Academic Motivation among Russian University Students:
Speculative Insights

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Abstract. Herewith the authors set the purpose to integrate into Russian research practice a method of development of a hierarchical self-determination theory and a achievement goal orientation theory by demonstrating their explanatory potential based on the example of studying an academic motivation of students in two regional universities. The article presents in detail theoretical provisions on each approach and their application for academic motivation analysis is reviewed. Based on 37 half-structured interviews with students of two regional universities there is demonstrated the specifics and advantages of each of the theories. The self-determination theory in its expanded version turned out to be more efficient while studying the students' motivation. It suggests a more detailed typology of motivation, provides more differentiated explanations of causes encouraging students for a more active involvement into the study process. Additionally, it suggests a system of internal motivation resources based on three identified needs: autonomy, competency and relatedness. The theory advantage is that it enables the explanation of the dynamics of various types of encouraging motives: situational, contextual and global. However, the reviewed theories are complementary in their essence, since they are focusing on various aspects of academic motivation: in the spotlight of the achievement goal orientation theory is a study of students' aims for their involvement into the study process, whereas the hierarchal self-determination theory refers to the research of root causes of being involved into the study process.
Keywords: academic motivation, hierarchical self-determination theory, achievement goal orientation theory, mastery goal, performance goal, external motivation, internal motivation.

Studies on motivation form an integral part of education research, providing ways to explain student behavior in educational institutions. As empirical research shows, the level of academic motivation is a key factor affecting student involvement in learning and academic

achievement [Zimmerman, Bandura, Martinez-Pons, 1992; Fortier, Vallerand, Guay, 1995; Busato et al., 2000; Reeve, Kim, Jang, 2012; Vishtak, 2003; Gordeyeva, 2005; Gordeyeva, Shepeleva, 2011; Gordeyeva, Osin, 2012]. Besides, a number of studies have revealed a significant correlation between academic motivation and student engagement in academic dishonesty [Whitsel, 1954; Bushway, Nash, 1977; Brandão, Teixeira, 2005; Murdock, Anderman, 2006; Davy et al., 2007; Sivak, 2006].

As a rule, motivation is defined through behavior displayed by an individual, being regarded as the source and the regulator of any action. Motivation is the framework and the driving force of behavior [Graham, Weiner, 1996]. Studying motivation is searching for an answer to why people think and behave as they do [Graham, Weiner, 1996. P. 63]. For this purpose, researchers seeks to identify, first, the *energization* and, second, the *direction* of behavior, i. e. the stimulators [Elliot, Thrash, 2001. P. 142]. Consequently, *academic motivation* is the reason for and the regulator of learning activity.

Contemporary foreign research on academic motivation revolves mostly around two theories: hierarchical self-determination theory and achievement goal orientation theory. These theories form the ground for research on motivation to learn and build the basis for developing tools to measure such motivation, focusing on various aspects of the concept. The self-determination theory is designed to explore the triggers for learning, while the achievement goal orientation theory investigates the aims pursued by learning. Therefore, the former is focused on the motives students have while learning, whereas the latter studies the results they seek to attain in the future.

The best part of investigations measuring motivation to learn is based on the two abovementioned theories (e. g. [Anderman, Griesinger, Westerfield, 1998; Archer, 1994; Reeve, Kim, Jang, 2012; Guay, Mageau, Vallerand, 2003]). In most studies, the tools proposed by these approaches have proved their reliability and construct validity. However, despite the proved explanatory power and the widespread use abroad, considerations of the self-determination and achievement goal orientation theories are hardly ever used in Russian research on motivation to learn.

