Chapter 94
Do Board Games Make People Smarter?
Two Initial Exploratory Studies

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ABSTRACT

In recent years, the authors have witnessed the rebirth of board games. This contribution aims to investigate the educational potential of non-random board games in two ways: the comparison of performances of "expert adult players" and "adult non-players" through a correlation study (n=45) and the comparison between the results achieved by a group of children after 26 hours of game training (n=10) and those of a control group that carried out traditional educational activities (n=10) by using a nonrandomized control group pretest-posttest. Specifically, the findings relating to fluid intelligence, analytical and converging cognitive processes and creativity were compared. The results suggest that non-random board games can be an important stimulus for the cognitive functions, with a particular focus on the creative side, and therefore have an important educational function.

INTRODUCTION

In "The play of animals" Gross (1898) described some interesting animal behaviours. The wild peacocks, for every day. In turn, two of them at a time enter the circle and a real battle begins. If one of them leaves the circle, the fight stops. This bizarre behaviour, just like so many others described by Gross, can be traced back to just one thing: the game. Like the animals, we also play, and in fact we are "Homo-Ludens"

(Huizinga, 1967). The poet Friedrich Schiller said that man is entirely man only when he plays. Lorenz "believed" that "both art and the yearning of man for knowledge are nothing more than outward signs of the great game in which nothing is predefined, except for the rules of the game itself." (Lorenz, 1983, p. 64). Game is innate in our nature, curiosity is game, knowledge and art are game. In this contribution game is framed as a tool through which different situations can be "simulated" or "experienced," so that learning can be structured and lead to the educational success.

Why is Studying Games Necessary, Nowadays?

David Sudnow, a pianist, realised in 1983 that he was addicted to one of the very first domestic games: Breakout. He narrates his story in a book and describes the game as "Thirty seconds of play, for three bricks, and I'm on a whole new plane of being, all synapses wailing" (Sudnow, 1983, p. 41). Sudnow felt completely focused, to the limits of his capabilities, and he experienced the *Flow*, "the satisfying and exciting feeling of creative accomplishment and increased functioning. (Csikszentmihàlyi, 1975, p. XIII). The experience of Flow was first theorized by Csìkszentmihàlyi in 1975; he stated that "games are an obvious source of flow, playing is the experience of flow *par excellence*" (Csikszentmihàlyi, 1975, p. 37). Players experience more than anyone else this state of mind that motivates them and makes them *Fieri (Proud)* of their work.

Fiero is also the Italian word adopted by game designers from all over the world, introduced by Nicole Lazzaro at the Game Developers Conference. In fact, there is no word in English to describe the moment when "we throw our arms up and scream." (McGonigal, 2011, p. 34). Proudness is one of the most powerful neurochemical peaks we can experience (Hoeft, Watson, Kesler, Bettinger, & Reiss, 2008). That is why communities of players arise spontaneously: blogs, wikis, forums and YouTube channels. The truth is that "Reality doesn't motivate us as effectively. Reality is not designed to maximize our potential." (McGonigal, 2011, p. 3). We could say the same thing for educational paths, it seems that they are not designed to maximize students' learning. There is a direct, real and concrete feedback in the game. It is difficult to link the action to its feedback when it is distant in time, whereas the closer the feedback is to the action, the more effective it is. In a game, continuous feedback is provided allowing to change strategies of action, similarly in learning immediate feedback should be encouraged in order to change behaviour. For example, mistakes during a path could be considered as feedback. Even a mistake in games is considered an integral part of the learning process, generating permanent optimism and promoting inductive reasoning (Metcalfe, 2017). On the contrary, in learning pathways the error is often seen in a negative way and causes the motivation to be lowered to the point of constituting a real "block." A Finnish research team (Ravaja, Saari, Salminen, Laarni, & Kallinen, 2006) found that the emotional peak in games does not occur when you exceed a level but when you fail. The game under consideration in this case is Monkey Ball 2. In short, if the error is rewarded, even in a small part, the player is motivated (in the case of Monkey Ball 2, the reward for failure was a sneering monkey that fell into the void). The feedback mechanism in the games perfectly reflects Vygotsky's (1978) theory of the "proximal development zone." The player, in fact, through small tasks, is accompanied (but not too much) in finding the solution and then is rewarded. In a playful environment, moreover, tasks are perfectly balanced for their own game level, they are never too difficult or too easy. Another important factor is cooperation. In games, there is always someone to help you accomplish your mission. The success of Word of Warcraft is mainly due to this: it was the first game to introduce mechanisms that generate trust between players (they even invented an economic system for sharing rewards within teams). In learning, these processes

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