

# Beyond Grades: GPA and Its Relationship to Achievement Goal Orientations and Student Approaches to Learning

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Grant: GA JU 074/2019/S

Název grantu: Prediktory úspěchu u vynikajících vysokoškolských studentů

Oborové zaměření: AN - Psychologie

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**Abstract** The main purpose of this study is to examine the relationship of university-level GPA to achievement goal orientations and student approaches to learning. Self-reported data were collected from 124 second-year students enrolled in the Specialization in Pedagogy study program at the Faculty of Education, University of South Bohemia in the Czech Republic. The results of the correlational analysis showed GPA being weakly yet non-significantly associated with mastery goal orientation and with the achieving approach. Contrary to prevailing evidence, GPA was virtually unassociated with performance goal orientations. This rather unusual finding is discussed in the context of the specific social environment of the particular institution. The findings indicate that correlates of GPA do not contradict the motivational attributes of the social construct of excellent students.

**Keywords** GPA, grades, academic excellence, study motivation, achievement goal orientations, student approaches to learning

## 1. INTRODUCTION

Academic achievement, academic success, or academic excellence have been of interest to many researchers in the field of educational psychology. These central concepts are mostly defined through grades or the grade point average (GPA) (Mašková & Kučera, 2019; Mašková & Nohavová, 2019). Therefore, when speaking about “successful” or “excellent” students it is usually meant students with a high GPA, at least in the area of educational research. However, the questions arise as to whether the students with the best grades are really the best, what GPA reveals about the students, and what the motivation leading to the high grades is. For example, in the case of two students where one is genuinely motivated to learn and truly understand the material of her interest, while the other is only motivated by a desire to outperform her classmates and therefore strives to achieve the highest grades, the latter student will be more likely to obtain the better grades despite the noble motivation of the first student (Senko & Miles, 2008). Although most books and articles on the topic of “best students” concentrate primarily on grades and GPAs, there are only few researchers who refrain from employing the GPA as a main criterion in the search for the best university students. For example, according to Bain (2012), grades

“say little about who you are, what you are likely to do in life, how creative you are likely to be, or about how much you understand” (p. 10). Thus, in his research, he chose to focus on students who adopted the *deep learning approach* (explained below) rather than on high grades achievers whose study motivation was uncertain.

The findings of an extensive survey among students and educators at the Faculty of Education, University of South Bohemia (USB), revealed that the agreed core psychological attribute relating to the social construct of excellent students is a “genuine study motivation”. This characteristic involves multiple cognitive and behavioural patterns, including intrinsic motivation. This implies that students are enthusiastic about their studies. Such students engage in schoolwork out of interest and out of the desire to master the learning material for their own personal development rather than for the sole purpose of positive self-presentation in front of others. Further, they want to develop a real understanding of what they learn by thinking about the new knowledge acquired, and by interconnecting it with previous or simultaneous knowledge in other areas. As a result, the knowledge of these students is complex and deep not just memorized without further understanding (Mašková & Nohavová, 2019).

The present study, as part of the first author’s comprehensive research on academic excellence, serves as a preliminary investigation to challenge the route of measuring academic excellence almost exclusively via GPA. The findings of this study aim to help form conclusions concerning directions for future methodological choices in the field of academic excellence research. In other words, the practical relevance of this study relates to possible justifications of GPA as a trustworthy indicator of academic excellence in the settings of the Faculty of Education at the USB. Hence, the present study is directed by the following underpinning question: *Does a high GPA indicate the presence of genuine study motivation attributed to excellent students?* In order to test this research question, the proposed central attribute was conceptualized as the *mastery goal orientation* together with the *deep learning approach*. The mastery goal orientation is students’ ability to focus on mastering a task and their desire to acquire new skills (Elliot & Harackiewicz, 1996). The deep learning approach is students’ intention to form a personal understanding of the topic studied, and it includes related learning processes such as

integration, synthesis, and reflection (McCune & Entwistle, 2000; Laird et al., 2008). Both the mastery goal orientation and the deep learning approach have been directly linked to intrinsic motivation, or interest in and enjoyment of an activity for its own sake (Deci & Ryan, 1985; Entwistle, 1988).