In Russian higher education, research on motivation to learn is mostly either purely theoretical (e. g. [Rogov, 1998; Yepifanova, 2000]) or purely empirical [Bogoslovskaya, 2006; Rochev, 2014; Isachenkova, 2010; Kudrinskaya, Kubarev, 2012; Lipatnikova, 2011]. It is usually based on a conceptual model discriminating between cognitive, communicative, social motives for learning, etc. [Gordeyeva, Sychev, Osin, 2013]. The long list of motives with fuzzy boundaries between them entails major issues for the paradigm application, as researchers often obtain conflicting results. Russian researchers traditionally divide motives into internal and external, often opposing

them to each other. Internal motives are believed to lie behind persistence and creativity, while external ones are perceived as superficial stimuli evoking the fear of punishment [Gordeyeva, Sychev, Osin, 2013]. Some researchers of motivation to learn apply both approaches at the same time, classifying cognitive and personal development motives as internal and social, goal-oriented motives, etc. as external (e. g. [Rogov, 1998]).

A special place among Russian studies on motivation to learn belongs to works by Tamara Gordeyeva, Oleg Sychev, and Yevgeny Osin [Gordeyeva, 2010; Gordeyeva, Sychev, Osin, 2013; 2014] presenting a single-level motivation model in terms of the self-determination theory. A number of Gordeyeva's articles are devoted to the concept of self-determination and to the fundamental ideas behind the theory [Gordeyeva, 2006; Gordeyeva, 2010]. In their empirical studies, Gordeyeva, Sychev, and Osin adjusted the tools proposed by Robert J. Vallerand to measure motivation for learning among students of several Russian universities [2013; 2014], leaving the hierarchical model and different motivation levels aside. There has also been an attempt to apply Vallerand's hierarchical model to measure the motives for learning a foreign language expressed by students of the Kuban State University of Physical Education, Sport, and Tourism [Dushko, 2009].

The lack of a single theoretical and methodological base or standard measuring tools makes it really challenging to compare the results of studies on motivation to learn conducted by Russian and foreign researchers or Russian researchers using different approaches.

This paper aims to introduce the practice of using considerations of the self-determination and achievement goal orientation theories in Russian research patterns by demonstrating their explanatory power through the example of studying motivation to learn among students of two regional universities. We will bring forward theoretical provisions of each approach in detail and consider the example of using them to analyze student motivation.

1. Source of empirical data

The research was focused on students of two Russian universities, one classical and one technical, located in Privolzhsky Federal District. These are the leading universities of the region (accounting for 50% of all students enrolled at regional universities) that compete for talented candidates planning to enter a regional university. The article uses texts of the interviews conducted to explore student learning activities[1] under the project called Change in Networks, Higher Educa-

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[1] We thank A. Smolentseva, the manager of the CINHEKS project, project participants Y. Gorbunova, Y. Aleksandrova, Y. Shagova, Y. Voynilov, S. Saudabayev, and A. Chukanov for providing the interview materials.

tion and Knowledge Societies (CINHEKS)[2]. The field research stage took place in November 2013 with the assistance of the 2012 Annual NRU HSE Competition for Expeditions.

Data on motivation to learn was collected using the unstructured interview method, which doesn't restrict researchers' choices to a specific theoretical approach as strictly as structured interview or questionnaire do. Data collected using the unstructured interview method may be used to demonstrate explanatory potential of both theories. What's more, interview narratives are more efficient than structured questionnaire answers in demonstrating theoretical provisions.

Apart from questions intended to explore motivation to learn, the interview included indirect questions to students about their reasons for entering the university, their learning strategies, extracurricular activities, plans for the future, and teaching practices used by professors. The nature of student motivation was determined based on the answers to questions on the reasons for and aims of participating in learning activities (*What motivates you to learn? Are you trying to obtain high grades? Do your parents monitor your grades? Do you cheat in exams?* etc.). Answers to these questions help identify the type of motivation and include it in a broader theoretical pattern.

We analyzed 37 interviews, of which 19 were conducted with classical university students and 18 with technical university students. There were nine men among classical university respondents and six among technical university students. At the field research stage, ten classical university students and nine technical university students were doing their studies in science, mathematics, engineering and technology, five respondents from the classical university and three from the technical one were studying social sciences and humanities, and four and six, respectively, were engaged in economical studies.

