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CREATIVITY IN THE VIDEO GAME INDUSTRY: USING SCHÖN'S CONSTANTS TO UNDERSTAND FRAME CREATION

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ABSTRACT

This paper analyses creativity issues in the video game industry using Schön's work on "frames". Specifically, "frame creation" is considered a key part of designers' creative process, and this concept will be discussed in relation to Schön's "constants": practitioners' media, language, repertoire, appreciative systems, overarching theories and role frames. These constants are often overlooked; however, this study explains how they can help researchers to better understand issues related to creativity.

Keywords: Game design, design theory, Donald Schön, frame creation, creativity, Schön's constants

1 INTRODUCTION

This paper presents an analysis of creativity in game design practices using Schön's concepts of "frames" and "frame creation".

Game design is a new and growing form of design, as is the video game industry: in 2011 in the U.S., more than 245 million games were sold (Entertainment Software Association, 2012). The video game sector is considered one of the 'creative industries', which "have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property" (Department of Culture Media and Sport, 1998). Creative industries rely on employees' creativity to generate innovative products (Flew, 2002), thus giving major importance to game designers in the video game sector. Moreover, "games are said to be idea-based products, where ideas can be seen as the outputs of creative acts and processes of game designers" (Kultima, 2010, p.33). However, our knowledge about the game design process is scarce. Game studies theorists themselves admit: "*The design books look mostly at the target of the design: games themselves. The practice of making games as design activity is left untouched.*" (Kultima et al., 2011, p.34).

While game studies seem to fall short when it comes to understanding game design activity, design theories in general can be used to understand video game design and its related activities (Cross, 2011, Kuittinen and Holopainen, 2009). Design research might then be of great value for exploring video game design and its creative aspects. Using Schön's model of the reflective practitioner, a classic model in design theory, this study proposes a new perspective on game design creativity.

This paper begins by presenting Schön's concept of framing and insists particularly on an often neglected part of his model: the "constants" (Schön,

Creativity in the video game industry: using Schön's constants to understand frame creation

Laureline Chiapello

1983, p.270). Next, it explains the methodology used to reveal these constants in the work of eight game designers. Finally, it shows how the study of these constants can help enrich our knowledge of the game design process, and how they can help foster creativity, ultimately leading to better video games.

2 DONALD SCHÖN'S MODEL OF THE REFLECTIVE PRACTITIONER : THE FORGOTTEN CONSTANTS

Schön's concept of "framing" is the source of several studies on creativity (Hey et al., 2007, Paton and Dorst, 2011, Dorst, 2011, Dorst and Cross, 2001, Ylirisku et al., 2009). Recently, in the first Editorial of the new academic journal, *International Journal of Design Creativity and Innovation* (2013), Kees Dorst advocated for a future of design research focused on creativity and on "the way designers create new approaches to problem situations (i.e., "Frame Creation")". She also added that "within a design context, framing is often seen as the key creative step that allows an original solution to be produced."(Paton and Dorst, 2011, p.573). This trend seems to find the support of more and more researchers (Stumpf and McDonnell, 2002, Hey et al., 2007, Gao and Kvan, 2004).

In design theory, the concept of framing goes back to Schön (Schön, 1987, Schön, 1983, Schön and Rein, 1994). However, design researchers often complain about the ambiguity of the concept. Stumpf and McDonnell stress that framing is poorly defined, and Dorst laments that, "It is a pity that Schön never addressed the questions of how frames are made, and what the properties of a good frame would be."(Dorst, 2004). Moreover, Dorst criticizes Schön's vision of framing for being too cognitivist: "[Schön's view of framing] is in line with cognitivist definitions of frames and framing and doesn't acknowledge how value laden frames can be" (Paton and Dorst, 2011, p.574).

While this paper's primary focus is not to address these criticisms, a few clarifications are nonetheless needed. First, while Schön might not give a precise and clear definition of "frame creation" in his other works, he does discuss it quite in detail in his 1983 book, *The Reflective Practitioner*, specifically in relation to problem setting. For the purpose of this paper, "framing" will be seen as an attempt to set a problem in a new way:

> When he [the practitioner] finds himself stuck in a problematic situation which he cannot readily convert to manageable problem, he may construct **a new way of setting the problem** - a new frame which, in what I shall call a "frame experiment", **he tries to impose on the situation** (Schön, 1983, p.63, emphasis by author).

