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Effects of using motivational regulation strategies on students' academic procrastination, academic performance, and well-being

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ABSTRACT

In the present research, we examined whether the use of motivational regulation strategies has an effect on academic procrastination, students' academic performance, and well-being. More precisely, we investigated whether academic procrastination mediated the relationship between the application of the motivational regulation strategies and students' academic performance and affective/cognitive well-being. To examine the paths between the variables, we conducted two studies with university students ($N_1 = 419$; $N_2 = 229$). The results of both studies showed that the use of motivational regulation strategies overall, and the use of most of the individual motivational regulation strategies, had significant positive indirect effects on students' academic performance and affective/cognitive well-being via academic procrastination. However, the strategy of performance avoidance self-talk had a significant negative indirect effect on students' academic performance and well-being via academic procrastination. Thus, this strategy does not seem recommendable for students. Our research provides insight into mechanisms for the regulation of motivation that affect students' academic procrastination, academic performance, and well-being.

1. Introduction

Low motivation to work on study-related tasks is a typical and frequent obstacle in self-regulated learning. Accordingly, students must regulate their motivation in order to achieve their study-related goals, especially when there are attractive alternative options of actions (e.g., meeting friends). To regulate their motivation students can make use of different motivational regulation strategies, that is, self-regulatory strategies that aim to control and enhance motivation (e.g., Wolters, 2003; Zimmerman & Schunk, 2008). According to Zimmerman and Schunk (2008), these strategies are assumed to increase behavioral forms of motivation such as task persistence, to decrease behaviors such as academic procrastination, and to increase favorable affective states.

Researchers have started to investigate the effects of the use of motivational regulation strategies in learning contexts. They identified beneficial effects of motivational regulation strategies on high school students' learning effort (e.g., Schwinger, Steinmayr, & Spinath, 2009) and university students' academic procrastination (Wolters & Benzon, 2013). In addition, researchers found that the application of the strategies is related indirectly to high school students' achievement via increased learning effort (e.g., Schwinger & Stiensmeier-Pelster, 2012). However, researchers have not examined whether the use of motivational regulation strategies influences students' affective states (as suggested in Zimmerman & Schunk, 2008). Additionally, they have not studied the effects on academic performance in other samples of students (e.g., at university).

On the basis of this current state of research, we focused on studying the effects of the use of motivational regulation strategies on university students' academic procrastination, academic performance, and well-being. Hence, the study will extend previous research by Wolters and Benzon (2013) concerning the effects of applying motivational regulation strategies on academic procrastination, investigate the effects of motivational regulation strategies on university students' academic performance, and examine the assumptions of Zimmerman and Schunk (2008) concerning potential effects on students' affective states.

Our studies contribute to the literature in the following ways. First, if the application of motivational regulation strategies is accompanied by low procrastination, high academic performance, and high well-being, it would highlight the importance of motivational regulation strategies to students' self-regulated learning (cf. Wolters, 2003). Second, our

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research could contribute to a better understanding of the wide-spread phenomenon of academic procrastination (Steel, 2007). Researchers in the field of procrastination have attempted to explain why procrastination occurs (e.g., Klingsieck, 2013). Among other reasons, they ascribe procrastination to a deficient self-regulation (Pychyl & Flett, 2012) that might find its expression in a motivational deficit (Klingsieck, 2013). If in the present studies we find that motivational regulation strategies are linked to academic procrastination, these findings would support the perspective of understanding procrastination as resulting from a motivational deficit.

1.1. Motivational regulation strategies

In self-regulated learning, the regulation of motivation is often necessary. Researchers in the field of motivational regulation have identified several strategies that aim to increase motivation (e.g., Wolters, 2003). In the following studies, we examined the motivational regulation strategies that Schwinger et al. (2009) identified based on research of Wolters (1998). The strategies are all included in a German questionnaire (Schwinger, von der Laden, & Spinath, 2007) that has been translated to English (Schwinger et al., 2009). In the current research, we used this instrument to assess the use of motivational regulation strategies during learning.

Some of the postulated strategies focus on enhancing interest. The strategy of *enhancement of situational interest* refers to modifying a boring activity so that it is more exciting (e.g., by creating a game). The strategy of *enhancement of personal significance* refers to establishing relations between the task and the individual's own interests and life.

Other motivational regulation strategies operate through goal-oriented self-instructions. The strategy of *mastery self-talk* refers to telling oneself that one can increase competence and knowledge. The strategy of *performance-approach self-talk* refers to highlighting the importance of learning outcomes (e.g., good grades). The strategy of *performance-avoidance self-talk* refers to emphasizing that one does not want to embarrass oneself due to bad performances.

