

Creative learning during school system transformation

Marcel Grossman was an excellent student who went on to become an excellent mathematician. He defended his Ph.D. dissertation at the age of 24 and five years later he took a position of professor in Zurich. However, it was his friend and schoolmate who truly despised school – Albert Einstein – revolutionized science. The example of Grossman and Einstein is but one of few that lead to the question of whether school truly inhibits creativity, and its best students are uncreative conformists or it is a place where creative thinking is appreciated and supports the process of learning. Mark Twain, one of the most eminent prose writers of all time, once said that he had never allowed school to stand in the way of his education. This statement is excellent at rendering the attitude creators and creativity researchers exhibit about schooling. In short, schools have bad reputation. Millions of views of Ken Robinson's critical address during the popular TEDx conference, examples of creators who did poorly at school and truly despised it, but also a whole body of research over the course of decades show that school is too infrequently the place where students' creative potential may flourish.

Yet is the situation really so bad as critics claim? Every eminent creator who performed poorly at school is accompanied by scores of others who actually did very well: Sigmund Freud, John Locke, August Comte, or Karen Horney were excellent students. Studies that reveal teacher biases against creative students are accompanied by those, which show that the image of a creative and good student is actually similar. Ascertainments that teachers are unable to identify their students' creative potential appear in the same scholarly journals as results, which show that teachers are improving at appreciating creativity, and creative abilities positively correlate with school achievements.

The present research project is devoted to the role creativity is to play in the process of learning at school. Consequently, in this research we focus on how throughout the years of schooling the character of learning changes – is it solely based on memorization and algorithmic exercising into new abilities or is newly acquired knowledge, along with the development of cognitive structures, interpreted and incorporated into the structures of previously acquired knowledge during the process of creative reinterpretation? We will analyze the psychological factors that are responsible for the effectiveness (or lack thereof) of such learning, yet most of all, we will analyze its instructional and curriculum determinants, i.e. classroom climate, teaching style, or teacher-pupil interactions. Individual studies will be conducted in reformed elementary schools (grade levels 6-8) as well as middle-schools, now in the process of being closed down (grade levels 1-3) that were characterized by high effectiveness of developing the so-called complex abilities, demonstrated through the studies by PISA. Once every six months, pupils will not only be solving tests of school achievement enriched by language and mathematical tasks that activate creative intellectual operations, but they will also be observed during individual lessons of the Polish language and math. Additionally, their thinking processes will be analyzed while tackling individual test items. As a result, we hope to not only learn about whether creativity as a trait is able to improve learning at school, but also to identify school and systemic conditions this process is most effective in. Primarily, however, the project's cognitive effect will be to develop or possibly even radically revise the recently formulated theory of creative thinking.