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SUMMARY OF THE PHD THESIS

MOTIVATIONAL FACTORS OF ACADEMIC ACHIEVEMENT IN COLLEGE STUDENTS

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Introduction

Because of the rapid accumulation of new information, men of the 21st century spend more and more time in formal education and even professional progress depends – especially for some lines of work – on the participation in different training programs. This central role played by formal education demonstrates the importance of research conducted with the purpose of identifying the factors influencing academic performance. A relatively large number of studies (e.g. Chowdhury & Shahabuddin, 2007, Elliot, McGregor & Gable, 1999, Hustinx, Kuyper, van der Werf et al., 2009, McKenzie & Schweitzer, 2001, Wigfield & Cambria, 2010 etc.) points to the importance of motivational factors in this respect. According to some research, these factors contribute to the variance of academic performance above and beyond intelligence (e.g. Steinmayr & Spinath, 2008, Steinmayr, Bipp & Spinath, 2011).

Scientific research regarding the topic of academic motivation shows, nonetheless, a worrying trend as well: according to research results (e.g. Martin, 2009, Pajares, 2008 etc.), motivation seems to decline gradually along the academic career, especially when passing from one level of education to another (for example, from high school to college).

These data illustrate the importance of elaborating and implementing academic motivation enhancement programs, which is not an easy task, considering the large variety of theoretical approaches and terms used in the study of the above-mentioned construct (see, for example, Murphy & Alexander, 2000, Pinrich, 2003). Although most intervention programs of this kind had elementary or high school students as participants (for example Dignath, Buettner, & Langfeldt, 2008, Evans, Hearn & Zwirner, 1975, Martin, 2005, 2008 etc.**)**, data regarding the decline in studensts' motivation level after they begin their college studies, the level of attrition during the first year of college (see, for example, Haynes, Perry, Stupnisky et al., 2009) and the results of attributional retraining interventions (for example Hall et al., 2004, 2006, 2007, Haynes et al., 2006, 2008 etc.) all show that intervention programs can be useful even at this level of education.

Objectives

On the **theoretical** level, the objective of the present paper is to identify the motivational factors of academic performance in college students and to identify methods for enhancing academic motivation. Although there are a relatively large number of studies on this topic, these investigate, in most cases, constructs identified by a single theoretical approach to academic motivation (see also Pintrich, 2003, Schunk, Pintrich și Meece, 2008). Through a summary in the theoretical part of the present thesis of all these approaches and the data resulting from studies using

college student samples, conducted in these frameworks, as well as by means of basing our original studies on a synthetic model of motivation and engagement (Martin, 2005), we propose a more comprehensive investigation of the above-mentioned topic.

Furthermore, considering theories and research results pointing to the contextual and situational nature of motivation (see Pintrich, 2003) and based on practical concerns we decided to focus our attention on a specific ethnic and cultural group, which has received little attention in this respect – ethnic Hungarian students living in Romania - and set the objective of identifying links between motivational constructs and, respectively, motivational constructs and academic performance, specific to this group. Thus, in Study 2 we attempted to identify these specific interrelations by comparing the academic motivation and performance of ethnic Hungarian students from Romania with those of the students from Hungary and (German) students from Germany. In Study 3, our aims were to replicate the findings of Study 2 and to investigate the scope of action of motivational constructs in the prediction of academic performance by including other factors (personality traits and previous performance) in the predictor model, by assessing both motivation and performance twice during the semester and by using two indices of academic performance (GPA and performance assessment grid, completed by the students' professors).

Another theoretical objective is an evaluation of the effectiveness of motivation enhancement intervention programs, investigated in Study 4.

On the **methodological** level, the present thesis aims at enriching the collection of intruments designed for the measurement of academic motivation and of motivational regulation strategies in college students and, at the same time, at providing instruments for the assessment of ethnic Hungarian students. At present there are few instruments in Hungarian for the assessment of academic motivation and, according to our data, none for the evaluation of motivational self-regulation. We propose to approach this objective in Study 1.

The **practical** objective of the paper is the investigation of the effectiveness of an academic motivation enhancement intervention in the case of ethnic Hungarian students from Romania, objective that was approached in Study 5. Based on the results of this intervention we propose to formulate theoretical and practical suggestions for future intervention programs in this domain.

The Concept of Academic Motivation

According to the general definition suggested by Schunk et al. (2008), motivation is the process through which goal-oriented activity is initiated and sustained. In school context motivation refers to a student's willingness, need, desire and compulsion to participate and be successful in the process of learning (Yunus & Wan Ali, apud Moenikia & Zahed-Babelan, 2010).

The study of the above-mentioned construct is guided by a number of coexisting theoretical frameworks − self-efficacy theory (Bandura, 1997), attribution theory (Weiner, 1985), expectancy-value theory (Eccles & Wigfield, 2002; Wigfield, 1994; Wigfield & Eccles, 1992), achievement goal theory (Elliot &McGregor, 2001), self-determination theory (Deci & Ryan, 2000, 2008), and recent reformulations of achievement motivation theory (Elliot și Church, 1997) – that emphasize different components and use a variety of terms, thus causing confusion regarding the subtle differences which may or may not exist between some categories and subcategories of constructs (see also Murphy & Alexander, 2000).

Recent syntheses (see, for example, Murphy & Alexander, 2000, Martin, 2005, 2008, Pintrich, 2003) identify 10 components of motivation to be relevant in school context that are included, in one form or another, in the theories mentioned above: goals, inrinsic/extrinsic motivation, interest, self-efficacy, agency/control beliefs, attributions, perceptions of competence, level of value/valuing, need achievement/self-worth, self-regulation.

CHAPTER 1

Modern Theoretical Frameworks in the Study of Academic Motivation

1.1. Self-Efficacy Theory

Because of the assumption that beliefs about the self, created, developed and considered to be true by students, are vital forces with respect to their academic success or failure, the self-efficacy component of academic motivation has dominated the scientific literature regarding this construct (Pajares, 2003).

Datorită asumpţiei conform căreia convingerile referitoare la sine, create, dezvoltate şi considerate adevărate de studenţi, sunt forţe vitale în succesul sau eşecul lor în şcoală, componenta de autoeficacitate a motivației școlare domină literatura de specialitate a acesteia (Pajares, 2003). „Perceived **self-efficacy** refers to beliefs in one's capabilities to organize and execute the courses of

action required to produce given attainments" (Bandura, 1997, pp. 3). The exerted influence can refer to the regulation of one's motivation, cognition, affective states and actions, or to changing factors in one's environment.

Researchers stress that self-efficacy beliefs must not be confused with self-concept, self-perceptions of competence, control beliefs or with outcome expectancies. In contrast with self-efficacy, **self-concept** and **self-perceptions of competence** represent more general, more stable and more static constructs, and self-concept is often also accompanied by evaluations of value or worth (Pajares, 2008, Schunk et al., 2008). Similarly, **perceived control** can be considered a more general construct as well, the personal control system in self-efficacy theory having self-efficacy and expectancies as components (Schunk, 1991). And the difference between self-efficacy and **outcome expectancies** it that the latter refer to the conseqences considered to be likely to result from certain behaviors, while self-efficacy regards the belief to be able to produce these consequences (Pajares, 2008, Schunk et al., 2008).

The main **sources of self-efficacy** are: mastery experience, vicarious experience, verbal persuasion and physiological and emotional states (Bandura, 1997). In all cases, it is not the objective information that is relevant, but their interpretation by student in question (Pajares, 2008).

Regarding the **functional properties of self-efficacy**, studies in different domains have demonstrated the effects of this construct on choice behavior, effort and persistence (see Bandura & Locke, 2003). Accoding to Bandura (1993), this effect is mediated by four major processes: cognitive (the content of proposed goals, the utilization of cognitive strategies), motivational (causal attributions, expectancies and goals), affective (levels of stress and depression, experienced in difficult or challenging situations) and selection processes (the choices made). On the other hand, there is data regarding the possible negative effect of self-efficacy on motivation and performance (see, for example, Moores & Chang, 2009), but Bandura & Locke (2003) emphasize that the negative consequences of a low level of self-efficacy are greater than the possible negative effects of overconfidence.

In school context, two lines of research can be identified: the investigation of relationships between self-efficacy and degree or career choice, especially in the field of science or mathematics, and the study of links between self-efficacy beliefs, associated psychological constructs, academic motivation and performance (Pajares, 1996). Research using college student samples indicates that self-efficacy is a positive predictor of cognitive engagement (Walker, Greene & Mansell, 2006), an important factor in self-regulation (Klassen, Krawchuk & Rajani, 2008) and a mediator in the previous performance – subsequent performance relationship (Diseth, 2011, Lane, Lane & Kyprianou, 2004). This body of research also contains results showing that the effect of self-

efficacy on performance might not a be direct – the identified mediators being achievement goals realizare (de ex. Diseth, 2011) – or universal one – the link between self-efficacy and performance being negative in an overconfident group (Moores şi Chang, 2009).

1.2. *Attribution Theory*

Attributions are beliefs regarding the causes of outcomes Schunk, 2008).

Weiner's theory (1985, 2010), who applied this approach to the school context, is o cognitive theory of motivation (Schunk et al., 2008), which has its origins in the expectancy-value tradition. But in contrast with other expectancy-value approaches, here motivation is not considered an ahistorical problem, but a historical or temporal sequence. Another difference is linking the value component with the emotions resulting from goal-oriented activity (Weiner, 1985).

Weiner (2000) distinguishes between the intrapersonal and the interpersonal theory of motivation. Though independent, these theories overlap – other individuals' causal attributions influence their emotions and behaviors, expressions of which, in turn, influence the causal attributions of the subject.

The **interpersonal theory of motivation** is guided by the methaphor according to which all individuals are scientists who try to understand their environment and themselves and try to act based on this knowledge (Weiner, 2000). This goal is considered the primary instigator of behavior in this approach (Schunk et al., 2008).

