (Singhal et al., 2010, Pascale et al., 2010). Where all markers point in the direction of failure and negative outcome, and it still turns out positive, represent situations where one can look for PD. Regarding crisis, it is a lot of valuable information to collect from these situations for learning purposes (Vold and Kiønig, 2015).

This paper is looking to describe how it is possible to detect and use PD in gameplay.

2. Learning from crisis: Critical Incident Theory (CIT)

In spite of preventive action undertaken in organizations, for instance by the continuous work on health, environment and safety, information and training, it is in some incidents difficult to avoid violence or serious threats. When this happens it is important to learn from the critical incidents with regards to the planning and handling of similar future situations. It is important to stress that it is not a question of placing guilt, but about reaping experiences that can become an integrated part of the praxis in the organization. Looking at towards the «The Critical Incident Technique» may indicate some focus areas. The technique has had an extensive use within multiple areas, like leadership, recruitment and education. The technique was developed in the US in the 1940-ies by John C. Flanagan (1954).

In addition to the co-workers feeling of job security, it is important to transfer the experiences into the work done on socializing newly employed. This is due to the experiences on the newcomers and inexperienced employees are more prone to be exposed to threats and violence than more experienced worker.

The technique is meant to unveil central problems or critical incidents (core problems) that cause deviating situations. “There are several causes as to why critical incidents occur, but a majority of studies show that the main part can be related to a few sources” (Echeverri and Edvardsson, 2012). According to critical incident theory, it is a releasing factor in the ongoing process that is followed by other critical factors, and these together make up the final outcome of the episode.

We may imagine an example where user and frontdesk employee communicate on the eligibility for financial support. During the conversation the user suddenly appear threatening and scream about hitting the employee, and after a couple of minutes the situation end with the user hitting the employee in the face with an open fist and run away. The CIT-model is shown below and is adapted from Morten J.S.Olsen (1992).