To gain more insight into the topic, the constructs of mastery goal orientation and deep learning approach will be studied as part of a comprehensive theory. Accordingly, this study focuses on the investigation of the mutual relationships between GPA and two complex theories of academic motivation and learning – *achievement goal orientations* and *student approaches to learning*. These theories will be explained in detail in the following paragraphs.

### 1.1 Achievement goal orientations

The achievement goal theory, introduced in Dweck's (1986) seminal work and based on the social-cognitive approach to motivation, has become a prominent theory of motivation in the past three decades. Much of the research conducted in this area highlights the effects of a particular class of goals involved in achievement motivation. These goals are called *mastery* (also known as learning or task-oriented) goals, and *performance* (also called ability or ego-oriented) goals. Mastery goals have been linked to an individual's belief that competence is malleable; in contrast, performance goals have been associated with an individual's belief that competence is fixed (Dweck, 1986; Dweck & Leggett, 1988; Senko, Hama, & Belmonte, 2013). The performance goal construct has been further divided into two different forms of regulation: approach and avoidance. Accordingly, the proposed achievement goal framework incorporates *mastery*, *performance-approach*, and *performance-avoidance goals* (Elliot & Harackiewicz, 1996; Elliot & Church, 1997). Individuals adopting mastery goal orientation (MGO) focus on the task at hand, want to learn and understand the material, strive to increase their skills, define success in relation to the task, and measure progress in self-referential terms. By contrast, individuals with performance-approach goal orientation (PAPGO) focus on achievement by applying only little effort, and demonstrate the core desire to gain favourable judgment of their own competence. Individuals adopting performance-avoidance goal orientation (PAVGO) strive to avoid demonstrating their lack of ability and receiving unfavourable judgment of their competence. In contrast to mastery-oriented individuals, individuals with PAPGO and PAVGO tend to focus their attention on the self, and define their success in relation to others (Dweck & Leggett, 1998; Elliot & Harackiewicz, 1996; Kaplan et al., 2012; Midgley et al., 2000).

### 1.2 Student approaches to learning

The concept of approaches to learning was originally introduced by Marton & Säljö (1976) who identified two qualitatively different levels of processing information among university students. In their experiment, students were asked to read a text, and to be ready to answer questions on it afterward. The results showed that the students who used *surface*-level processing concentrated on rote memorization, whereas those who adopted *deep*-level processing concentrated on the meaning and significance of the text. Biggs (1987) further defined students' approaches to learning as a combination of the motives for learning and the accompanying strategies needed to master a task. Along with the two original approaches, a third approach, called *achieving* (or *strategic*) approach, was also identified. These approaches are fairly consistent and may persist over longer periods of time (Kember & Leung, 1998; Lonka, Olkinuora, & Makinen, 2004). The deep learning

approach comprises a deep motive and a deep strategy. The deep motive pertains to an intrinsic interest in what is being learned, as well as striving to understand the material and develop competence in specific academic subjects. Using a deep strategy involves searching for meaning, inter-relating new information with previous relevant knowledge and everyday experience, and looking for patterns and underlying principles. In the context of the achieving approach, achieving motive refers to ego and self-esteem enhancement through competition, and striving to obtain the highest possible grades whether or not the material is interesting. The achieving strategy includes organizing students' time and distributing their efforts most efficiently, completing all suggested readings, using previous exam papers to predict questions, and being aware of marking scheme cues: in other words, they behave as "model students". Regarding the surface approach, the surface motive is merely to cope with the course requirements as the students try to balance between failing and working more than necessary. Additionally, the surface strategy consists of memorizing the essential information needed for assessments. Students employing this strategy focus on discrete elements without integration, have difficulty in making sense of new ideas, and fail to distinguish principles from examples (Biggs, 1987; Entwistle, McCune & Walker, 2001; Kember & Leung, 1998).