Moreover, with regards to Paton and Dorst's criticism, Schön clearly stressed that frames *are* indeed value-laden, and he did so by introducing the concept of "constants" in the reflective practitioner model. Schön's constants are surprisingly not widely studied. The model of the reflective practitioner is not limited to the structure of reflection-in-action (for more about the reflection-in-action process, see for example Valkenburg and Dorst (1998)); Schön added a second part, the "constants", described as: "the relatively solid reference from which, in reflection in action, he [the practitioner] can allow his theories and frame to come apart." (Schön, 1983, p.270) Constants are introduced with the description of framing, on page 63 of *The Reflective Practitioner*, and discussed

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Creativity in the video game industry: using Schön's constants to understand frame creation

Laureline Chiapello

in great length on pages 270 to 275; they are the *medias, language and repertoire*, the *appreciative systems*, the *overarching theories* and finally the *role frames* of a practitioner*.

I shall propose a summary of the nature of these constants in Table 1 below.

CONSTANT	DESCRIPTION
Medias	All the tools a practitioner disposes of to describe a situation and articulate his thoughts during on-the-spot experiments. Examples include plans and drawings for the architect, or digital prototypes and design documents for game designers.
Language	A language is composed of all the elements used to communicate (not only verbal language). It is discipline-specific. Mastering the language of a profession is difficult, as it is composed of implicit meanings and combinations of words, gestures, attitudes…
Repertoire	A repertoire is composed of all the possible "solutions" a practitioner may use: precedents, solutions created by the practitioner himself; actual elements of a product or more abstract ways of seeing a problem. They are necessary for analysing the situation.
Appreciative system	Each practitioner has his own appreciative system (a set of values) and he uses it to evaluate the solutions he proposes. The system must be solid, otherwise it is impossible to conduct a "reflective conversation" with the situation. Sometimes, practitioners in the same domain have a different appreciative system, as for example architects have different "schools" of thinking. This diversity of appreciative systems may generate conflict amongst professionals.
Overarching theory	An overarching theory allows the practitioner to develop an interpretation of the situation. It is not a set of rules to be applied to a particular problem, or to predict or control a particular event. It is a theory to "make sense of phenomena" (p.270).
Role frame	Each professional defines his own role, his stance toward an institutional or organizational context. This definition is crucial and impacts his choices and actions.

Table 1 – Summary of Donald Schön's constants

Finally, there are some major differences between frames and constants. Frames are problem-specific: they can change, even very quickly, during a project, especially in the early phases. Frames are, as Schön said, "structures of belief, perception and appreciation" (Schön, 1994), but they are temporary, *ad hoc*, only useful for an on-the-spot experiment; they allow the practitioner to

Creativity in the video game industry: using Schön's constants to understand frame creation

Laureline Chiapello

understand a singular situation. Constants support these frames and are not supposed to change quickly, especially not during a project (while that might happen in exceptional cases). Without solid constants, framing a situation seems difficult. So, if frame creation is a key to creativity, logically constants should have incredible consequences for design research on creativity.

3 METHODOLOGY

Research on the reflective practitioner model's constants is a line of inquiry on the agenda of reflective research suggested by Schön himself (1983, p.309). More specifically, research on the *roles*, the *repertoire* and the *overarching theories* of practitioners are of prime importance for Schön. These explorations do not need to take place in the direct context of practice, for « there are kinds of research which can be undertaken outside the immediate context of practice in order to enhance the practitioner's capacity for reflection-in-action » (Schön, 1983, p.309).

Given Schön's last statement, the primary method chosen in this paper was "post-mortem" interviews with eight game designers. Post-mortem reflections are common in the video game industry and consist of reflections conducted after a project is finished. The designers came from five different companies of various sizes – ranging from less than ten employees to more than one thousand - but they had all worked on similar kinds of projects.

Using a qualitative approach, designers were asked to choose one or two specific video game projects, and to give an at length (at least an hour) narrative of the events. In a semi-structured interview format, general questions were used to guide the participants. Here are a few examples…

- …with regards to the media: "Did you create prototypes of the game?";

- …concerning the repertoire: "Have you been inspired by previous games?"

- …on the appreciative system: "How do you define a good game?".

Before the interview, designers were invited to complete a sensitization booklet (an interactive PDF form). The booklet is an application of "sensitization theory" and is considered a sensitizing tool, whose main objective "is to establish self-reflection on the part of the participants, which is harvested during the generative sessions" (Visser et al., 2005). The booklet helped the participants to remember their projects, and provoked questions and reactions concerning their own experience.

The eight interviews were fully transcribed. They were then coded to bring the constants of each designer to the foreground. To ensure the reliability of interpretations, results were submitted to participants, who subsequently commented on them. Their insights were used to correct any misconceptions.

4 RESULTS

Results show how constants affect the way game designers frame a situation. The constant framework presented three main benefits. First, it is easy to use

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Creativity in the video game industry: using Schön's constants to understand frame creation

Laureline Chiapello

for studying practice, as Schön himself specifically articulated it in his reflection-in-action model. Second, it is a comprehensive framework, with an intertwining of constants that allow for an in-depth comprehension of some otherwise ambiguous phenomena. Finally, while using a framework is only a way of getting a glimpse at a phenomenon and can limit the analysis, it also enables the researcher to spot missing elements in current game design practices.

