Chapter 76
The Impact of Personality and Motivation on Immersion in Simulation Games

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ABSTRACT

The cognitive-motivational process model of learning describes how personality traits in a specific situation influence current learner motivation and through certain mediators, the learning outcome. This study investigates the influence of personality traits and current motivation on these mediators. For 86 high school students playing a simulation game, the Big Five, the need for cognition, current motivations, immersion, and joy of learning were measured. A hierarchical regression analysis showed that need for cognition, interest, and challenge significantly and positively impacts the experienced immersion. Also, the joy of learning correlates positively with immersion. The adapted model was partly supported: Results of this study can explain to some extent the interaction of personality traits and current motivation as well as their combined impact on immersion in live-action social science simulation games.

INTRODUCTION

Simulation Games in Social Science Education

During a social science simulation game, most students seem to be fully engaged in active play, i.e., in serious discussions and negotiations, while others do not seem to be involved and stand by. The simulation game in the social science classroom does not automatically catch the interest of all students. Though the teaching potential of simulation games has been demonstrated, teachers must still decide whether a simulation game is a suitable teaching method for their specific group of learners. Lately, the number of available games has increased, as did the research considering the effectiveness of simulation games. Resulting evidence suggests that simulation games enhance learning outcomes, knowledge, and social

skills such as negotiating and compromising (e.g., Fischer & Reinhardt, 2018; Klippert, 1984; Massing, 2004).

In simulation games, students are placed "within a reasonable representation of a real environment within which political or social interactions occur" (Krain & Shadle, 2006, p. 52). Smith and Boyer (1996, p. 690) stated that "simulations have the power to recreate complex, dynamic political processes in the classroom, allowing students to examine the motivations, behavioral constraints, resources, and interactions among institutional actors". In sum, a simulation game in social science education poses a dynamic political or economic problem situation, in which parties, organizations, and other political and economic actors have divergent interests and are bound together by a common need to solve the problem provided. In a setting of reduced complexity, the game is structured in analogy to the factual and realistic process of political decision-making and usually ends with a conference in which the provided solution or compromise is voted on (see Fischer & Reinhardt, 2018; Geuting, 1992; Herdegen, 2010; Klippert, 1984, 2008; Massing, 2004; Wiepcke, 2007).

Simulation games have been shown to yield positive effects on the participants as indicated by several studies from the early 1960s on. A simulation game can improve knowledge retention and sustainable learning (see for example Hertel & Millis, 2002; Silberman, 1996). Students who played a simulation game showed higher motivation than those who took traditional classes (Hensley, 1993), they also had higher scores in active participation, preparation time, and motivation (Shellman & Turan, 2006). Simulation games engage students emotionally, create enduring and easily accessible memories (Clark & Paivio, 1991; Martin, 1993), and foster the development of empathy (Greenblat, 1973).

Even with the rising popularity of simulation games, they are still uncommon in most schools. Since putting up a simulation game is time-consuming, it is highly relevant for teachers to identify a valid rationale as they consider using simulation games in their lessons. To decide whether a simulation game is the method of choice, the question is – apart from practical and topic-related aspects – whether the method is suitable for the students. Bredemeier and Greenblat (1981) stated that the "experiences in a given game are also likely to be affected by various characteristics of the learners themselves" (p. 314). This is why the teacher has to analyze whether the student's characteristics match with the method simulation game to form a beneficial and worthwhile lesson.

Model

To answer the question, whether a simulation game is an appropriate method for learners to experience the complexity of a social science topic, such as political systems or decision-making processes, one has to examine the influence of the situation and the learner characteristics on the process of learning itself. The cognitive-motivational process model of learning proposed by Vollmeyer and Rheinberg (1998; also Rheinberg, Vollmeyer, & Burns, 2000) describes the influence of motivational process variables on the performance in a learning situation. In contrast to trait-theories (McClelland, Atkinson, Clark, & Lowell, 1953), this model conceives of motivation as a state dependent on the interaction between a person's (motivational) characteristics and the specifics of the situation. Based on the work of Lewin (1951), Rheinberg et al. (2000) understand motivation as a function of person and situation: A person confronted with a task or problem activates certain individual motivational processes, based on their motives, interests etc. on the one hand and the specific situational propositions e.g., potential gains and losses, the social setting, or task difficulty. This "interaction of person and situation characteristics in-fluences goal setting, the learners expectancies, and the incentive the person perceives in as possible in

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