### 1.3 Interrelatedness and relationship to GPA

Several studies have demonstrated the association between achievement goal orientations and student approaches to learning. While MGO and deep processing show a positive mutual association (Ames & Archer, 1988; Dupeyrat & Marine, 2005; Elliot & McGregor, 2001), both PAPGO and PAVGO have been linked to surface cognitive processes (Al-Emadi, 2001; Elliot & McGregor, 2001; Greene & Miller, 1996). Only few studies have shown the relatedness of PAPGO and deep processing (Archer, 1994; Wolters, Yu, & Pintrich, 1996), and the connection of MGO and surface processing (Al-Emadi, 2001).

The investigation of the relationship among GPA, achievement goal orientations, and student approaches to learning in higher education has provided inconsistent results. Although PAVGO is often negatively related to academic achievement (Richardson, Abraham, & Bond, 2012), both PAPGO and MGO have been positively linked to academic achievement in most studies. In a Czech student sample, MGO was found to be the strongest predictor of GPA among other achievement goal orientations (Kožený & Tišanská, 2010). However, a comprehensive meta-analysis performed by Linnenbrink-Garcia, Tylson & Patall (2008) confirmed mastery goals to be a weaker predictor of academic achievement in terms of course grades, compared with performance-achievement goals. In some studies, mastery goals evidenced no reliable effect on grades (e.g. Durik, Lovejoy, & Johnson, 2009; Elliot & McGregor, 2001; Harackiewicz et al., 1997). Regarding student approaches to learning, some studies have found the deep learning approach positively associated with GPA (Kožený & Tišanská, 2010; Tarabashkina & Lietz, 2011; Zeegers, 2001), yet several other studies have found that the deep learning failed to predict GPA (Al-Emadi, 2001; Campbell & Cabrera, 2014; Elliot, McGregor, & Gable, 1999). The relationship between the surface approach and GPA was found to be either null (Elliot et al., 1999) or negative (Kožený & Tišanská, 2010; Tarabashkina & Lietz, 2011).

### 1.4 The present study

The findings of previous studies have revealed no definite evidence regarding the associations of GPA with achievement goal

orientations and student approaches to learning. The positive link of GPA to MGO and to the deep learning approach was confirmed by some authors but contradicted by others. Moreover, existing literature does not provide sufficient evidence about Czech students in particular. Consequently, the current state of research does not bring a clear answer to the question whether GPA can serve as an indicator of *genuine study motivation* in the settings of the Faculty of Education, USB. Therefore, this study aims to explore the mutual relationships among GPA, achievement goal orientations, and student approaches to learning in the Czech student sample.

## 2. METHOD

### 2.1 Participants

The participants were 124 second-year full-time students of the bachelor degree program Specialization in Pedagogy at the Faculty of Education at the USB in the Czech Republic. More specifically, the participants were enrolled on the compulsory psychological course designated for their year of study and study program. Out of a total of 159 students present, 35 submitted the survey uncompleted or only partially completed. These students were therefore excluded from the study (78% response rate). We chose to standardize the sample to students of the identical year of study and study program to prevent any unexpected effects<sup>1</sup>.

### 2.2 Procedure

During the final session of the course, participants were asked to complete a paper-pencil survey containing the measures of the achievement goal orientations and the approaches to learning. Further, the request to indicate their cumulative GPA was part of the survey. For this purpose, participants were informed about the survey already in the pre-final session of the course, and were instructed on how to find the cumulative GPA in the university's student record system. They were asked to find the data themselves and bring it to the final session of the course. Participants were also informed that the survey was focused on their attitudes toward their studies at the Faculty of Education, USB. Furthermore, the researchers reassured the participants that it was anonymous, and that no personal identification was required. After the participants completed the survey, they placed it in a sealed box designated for the anonymous collection of the surveys.