2. Achievement goal orientation theory

The achievement goal orientation theory was born in the early 1980s as an upcoming trend to explain school student motivation to learn. The theory focuses on the *aims* individuals are trying to achieve through sticking to specific behavioral patterns. These aims account for the complex of beliefs, attributions, and emotional states that produce an intention to behave in a specific way and manifest themselves through various forms of being involved in goal-achievement activities and reacting to them [Ames, 1992]. The process of goal achievement has cognitive, emotional, and behavioral effects [Elliott, Dweck, 1988].

A number of authors have contributed to research on achievement goal orientations. Their theoretical approaches differ mostly in

[2] The Projest was implemented in 2013with the assistance of the NRU HSE Program of Fundamental Studies.

the types of goals they focus on. However, there are two basic aims no author in this area calls in question: mastery goal and performance goal [Ames, Archer, 1988]. Students who pursue mastery goals concentrate on acquiring new knowledge, learning and improving skills to enhance their personal and professional development [Kaplan, Maehr, 2007]. Students with performance goal orientation seek to demonstrate their knowledge and skills [Ibid.], to gain recognition of their competencies from others, or to avoid negative feedback [Dweck, 1986]. Performance orientation is usually associated with superficial attitude towards learning in empirical studies. This type of goal orientation is also believed to have adverse effects on emotional, cognitive, and behavioral aspects of learning [Ames, 1992].

Following Andrew J. Elliot, who analyzed the early versions of the achievement goal orientation theory [Elliot, 2005], we can figure out some distinctive features of this theoretical research area. First, the achievement goal orientation theory investigates achievement motivation and represents a concept integrating the earlier studies in the field. Second, the notion of goal in this context has two meanings: goal as the reason for behavior and goal as the desired outcome. Third, the concept of competence is one of the central in achievement goal orientation theories, serving the basis to distinguish between the two types of goal orientations. Fourth, the identified goal orientations are studied in dichotomy, their effects being clearly demarcated: mastery orientation is commonly associated with positive effects, while performance orientation is believed to have negative effects. Fifth, the two goal orientations are treated rather as two different types of motivation than as extremes of the same continuum. Sixth, the achievement goal orientation theory is believed to be applicable at both dispositional and situational levels [Elliot, 2005].

The approach proposed by Elliot is the most elaborated version of the achievement goal orientation theory so far. Elliot distinguishes between two types of performance goal orientations: performance-approach orientation and performance-avoidance orientation. Thus, he suggested that the dichotomy should be replaced with a "trichotomy" discriminating between mastery goal orientation, performance-approach goal orientation, and performance- avoidance goal orientation as three totally different types[3] [Elliot, 2005]. Students with performance-approach orientation seek opportunities to succeed, whereas students with performance-avoidance orientation will rather seek opportunities to avoid failures or to prevent undesired outcomes [Elliot, Harackiewicz, 1996; Elliot, 1999]. The latter are trying to avoid situations that can expose their incompetence and lower level of abilities as compared to other students [Wolters, 2004]. It

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[3] The two types of motivation—performance approach and performance avoidance—were identified before Elliot, too. His contribution is that he suggested treating the two types separately, on a par with mastery goal orientation.

has been proved empirically that performance-avoidance orientation entails negative effects in learning, including poor performance and lower grades, while performance-approach orientation results in higher grades and positive emotions. However, some researchers also find negative effects of performance-approach goal orientation, like poor memorization of the knowledge acquired [Kaplan, Maehr, 2007].

Apart from the abovementioned goals, researchers of student motivation identify another one—academic alienation goal, or work-avoidance goal [Archer, 1994]. Such students are motivated to complete their work with minimal effort, not to acquire or demonstrate their knowledge and skills. Their behavior is similar to that of students avoiding undesirable outcomes, except that they are not concerned about how others evaluate their achievements [Ibid.].