In the academic context, the attainment of the above-mentioned goal is preceded by the sequence presented below (see also Schunk et al., 2008, Weiner, 1985, 2000, 2010). Following the result of an exam, an emotional reaction is elicited by this outcome, which can be positive or negative (happiness or sadness), depending on the situation (happiness in case of success and sadness in case of failure). These reactions do not require major cognitive implication. The process named causal search (search for the perceived causes of the outcome) is the following step. Because of cognitive limitations, this search is not undertaken following every event, but is very likely when the outcome is negative, unexpected and/or important. The result of the causal search will be influenced by many sources, including personal and environmental factors. In the next step, a cause is selected, for example lack of ability, lack of effort or lack of luck (apud Weiner, 2000). In attribution theory, the motivational impetus of attributions stems from their classification along causal dimensions, which have implications for the individuals' expectancies, emotions and motivated behavior (Schunk et al., 2008). It is assumed that expectancies and emotions, in turn, determine motivated behavior (Weiner, 1985).

Regarding **the antecedents of attributions**, attribution theory states two types of antecedent contitions: *environmental factors* (including specific information about the task, social norms and information, situational features, affective communications from others etc.) and *personal factors* (including beliefs individuals have about the task and themselves, formed before approaching the task at hand and based on their history of successes and failures, attributional biases, individual differences, their own emotional states etc.) (Schunk et al., 2008, Weiner, 2000, 2010). The attribution process is complex, based on the interaction of a number of antecedent conditions. Attribution theory emphasizes the situational nature of attributions, but studies point to the possible existence of a stable trait − the attributional style – that influences the attribution process (Schunk et al., 2008).

The perceived causes of events and their causal dimensions are at the center of the attributional approach (Schunk et al., 2008). According to Weiner (1985) there are an almost infinite number of possible causal attributions stored in memory, but a relatively small part of these are salient in the achievement domain. The most dominant ones of these causes are ability and effort – with success being linked to high levels of ability and effort, and failure being associated with low levels of ability and lack of effort. All these possible causes can be categorized based on a few causal dimensions, these dimensions being considered even more impotant than the causes themselves (Weiner, 2000). Research has consistently identified three causal properties: locus (internal/external), stability (stable/instable) and controllability (controllable/uncontrollable) (Weiner, 1985, 2000, 2010). The *locus* dimension differentiates between causes that are inside the individual and those which are on the outside, *stability* between causes which can change in time and those which can not and *controllability* differentiates between causes that can be controlled and those that can not (Haynes et al., 2009). Thus, all perceived causes (for example, abilities, luck, effort, task difficulty, mood, etc.) can be located in a tridimensional causal space (Weiner, 2000). Weiner (1985) also stresses the fact that the interpretation of specific causal inferences may vary (for example, abilities can be considered stable or unstable), but the underlying dimension remain constant.

The consequences of attributions can be categorized in *psychological consequences* (expectancies for success, self-efficacy, affect) and *behavioral consequences* (choice, persistence, level of effort, performance) (Schunk et al., 2008). According to attribution theory (Weiner, 1985, 2000), the perceived stability of a cause, and not its locus, determines changes in expectancies for success following an outcome, but emotions, in turn, are influenced mostly by locus and controllability (for example failure – uncontrollable cause = shame). The exeptions are feelings of hope or hopelessness and helplessness, these being associated with the dimension of stability

(Weiner, 1985). The expectancies for success together with the emotions determine the resulting behavior (Weiner, 2000). These behaviors can be described based on their intensity, latency, etc. (Weiner, 1985).

In case of **the interpersonal theory**, other individuals (peers, parents, teachers) are the ones making causal attributions. It is the same cognition – affect – action sequence, but the emphasis is placed on controllability and inferences of responsability (Weiner, 2000).

Analizing the **studies with college student samples** conducted in this theoretical framework, we can draw the following conclusions:

- students tend to attribute their successes to internal factors like ability (Dunn, Osborne & Rakes, 2012, Lyden, Chaney, Danehower et al., 2002, Siegle et al., 2001) and their failures to external factors like task difficulty (Dunn et al., 2012, Lyden et al. 2002);
- attributions seem to mediate the effect of outcomes on self-efficacy (Lyden et al., 2002) and models which include the dimensions of attributions as well as the attributions themselves may explain more of the variance in this respect (Hsieh & Shallert, 2008);
- attributions to ability seem to be the strongest predictor of performance (Hsieh & Shallert, 2008);
- students who make more ability, task difficulty and luck attributions, and less effort attributions have worse results (Stupnisky, Stewart, Daniels et al., 2011), stable attributions in case of failure being associated with the lowest grades (Cox & Yang, 2012), although the study of Lyden et al. (2002) did not confirm this result;
- the relationship between stable attributions and motivation may be mediated by two variables: creativity and action control (Struthers, Menec, Schonwetter et al., 1996).

1.3. Theories About Interest

In the scientific literature, **interest** is defined as a psychological state which appears during the interaction between individuals and their object of interest, is characterized by increased attention, concentration and affect, and which – as it evolves – becomes a predisposition to reengage in certain contents, like objects, events and ideas (Hidi, 2006, Hidi & Ainley, 2008, Hidi & Renninger, 2006). In opposition to other motivational constructs, interest is always oriented toward an object (certain contents or objects) and this content-specifity is a central feature of interest (Krapp, 2002).

Research in the field of education has focused on two types of interest: individual interest and situational interest (Hidi & Renninger, 2006, Schunk et al., 2008), with *individual interest* referring to a deep-seated interest, characterized by the desire to develop competence and demonstrate involvement in a particular domain, and *situational interest* being defined as a type of short-lived interest which pertains to the specific features of an event or object in a specific situation or context (Murphy & Alexander, 2000).

A number of **models about interest** can be found in the scientific literature: the *Model of Domain Learning*, the *person-object theory of interest*, the model of *constructive capriciousness* and the *Four-Phase Model of Interest*, the latter combining features of the former three (for a presentation, see, for example, Hidi & Renninger, 2006, Silvia, 2001). These approaches differ in the number and/or content of the components of phases identified by them. Another difference is that, in contrast with the other models, the person-object theory focuses on the development of interest on the individual level (Krapp, 2002) and the theory of constructive capriciousness considers interest an emotional state (Silvia, 2001).

Studies regarding the **consequences of interest** show beneficial effects of this construct on quality of learning, attention, goals, academic motivation and even academic academic performance (see, for example, Hidi & Renninger, 2006, Krapp, 2002, 2005, Wigfield & Cambria, 2010). Studies with college student samples show that mastery goals are precursors of interest (Harackiewicz et al., 1997, 2000), point to the predictive value of interest for performance (Harackiewicz et al., 2008, Tracey & Robbins, 2006) and offer data regarding the fluctuations of interest during a course (Rotgans & Schmidt, 2011).

1.4. Expectancy-value Theory

Modern expectancy-value approaches stem from Atkinson's model, tying performance, persistence and choices directly to individuals' expectancies and task value beliefs (apud Wigfield & Cambria, 2010). In the following paragraphs we will present Eccles et al.'s model (Eccles & Wigfield, 2002, Wigfield & Eccles, 1992), because it has been the most influent one, inspiring the majority of research conducted in school context (Schunk et al., 2008).

In Eccles et al.'s model (Eccles & Wigfield, 2002, Wigfield & Eccles, 1992) expectancies for success are defined as one's beliefs regarding how well one will perform in future tasks and activities (Eccles & Wigfield, 2002, Wigfield, 1994), and values are associated with the incentives or reasons for participating in the activity (Eccles şi Wigfield, 2002). The model distinguishes between four subtypes, aspects of values: *attainment value* (the importance of good performance on the task in question), *intrinsic value* (the pleasure derived from participating in the activity or the

individual's personal interest for the subject), *utility value* (the way the task is linked to future goals, for example career goals) and *cost* (the negative aspects of engaging in a task).

The fundamental constructs of the theory − expectancies and values − are considered to be determined by other performance-related beliefs, like achievement goals, self-schemata and task-specific beliefs (competence- or ability-beliefs and task difficulty beliefs). Individuals' interpretations of their previous performances and perceptions of significant others' attitudes and expectancies influence their goal-related and task-related beliefs (Wigfield, 1994).

Regarding the effects of expectancies and values, both are considered essential for achievement behavior and choices, but while expectancies for success are associated more directly with performance, values are linked more closely with the choice of activities people decide to pursue (Wigfield, Hoa & Lutz Klauda, 2008). It is assumed that values influence performance, effort and persistence as well, in addition to choices (Wigfield & Eccles, 2000).

Alternative expectancy-value models can also be identified in the scientific literature: the *models of Feather* and *Heckhausen* (for a presentation, see Eccles & Wigfield, 2002), *control-value theory* (Pekrun, 2006, Pekrun, Frenzel, Goetz et al., 2007) and *Rheinberg, Vollmeyer and Rollet's model* (2005). These models differ in the definition of the main terms and in the types of expectancies postulated by them.

Analysing the **studies using college student samples** guided by this theoretical approach, we can observe that there are more results regarding values than expectancies. This data shows that there are significant relationships between task value and performance (Cole, Bergin & Whittaker, 2008, Hulleman, Durik, Schweigert et al., 2008), the intention to continue one's studies (Bong, 2001) and the choice to delay immediate gratification (Bembenutty, 2008, 2009), and also that there are significant associations between the value component and other motivational constructs, like interest, learning goals and self-efficacy (Braten & Olaussen, 2005). The results regarding the link between certain subtypes of task value and performance are controversial, some studies indicating positive relationships (Cole et al., 2008), others pointing to nonsignificant (Hulleman et al., 2008), or even negative associations (Randall, 2008).

1.5. Goal Theory

Goals are cognitive representations of what individuals want to achieve and the reasons for which they want to achieve it (Pintrich, 2000).

A variety of goals influencing student motivation has been identified, with the emphasis being placed, in most cases, on achievement goals (Mansfield, 2010). Initially, mastery goals have been considered to have the most beneficial effects on learning, this approach being coined the

mastery goal approach (see, for example, Senko, Hulleman & Harackiewicz, 2011). According to the multiple goal perspective, on the other hand, motivation is the result of the simultaneous action of many goals (Mansfield, 2010). Thus, as a consequence of recent research results, the scope has been widened, including social goals and, most recently, future goals, in addition to achievement goals (Mansfield, 2010).

Achievement goals are considered to be an integrated and organized pattern of beliefs about the reason and purpose of achievement, and the standards or criteria that will be used to evaluate successful performance (Pintrich, 2000). Goal theory went though many phases of development (for a summary, see Senko et al., 2011), and the most recent form – the 2 x 2 development-demonstration model (Elliot, Murayama & Pekrun, 2011) – distinguishes between four main types of achievement goals: ***performance-approach goals*** (desire to outperform others or to appear talented), ***performance-avoidance goals*** (desire to avoid having weaker performances than others or looking less talented than them), ***mastery-approach goals*** (focus on learning and improving competences) and ***mastery-avoidance goals*** (desire to avoid failures in learning or a decline in competence) (Senko et al., 2011).