<sup>1</sup> We were aware of the possible intervening effect of the phenomenon called *GPA inflation* in university students, i.e. an upward shift in GPA of students over an extended period of time without a corresponding increase in students' academic ability. Accordingly, GPA could exhibit an inconsistent pattern of development in time, typically a sharp decrease in the second semester followed by a steady increase during the later periods of study before repeated drop in the final term. Differences in life-cycle of GPA have been observed among students of distinct academic programs in US universities (Grove & Wasserman, 2004). Although evidence of GPA inflation has not yet been investigated in the Czech Republic, any possible unexpected trends in GPA development in time could not be ruled out. To prevent biased results, we opted for participants of the same year of study and study program. An additional reason, besides possible differences in life-cycle of GPA, for building the research sample of students enrolled in the same study program, were comparable admission requirements. For instance, applicants for the study program of Psychology at the Faculty of Education, USB, undergo much stricter admission procedures than students of Specialization in Pedagogy. These differences may in turn lead to differential standards in grading. Due to the gradual drop out of students in every year of study, the second-year students were chosen as a compromise between a high overall number of students enrolled in the study program and the relatively high amount of grades included in the cumulative GPA compared to first-year students. The number of re-attending older students is negligible for this particular course.

### 2.3 Measures

The cumulative GPA<sup>2</sup>, based on the grades of three previous terms, was self-reported by the participants as there was no possibility for the researchers to obtain the data through university records. "Personal Achievement Goal Orientations" student scales in the revised version from the Patterns of Adaptive Learning Scales developed by Midgley and colleagues (2000) were used to measure achievement goal orientations. MGO and PAPGO were measured using five items, and PAVGO with four items. The shortened 18-item "Study Process Questionnaire" (SPQ) was used to assess approaches to learning (Fox, McManus, & Winder, 2001). The shortened SPQ comprises six subscales with 3 items each: surface strategy & surface motive; achievement strategy & achievement motive; and deep strategy & deep motive. All 32 items were answered on a five-point Likert-type scale ranging from 1 = "Fully disagree" to 5 = "Fully agree". Prior to the administration, the items were translated and stylistically adapted into the Czech language.

## 3. RESULTS

Statistical analyses were performed using JASP software. Firstly, internal consistency reliability was estimated. All calculated Cronbach alpha coefficients indicated at least an acceptable internal consistency (Hair et al., 2006). Further tests for the assessment of normality indicated that the variables Surface Approach (SA) and MGO slightly deviated from the normal distribution. All other variables conformed to the normal distribution. As the suitability of the variables SA and MGO for applying parametric testing was disputable, both parametric Pearson  $r$  and non-parametric Spearman's  $\rho$  were computed for all variables correlated. As both correlational coefficients yielded very similar results, only the  $r$  correlation results are reported in Table 1, along with the means, standard deviations, and alpha coefficients for all the variables analyzed.

The associations among GPA and other variables were found non-significant on an alpha level of .05. A weak negative relationship, yet non-significant, was detected between GPA and the Achieving Approach (AA) ( $r = -.16$ ), and MGO ( $r = -.13$ ). However, correlational analysis showed several associations among variables significant on an alpha level of .05. In this respect, strong positive association was found between PAPGO and PAVGO ( $r = .62$ ), PAVGO was also weakly associated with MGO ( $r = .20$ ). MGO was weakly negatively related to SA ( $r = -.18$ ). Further, the direction of other associations among achievement goal orientations and approaches to learning was positive. A strong association was found between MGO and the Deep Approach (DA) ( $r = .61$ ). The relationship between MGO and AA ( $r = .29$ ) was weak to moderate. PAPGO was moderately linked to AA ( $r = .54$ ). PAVGO was weakly to moderately associated with AA ( $r = .31$ ), and SA ( $r = .29$ ). The relationship between PAVGO and DA was rather weak ( $r = .23$ ).

<sup>2</sup> According to the Czech university grading system, the best grade is 1 (= A), the worst is 4 (= F). Hence, the higher absolute value of GPA indicates poorer performance.