Studies on achievement goal orientations associate the type of goal pursued by a student with the goal of learning environment, involvement of students in the learning process, their learning strategies and academic performance (e. g. [Wolters, 2004; Archer, 1994]). Cross-cultural studies have shown that the alienation/avoidance goal orientation, as well as the relationship between subjective well-being and the goal pursued, are a function of collectivist or individualist values adopted by the society [Elliot, Chirkov, 2001].

As we can see, the achievement goal orientation theory suggests an operationally convenient alternative to the concept of motivation, the nature of which has not yet been precisely understood. A weak point of the theory might be that it doesn't tell why an individual chooses one goal or another [Covington, 2000]. We will demonstrate the explanatory potential of this research area using the achievement goal orientation theory proposed by Elliot.

3. Applying the achievement goal orientation theory to analysis of motivation to learn among students of Russian universities

Interviews with Russian students have revealed all the three types of goal orientations: mastery goal orientation, performance-approach goal orientation, and performance-avoidance goal orientation. Let's dwell on how they are manifested in students' learning activities.

3.1. Mastery goal orientation

Mastery goal orientation is the ambition to gain knowledge and skills for personal and professional development. At behavioral and emotional levels, it accounts for active participation in the learning process and positive emotions about it. Students for whom this type of goal orientation is prevailing mentioned that it was important for them to gain knowledge and get sense of a subject while learning at the university.

"It seems to me that the most important is to understand and to cognize the subject, so that it doesn't slip your mind later but moves forward, into other subjects, because they all intertwine

somehow. There must always remain some basic knowledge" (a female student of the technical university, 2nd year, economic studies).

Analysis of collected narratives also shows that, when investigating mastery goal orientation in terms of motivation to learn, it is important to discriminate between personal and professional mastery goals as they affect learning strategies directly. Students oriented primarily towards personal development are likely to invest more effort in courses they are interested in, not in field-specific ones.

"I've realized it's pretty hard to do everything that's required, so I do first of all what I really want to. For example, a history report. The topic is, "Was the Attack of Nazi Germany on the Soviet Union unexpected?" I'm going from the library now, have spent some two hours there writing out excerpts from books because I really liked the task" (a male student of the technical university, 1st year, engineering science and technology).

History will hardly come in handy for this student in his occupation but he spends his time on the report at the expense of field-specific disciplines he already has problems with (the student is afraid of being expelled for failed tests). Such orientation may persist through upper years.

"Not every one of us will work in our field of study when we graduate. Neither do I know what the future has in store for me. It's just interesting to study right now... The courses have become more interesting" (a female student of the classical university, 4th year, science, mathematics, engineering and technology).

Mastery-oriented students, who want to gain knowledge and skills in their field of studies, mention more often the desire to succeed in the future: to make a career as a professional or to improve their social status by getting a profession.

"What you need is knowledge, experience. You can do without them but you should apply what you already know. Otherwise, you'll study all the way, get this higher education, then come to a workplace and have to dig through textbooks again—but you won't have any more time or effort to do this. Or, you can learn on the spot to understand why and how you do something. It sets you much higher, you develop yourself to attain more. I'm rather for knowledge and experience than for just a sheepskin" (a female student of the classical university, 5th year, social sciences and humanities).

The desire to improve one's social status is associated with the belief that education is highly valued and is indispensable to rise on the social ladder.

> "Education is an essential element of human life. I have heard it since I was a kid, 'Study to become someone.' It's inculcated in childhood, when you begin to feel responsible for proving you are worth something" (a male student of the classical university, 3rd year, economic studies).

In mastery goal orientation, they distinguish between mastery-approach goal orientation (i. e. a desire to maximize learning and skills development) and mastery-avoidance goal orientation (i. e. a fear of losing skills or the inability to master all the material). Only goal orientations of the first type have been found in interviews with students. This is most probably due to the specifics of the empirical object whose motivation to learn was studied: students don't have enough professional knowledge and skills, so they are trying to acquire competencies. Preserving the existing level of competencies will be more typical of final-year students.