Regarding the correlates of these goals, studies show that mastery-approach goals are associated positively with interest, persistence, valuing of cooperation, help-seeking, using deep study strategies and positive emotions, but are often uncorrelated with performance. Among the correlates of mastery-avoidance goals we can find: high level of anxiety, low level of self-efficacy, high level of disengagement and low level of performance. Research regarding performance-approach goals has found significant corelations with positive outcomes (for example, effort, high level of aspirations, absorbtion during task engagement, high level of performance and intrinsic motivation), as well as with negative ones (for example, superficial learning strategies). And performance-avoidance goals are generally associated with high level of anxiety, disorganized study habits, the avoidance of help-seeking, with self-handicapping and low levels of performance and interest. For a review of these studies, see, for example, Elliot & Moller (2003), Moller & Elliot (2006), Senko et al. (2011).

Social goals are defined as being the goals individuals set themselves in order to achieve social outcomes or interactions (Wentzel, apud. Horst, Finney & Barron, 2007, pp. 668).

A number of approaches to the study of social goals exist, each of them addressing another aspect of students' social motivation. Wentzel's approach (apud Horst et al., 2007) targets the content of student goals and explores the specific goals students set themselves (for example, prosocial goals) and their relationship with school performance and adaptation. Urdan's approach merges the examination of performance goal orientations with peer relationships, Gable uses a

wider approach-avoidance framework, Dweck and Leggett's approach applies the concept of achievement goal orientation and competence pursuit to the social context (apud Horst et al., 2007), and Ryan and Shim (2006) propose three different goal orientations in the social domain.

As for the effect of the above-mentioned goals on performance-related outcomes, Wentzel (2000), for example, demonstrated that there is a link between the pursuit of social goals and school results, including effort and performance.

Future goals refer to the desires students have regarding the future, including career and workplace, material posessions, success and happiness (Mansfield, 2010). In Miller, Greene, Montalvo et al.'s (1996) studies, for example, these goals were significant predictors of self-regulation and deep processing, even when controlling for other goals and perceived ability.

1.6. Theories Regarding the Motives for Learning

Although the majority of recent research in the topic of motivation is inspired by social-cognitive models, three approaches which incorporate the concept of basic needs are also present in the study of academic motivation (see also Pintrich, 2003): the achievement motivation framework (e.g. Elliot & Church, 1997, 2003), self-determination theory (e.g. Deci, Vallerand, Pelletier et al., 1991, Ryan & Deci, 2000) and self-worth theory (e.g. Crocker & Knight, 2005, Crocker & Park, 2004).

In the initial conceptualisations of **the achievement motive**, human needs were considered to be relatively stable motivational tendencies, but in the last decades, the concept of achievement motivation as a unitary personality trait has not received much attention in educational psychology (see Hustinx et al., 2009).

In a relatively recent approach in this theoretical framework, Elliot et al. (for example, Elliot & Church, 1997, 2003) identified three constructs that play a central role in achievement behavior: achievement motives, general temperaments and achievement goals. The achievement motives are domain-specific motivational tendencies that energize competence-relevant behavior and direct individuals toward positive or negative possibilities. Two primary motives had been proposed: need for achievement (the desire to approach success) and fear of failure (the desire to avoid failure) (Elliot & Church, 2003).

Research using college student samples indicates that the achievement motive is a predictor of mastery goal adoption (Elliot & Church, 1997), or the adoption of both mastery and performance-approach goals (Diseth & Kobbeltvedt, 2010). Fear of failure, on the other hand, appears to be a predictor of performance-avoidance goals (Diseth & Kobbeltvedt, 2010) or both performance-approach and performance-avoidance goals (Elliot & Church, 1997, Elliot &

McGregor, 1999). Studies also show that the achievement motive is associated positively with cognitive and metacognitive regulation and that fear of failure is associated negatively with these (Bartels & Magun-Jackson, 2009, Diseth & Kobbeltvedt, 2010, Elliot & Church, 2003).

Self-determination theory (for example, Deci et al., 1991, Ryan & Deci, 2000) assumes that motivation, performance and development will be maximal in contexts which assure the possibility of satisfying the basic psycholological needs for autonomy, competence and relatedness. But only by satisfying the need for autonomy will individuals become self-determined (Deci et al., 1991).

In Ryan and Deci's (2000) approach, *intrinsically motivated behaviors* are considered the prototypes of self-determined behaviors. These activities are performed only for the inherent satisfaction. In contrast with the former, *extrinsically motivated* activities are not interesting by themselves, they are just tools used to reach other goals or objects considered to be valuable by the person. In self-determination theory, human behavior can be conceptualized as a continuum from amotivation to intrinsic motivation, where, starting from one end, we encounter more and more activities the motivation for which originates to a greater degree from the self. Different forms of intrinsic motivation are delineated as well in the scientific literature: intrinsic motivation to know, intrinsic motivation toward accomplishments and intrinsic motivation to experience stimulation (Vallerand et al.,1992). The concept of **goals** is present in this theory as well, but the emphasis is placed on two categories: *extrinsic goals*, containing external indicators of worth, like wealth, fame, physical attractiveness, and *intrinsic goals*, linked more closely to psychological need satisfaction, like being productive for the community, building interpersonal relationships, personal growth, etc. (Deci & Ryan, 2008).

Relatively recent syntheses regarding the cognitive (learning, creativity), emotional and behavioral (persistence, performance) consequences of intrinsic/extrinsic motivation (e.g. Guay, Ratelle & Chanal, 2008, Lei, 2010) reach the conclusion that research conducted up to now shows that the most positive outcomes are the consequences of self-determined forms of motivation (intrinsic motivation, integrated and identified regulation); less self-determined types of motivation (introjected and external regulation) are either correlated negatively with adaptive outcomes or uncorrelated with these, and amotivation (the lack of motivation) is shown to be correlated positively with maladaptive outcomes. Other researchers, in turn (for example, Lin et al., 2003), highlight the importance of considering intrinsic and extrinsic motivation together, because the two are assumed to exist interdependently even for the same activity, a high level of intrinsic motivation in combination with a medium level of extrinsic motivation being associated with the best performances.

Self-Worth Theory

Crocker and Wolfe (2001) use the term of self-esteem when referring to a global evaluation of self-worth and propose that individuals have a typical, mean level of self-esteem (trait), but the momentary judgements of self-esteem fluctuate around this average level (state). The authors mentioned above do not place the emphasis on the level of self-esteem, but on individuals' beliefs regarding what they have to be or to do in order to be worthy, beliefs referred to as contingencies of self-worth by the authors. Individuals want to attain successes and not failures in the domains their self-esteem is contingent on (e.g. academic performance), and when they are not certain that they can attain these goals or avoid failures, they disengage from the task or use defensive strategies to protect their self-esteem from the consequences of failure (Crocker & Knight, 2005).

Studies with college student samples (Crocker & Luhtanen, 2003, Lawrence & Charbonneau, 2009, Lawrence & Crocker, 2009) show that basing self-worth on academic performance is associated negatively with performance, and positively with academic problems and maladaptive perfectionism.

1.7. Theories of Motivational Self-Regulation

Self-regulation refers to a multi-component, reoccurring, self-steering process that targets one's cognitions, emotions and behaviors, as well as features of the environment, in order to modulate them in service of reaching one's goals (Boekaerts, 2010). **Motivational self-regulation** is defined as being the activities through which the individual purposefully initiates or maintains his/her willingness to initiate, approach or complete an activity or a goal (Wolters, 2003). Existing models of motivational self-regulation delineate the components (Wolters & Benzon, apud Paulino & Lopes da Silva, 2011) or the phases (Schwinger & Stiensmeier-Pelster, 2012) of this process.

Wolters (1998) identified strategies of motivational self-regulation, this list having been complemented by Schwinger, von der Laden & Spinath (2007) and thus containing eight such strategies: *Enhancement of Situational Interest*, *Enhancement of Personal Significance*, *Mastery Self-Talk*, *Performance-Approach Self-Talk*, *Performance-Avoidance Self-Talk*, *Self-Consequating*, *Proximal Goal-Setting* and *Environmental Control*.

We identified one study using a college student sample that investigates the effects of motivational self-regulation strategies (Schwinger, Steinmayr & Spinath, 2012). The results of this study show that students use different combinations of the above-mentioned strategies and that using all these strategies at one point or another is associated with the best performances.

1.8. Summary

Based on the theories and empirical data presented in the previous sections we made a sketch of the significant interrelations between motivational constructs, and between motivational constructs and academic performance, but due to the inconsistencies in results regarding some of these relationships, as well as the dissimilarities in the definitions of constructs in different theories, we decided to use an existing, more simplified model (Martin, 2005, 2009, 2011b) as the theoretical framework of our original research.

1.9. The Theoretical Framework of the Thesis

The *Motivation and Engagement Wheel* (Martin, 2005, 2009, 2011b) was chosen as the theoretical framework of the present thesis. Based on the theories presented in the previous sections, Martin (2011b) divides motivation into ***Adaptive Cognitions*** (Self-Belief, Learning Focus and Valuing), ***Adaptive Behaviors*** (Persistance, Planning and Task Management), ***Maladaptive Cognitions/Mufflers*** (Uncertain Control, Failure Avoidance and Anxiety) and ***Maladaptive Behaviors/Guzzlers*** (Self-Sabotage and Disengagement). The adaptive cognitions and behaviors are considered to enhance motivation and engagement, and the mufflers and guzzlers are assumed to undermine these.

Concerning the strategies of motivational self-regulation, we will conform with the definitions and delimitations formulated by Wolters (2003) and the categorisation of the strategies by Schwinger et al. (2007).

CHAPTER 2

Study 1

Validity and Reliability of Adapted Hungarian Versions of the MESC and MRQ Questionnaires

2.1. Theoretical Background

2.1.1. Measuring Academic Motivation

Most researchers agree that we deduce the presence of motivation from the following behavioral indices: choice of tasks, effort, persistence and performance, though each of these indices is limited, one way or another (Schunk et al., 2008). As for the measurement of motivation, there are a number of assessment methods (see, for example, Bilsky & Schwartz, 2008, Schunk et

al., 2008), nevertheless, studies of academic motivation use mainly questionnaires (see Bong, 1996, Pintrich, 2003, Wigfield & Cambria, 2010) which − depending on their theoretical underpinnings − can be very diverse, measuring different motivation components (goals, intrinsic/extrinsic motivation, attributions, etc.). There are such questionnaires in Hungarian as well, but on the one hand, these were elaborated for primary school or high school students, and, on the other hand, they do not encorporate the most recent results from the scientific literature of motivation in school context.