Table 1.  
Means, Standard Deviations, and Correlations (Pearsons  $r$ )

Variable	M	SD	GPA	MGO	PAPGO	PAVGO	SA	AA	DA
GPA	2.13	.54							
MGO	3.59	.70	-.13	(.79)					
PAPGO	2.43	.84	-.03	.17	(.86)				
PAVGO	3.26	.91	-.02	.20*	.62***	(.74)			
SA	3.42	.66	.08	-.18*	.14	.29***	(.63)		
AA	2.62	.86	-.16	.29**	.54***	.31***	.10	(.79)	
DA	3.40	.70	-.09	.61***	.16	.23**	-.12	.21*	(0.70)

Note. The numbers in parentheses are coefficient alphas.  $N = 124$

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

#### 4. DISCUSSION

The main goal of our study was to examine the relation of GPA to achievement goal orientations and approaches to learning in a sample of Czech students. Regarding the achievement goal orientations, we found GPA to be reversely linked to MGO, yet this relationship was weak ( $r = -.13$ ) and non-significant. The observed lack of factual connection between PAVGO and GPA ( $r = -.02$ ) may be interpreted as a rather unusual finding since previous research has consistently pointed out the negative effects of PAVGO on academic achievement (Richardson et al., 2012). Not less surprising is the virtual absence of association between GPA and PAPGO ( $r = -.03$ ). Although the null relationship was uncommonly confirmed in the students of a large US university (Lee, Sheldon, & Turban, 2003), this finding is also contradictory to the majority of published literature. Nevertheless, similar evidence, unexpected and rare in the context of Western research, has been already proved by research conducted in Asia (King, 2015, 2016). Collectivism, a common feature of Asian cultures, may actually moderate effects of performance orientations (both PAVGO and PAPGO) on academic outcomes. For collectivistic cultures, individuals are more relational and deeply connected to significant others, contrary to distinctiveness from significant others more typical for individualistic Western countries. Therefore, failure means unfulfillment of significant others' social expectations, and can lead to a "loss of face" as academic achievement is perceived as a social duty. As a result, in collectivist settings, concentrating on fitting in with others is likely to make performance-avoidance goals more common, whereas performance-approach goals may be less emphasized (King, 2015, 2016). Accordingly, PAPGO was found to be only a very weak predictor of GPA in Philippine students. On the other hand, PAVGO was surprisingly associated with GPA in a positive direction (King, 2015). It was as well associated with positive outcomes such as higher levels of cognitive and metacognitive strategy use, intrinsic motivation, or engagement (King, 2016).

Although the Czech cultural background is not expected to promote a collectivistic approach in general, the very specific social environment of the particular institution probably does. The Faculty of Education at the USB could be classified as a rather small institution with approx. 800 full-time students. It is not unusual that no more than only one dozen students might be enrolled on a particular course on the Specialization in Pedagogy study program. Consequently, a feeling of deeper relatedness to teachers and fellow students, and commitment to studies could easily arise in students. As a result, failure could probably jeopardize participants' perceived

role as students in a more prominent way than in the anonymous environment of a large institution. As the present study found no evidence for the inhibiting effect of PAVGO on GPA, it could be presumed that performance-avoidance may be seen as more normative in the specific conditions of the Faculty of Education at the USB. Possibly, the lack of a confirmed association between PAPGO and GPA may also be explained in terms of the specific social environment at the particular institution. The "family-like" environment may include both the teachers' attitudes and the specific social dynamics of small groups of students where mastery precedes competitiveness. Thus, the emphasis on fitting in, as well as the focus on group cohesion and concordance in mutual relationships, may minimize the salience of performance-approach goals.

Regarding the association between GPA and student approaches to learning, we found a weak reverse relationship, yet non-significant on an alpha level of .05, between GPA and the achieving approach ( $r = -.16$ ). The deep approach also tended to be reversely associated with GPA ( $r = -.09$ ), while the surface approach was likely to be positively associated with GPA ( $r = .08$ ). However, these associations were very weak and non-significant.