Mastery goal orientation is regarded as socially desirable by students. Students named it first thing in the interview and couldn't admit right away that demonstrating their knowledge and skills, i. e. receiving high grades, was also important to them.

> "INTERVIEWER: Are you trying to get excellent grades only? What is your learning strategy?
> RESPONDENT: It's not that I care about grades too much. As for now, I believe grades are no more than figures. My learning strategy is like this: if you are given a task, do it. If you do it well—good; if you perform bad—do it over again.
> I: Do professors make you do it over again?
> R: No, why? You go for it yourself to improve you grade. You try. Sometimes, you fail. Sometimes, it's very hard. But still, it's all fine after all. Professors sometimes help us saying, like: 'Solve this one,' 'Try it this way'—and it works out" (a female student of the classical university, 3rd year, science, mathematics, engineering and technology).

Thus, interviews devoted to learning activities at university revealed clearly that students were willing to achieve the mastery goal, which is one of the types of orientations in the achievement goal orientation theory. Students for whom this orientation is prevailing seek to acquire knowledge and skills either for their future professional activity or for their personal development. The achievement goal orientation theory doesn't discriminate between mastery goals depending on what students obtain their knowledge and skills for. However, we

find such discrimination important as it suggests that students have different learning strategies, focusing on either field-specific disciplines or those that are interesting for them but are not necessarily field-specific.

A different type of goal orientation is performance goal orientation, which is comprised, after Elliot, by two separate types of goals: performance-approach goal and performance-avoidance goal. Desire to demonstrate one's competencies translates almost always into desire to receive high grades. While the method to achieve the mastery goal is quite obvious (students invest effort in their own personal and professional development by performing assignments given by professors), students with performance goal orientation use various ways to get to their goal.

3.2. Performance-approach and performance-avoidance goal orientations

> "I have a goal of getting high grades and I will achieve it by any means" (a female student of the classical university, 3rd year, economic studies).

Students whose prevailing goal is to obtain results through getting high grades are focused more on fulfilling professor requirements than on learning as such. During their time at the university, they adapt to these requirements learning to determine which tasks are indispensable and which can be omitted—and thus saving their time and energy. Therefore, they don't show their real competence but simulate its high level in exams and tests.

> "There are students who study like at school: they come, take their seats, always write something down, always try their best. Tick here, tick there, getting ready for this and for that. Not me. I understand everything, I see the situation through right away, and I plan what will be in advance. For example, there's going to be a quiz and I know I have the Tax Code on my tablet, so I'll find everything I need there and it will be just fine. I don't contribute too much time to my studies now" (a female student of the classical university, 3rd year, economic studies).

Material incentives like student allowance can also be classified as a category of performance-approach goals. In this case, students try to demonstrate that their knowledge and skills level is sufficient to have high grades.

"RESPONDENT: Getting an allowance was my motivation.
INTERVIEWER: Are you getting one?
R: Sure.
I: So, you find it important to have high grades?

R: Not really. I don't need an A, a B will do" (a male student of the classical university, 5th year, science, mathematics, engineering and technology).

Meanwhile, students oriented at showing a specific level of competencies are likely to be loyal to academic dishonesty.

"Yes, there are times when someone cheats and gets a high grade, and someone else doesn't cheat and doesn't get one. Well, excuse me, who didn't let you cheat? Now you get what you get. I find this weird: if you have an opportunity, cheat" (a female student of the classical university, 5th year, social sciences and humanities).

Among students whose primary goal is to avoid poor results, many study only to get a diploma. Such students are not striving after high grades, being oriented towards the minimal requirements that will let them stay in higher education.