2.1.2. Assessing Motivational Regulation Strategies

We identified two questionnaires designed for the assessment of motivational self-regulation in the international scientific literature: *Academic Volitional Strategy Inventory* (AVSI, McCann & Garcia, 1999) and *Motivation Regulation Questionnaire* (MRQ, Schwinger et al., 2007); some studies used scales resulted from the combination of subscales from other questionnaires (see Bakracevik Vukman & Licardo, 2010), in others, open-ended questions were implemented (Wolters, 1998).

We did not find any data about the existence of instruments designed for the assessment of the above-mentioned construct in the scientific literature written in Hungarian.

2.2. Objectives

The present study proposes to adapt the *Motivation and Engagement Scale - University/College* (Martin, 2011a) and the *Motivation Regulation Questionnaire* (Schwinger et al., 2007) to Hungarian.

2.3. Method

The translation to Hungarian of the *Motivation and Engagement Scale - University/College* (Martin, 2011a) and the *Motivation Regulation Questionnaire* (Schwinger et al., 2007) was accomplished in collaboration with students and colleagues from the Department of Applied Psychology and it was followed by a correlational study examining the validity and reliability of the two questionnaires.

2.3.1. Participants

Our sample consisted of college students (N=223) and was heterogenous regarding age, year of study, specialization and county of origin of the participants. The mean age was 20.95 years (SD=2.42). Of the total number of participants, 33.2% were male and 64.6% were female, 30% were in their first year of study, 33.6% were in second year, 16.6% in third year and 3% were from

higher levels (fourth, fifth, sixth year). The majority (84.3%) was studying at Babes-Bolyai University, Cluj-Napoca, and was from one of six counties in Transylvania.

2.3.2. Instruments

Motivation and Engagement Scale - University/College (MESC, Martin, 2011a) is a self-report instrument consisting of 44 items which assess motivation via three adaptive cognitive dimensions (*Self-Belief/SB, Learning Focus/LF, Valuing/V*), three adaptive behavioral dimensions (*Persistence/P, Planning/Pln, Task Management/TM*), three maladaptive cognitive dimensions (*Anxiety/A, Failure Avoidance/FA, Uncertain Control/UC*) and two maladaptive behavioral dimensions (*Self-Sabotage/SS* and *Disengagement*/*D*) of student motivation and engagement. Items are coded on a scale from **1** (*Disagree Strongly)* to **7** (*Agree Strongly)*.

Motivation Regulation Questionnaire (MRQ, Schwinger et al., 2007) is a self-report instrument consisting of 30 items which assess the frequency of using the following motivational regulation strategies *Enhancement of Situational Interest/ESI, Enhancement of Personal Significance/EPS, Mastery Self-Talk/MST, Performance-Approach Self-Talk/PAST, Performance-Avoidance Self-Talk/PAvST, Environmental Control/EC, Self-Consequating/SC and Proximal Goal-Setting/PGS*. Items are coded on a scale from **1** (*Rarely*) to **5** (*Very often).*

2.3.3. Procedure

The data-gathering was accomplished using the snowball method: 55 students from the Department of Applied Psychology in Cluj-Napoca reported demographic data and completed both instruments at a regular seminar, after which they were instructed how to collect data from other participants (N=183) for 10 points added to their final mark in Experimental Psychology. The remaining 40 participant were contacted at courses pertaining to the pedagogical module. All participants received detailed instructions concerning de correct way of completing the instruments and were assured of confidentiality in handling their data.

2.4. Adapting the Motivation and Engagement Scale (MESC)

2.4.1. Results

The interviews with the students and colleagues confirmed the face validity of the questionnaire. The results of the reliability analyses showed a good/very good internal consistency, for the total questionnaire (α=0.82) as well as for all subscales, the alpha Cronbach indices ranging,

in the latter case, from 0.77 (*Learning Focus*) to 0.85 (*Task Management*). The reliability indices of the higher-order scales ranged from 0.81 (*Maladaptive Behaviors*) to 0.89 (*Adaptive Cognitions*).

The performed factor analysis (Principal Component Analysis, Variax rotation with Kaiser normalizations) resulted initially in 10 factors, with items of the *Self-Belief* and *Valuing* subscales being included in one factor. Considering the theoretical differences between the two constructs and the very good internal consistency of the two subscales (α=0.82 and α=0.81) we arrived at the conclusion that the two components are still distinct factors, with a strong correlation between them. The extracted components explained 66.89% of the variance in the data.

We also identified a relatively large number of significant correlations between the factors extracted, with most of the adaptive components being intercorrelated positively (r=[0.34, 0.64], p<0.05) and correlated negatively with the maladaptive factors (r=[-0.22, -0.51], p<0.05). Similarly, the majority of maladaptive factors were significantly intercorrelated as well (r=[0.29, 0.44], p<0.05).

Of the adaptive components, participants had the lowest mean level at the *Persistence* subscale (m=68.82, SD=16.35), and of the maladaptive components, the highest value was the mean of the *Anxiety* scale (m=67.99, SD=20.17).

We replicated the finding regarding the four higher-order scales (*Adaptive Cognitions, Adaptive Behaviors, Maladaptive Cognitions, Maladaptive Behaviors*) as well, but it was observed that the factors *Persistence* and *Failure Avoidance* had loading of a similar magnitude for both the *Adaptive Cognitions* and the *Adaptive Behaviors* factors (0.59 and 0.41, and 0.59 and 0.54, respectively).

As a final step we examined the relationship between scale mean levels and demographical data. As a result, we identified significant differences only for the gender variable: female participants had significantly higher scores than men at *Persistence* (t=-2.61, p<0.05), *Learning Focus* (t=-2.63, p<0.05), *Task Management* (t=-3.42, p<0.01), *Anxiety* (t=-4.17, p<0.01), *Adaptive Behaviors* (t=-3,30, p<0.01), but also *Maladaptive Cognitions* (t=-2.91, p<0.01), and male participants had higher scores on *Disengagement* (t=2.24, p<0.05), than females.

2.4.2. Discussion

With a few minor exceptions, we managed to replicate the findings of the original study (see Martin, 2011b) regarding the factor structure of the questionnaire. As in the original study, most of the resulted factors were significantly intercorrelated, with magnitudes in the weak-strong interval. Of the components considered to be adaptive, where higher score would be preferable, the lowes mean was that of the *Persistence* subscale, indicating that most college students consider they have

a tendency to give up easily, and of the maladaptive components, where lower scores would be preferable, the *Anxiety* subscale had the highest mean, showing that most students consider themselves to be anxious. Taking the demographical data into account as well, we found significant mean-level differences only for gender, these results showing that female students consider themselves more persistent, learning focused, more organized and more anxious, than male students do, in turn, male students consider themselves more disengaged from their academic endeavours, than do females.

2.5. Adapting the Motivation Regulation Questionnaire (MRQ)

2.5.1. Results

The interviews with the students and colleagues confirmed the face validity of the questionnaire. The results of the reliability analyses showed a good/very good internal consistency, for the total questionnaire (α=0.91) as well as for all subscales, the alpha Cronbach indices ranging, in the latter case, from 0.71 (*Performance-Avoidance Self-Talk* and *Environmental Control*) to 0.86 (*Self-Consequating*). The reliability indices of the higher-order scales were 0.87 (*Extrinsic Strategies*) and 0.88 (*Intrinsic Strategies*), respectively.

The performed factor analysis (Principal Component Analysis, Variax rotation with Kaiser normalizations) resulted initially in 7 factors, with items of the *Performance-Approach Self-Talk* and *Mastery Self-Talk* subscales being included in one factor. Considering the theoretical differences between the two constructs and the very good internal consistency of the two subscales (α=0.81 and α=0.85) we arrived at the conclusion that the two components are still distinct factors, with a strong correlation between them. Another difference as opposed to the original study was that item number 22 was included in a wrong factor, without any possible theoretical explanation and was thus excluded from further analyses. After these modifications the extracted components explained 66.77% of the variance in the data. The extracted factors were, again, significantly intercorrelated ($r=[0.17, 0.57]$, $p<0.05$).

The factor analysis identified the two higher-order factors (*Extrinsic Strategies* and *Intrinsic Strategies*) as well, but contrary to the results of the original study, the *Mastery Self-Talk* subscale was included in the *Extrinsic Strategies* factor and the *Proximal Goal-Setting* subscale, in the *Intrinsic Strategies* factor. In addition to these facts, the *Environmental Control* subscale had loadings of a similar magnitude for both factors.

We found significant gender differences − with females scoring significantly higher than men on *Mastery Self-Talk*, *Performance-Approach Self-Talk*, *Self-Consequating* and *Proximal*

Goal-Setting – and year-level differences – with 2nd year students scoring higher than 3rd year students on *Performance-Approach Self-Talk* ($t=0.44$, $p<0.05$), and 1st year students scoring higher than 2nd ($t=0.61$, $p<0.05$) and 3rd year students ($t=0.51$, $p<0.05$) on *Self-Consequating* − for this questionnaire as well.

2.5.2. Discussion

In a similar fashion to the MESC questionnaire, we, again, managed to replicate the findings of the original study (Schwinger et al., 2007) regarding factor structure, the only exception being the exclusion in this case of item number 22. The analyses confirmed the existence of the two higher-order factors, although there was a slight difference in the composition of these factors compared to the data in the original study. Taking the demographical variables into account as well, the analyses identified significant mean-level differences for gender, the results showing that females use certain motivation regulation strategies more often than do men, and year of study, this data possibly indicating that lower-level students may be more focused on performance and may need more rewards for the completion of academic tasks than older students, possibly because these tasks require more effort from them.

2.6. General Discussion and Conclusions

With a few minor exceptions, the present study replicated the findings regarding factor structure of the two questionnaires under analysis (MESC and MRQ). Our data show that the Hungarian versions of these questionnaires are valid and reliable instruments and can thus be used in future studies.