4.1 MEDIAS CAN INFLUENCE FRAME CREATION

First, a point should be made concerning the easiness and the usefulness of Schön's constants for analysing game design practice. In order to address this question, the example of how a *media* can be used to improve a practitioner's framing phase is used.

One of the eight participants presented issues in finding "the easiest way to transform a large set of possibilities into something solid", a description of a task that is close to the definition of "frame creation" explained earlier. As this participant described, one of the traditional media used by game designers is the "game design document". It consists of a massive document containing text, images, diagrams and tables that are used to describe every aspect of the game. Participant 1 showed that this type of media can be limiting for designers. Leaving a designer alone in a room for two weeks to produce a gigantic document hinders the spread of information and ultimately, productive communication. "It's a time waster," explains Participant 1, "because the designer's reflection is limited, and once the designer reaches this limit, he just goes around in circles". Then, when the game design document is presented to the team (approximately fifteen people), debates on the content of such a large document can last for hours, and are often unproductive.

However, Participant 1 adapted to these difficulties and changed his strategy regarding this media. He now writes one-page documents, then organizes a small meeting: "The ideal formula for me is 30 minutes with two or three propositions […] I usually do that with three people […]. After the meeting, the designer seems to be in a better position to reframe the problem: "Then I elaborate new propositions from their suggestions and I go to see another group of people". The designer thus spreads information, collaborates with different colleagues, and can quickly make changes and explore new ideas.

With this example, it is easy to see how one of the constants, *media*, is indeed an element from which the designer "can allow his theories and frame to come apart." (Schön, 1983, p.270). In this case, the framing seems facilitated by the changing of *media*, and according to the participant, it did indeed foster greater creativity.

It also raises questions about the appropriation of media by the designers. Game producers often impose the game design document on their team, while designers might need some more flexible and customized tools to work on a daily basis. Creating these new tools might be seen as an extension of the designer role frame, as it can affect the workflow of the whole team, and encourages some new forms of collaborative work. It might be recognized as a way to foster creativity and diversity in the workplace.

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Creativity in the video game industry: using Schön's constants to understand frame creation

Laureline Chiapello

4.2 A CONSTANTS FRAMEWORK: THE IMPORTANCE OF THE INTERTWINED CONSTANTS

Schön's concept of constants is a framework and as such, provides clear themes for analysis, whereas a completely inductive approach can sometimes be more difficult. The constants framework can therefore help determine which aspects are necessary for frame creation and how they relate to each other. To better illustrate the interrelation between constants, this paper will compare two project narratives: one, led by participant 5, was considered as a success, while the other one, directed by participant 3, was a half-failure (see Table 2 below). The comparison will focus on the relationship between two different constants: the *appreciative system* and the *role frame.* On the one hand, the *appreciative system* encompasses the practitioner's personal values, for example what characteristics define a good game for a game designer. On the other hand, the *role frame* is more oriented toward the values of the organization, which are accepted or rejected by the practitioner when he embodies his role.

CONSTANTS	PARTICIPANT 5	PARTICIPANT 3
Company	< 10 employees	>1000 employees
Appreciative system	"A good game is fun"	"The main goal of a game is to be entertaining"
Designer role	**Designer Gamer** "Make a new game, as the previous game project is complete." "We choose casual games because they fit well with the team. We stop only when we are satisfied with the game."	**Designer-Agent** "Complete the objective, the order." "Make a game for an audience." "We met the objective, but we could have done so much better. We need more expertise (in this type of game)."

Table 2 – Comparison of two participants' appreciative system and role frame

In these two projects, the appreciative systems of the two lead designers were very similar: they both said that a good game is "fun" or "entertaining", thus putting this attribute before the fact that a good game should be profitable, for example. However, even with a similar *appreciative system*, the designer's way of understanding his *role* on the project had a huge impact. Participant 5 thought that his role was to create a high quality game that met his own personal standards. If he likes the game, then he expects that his audience will like it too; he is thus designated in our study as a "designer-gamer". However, participant 3 saw himself as a "designer-agent": he is the representative who acts on behalf of a commander, for players that are often very different from him. His own value system is not necessarily reflected in the games he makes, and he has to reach an audience that he might not be a part of. In this case, this role prevented him from fully meeting his self-imposed criteria concerning the game quality, as he felt lost and acknowledged a gap between his own values and those of the commander. This participant used a metaphor to describe

Creativity in the video game industry: using Schön's constants to understand frame creation

Laureline Chiapello

difficulties in the framing process: "If a designer got his job, it's because somebody established a financial frame, within which the designer's creativity should thrive, but I swear that this frame is made of a very solid material". He suggests that reframing a design situation can be very difficult, even with the best intentions. Thus, the *role frame* can jeopardize the *appreciative system*.