"I just hope to pass all the exams and to graduate. I guess the majority thinks like this today" (a male student of the classical university, 1st year, science, mathematics, engineering and technology).

"For now, the most important is to progress to the second semester, preferably to the second year, as I've heard dismissals are less frequent in the second year and later. Then, the goal will be to make it to graduation" (a male student of the technical university, 1st year, economic studies).

Such students often try to rationalize their attitude towards learning saying that only the fact of having a diploma matters today and they won't need any of the knowledge or skills inculcated by the university.

Thus, the interview narratives allowed us to identify two types of orientations associated with the performance goal, according to Elliot's theory. Students with performance-approach goal orientation seek good and excellent grades, while students with performance-avoidance goal orientation are pretty happy with the grades sufficient to stay at the university and to graduate in the future, i. e. to avoid the negative outcome of dismissal.

3.3. Academic alienation goal orientation

Apart from mastery and performance goal orientations, researchers using the achievement goal orientation theory also talk about academic alienation. Students for whom this orientation is prevailing behave similarly to those with performance-avoidance goal orientation: they use a learning strategy to stay in higher education and to get good grades. However, students with performance-avoidance goal

orientation believe that diploma is much more important than knowledge and competencies acquired at university, while alienated students apply minimal effort to learning because they are busy doing something else they consider more important and worth their time. It is often a job that absorbs them.

"INTERVIEWER: Say, why do you have Cs, for example?
RESPONDENT: I don't know, it's laziness maybe.
I: Why are you lazy? You just don't want to study? Or do you have more
    important things to do?
R: The latter. I have a job.
I: Are you trying to improve your grades?
R: Not really.
I: But why? Doesn't is matter to you?
R: No, it doesn't" (a male student of the classical university, 4th year,
    science, mathematics, engineering and technology).

The achievement goal orientation theory turned out to be an efficient way of exploring students' goals and goal-setting practices to explain various aspects of their learning activities and behavior at university. Having applied this theory, we managed to describe motivation of students in two regional universities of Russia. In terms of this theoretical approach, we didn't analyze why students chose specific goals, but the goal orientation typology embraced most of the student body and allowed for explanation of student behavioral patterns. The goal classification built in the achievement goal orientation theory helps develop tools to explore popularity and intensity of each type of goal, allowing for identification of specific learning behavioral patterns associated with each goal orientation. Using this approach to analyze student motivation in Russian educational institutions and to perform empirical research will accelerate progress in student motivation research and in elaborating practical recommendations on how to develop productive forms of motivation to learn among students.

3.4. Explanatory power of the achievement goal orientation theory

The hierarchical self-determination theory was proposed by Vallerand in 1997 [Vallerand, 1997] as an evolution of the same-name theory by Edward L. Deci and Richard Ryan, which discriminates between intrinsic motivation, extrinsic motivation, and amotivation [Deci, Ryan, 1985]. *Intrinsic motivation* means engaging in learning activities because they are inherently interesting or enjoyable [Deci et al., 1991]. Intrinsically motivated students regulate their activities themselves, which means they are autonomous. *Extrinsic motivation* means that students engage in learning activities being driven by external regulators. The latter may include grades, desire to obtain a reward or to avoid punishment, the role of specific activity for career advancement, etc. Depending on the degree of autonomy (independence) provided