CHAPTER 3

Study 2

Academic Motivation and Links Between Academic Motivation and Performance in College Students from Romania, Hungary and Germany. A Cross-Cultural investigation[1]

3.1. Theoretical Background

Recent research points to the extreme importance of contextual and cultural factors in the process of motivation and cognition and to the fact that there may be important ethnic and cultural differences in motivation (see Pintrich, 2003). Similarly, different countries are considered to house specific cultural values as well, for they differ in the way they address basic social issues, which in turn results in specific cultural values (Chiu & Chow, 2010).

Zusho & Clayton (2011) present the **cultural perspectives** used **in the study of motivation** and point out that systematic researc regarding the role of culture in motivation appeared only at the end of 1980's and 1990's. Their article highlights that the majority of research investigating these cultural differences has been conducted in America, these studies comparing different minority groups with the Anglo-American majority, or comparing individuals from Western and Eastearn cultures. Participants from European countries (Norway, the Netherlands, Greece, Russia, Sweden, Croatia, Finnland) in turn are present only in a handful of research (see Zusho & Clayton, 2011).

Among the above-mentioned body of cross-cultural research we can find studies using college student samples conducted in all major theoretical approaches to academic motivation: **self-efficacy theory** (e.g. Scholz et al., 2002, Chowdhury & Shahabuddin, 2007, McKenzie & Schweitzer, 2001, etc.), **attribution theory** (see, for example, Markus & Kitayama, 1991, McClure, Meyer, Garisch et al., 2011, etc.), **expectancy-value theory** (see Wigfield, Tonks & Eccles, 2004), **achievement goal theory** (see Zusho & Clayton, 2011), **achievement motivation theory** (e.g. Dennis, Phinney & Chuateco, 2005, Phinney, Dennis & Osorio, 2006, etc.) and **self-determination theory** (e.g. Prospero, Russel & Vohra-Gupta, 2012, etc.). We were not able to identify cross-cultural investigations examining motivational regulation strategy use. All these studies indicate

[1] A part of this study has been accepted for publication: Wagner, E. (2012). Academic Motivation in College Students from Romania, Hungary and Germany. A Cross-Cultural Investigation, *Transylvanian Journal of Psychology, 13(2),* XX-XX. Accepted for publication on: 21. 09. 2012.

that there are significant cultural differences in students' academic motivation, although the nature and level of these differences is not always clear. Thus, these results point to the need for other, more in-depth investigations in this area.

There is also a large body of research examining the relationships between **motivational constructs and academic performance** in different cultural and ethnic groups (e.g. Braten & Olaussen, 2005, Chowdhury & Shahabuddin, 2007, McKenzie & Schweitzer, 2001, Peng, 2012, etc.), these studies being based on various theoretical frameworks or combinations of these as well. This might be a cause of the contradictory results.

So far, we have been able to identify only one cross-cultural study (Chiu & Chow, 2010) which included participants from Romania as well, this cultural group being largely unexplored in this respect.

3.2. Objectives

The *theoretical* objective of the present study is the investigation of the eventual cultural differences in academic motivation and motivational regulation strategies between ethnic Hungarian college students living in Romania and students living in Hungary and Germany, as well as the examination of the eventual cultural differences in the predictive value of these constructs for academic performance in the groups mentioned above. Our *methodological* objective was a verification of reliability and factorial invariance of the Motivation and Engagement Scale, University/College (MESC, Martin, 2011) and Motivational Regulation Questionnaire (MRQ, Schwinger et al., 2009) questionnaires in the above-mentioned groups, and the *practical* objective of the paper consists in an attempt to identify the eventual motivational profile specific for ethnic Hungarian students living in Romania, which may form the basis of future academic motivation enhancement training programs.

Because of the lack of empirical results concerning the cultural groups under analysis, we did not formulate specific hypotheses.

3.3. Method

Similarly to the previous study, a correlational design has been used.

3.3.1. Participants

The participants (N=526) were students from Transylvania (N=248, m_{age}=20.17, SD_{age}=1.42, 79% female, 21% male), Hungary (N=193, m_{age}=23.60, SD_{age}=5.89, 70% female, 30% male) and Germany (N=85, m_{age}=23.20, SD_{age}=4.62, 80% female, 20% male). The subsamples were

heterogenous regarding the participants' age, year of study, specialty and county of origin, and the Transylvanian and Hungarian sample was also heterogenous with respect to the university at which the participants were studying. The selection of the participants was performed as in Study 1.

3.3.2. Instruments

Motivation and Engagement Scale – University/College (Martin, 2011a)

The Hungarian version was translated and validated in Study 1; the German translation followed the same protocol and was accomplished in collaboration with an assistant and a professor – both native speakers of German – from the University of Regensburg.

Motivational Regulation Questionnaire (Schwinger et al., 2007)

The Hungarian version was translated and validated in Study 1 and the German version was taken from Schwinger et al. (2007).

GPA for the current semester was used as the index of academic performance.

3.3.3. Procedure

The procedure was the same as in Study 1.

3.4. Results

Factor Analyses

In the samples from Transylvania and Hungary, the performed factor analyses resulted in the factors described in Study 1 for both the MESC and the MRQ questionnaires, with the following exceptions: in the sample from Transylvania, the factors Self-belief and Valuing of the MESC questionnaire were delimited more clearly than in the previous study; in the sample from Hungary, item number 8 of the MESC was excluded from further analyses because it moved to a different factor in every version of the factor analyses. In the sample from Hungary, the factors extracted explained 69.70% (MESC) and 64.7% (MRQ), respectively, of the variance of the data.

In the sample from Germany the factorial structure of the MESC questionnaire was less clear. The model that fit our data best resulted after excluding all items of *Valuing* and items 7, 8 and 28, this model explaining 75.41% of the variance of the data. Only two higher-order factors were identified: *Adaptive Components* and *Maladaptive Components*. The factor structure of the MRQ on the other hand was identical with the one resulted from the other two samples − with the extracted factors explaining 76.04% of the variance in the data – with the exception of the higher-

order factors, the first one including MST, PAST, PAvST, EC and the second one including ESI, EPS, PGS şi SC in this case.

The reliability indices of the MESC and MRQ subscales were comparable across samples: Transylvania – α=[0.77, 0.85] and α=[0.71, 0.88]; Hungary – α=[0.73, 0.86] and α=[0.65, 0.81]; Germany α=[0.70, 0.89] and α=[0.79, 0.91].

Differences Based on Country of Origin

The analyses of variance identified significant between-group differences in the following motivational factors: SB ($F=4.73$; $p<0.05$), SS ($F=10.88$; $p<0.001$), UC ($F=5.90$; $p<0.01$), FA ($F=9.00$; $p<0.001$), A ($F=6.26$; $p<0.01$) și LF (Welch=9.78; $p<0.001$).

The post-hoc analyses pinpointed the countries of origin between which these significant differences occurred and the results were as follows:

- Transylvania and Hungary – in SB and LF, subjects form Transylvania scoring **higher**
- Transylvania and Germany – in A, participants from Transylvania scoring **higher**
- Germany and Transylvania, and Germany and Hungary, respectively – in SS and FA, participants from Germany scoring **lower**
- Hungary and Transylvania, and Hungary and Germany, respectively – in UC, participants from Hungary scoring **higher**.

Participants from Transylvania also scored significantly higher than those from Hungary on *Valuing* ($t=2.61$, $p<0.05$).

We found significant differences regarding the use of motivation regulation strategies as well: MST ($F=17.70$, $p<0.001$), PAST ($F=5.60$, $p<0.01$), SC ($F=8.65$, $p<0.001$), PAvST (Welch=22.88, $p<0.001$) și EC (Welch=19.57, $p<0.001$).

The post-hoc analyses pinpointed the countries of origin between which these significant differences occurred and the results were as follows:

- Transylvania and Hungary, and Transylvania and Germany, respectively – in MST and PAvST, participants from Transylvania scoring **higher**, and in EC, participants from Transylvania scoring **lower**
- Germany and Hungary – in PAST, participants from Germany scoring **higher**
- Germany and Transylvania, and Germany and Hungary, respectively – in SC, participants from Germany scoring **higher**

The results of the correlation analyses performed using the subscales of the two questionnaires have shown that there are similarities as well as differences in the pattern of

intercorrelations between scales depending on the group participants belonged to. Most differences were in the magnitude of these correlations, but we also identified correlations which were significant only for one or two of the three groups (for example, *Uncertain Control* was correlated significantly with *Persistence* only in the sample from Transylvania, r=-0.30, p<0.01). Space limitations prevent us from a detailed presentation of these differences in intercorrelations.

Significant between-group differences were identified in the associations between MESC subscales and semester GPA, and MRQ subscales and semester GPA, respectively. Table 1 contains these correlations.

Table 1 – Significant correlations between MESC/MRQ subscales and GPA, based on country of origin

MESC/MRQ factors	**r=** (MESC/MRQ factor – GPA)		
	Transylvania	Hungary	Germany
Self-belief	0.22**	0.24**	0.46**
Persistence	0.20**	0.22*	0.46**
Task Management	0.12	0.22*	0.16
Planning	0.14*	0.30**	0.31*
Disengagement	-0.20**	-0.07	-0.50**
Uncertain Control	-0.31**	-0.13	-0.19
Environmental Control	-0.15**	-0.25**	0.20*
Proximal Goal-Setting	0.13*	0.02	0.26**

In the following step we performed hierarchical regression analyses to determine the optimal model of predictors of academic performance for the three samples. In the sample from **Romania** the last model, including all 5 variables (SB, P, D, UC and EC), explained most of the variance in academic performance (F=9.07, p<0.001, R square=0.18), but only the inclusion of UC and EC modified the explicative value of the models significantly (R squared change = 0.05 and R squared change = 0.07, p<0.05), with these two being the only factors with a significant contribution to the variance of GPA (ß=−0.19; t=−2.62; p<0.05, and ß= −0.28; t=−4.20; p<0.001). The effect of SB was mediated by UC, the effect of P by EC and the effect of D both by UC and EC.

In the sample from **Hungary** the model including SB, P, TM, Pln, EC and PGS explained most of the variance in academic performance (F=2.98; p<0.05; R square=0.14), but only the

inclusion of Pln modified the explicative value of the models (R squared change = 0.033, $p<0.05$). Independently, none of the variables included in this model had a significant contribution ($p>0.05$). The effect of SB was mediated by Pln.

