Chapter 5
Creativity and Digital Games: A Study of Developing Creativity Through Digital Games

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ABSTRACT

In the last decades the interest in creativity has grown. One of the questions that has risen from this interest is whether it is possible to aid the development of creativity. This chapter reviews a study on the possibility of developing a digital game with this. The game Luovus was created, utilizing previous research on the subject of creativity and digital games as learning aids. The game has been tested with a group of users and seems to be an effect on the player's self-perceived creative capabilities and society's impact on their creativity. This chapter will also cover studies and past experiments on the subject and how they can be of interest to future experiments.

INTRODUCTION

Although creativity began to be studied in the early 40s by Maslow (1943), among others, increasing importance is being given to this topic, not only to its consequences to individual life but also to the possible benefits that creativity might bring to society as a whole (Alencar, Fleith, & Bruno-Faria, 2010). As interest in this topic grew, one of the questions studied throughout the years is how to exercise and/or develop the creative thought.

It seems, therefore, that the interest of psychology in creativity is relatively recent (Alencar, Fleith, & Bruno-Faria, 2010). This interest occurs more intensely from 1950, thanks to various factors such as the influence of the humanist movement. Rogers (1959) and Maslow (1959) both draw attention to mental health as a source of creative impulses. They also point out the human potential for self-realization and explain conditions that ease the expression of creativity. Rogers and Maslow conclude that creativity is

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the result of a mutually beneficial interaction between an individual and the environment in which this individual is inserted. Rogers also defends that autonomy and protection from excessive social control are fundamental for a creative activity.

According to Alencar et al. (2010) the idea of developing creative competencies is not yet a topic in which consensus has been reached. That said, it is already legitimized by studies that have shown positive results with programs that attempt to develop said creative competencies. Therefore, it is possible to theorize that any and every person has a creative potential that can be systematically explored and developed (Runco, 2014). There are currently multiple strategies that aim at training the creative thought, from programs, to software to digital games (Runco & Jaeger, 2012).

Azevedo et al. (2017) conducted a study on the Future Problem Solving Program International. Developed with the objective of training the creative thoughts of children and teenagers, the FPSPI is a program that has been applied for decades and in various countries. This program came to be in the United States and has spread to other countries including, but not limited to, Australia, England, Singapore, etc. Every year an international competition takes place, in which children and teenagers from all around the world present projects developed with the aid of the program's methodology. In the experiment conducted by Azevedo et al. (2017) a group of teenagers showed significant positive results to being submitted to this program.

Based on this scenario, it seems that the interest in understanding creativity has consistently grown in the last decades. This brings forth the question of the possibility of aiding the development of creative thought. This study is concerned with investigating the possibility of developing a digital game capable of such. For this the game *Luovus* was created, based on past research on creativity and digital games as learning tools. The game was tested on a group of users and although the results are not enough to come to a conclusive answer to the main question proposed by this study, there seems to be an effect on the player's self-evaluation of their own creative capabilities and society's impact on their creativity.

Other studies and experiments that are similar or relevant to this topic will also be analyzed. Many of them are important to comprehend the relationship of the various factors involved in the exercise of creative thought, such as positive psychology and mental state of flow.

BACKGROUND

Creativity: Definition and Involved Variables

Creativity can be defined as an interaction between a person and the environment this person is inserted in, this being a beneficial interaction. This interaction needs autonomy, and also needs to be shielded from excessive social control to be effective. Some aspects commonly associated with creativity are strategies, decision making, thought managing, learning style, personality traits, motivation, aspects of cognitive abilities, etc. Creativity is a psychosocial phenomenon, which is born both from an individual's characteristics and the social environment in which this individual exists (Alencar, Fleith, & Bruno-Faria, 2010). In other words, creativity is a result both from the individual as well as the environment.

Creativity can be divided in two types. These two types are individual creativity and team creativity. These two types of creativity function in different ways, as are the variables that influence their manifestation. Each type has its advantages, but also its disadvantages. Individual creativity flourishes more easily in isolated tasks, while team creativity is believed to flourish more easily in tasks where there