4. Hierarchical self-determination theory

by regulators and on the level of their internalization (i. e. the extent to which external regulators are accepted and transformed into internal stimuli), four types of extrinsic motivation are differentiated: external, introjected, identified, and integrated [Ibid.]. The *external motivation* implies that activity is initiated with an externally perceived locus of control [Deci, Ryan, 2002], when the regulator is external to student. Examples may include desire to obtain a reward (monetary or otherwise) and/or to avoid punishment. In the *introjected motivation*, the locus of initiation lies in the social rules and norms that are external to student. They don't become part of an individual but regulate his/her activities through the emotional component: a student feels guilty when deviating from the norm and proud when following it. The *identified motivation* suggests that activity is initiated by an individual who accepts such activity as an important means of achieving their goal. Examples include accumulation of knowledge and skills necessary to build a career. This type of motivation differs from intrinsic one in that students engage in activities only because they find them useful, not interesting. The *integrated type of motivation* also puts an individual as the initiator of activities, characteristics of the latter being fully integrated in a person's value system. This type of extrinsic motivation gives maximum autonomy and the right of choice to an individual. Examples may include desire to master one's profession which is the key life value to a student. *Amotivation* means no motivation at all, which is the case when an individual can't see any connection between their activity and possible outcomes, i. e. has no intention to obtain a result through their actions [Ibid.].

Apart from intrinsic and extrinsic regulators that guide student behavior, the self-determination theory also examines the needs stimulating such behavior. Deci and Ryan identified three basic needs: competence (the need for understanding how this or that result can be achieved), autonomy (the need for independence in initiating and regulating one's actions), and relatedness (the need for safe relationships) [Deci et al., 1991. P. 327].

Cross-cultural studies based on this theory have shown that basic needs are universal to different cultures and do not depend on what type of values, collectivist or individualist, prevail in a specific society [Chirkov, Ryan et al., 2003]. Besides, it has been empirically proved that subjective well-being depends on the degree of autonomy in learning and intrinsic motivation is subjectively more important to students than extrinsic one, these findings also being applicable to any cultural environment (e. g. [Chirkov, Ryan et al., 2003; Ryan, Chirkov et al., 1999]).

Vallerand suggested to expand the model described above by saying motivation existed at three levels of generality. His hierarchical self-determination theory implies three interrelated levels of motivation: global, contextual, and situational. The global level represents general motivational orientation of an individual towards the environ-

ment. The contextual level shapes motivational orientation in various spheres of life, the most essential being education, leisure, and relationships. The situational level describes a person's motivation for a certain activity at a certain moment of time [Deci, Ryan, 2002]. Each level has its own social factors affecting satisfaction of the basic needs, its own type of motivation shaped by social factors indirectly, through an individual's needs, and its own behavioral, cognitive, and emotional effects [Vallerand, 1997]. All the three levels in the hierarchical motivation model are interrelated. The relations between them have been proved empirically by Vallerand and his colleagues [Guay, Mageau, Vallerand, 2003] and may be either top-down (from global to situational) or bottom-up (from situational to global).

Motivation to learn can also exist at three levels: global (general student motivation to learn), contextual (motivation to learn in the higher education context), and situational (motivation for a certain learning activity or certain discipline). Social factors determining the type of motivation to learn may include actions of teachers and parents, class climate, etc. All these factors affect, through the needs, the type of motivation that determines how much a student is engaged in the learning process. This engagement accounts for academic achievement, emotional responses, and the dynamics of self-consciousness. Correlations between social factors, needs, types of motivation, degree of engagement, and academic performance has been proved empirically in a number of studies (e. g. [Reeve, Kim, Jang, 2012]).

5. Applying the hierarchical self-determination theory to analyze motivation to learn among students of Russian universities

The narratives collected mention all the three types of motivation: intrinsic motivation, extrinsic motivation, and amotivation. Motives for learning that can be associated with extrinsic motivation were expressed more often than others. Their specific feature is that students engage in various types of learning activities due to external regulators (obtaining a reward and/or avoiding punishment), with no interest for learning as such. In other words, the learning process in this motivational structure is not intrinsically valuable and reasons for engagement are external to learning.

5.1. Extrinsic motivation

The self-determination theory classifies extrinsic motivation into four types: external, introjected, identified, and integrated. External motivation corresponds to the minimum level of autonomy, when students engage in learning activities due to external regulators. Rewards received through learning include, first of all, a diploma of higher education which is regarded as a prerequisite for a successful career. Thus, it's not the interest for learning that student motivation is based on but the desire to get oneself a high-paying and/or prestigious job afterwards. Higher education is perceived as a transitional phase here—inevitable though useless.