In the sample from **Germany** too**,** the last model, including SB, P, Pln and D explained most of the variance in academic performance ($F=5.51$; $p<0.01$; R square=0.38), but only the inclusion of *Disengagement* modified the explicative value of the models (R squared change = 0.098, $p<0.05$), with this being the only variable having a significant effect on GPA (ß = -0.37, $t=-2.39$; $p<0.05$). None of the mediation analyses produces significant results.

3.5. Discussion and directions for future research

The results of this study offer evidence for the generalizability of the models the MESC and MRQ scales are based on, considering that our analyses resulted, in most cases, in the same factors evidenced by the original validation studies. Our data shows that the Hungarian and German versions of these scales are valid and reliable instruments and thus can be used in future research. Nevertheless, we must state a few warnings as well: (1) In the sample from Germany, we were not able to identify the factor *Valuing* and analyses confirmed the existence of only two higher-order factors. At this point we do not know whether these results reflect specific characteristics of German students's academic motivation or if they are due to the sample we used; (2) The reliability indices of MRQ were lower for the Hungarian sample than for the other two groups, containing minimally acceptable values as well, possibly indicating that the instrument might not be as accurate for that population; (3) The content of the higher-order factors of the MRQ was identical in the Transylvanian and Hungarian samples, but different from the German sample. Future studies could investigate whether these differences reflect qualitative differences between the mentioned groups in the constructs assessed by means of these factors.

In the present study we also identified significant differences between the groups under analysis regarding mean level of certain components of academic motivation, the frequency of motivation regulation strategy use and relationships between motivation, motivation regulation and academic performance. Based on these results, we have reason to assume that there are qualitative differences between the academic motivation of ethnic Hungarian and ethnic German students, as well as between ethnic minority and majority Hungarian students. For ethnic German students, uncertain control does not appear to be a maladaptive factor – according to our data, these students try to motivate themselves and persist even when they are uncertain what to do to avoid academic failure or to achieve successes. In the ethnic Hungarian samples in turn this type of uncertainty was

associated with reporting low levels of persistence and strong tendencies to self-sabotage and avoid failure. Similarly, the results seem to indicate that for ethnic Hungarian students anxiety is not necessarily a negative factor, considering that it was not associated with a low level of persistenci in this group.

Ethnic minority Hungarians reported a higher level of self-efficacy, learning focus and valuing than did majority Hungarians, showing they consider themselves to be more able to achieve better results, to be more focused on learning, self-improvement, and that they value their studies more, than do students from the majority group. Considering, however, that these students also reported strong tendencies to self-sabotage and avoid failure in school context, as well as the highest level of anxiety of the three groups, we can draw the conclusion that these self-related beliefs serve a self-esteem protecting purpose, phenomenon described by van Laar (2001) in reference to Afro-American minority students.

The results concerning motivation regulation strategies indicate that German students regulate their morivation by reminding themselves of the positive consequences of goal attainment and bz self-administered rewards, than do ethnic Hungarian students, in turn, ethnic minority Hungarians seem to motivate themselves more frequently by reminding themselves of the possibilities for self-improvement or the possible negative consequences for failure than do majority students.

The data also showed significant between-group differences in the predictive value of different motivational components for academic performance. The contribution of these factors to the variance of performance was larger for German students and similar for students from Transylvania and Hungary. The results appear to indicate the fact that for ethnic minority students from Transylvania, control beliefs and the environmental control strategy are the factors that influence performance directly; for students from Hungary planning seems to be the decisive factor with positive effect, and for students from Germany, disengagement appears to have the greatest (negative) influence.

3.5.1. Limitations

The present study is not without limitations, the quantitative and correlational nature of our data and the fact that a relatively large number of students did not permit access to their GPA's being the most relevant ones.

CHAPTER 4

Study 3

Study of the Associations Between Motivation, Performance and Personality

4.1. Theoretical Background

According to the contemporary scientific literature regarding this topic there are other factors, in addition to academic motivation, which contribute significantly to the variance of academic performance, factors like personality and previous performance (e.g. Chamorro-Premuzic & Furnham, 2003; Conard, 2006; Kaufman et al., 2008, Komarraju & Karau, 2005; Komarraju, Karau & Schmeck, 2009). Komarraju et al. (2009) note, however, that there is a limited number of research investigating the relationships between personality, academic motivation and performance in the same study. The few existing investigations show that certain personality traits mediate the effect of motivation (Komarraju et al., 2009), while the effect of other traits is mediated by motivation (De Feyter, Caers, Vigna et al., 2012).

Studies which included previous performance among the predictors of academic performance (e.g. Conard, 2006, Durik, Lovejoy & Johnson, 2009, Elliot & McGregor, 1999, 2001, Elliot et al., 1999, Harackiewicz et al., 2008) offer evidence that motivational constructs and personality have a significant contribution even after the inclusion of the above-mentioned variable.

In addition to the facts presented above, in the scientific literature we also find study results (e.g. Braten & Olaussen, 2005, Rotgans & Schmidt, 2011) showing that the motivation-performance links can differ as a function of the time and modality of their assessment.

4.2. Objectives and Hypotheses

By means of the present study we proposed to replicate and complement the findings of Study 2, by including personality traits and previous performance in the model of predictors of academic performance and evaluating both motivation and performance at two points of time during the semester. Our objective was the examination of associations between personality factors, personality factors and motivation regulation, as well as the investigation of the effect these factors have on academic performance, assessed by means of two different types of indices.

We stated the following hypotheses: (1) Uncertain control and the environmental control strategy will be significant predictors of academic performance; (2) Personality traits and previous

performance will contribute significantly to the prediction of performance; (3) The effect of motivational variables on performance will be mediated by personality traits; (4) There will be significant differences in the motivation-performance associations depending on the time and evaluation method of performance.

4.3. Method

4.3.1. Participants

The participants were 119 first-year students from the Chair of Applied Psychology, 82 of whom (m_{age}=19.56, SD=0.96, 89% female, 11% male) could be contacted for a second evaluation as well.

4.3.2. Instruments

Motivation and Engagement Scale – University/College (Martin, 2011a) – the Hungarian version, validated in Study 1.

Motivational Regulation Questionnaire – the Hungarian version, validated in Study 1.

The NEO PI R Personality Inventory/NEO PI R személyiség-kérdőív (Costa și McCrae, 1992, the Hungarian version taken from Juhász, 2002).

The factor analysis resulted in the five main factors of the questionnaire, nevertheless, a relatively large number of items had to be excluded from further analyses, the instrument used in this study thus containing 150 items. The reliability indices of the subscales ranged between 0.86 and 0.95.

Academic performance was assessed via two indices:

GPA (for the previous and current semester).

An ***evaluation grid*** that had been elaborated for the purposes of the present study.

The grid consists of 16 statements describing possible student behaviors, both positive and disruptive. Members of the teaching staff code the observed frequency of these behaviors on a scale from **1** (*never*) to **4** (*generally*). The factor analysis resulted in two factors: the first one consisting of items concerning proactive behaviors (α=0.92) and the second one of items reflecting passive, but nondisruptive behaviors (α=0.83). The inter-rater reliability was 0.83 for the first subscale and 0.60 for the second one.

4.3.3. Procedure

The participants completed the motivation and motivational regulation questionnaire for the first time (M_{T1}) during a regular seminar in the first week of the semester, and they completed them again in the last week of the semester (M_{T2}) during the same seminars. The personality inventory was completed during the semester, during Personality Psychology seminars. The evaluation grids were completed during the semester as well, for each student by two members of the teaching staff. GPA-s − for the previous (P_{T1}) and current semester (P_{T2}) − were gathered from the secretariate of the Faculty after the examination sessions.

4.4. Results

Associations Between Independent Variables

The correlations between motivational factors, and motivational factors and motivational regulation strategies, respectively, were the same as in Study 1 and 2.

Significant correlations identified between personality and motivational factors, and motivational regulation strategies, respectively, were as follows:

- *Neuroticism* – correlated **positively** with D, UC, FA, A (r= [0.26, 0.47], p<0.05), and with PAvST (r= 0.33, p<0.01), and
  – correlated **negatively** with SB, TM (r= {-0.25; -0.28}; p<0.05);

- *Openness* – correlated **positively** with SB, LF, V (r= [0.32, 0.34], p<0.01), and with EPS (r= 0.44, p<0.01);

- *Constientiousness* – correlated **positively** with P, TM, Pln (r= [0.35, 0.48], p<0.01), and with ESI, MST, EC, SC, PGS (r= [0.25, 0.58], p<0.05), and
  – correlated **negatively** with SS (r= -0.32, p<0.01);

- *Extraversion* – correlated **positively** with SB, LF, V (r= [0.34, 0.41], p<0.01), and with ESI, EPS, PAST (r= [0.29, 0.32], p<0.05), and
  – correlated **negatively** with D, UC (r= {-0.33; -0.35}, p<0.01);

- *Agreableness* – correlated **positively** with LF (r=0.32, p<0.01), and
  – correlated **negatively** with P, FA (r= {-0.24; -0.31}, p<0.05)

Associations Between Independent Variables and Academic Performance

GPA had significant correlations with different variables depending on the time of assessment:

- $P_{T1} - M_{T1}$: $LF^{(-)}$, $UC^{(-)}$, $PAvST^{(-)}$ (r= [-0.35, -0.23], p<0.05)
- $M_{T1} - P_{T2}$: P, GBB, $PAvST^{(-)}$ (r= [-0.26, 0.26], p<0.05)
- $M_{T2} - P_{T2}$: P, Pln, $UC^{(-)}$, GBB, $PAvST^{(-)}$, $SC^{(-)}$ (r= [-0.39, 0.36], p<0.05)

At the beginning of the semester, the model containing *Persistence*, *Adaptive Behaviors* and the *PAvST* strategy was significant and explained most of the variance in academic performance (F=2.85, p<0.05, R square =0.12), but independently none of these factors had a significant contribution. After including previous performance (P_{T1}) as well, the new model explained 69% of the variance in subsequent performance (F=39.90, p<0.001, R square=0.69), with the contribution of previous performance being significant even when controlling for the effect of motivational variables (ß= 0.85, t= 10.24; p<0.001). The mediation analyses we conducted did not produce significant results.