Moreover, there are strategies that stress different learning processes that have proven to have a favorable effect on motivation. The strategy of *setting proximal subgoals* refers to regulating one's motivation through subgoals that one can attain more easily. The strategy of *environmental control* refers to beneficial arrangements of the work environment (e.g., eliminating distractions). The strategy of *self-consequating* involves rewards for successful study behavior and, thus, increases the chances of performing this behavior again. Hence, as the descriptions of the strategies show, there are various ways in which individuals can motivate themselves. However, questions remain as to whether the use of motivational regulation strategies has beneficial effects on students' academic procrastination, academic performance, and well-being.

1.2. Motivational regulation strategies and their relations to academic procrastination, academic performance, and well-being

Zimmerman and Schunk (2008) proposed that the application of motivational regulation strategies should not only be linked to behavioral forms of motivation such as task persistence but also to behaviors such as academic procrastination. So far, empirical evidence concerning the association between the use of motivational regulation strategies and academic procrastination is limited. Wolters and Benzon (2013) analyzed the link between motivational regulation strategies and procrastination in a questionnaire study with university students. They found that all motivational regulation strategies were negatively related to procrastination. The correlations ranged from −.11 (for the strategy of regulation of situational interest) to −.30 (for the strategy of regulation of mastery goals). Consequently, the more students used the different motivational regulation strategies, the lower was their academic procrastination.

More often, researchers studied motivational regulation strategies in conjunction with academic performance (Schwinger & Stiensmeier-Pelster, 2012; Schwinger et al., 2009; Wolters, 1998, 1999). They found only weak or no direct relations between motivational regulation strategies and academic performance but identified indirect effects between the variables. With regard to the direct effects, Wolters (1998) found that a combined score for the strategies of performance-approach self-talk and self-consequating (external regulation) significantly predicted college students' final course grades in the form of letter grades. In another study, only the strategy of performance self-talk significantly predicted high school students' GPA that was generated on the basis of students' letter grades in their school records (Wolters, 1999). Turning to the indirect effects, high school students' use of motivational regulation strategies was positively related to their current learning effort, which, in turn, was associated with a better GPA that was computed from school reports six months later (Schwinger et al., 2009). Similar results were found with exam grades as the outcome (Schwinger & Stiensmeier-Pelster, 2012); in this study with high school students, only the strategy of performance-avoidance self-talk did not show the proposed indirect effect.

In contrast to research on students' academic performance, there is almost no research on the relation of motivational regulation strategies and students' affective states' or well-being. However, according to Zimmerman and Schunk (2008), the use of motivational regulation strategies should be associated with increases in positive affective reactions (e.g., elation, self-satisfaction) and decreases in adverse emotional states (e.g., anxiety). Wolters (2003) only reported that the strategy of self-consequating is related to increases in well-being. Similar to the findings concerning academic performance (cf. Schwinger et al., 2009), the relations between the use of motivational regulation strategies and students' well-being might be indirect rather than direct. In the present research, we tested whether academic procrastination could be a mediator with regard to the outcome variables of academic performance and well-being due to the existing relations of the motivational regulation strategies to academic procrastination on the one hand (Wolters & Benzon, 2013) and the associations of academic procrastination to academic performance and well-being on the other hand. We now turn to the latter relation in more detail.

1.3. Academic procrastination and students' academic performance and well-being

Past research has shown that academic procrastination is related directly to different outcome criteria. More precisely, academic procrastination was related to the frequency of academic misconduct (Patrzek, Sattler, van Veen, Grunschel, & Fries, 2015) and to reduced academic performance (e.g., Kim & Seo, 2015; Wäschle, Allgaier, Lachner, Fink, & Nückles, 2014). Moreover, procrastination was associated with health-related problems (Sirois, Melia-Gordon, & Pychyl, 2003; Stead, Shanahan, & Neufeld, 2010; Tice & Baumeister, 1997). In addition, academic procrastination was linked to the two main components of subjective well-being, affective and cognitive well-being (e.g., Grunschel, Patrzek, & Fries, 2013; Steel, Brothen, & Wambach, 2001). Affective well-being refers to positive and negative emotions and moods, whereas cognitive well-being refers to people's evaluations of life or different life domains (Diener, Oishi, & Lucas, 2003). Academic procrastination was related to low affective well-being in form of low positive and high negative affect (Steel et al., 2001; Wohl, Pychyl, & Bennett, 2010) and low cognitive well-being in the form of satisfaction with life and satisfaction with studies (Grunschel & Schopenhauer, 2015; Grunschel et al., 2013). Thus, academic procrastination seems to be a risk factor for students' academic performance, physical and mental health, as well as affective and cognitive subjective well-being.

1.4. The current research

Students often face motivational problems that can affect their studies and lives. In the present studies, we aimed to extend current