The results of our study regarding the mutual relationships between achievement goal orientations and approaches to learning are mostly in accordance with previous findings. The only exception is the positive association between PAVGO and the deep approach ( $r = .23$ ). This result is contradictory to previous findings, as a negative relationship between PAVGO and the deep approach has been typically reported (e.g. Elliot & McGregor, 2001). This seemingly anomalous finding was probably mediated by the also unusual interrelatedness of MGO and PAVGO (King, 2016). In this context, it is worth mentioning the resemblances with the Asian research findings and possible causes of these resemblances discussed in the previous paragraph (King, 2015, 2016).

Regarding the associations between GPA and the selected motivational variables, our study yielded statistically non-significant results with a  $p$  value larger than a conventional alpha level of .05. A  $p$ -value is a probability that the observed effect occurred due to chance. It is worth to remind here that statistical significance is not equivalent to substantial or scientific significance. It provides no information about the magnitude or importance of the underlying phenomenon. Moreover,  $p$  values are considered to be confounded because of their dependence on sample size (Sullivan & Feinn, 2012). In this context, we should admit that our sample size could be considered inadequately small. Consequently, it is likely that the  $p$  values were negatively impacted by this small sample size. Although statistically non-significant, the results of this study suggest that in our student sample, higher GPA corresponded to



higher orientation towards MGO and the deep learning approach, as GPA tended to be reversely linked to MGO and to the deep learning approach. With respect to the research question, it can be acknowledged that GPA indicated, at least weakly, the *genuine study motivation*. On the contrary, the variables that were not in accordance with the excellent students construct (such as surface approach, PAPGO and PAVGO) tended to be distinct from GPA. In this context, the only seemingly controversial finding was the association between GPA and the achieving approach. The achieving approach comprises the achieving motive and the achieving strategy. The latter is fully compatible with the academic excellence construct as one of its aspects is to fulfil study requirements on time and at a high-quality level (Mašková & Nohavová, 2019). The accompanying achieving motive refers to enthusiasm, the will to succeed, and the intention of obtaining the highest possible grades through competition (Biggs, 1987). Whereas the deep approach and the surface approach are clearly linked to intrinsic motivation and extrinsic motivation respectively, the achieving approach is associated mainly with the need for achievement and vocational motivation (Entwistle, 1988). From this point of view, this motivational pattern does not directly mirror the *genuine study motivation* attribute. On the other hand, as the achieving approach often occurred in conjunction with the deep approach ( $r = .21$  in our sample), a composite deep-achieving approach was considered as academically desirable (Biggs, 1987). Therefore, these findings reveal that the model of the “pragmatic” student adopting the achieving approach does not contradict the construct of a student being academically excellent.

The most pronounced limitation of this study may be the rather small study sample, which in turn might have negatively impacted the level of statistical significance of our results. However, obtaining a larger sample would have been problematic due to the limited number of students enrolled at the small institution of the Faculty of Education at the USB. To avoid the occurrence of interfering effects, enlargement of the data set at small institutions would apparently be possible by collecting data from students of the same study year and study program in year intervals. Due to the specificity of the sample, the generalization of our findings should be limited to students of similar study years and study programs, and particularly to institutions of similar characteristics.

Despite the statistical non-significance of our results, practical implications of the study can be drawn in order to conduct further research. From the findings of the present study, it can be concluded that the motivational correlates of GPA may support the construct of excellent students to a very limited extent. In this respect, the use of GPA as the sole indicator of academic excellence at the Faculty of Education, USB cannot be recommended due to a weak and non-significant association with *genuine study motivation*. Nonetheless, GPA could still be used as an auxiliary indicator in a multi-criteria measure of excellent student identification in further research at the Faculty of Education, USB. In general, statistically non-significant results yielded by the present study, should be interpreted cautiously until corroborated by further research.

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