At the end of the semester, the model containing *Persistence*, *Planning*, *Uncertain Control*, *Adaptive Behaviors*, *PAvST* and *Self-Consequating* explained most of the variance in academic performance (F=5.10, p<0.001, R square=0.36), and the contribution of *Uncertain Control* was still significant after the inclusion of the other factors (ß= -0.37, t= -2.89; p<0.01). After the inclusion of previous performance (P_{T1}), however, the effect of *Uncertain Control* became nonsignificant, previous performance was the only predictor in the model with a significant contribution (ß = 0.73, t= 7.94, p<0.001), the new model thus explaining 71% of the variance in academic performance (F=18.29, p<0.001, R square =0.71). The mediation analyses we conducted did not produce significant results.

Regarding the results of the **evaluation grids**, *Learning Focus* was the only independent and significant predictor of the *Proactive* factor, with the contribution of LF still being significant after the inclusion of previous performance (ß =0.38, p<0.01). In case of the *Passive* factor in turn − although the three Self-Talk strategies (MST, PAST, PAvST) explained 18% of the variance in this variable and *Performance-Avoidance Self-Talk* had a significant contribution even when controlling for the other two (ß=-0.35, p<0.05) − after including previous performance, this contribution was no longer significant.

Contrary to our hypotheses, no significant correlations were found between scores on the personality inventory and indices of academic performance and thus, the proposed mediation analyses could not be conducted.

4.5. Discussion

The results of the present study confirmed our hypotheses only partially. In line with Study 2, uncertain control again surfaced as a significant predictor of academic performance, but the finding regarding the effect of environmental control cound not be replicated. A possible explanation is that, in the previous study, there were significant differences in the frequency of use of the above-mentioned strategy between those who allowed access to their GPA and those who did not, the data of the latter group thus being excluded from further analyses. After the inclusion of previous performance, however, the contribution of UC became nonsignificant, in contrast with a relatively large body of research (e.g. Diseth, 2011, Durik et al., 2009, Elliot & McGregor, 1999, 2001, Elliot et al., 1999, Harackiewicz et al., 2008, Lane et al., 2004, etc.) showing that the effects of motivational factors are significant even after the inclusion of previous performance among the predictors.

Similarly, although associations between personality traits and academic motivation were identified and contrary to studies in the scientific literature investigating this topic (e.g., Kaufman et al., 2008, Chamorro-Premuzic & Furnham, 2003, Conard, 2006), we did not find significant relationships between personality and academic performance. Taken together, these results indicate that in case of our target-group it is possible that other factors determine academic performance or mask the effects of motivation, motivational regulation and personality.

The results of our research confirm our last hypothesis, showing that academic performance is associated with different motivational factors at the beginning of the semester than at the end of it. The motivation-performance linkages also differed depending of the evaluation method of performance. The results regarding this last aspect of the study show that the uncertainty concerning the ways one's performance can be influenced, especially when this uncertainty is assessed at the end of the semester, is associated with low performances, in turn a low level of uncertainty is associated with high levels of performance. The data provided by the teaching staff showed that only the degree of learning focus affects the evaluation of students as being proactive. The specific characteristics of students considered to be passive, but who do not disturb class activities, appears to be that these students use Self-Talk strategies more frequently.

4.5.1. Limitations and Directions for Future Research

The study is not without limitations, these including the correlational design of the study, the self-reported nature of the data, the fact that we did not include the variables sex, abilities or self-perceptions of ability among the predictors. Future studies which take these limitations into consideration may offer supplementary information regarding the topic analyzed here. Research regarding the performance context of ethnic Hungarian students from Romania may offer explanations regarding the dominant effect of previous performance and information concerning the eventual factors which mask the effect of motivation and personality on performance.

CHAPTER 5

Study 4

Effects of Direct Academic Motivation-Enhancing Intervention Programs: A Meta-Analysis [2]

5.1. Theoretical Background

Although in Study 3 motivational factors did no longer have a significant contribution to the variance in academic performance after the inclusion of previous performance, considering the relatively large number of studies that demonstrated the effect of motivation on academic performance, above and beyond previous performance, we decided to continue, as planned, with the evaluation of academic motivation-enhancing interventions.

Among the academic motivation-enhancing interventions elaborated in the past decades we can find *direct* approaches − which target one (or more) motivation construct and do not require an intermediate person (e.g. teacher, parent, etc.) − and *indirect* approaches − where attempts are made to modify students' motivation indirectly, by means of modifying the methods for teaching, the class structure or other variable which, in turn, affect motivation, etc. Considering the specific features of the target-group of the present paper (higher level of autonomy than for lower levels of education, major differences between the features of students from the same group, etc.), we decided to focus our attention on the direct academic motivation-enhancing interventions:

[2] This study has been published: Wagner, E., & Szamosközi, S. (2012). Effects of Direct Academic Motivation-Enhancing Intervention Programs: A Meta-Analysis, *Journal of Cognitive and Behavioral Psychotherapies, 12(1)*, 1584-7101

achievement motivation training, attributional retraining and multidimensional approaches (e.g. Martin, 2005, 2008).

5.1.1. The Multidimensional Motivation and Engagement Intervention

Recent studies (e.g. Pintrich, 2003, Dignath et al., 2008) point to the necessity of elaborating multidimensional intervention programs which target a number of motivational factors simultaneously. One such approach is the multidimensional motivation and engagement intervention of Martin (2005, 2008), based on the *Motivation and Engagement Wheel* (presented in section 1.9.), a social-cognitive approach to motivation. The purpose of the program is enhancing, maintaining the adaptive components of motivation and engagement as well as lowering or eliminating their maladaptive components.

Up to now we were only able to identify two studies investigating the effectiveness of the above-mentioned intervention program Martin, 2005, 2008). In both cases, the participants were adolescents from Australia and following the intervention significant modifications were observed in their academic motivation. The mean effect sizes were 0.18 and 0.32, respectively.

5.1.2. Achievement motivation training program

The achievement motivation training program is based on the theory of achievement motivation and serves the purpose of changing the achievement motive: lowering the motive to avoid failure and amplify the achievement motive (Schober, 2002). Up to now there are no meta-analyses investigating the effect of achievement motivation training on motivation.

5.1.3. Attributional retraining

Attributional retraining (AR) helps students reframe what they think about success and failure, encouraging them to take responsibility for their academic outcomes (Haynes et al., 2009). The intervention is guided by models like Bandura's (1997) theory of self-efficacy, the theory of learned helplessness (Seligman, apud Försterling, 1985) and attribution theory (Weiner, 1985). Based on these theories, in the training period, participants are taught more favorable causal attributions (for example, attributing failures to insufficient effort), through watching videotapes in which other students talk about their first-year experiences, through hand-outs and group discussions (Haynes et al., 2009).

At present, there are syntheses about attribution retraining in the scientific literature (e.g. Försterling, 1985; Haynes et al., 2009), but no quantitative meta-analysis has yet been conducted.

5.2. Objectives

The objectives of the study were as follows: (1) Obtaining a quantitative estimate of the overall effect size of the direct motivation interventions in increasing and sustaining academic motivation; (2) An analysis of effect sizes by type of intervention; (3) An analysis of effect sizes by method of evaluating motivation change (motivation, emotions, academic performance); (4) The identification of possible moderating variables.

5.3. Method

The studies included in the present research were identified in the electronical databases ScienceDirect, PsychARTICLES, ERIC, Informaworld and in the catalogue of the University of Regensburg's library, using the following search terms: *motivation training*, *achievement motivation training*, *increasing motivation*, *Motivationssteigerung*, *Motivationsförderung* (for achievement motivation training), and *attributional retraining and academic performance*, *attributional retraining and students* (for attributional retraining). A total number of 348 studies were selected, 44 of which were considered relevant regarding the purpose of the present meta-analysis.

Inclusion criteria:

1. Had to be an experimental study investigating the effects of direct motivational interventions in academic settings;
2. Had to be a study in which a control group had been included;
3. The students had to be the primary beneficiaries of the intervention;
4. The participants had to be individuals without special needs;
5. Had to report sufficient data (e.g. means, standard deviatons and/or inferential statistics) for the calculation of effect sizes.

Based on these criteria we excluded 27 articles (not experimental studies, did not use the intervention with reference to academic performance, the intervention was implemented by teachers, the participants were individuals with special needs or they did not report sufficient date for the calculation of effect sizes). Thus, the final database included 17 publications.

In two of these studies, the participants were high school students, in one, students grades 3 to 9 and in the other 14, they were college students. Thus, the results of 3720 persons were included in our analysis, 3417 of whom were university/college students. The majority of the studies used grades (for the course where the intervention was implemented or GPA) as the measure for academic performance, motivation was assessed via a number of dependent variables (attributions,

perceived control, expectancies, intrinsic motivation, mastery motivation, performance motivation or achievement motivation) and some studies included measures of academic emotions as well. AR interventions were implemented in a variety of ways (videotape, oral/handout presentation, followed or not by a consolidation exercise).

5.3.1. Statistical Procedures

Effect sizes were calculated, using The Meta-Analysis Calculator program (http://www.lyonsmorris.com/ma1/index.cfm). Mean effect sizes were calculated for each study, followed by another analysis, that time correcting for study sample size, based on published procedures (Hunter & Schmidt, 1990).

5.4. Results

The mean effect sizes per study ranged between 0.07 and 0.72, the overall effect size of academic motivation-enhancing interventions thus being d=0.37, a low, but educationally significant value according to Cohen's criteria (Hunter & Schmidt, 1990). The corrected value was small as well (D=0.33, VarD=0.02), but significant (CI [0.26, 0.40]).

The results of the moderation analyses for type of intervention showed that both are effective in enhancing academic motivation (AMT: D=0.54, VarD=0.02, AR: D=0.30. VarD=0.01), but while the effect size for AR is small, for AMT, it is moderate one. According to our results, the difference between the effect sizes of the two interventions is significant ($t=2.58$, $p<0.05$).

We ran analyses regarding the moderating role of outcome measure as well (motivation, emotion of academic performance) and obtained D=0.42, 0.25, and 0.29, respectively. Although the effect size of the direct evaluation of motivation was the largest, the differences between the three methods of evaluating the effects of the intervention were not significant ($F(2.43)=0.62$, $p>0.05$).

5.5. Conclusions

Our results show that the above mentioned interventions have a significant effect in enhancing academic motivation, but the effect is small (D=0.33, VarD=0.02). These results are in line with the research of Dignath et al. (2008), suggesting that intervention programs, which target several motivational factors at the same time, are more effective.

