



Understanding factors behind the effectiveness of personal identification: Revolution – a new technique of creative problem solving



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ABSTRACT

Although it is widely believed that inducing a change in mental perspective through personal identification with an object facilitates problem solving, empirical evidence that supports this thesis is limited. The present study aimed at recognition of factors determining the effectiveness of personal identification by verifying the efficiency of a new technique of creative problem solving called Revolution. Forty-six subjects participating in the naturalistic study were randomly assigned to five experimental groups testing several versions of Revolution. The following factors were manipulated: personal identification (presence versus lack of identification), problem type (abstract versus specific) and time lag between the preparation stage (preparing the project) and the execution stage. Solutions generated by different groups were evaluated by a team of eight competent judges using the Creative Product Semantic Scale. There was no difference in the overall quality of the solutions when problem type variable was under consideration. Surprisingly, identification appeared to have a negative impact on product creativity (as evaluated by the judges). Detailed analyses revealed that the negative influence of personal identification was limited to specific task conditions, implying that it can be neutralized by separating the preparation from execution stage. The implications of the present results are discussed.

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1. Introduction

Problem-solving and creative thinking techniques have been repeatedly shown as promoting creative solutions in many settings (Scott, Leritz, & Mumford, 2004a; Scott, Leritz, & Mumford, 2004b; Tsai, 2013), although not unequivocally (Laakso & Liikkanen, 2012). They have been defined as ‘a plausibly effective prescription expressing more than common knowledge’ (Smith, 1998, p. 109) that are based on heuristics, i.e., standard sets of instructions about how to solve a problem. As opposed to algorithms, creative problem solving techniques can be applied to broader classes of problems. Although they do not guarantee that an effective solution will be obtained, nevertheless, they facilitate achieving satisfactory and creative outcomes. The aim of this study was to determine the effectiveness of a new problem-solving technique, which we have called *Revolution*. The technique is based on the assumption that inducing a change in mental perspective via personal identification with an object leads to unique responses.

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There are numerous techniques that can be used to increase the probability of success in creative problem solving. Upon review of about 170 methods described in the literature, Smith (1998) has suggested that circa 70 of them are particularly powerful. In order to be effective, a technique must affect user's thinking. It does so through "active ingredients", i.e. procedures producing desired mental shift (e.g., by employing a specific strategy for habit-breaking, problem analysis, or search for additional information, etc.). According to Smith (1998) most of the techniques are in fact based on a limited range of "tricks" or "active ingredients". The author identified fifty idea-generation devices of three types: strategies, tactics, and enablers. The most numerous and significant tools are strategies defined as active means for generating ideas, that refer to specific mental operations (e.g., analytical strategy, search strategy or imagination based strategy). Tactics work within strategies as stimulatory tools (e.g., elaboration tactic that requires a problem solver to mentally enrich the problem situation). Finally, enablers are passive means of promoting idea generation (e.g., motivational enablers, anti-inhibition enablers). Rather than directly inspiring creative output, enablers set up conditions within which ideas are more likely to appear. For example, Nęcka (1994) describes six principles, including: generating many diverse solutions, separating generation of ideas from their evaluation, having fun and working in friendly atmosphere, using incompetence and irrational thinking in order to avoid rigidity, being immersed in the process (being mentally present now and here).

Revolution is a new problem solving technique developed by our team on the basis of extensive experience of moderating creative thinking trainings and problem solving sessions. It is applicable to a new product/process development or improvement and refinement, i.e., it can be used in any case, when a new creation is meant to be based on the pre-existing elements that need to be combined in a new, functional and creative tangible object or idea. According to classification offered by Smith (1998), Revolution utilises two strategies: habit-breaking and imagination-based. Habit-breaking is achieved here via making the solvers think about the problem from the viewpoint of the objects with which they are identified. This trick induces a change in the thinker's mental perspective. Moreover, personal identification, which requires problem solvers to imaginatively become a non-human part of the problem, represents an imagination-based strategy. A good example of this strategy is Personal Analogy technique described by Higgins (1994), as well as Nęcka, Orzechowski, Gruszka, and Szymura (2005).

In terms of the theoretical assumptions, the procedure of identification ties together many mental activities known to promote creative thinking. It prompts metaphor comprehension (Miller, 1996) and promotes object redefinition by means of abstract thinking and deduction (Nęcka, 1987). These operations are considered as core processes participating in the creative process (Nęcka, 1987; Mumford, Mobley, Reiter-Palmon, Uhlman, & Doares, 1991). Many techniques used for stimulating creative thinking are based on these operations (Nęcka et al., 2005). Moreover, the procedure of identification induces joyful atmosphere and many lines of evidence suggest a link between positive mood and creativity. Indeed, positive mood facilitates divergent thinking, in particular, fluency and flexibility of thinking (Grawitch, Munz, & Kramer, 2003), openness to novel information (Isen, 2001; Isen & Labroo, 2003). It also stimulates intrinsic motivation (Isen & Reeve, 2005) that leads to enhanced task engagement and heightened originality and utility of generated solutions (Amabile, 1985; Tokarz, 2005).

Although perspective-changing techniques are believed to be particularly useful in solving challenging problems, the empirical evidence is limited. Butler and Kline (1998) have examined three types of heuristics: brainstorming, the hierarchical technique, and changing perspectives to determine which produced the highest number of solutions, the best solutions, and the most creative solutions. Results indicate that the changing perspectives technique was relatively less helpful in terms of facilitating fluency of thinking, and moderately useful in terms of generating solutions perceived as best or most creative.

The present study aimed at investigating further the specific conditions under which identification is most effective by testing the effectiveness of several versions of Revolution. Below we firstly present the procedure of Revolution, followed by the specific hypothesis tested in this study, as well as their rationale.

1.1. Procedure of revolution

Revolution involves three separate stages: personal identification, creative combinatorics and idea implementation.

At the first stage of the technique, i.e., *Personal Identification*, each participant (working individually) is required to personally identify with an object, i.e. to imagine becoming a non-human item belonging to a given category (the objects may belong to any category, the only requirement being that all group members work with the same category). Particular categories chosen here depend on the nature of the problem to be solved (they are elements of the problem) and they are pre-specified beforehand by the moderator.

In order to choose their particular target of identification, each participant draws a lot with the name of the objects. Afterwards, the moderator introduces the context of Revolution by presenting the first instruction (see Appendix A), followed by the second instruction called 'Revolutionary Manifestos', which aims at guiding identification with the target object (see Appendix B). The second instruction takes form of a revolutionary proclamation issued by the item (each particular object has its own 'Manifesto').

The "Manifestos" are meant to stimulate and facilitate the identification process. They consist of two parts. The first part of the instruction draws the participant's attention towards atypical object characteristics, as perceived 'from an object perspective' by asking them to *'display multiple possibilities of applications'* of the target object. Following this task, the second part of the 'Manifesto' requires the participant to propose novel uses (applications) for the object (*"I could become something more than a (...) of which I have had enough. Clearly. I can also do/be. . ."*).

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