This intertwining can be a powerful lens to understand some creativity issues. Currently, the video game sphere is attributing much of the lack of creativity in games to "bad" game designers' appreciative systems: they are considered as misogynistic, self-centered, etc. Most of the current actions consist of encouraging a more diverse range of opinions, backgrounds and visions amongst game designers (Keogh, 2013). This research shows the limits of such a diagnosis: while game designers can have a very large, rich and inclusive personal *appreciative system*, their *role frame* might prevent them from expressing these values. The creativity problem might rely on the way game designers define their purpose in a project more than in their personal values. Thus, the actions that should be taken to overcome this problem need to go beyond current solutions to the problem.

Schön gave a very similar analysis of a town planner's issues in Chapter 9 of *The Reflective Practitioner,* where he argued that the planner's self-defined role frame constrained and prevented him from truly excelling in his mission. Analysing frame creation and reflection-in-action using the web of Schön's constants thus seems not only a pertinent approach, but also a necessary one to avoid shortcuts and misunderstandings of a situation.

4.3 THE ALARMING LACK OF OVERARCHING THEORIES

The last point to stress in the use of the constants framework is the capacity to see what is lacking from the practitioners' reflection. Without a framework, it is difficult to point out what is missing in a situation. Obviously, when confronted with a large amount of data, one tends to analyse what is there. However, sometimes, what is *absent* is utterly important to the studied situation. In the case of the eight game designers, one of the constants was nowhere to be found: no trace of an *overarching theory*.

According to Schön, an *overarching theory* is not a set of rules, but a group of ideas that helps in understanding a situation:

> An overarching theory does not give a rule that can be applied to predict or control a particular event, but it supplies language from which to construct particular descriptions and themes from which to develop particular interpretation (Schön, 1983, p.273)*.*

Game designers have access to "theories that give rules to be applied" from game theory or usability. However, the participants interviewed in this study did not seem to have any *overarching theory* to help them interpret global phenomena pertaining to game design.

Schön gives an example of the use of an overarching theory with the "process-flow model" used to understand malnourishment:

> [The] process-flow model consists of a set of ideas about processes, a belief that any situation can be understood in terms of process […] To

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Creativity in the video game industry: using Schön's constants to understand frame creation

Laureline Chiapello

understand malnourishment in children in terms of process flow required a feat of imaginative restructuring" (Schön, 1983, p.318).

Such a way of reframing the situation is, according to Schön, "imaginative". Some might say it is "creative". In the domain of urban planning, Schön describes the overarching theories as "metaphors from which urban planners and policy makers may construct their own account of unique and changing situations". The video game design landscape is in a state of instability, with the apparition of new trends, like casual, mobile, or social games. Overarching theories could be a guide for understanding those changes and for helping practitioners in their reflections. They would create conditions that support being imaginative, creative, and coping with this instability.

5 CONCLUSION

The goal of this study was to show how design theory can be used as a lens through which to understand game design practice, and how design research can help foster creativity in creative industries. To reach this goal, an original approach of post-mortem interviews using Schön's constants framework was used.

This study used design theory to understand game design. While this might seem like an obvious strategy, it is not; this bridge extending from design theory to game design is only too uncommon. However, the results reveal that existing design theories can be used to generate new insights about game design, and without any need for game design-specific adjustments. The model works as it is.

This paper also presented a forgotten part of Schön's model: the constants framework. This part of Schön design model is very useful in studying complex concepts like creativity. Moreover, Schön's constants framework can be seen as value-laden. Revealing a practitioner's *appreciative system* consists of understanding his values and assumptions, and seeing how these can help or limit his reflection-in-action. The *role frame* is linked to the practitioner's values but also to the organization's values, and can sometimes explain the presence of value conflicts. *Overarching theories*, *media* and *language* are not "values" in themselves, but they do carry some value-laden connotations. Research based on this constants framework should be encouraged: it can contribute to the refinement of the constants, and to a better definition of the concept of framing.

In conclusion, shifting from game studies to design studies allowed for a rich and arguably accurate analysis, and revealed some further research tracks for creativity. Among the possible improvements, one seems to be crucial: game designers need overarching theories to guide their practice and foster their creativity. Design research in the video game industry thus requires further encouragement in order to help produce knowledge surrounding game design practice.

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Creativity in the video game industry: using Schön's constants to understand frame creation

Laureline Chiapello

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Creativity in the video game industry: using Schön's constants to understand frame creation

Laureline Chiapello

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