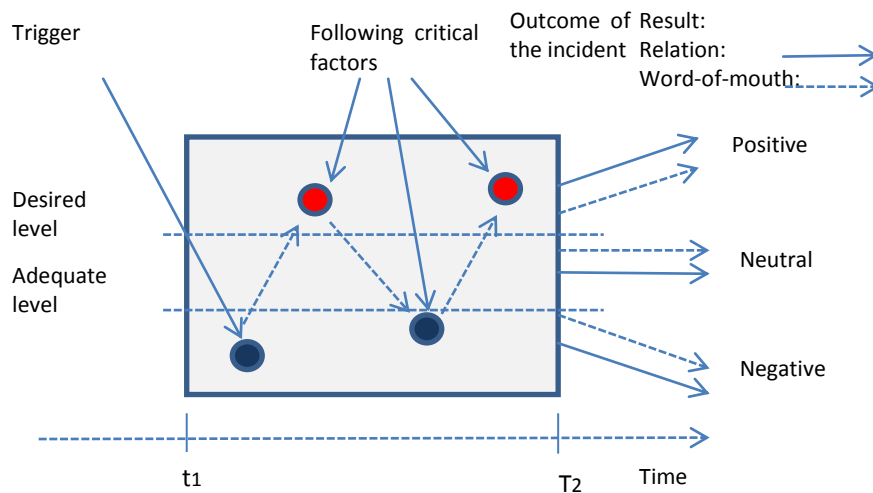


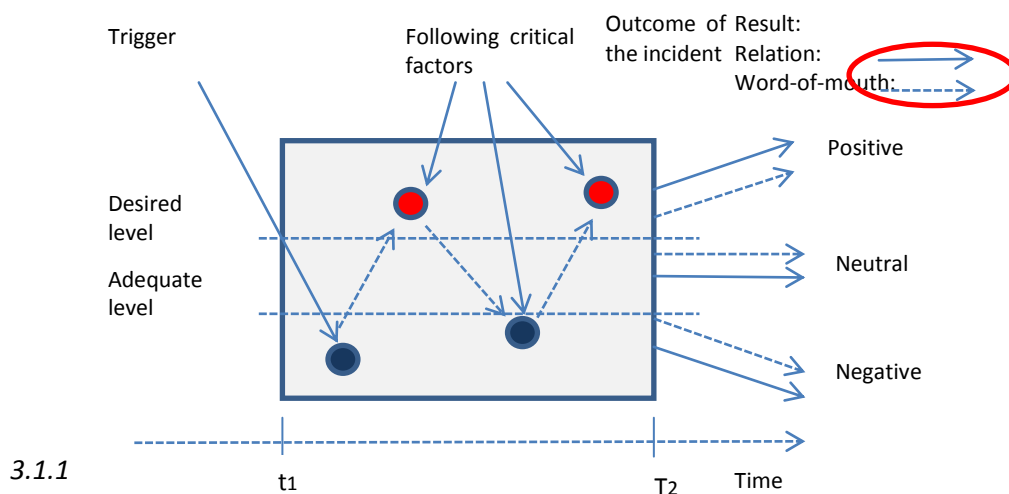
Figure 2 Model for analyzing a negative critical incident - adapted from Morten J.S. Olsen (1992)

However, for the gaming sessions, it is the positive outcome one want to focus on. What are the features from the positive outcome that it is possible to draw a result from that it is possible to learn from?

3. Positive Deviance (PD)

Positive Deviance (PD) is about looking at what turns out positive when all statistics predict a negative outcome. An often used example is from a developing country where teenage pregnancy is prominent. Some girls do, however, not get pregnant and what they have found as the reason for this is that instead of a focus on learning about contraceptives, the mothers have encouraged their daughters to wait with getting pregnant until they have finished school (Pascale et al., 2010). Characteristic for PD is to flip the question and turn attention towards what works despite all odds to highlight hidden knowledge and everyday expertise in practice variation and distributed, situated innovativeness. Hence it builds on the insight that innovative learning is possible despite the bounded rationality and inattentional blindness usually making us incapable to see evident solutions (Singhal and Bjurström, 2015). With its emphasis on situated practice, PD and gaming may seem like an odd combination. However, it is argued that PD provides a framework for shifting focus from the average to learning from the positively exceptional. Furthermore, while the factors behind the positively deviant behavior may be embedded in personal knowledge and institutionalized in practices, gaming may provide opportunities as an elicitation device rendering insights and habits explicit. Regarding PD in crisis, the findings have been interesting as they have unveiled details that may have a wider effect than just for crisis management (Vold and Kiønig, 2015). For instance, in the findings for a project started in 2015, one of the findings of PD was the local knowledge and how this contributed to solving and also avoiding larger or escalating crisis. The importance of this local knowledge was more critical than expected and it is still an open question how this be affected when the personnel will have to cover larger areas and maybe different areas? But how does one detect PD in gameplay? The gaming sessions may be recorded and when they are replayed for the after action review; the reflection upon action (Schön, 1987, Schön, 1991). Instead of focusing on the negative outcomes and on what could be improved, it is important to explore the successful outcomes. Are there any incidents of where it was successful where it should have ended unsuccessfully? To thoroughly discuss and explore the reasons to this Positive Deviance is important for learning purposes, as the results from this may be used for preventing crisis and in the work for preparedness for crisis. Conclusion

To detect PD from gameplay it is important to look at the successful outcomes in the replay of the recorded gaming session. The critical incidents may point to possible failures and detecting these and critically examine the reasoning as to why it still had a positive outcome, is vital. The results can be incorporated in the courses in the education of crisis managers and into courses like crisis communication, e.g.



The PD detected should also be documented for research purposes. It is possible to rerun the gameplay and change parameters to see if it is possible to get different results. It is important to note that finding PD is much more difficult to detect than where things have had a negative outcome and the focus is on how to improve. When working with PD it is thus about improving using the positive outcomes following critical factors below adequate level.

3.2 Further research

When the game is implemented it should be tested on a larger number of students. To teach them about Positive Deviance and how to detect it in the gameplay will also help them to look for PD back in their own organization. For this research it is recommended to do structured and unstructured interviews and conduct a survey (Creswell and Clark, 2007). The focus should be on their learning outcome from the gameplay.

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