Out of the two types of interventions, AMT proved to be superior to AR, the mean effect being D=0.54 (VarD=0.02) for the first intervention, and D=0.30 (VarD=0.01) for the second one. This difference, however, may be due to the often criticized aspect of AMT (see, for example, Schober, 2002), namely that both the achievement motivation construct and this training program

are too general, do not specify the mechanisms of change, thus being possible that they include other important components, in addition to the motivational ones.

Because the effectiveness of the investigated interventions was measured using different outcome measures and instruments, mean differences in effect size for motivation, emotion and performance measures were also analyzed. In all cases the mean effect size was small and the differences between effect sizes for outcome measures were not significant, indicating that the interventions have comparable effects on motivation and the indirect indices of this construct.

5.5.1. Limitations and directions for future research

The limitations of the study include the self-reported nature of the data, the variety of instruments used for the assessment of academic motivation in the studies we included and the relatively large number of publications which could not be included due to lack of sufficient data for analysis.

CHAPTER 6

Study 5

Pilot-study of an intervention designed for the enhancement of motivation and engagement

6.1. Theoretical Background

To our knowledge, at present the effectiveness of the multidimensional motivation and engagement intervention was investigated only in two studies (Martin, 2005, 2008). In the first case the intervention was implemented as part of a workshop and in the second case, included in the usual pastoral/tutorial program of the school were the intervention was implemented. The participants were adolescents in both cases. No control group was used, only an external comparison sample.

6.2. Objectives

Our objective was adapting the motivation and engagement intervention for the Hungarian-speaking population and evaluating the effectiveness of the adapted version of the intervention. More specifically, the theoretical objective was a contribution to the scientific literature of academic motivation-enhancing interventions for college students, applicable to ethnic Hungarian students living in Romania.

6.3. Method

6.3.1. Participants

The subjects were recruited from the participants of Study 3 (N=119) and randomly assigned to one of four groups. After the orientation and first session, however, a relatively large number of participants decided to drop out of the program, the sample being thus reduced to 65: *experimental group* – N=23; m_{age}=19.39; 17 female, 6 male, *placebo group* – N=14; m_{age}=19.71; 12 female, 2 male and *control group* – N=28; m_{age}=19.61; 27 female, 1 male. Due to the duration of the intervention we did not have the possibility to recrute additional participants, hence we continued the study with the existing sample. During the intervention, 8 more students dropped out.

6.3.2. Instruments

Motivation and Engagement Scale – University/College (Martin, 2011a) − the Hungarian version, validated in Study 1.

Motivation and Engagement Workbook (Martin, 2011c) – translated to Hungarian in the first phase of this study.

The Workbook consists of 13 modules: 11 target components of the *Motivation and Engagement Wheel* and 2 are consolidation modules. In the latter two, participants can go back to modules they were not confident in and conclusions are drawn. Each of the first 11 modules follows a prepare − generate − reflect − close structure, starting with the presentation of the module, continuing with the assimilation of information regarding the component under analysis, followed by reflections upon the new contents and closed with a summary of the preceding phases.

Materials used in the placebo group – exercises chosen from Rudas (2004, 2009).

Intervention Evaluation Grid, elaborated for the purposes of the present study.

6.3.3. Procedure

The translation and adaptation to Hungarian of the *Motivation and Engagement Workbook* was accomplished in collaboration with members of the teaching staff and 2nd and 3rd year students from the Chair of Applied Psychology. Based on the suggestions proposed by these collaborators, minor changes were made in the text of the above-mentioned instrument.

The pretest of the intervention took place in the first week of the semester, during a regular seminar. Participants reported demographical data and completed the MESC. The instructions were the same as in Study 2 and 3. Following these, the participants were assigned to their groups, with

those assigned to the experimental and placebo groups receiving additional information, and those from the control group being told they were, for the moment, on the waiting list.

Individuals from the experimental and placebo group signed a confidentiality agreement and participated in a 14-week intervention (one session per week). In the experimental group the intervention was conducted according to the instruction manual *Motivation and Engagement Scale and Workbook. Testing and Administration Guidlines* (www.lifelongachievement.com). The placebo group participated in an intervention consisting of self-knowledge, effective communication, conflict management, etc. and participants were told this intervention program influences academic motivation indirectly.

The posttest of the intervention took place in the last week of the semester. Participants completed the MESC for the second time and those from the experimental and placebo group completed the intervention evaluation grids as well.

6.4. Results

Preliminary results showed that before the intervention there were no significant differences in relevant variables between the three groups. The data also showed that the placebo manipulation was effective – there were no significant differences in the degree to which experimental and placebo group participants were convinced that the intervention had enhanced their motivation.

Because of the relatively low number of participants who completed the intervention we ran both parametric (One-Way Anova) and nonparametric (Kruskal-Wallis) tests to evaluate between−group differences in the posttest. These analyses, however, did not show any significant differences.

To determine whether the size of our sample was the cause of the nonsignificant results, we calculated effect sizes for each motivational factor and for GPA. In line with our expectations, the effect sizes were indeed small (Cohen's d= [0.02, 0.24]), but the confidence intervals contained 0 in case of each factor, showing the between-group differences were not significant.

The intervention evaluation grids offer information regarding the reasons for dropping out of the program (most subjects pointing to the lack of time as being the main reason) and the modules which were rated favorites or most often implemented (the *Planning* and *Task Management* modules were mentioned most often in this respect).

6.5. Discussion

In the present study we set the objective of adapting the *Motivation and Engagement Workbook* (Martin, 2011c) for ethnic Hungarian students living in Romania and of investigating the

effectiveness of the above-mentioned intervention in this group. As opposed to our expectations, the results seem to indicate the fact that the intervention was neither effective in enhancing the adaptive components of motivation, nor in reducing the level of its maladaptive components. There were no post-test differences in the GPA of participants from different groups either.

There are, however, a number of possible explanations for the lack of significant results: (1) The data in this study was collected via self-report instruments, the accuracy of which largely depends on the level of self-knowledge, conscientiousness and seriousness of the participants; (2) Recents studies indicate that the timing of assessing motivational components can be an important factor (e.g. Braten & Olaussen, 2005, Rotgans & Schmidt, 2011), thus being possible that more significant changes have occurred during the rather long time period than those resulting from our intervention, which may have masked its effects; (3) Once adopted, individuals' beliefs have a tendency to persist even when faced with conflicting information (Pajares, 2003). Hence, it is possible that one session a week was not sufficient to modify the motivation and performance-related beliefs of the participants; (4) The scientific literature delineates motivation from implementation intentions (Gollwitzer, 1999) – it is possible that students considered the strategies they had learned useful, but simply didn't apply them consequently.

6.5.1. Limitations and directions for future research

Of the study's limitation we mention that, for example, we did not have the possibility to include only those participants whose level of motivation was low and that we did not consider level of ability.

Based on our experiences with this intervention, we formulated a number of suggestions for future intervention programs. **A greater degree of participation may result from**:

- offering additional credits for participating in the intervention
- including the intervention in the usual timetable of the students
- organizing the intervention as a workshop

A greater degree of success may result from:

- personalyzing the intervention according to the motivational profile of the participants
- dedicating more time to the discussions about the individualized profile of each participant, emphasizing the advantages of participating for him/her personally and suggesting an "action plan"
- encouraging the application of newly learned strategies in their everyday lives, by means of homework assignments

CHAPTER 7

General Conclusions

7.1. Synthesis of the Theoretical Contributions

On the **theoretical** level, the present paper proposed to identify the motivational factors of academic performance in college students and the methods for enhancing these factors. In the theoretical part of the thesis we presented a summary of the main theoretical approaches used in the study of academic motivation and of the most important empirical evidence regarding college students, generated by these approaches. Based on this information we made a sketch of the interrelations between motivational constructs. Such syntheses are rare in the scientific literature, most of the research being fundamented on one theory of motivation. In our paper, in turn, we based our analyses on a comprehensive model, thus offering results regarding a relatively large number of motivational constructs.

Our studies offer information about a motivational profile which is potencially specific to ethnic Hungarian students living in Romania, a group that is largely unexplored in this respect, and about the differential relationship between these factors and academic performance. In Study 2, the academic motivation, motivational regulation strategies, the interrelationships between these constructs and their effects on academic performance of ethnic Hungarian college students from Transylvania were compared to those of students from Hungary and Germany. The results revealed similarities and significant differences, both between ethnic Hungarian and German, and between minority and majority ethnic Hungarian students, indicating possible qualitative differences in the motivation of these groups.

Study 3 was an attempt to replicate a part of the results of Study 2, including, in this case, personality factors and previous performance among the predictors as well. After including previous performance, the contribution of motivation was no longer significant, thus suggesting that other factors may be more important than motivation in determining the academic performance of this group, or that confounding variables may exist.

Study 4 offers quantitative data regarding the effectiveness of direct academic motivation-enhancing interventions, this being, to our knowledge, the only such comprehensive research focused on this topic.

7.2. Synthesis of the Methodological Contributions

On the methological level, the thesis proposed to enrich the collection of instruments elaborated for the measurement fo academic motivation and the assessment of motivation regulation strategies in college students, and, at the same time, to supply instruments for the assessment of ethnic Hungarian students. To reach this objective, a study was conducted to validate the Hungarian translation of the MESC (Martin, 2011a) and MRQ (Schwinger et al., 2007) questionnaires (Study1), the results of which show that the adapted instruments are valid and reliable and can thus be used in future studies. To our knowledge, no other recent, multidimensional instruments designed for the assessment of academic motivation and motivation regulation strategies exist at present.

In Study 2, the above-mentioned instruments were translated to German as well, the results concerning this version of the MESC, however, question its reliability.

In Study 5 we adapted the *Motivation and Engagement Workbook* (Martin, 2011c), the central component of the multidimensional motivation and engagement intervention to Hungarian, this being, to our knowledge, the only such instrument in Hungarian, designed specifically for college students.

7.3. Synthesis of the Practical Contributions

The results of Study 2 and 3 offer information about the motivational factors which may have a significant effect on the academic performance of ethnic Hungarian college students living in Romania and this data can be used in the process of designing courses, learning environments, etc. elaborated for college students. We also examined the effectiveness of an academic motivation enhancing intervention in the above-mentioned group of students (Study 5). Although we could not demonstrate the effectiveness of the intervention, the experiences we gathered during this program helped us phrase indications for future intervention programs.

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