"Interviewer: Are you trying to study well?

Respondent: I realized when I finished school that it's not necessary. Of course, if I want an honors diploma, I will start working for it after the third year maybe. For now, the most important is to progress to the second semester, preferably to the second year, as I've heard dismissals are less frequent in the second year and later. Then, the goal will be to make it to graduation. Professional knowledge matters, naturally. <...> I only need a degree to get a job, that's it" (a male student of the technical university, 1st year, science, mathematics, engineering and technology).

External regulators sometimes take the form of student allowance as a material reward for showing a certain level of assiduity in learning. The external nature of such motivation is obvious.

"INTERVIEWER: Are you trying to study well or is it unimportant to you?
RESPONDENT: Of course I am, otherwise I'll lose my allowance. I do try but I don't bone up on everything, I'm too lazy for that sort of thing" (a female student of the classical university, 3rd year, social sciences and humanities).

A number of respondents explained their learning efforts by the desire to win recognition and approval of other people. Some of them said they were motivated to learn by the desire to make their parents happy, others aspired to recognition from their peers.

"INTERVIEWER: Are you trying to study well?
RESPONDENT: Yes.
I: Why?
R: Maybe I just wanna be better than anyone else.
<...>
I: Would you like your peers to know you're the smartest one?
R: Yes, probably" (a female student of the classical university, 5th year, science, mathematics, engineering and technology).

As judged by the interviews, externally motivated students are more tolerant to various forms of academic dishonesty (plagiarism, cheating, etc.) and more likely to adopt a learning strategy to get good grades with minimal effort and resources.

"INTERVIEWER: Have you ever done more than required to get a good grade in any course?
RESPONDENT: No. I believe laziness is the engine of progress and you shouldn't work your fingers to the bone, or you'll burn yourself out" (a female student of the classical university, 3rd year, social sciences and humanities).

The introjected subtype of extrinsic motivation corresponds to a higher level of individual's autonomy. The extrinsic regulator represented by some social norms gets internalized by the individual and starts being perceived as their own. For instance, one of the respondents justified his passion for learning by the desire "to become someone."

"INTERVIEWER: Where does your motivation to learn come from?
RESPONDENT: I wanna become someone in this life.
I: Do you consider education to be sort of a bridge?
R: Yes, a bridge to the next stage in life. Education is an essential element of human life. I have heard it since I was a kid, 'Study to become someone.' It's inculcated in childhood, when you begin to feel responsible for proving you are worth something" (a male student of the classical university, 3rd year, economic studies).

Another example of introjected extrinsic motivation is when students adopt a good-grade/study-well orientation inculcated to them at school. A number of respondents said grades were not an important external regulator to them but they were still trying to study well just because they had got used to it at school.

"INTERVIEWER: Are you trying to perform better?
RESPONDENT: Sure, I am. I'm trying to get to the bottom of what I don't understand and to correct all of my mistakes.
I: Where does this motivation come from?
R: I don't know, that's what I've been used to since high school" (a female student of the technical university, 2nd year, science, mathematics, engineering and technology).

The third subtype of extrinsic motivation is identified motivation. An individual engages in learning because they consider it useful for achieving a specific goal. Learning as such is of no interest to them. A classic example is mastering certain skills, knowledge, and competencies to apply them in one's future professional life.

"INTERVIEWER: Are you trying to study well?
RESPONDENT: Yes.
I: Why? Why do you need it?
R: First of all, I'll need most of this in my professional life, and also for myself. First aid and psychology. To behave correctly in different situations and to be able to work in the future" (a female student of the classical university, 3rd year, science, mathematics, engineering and technology).

This subtype of extrinsic motivation differs from the external one in that student not only seeks to get a "sheepskin" but also finds it important to learn some skills, knowledge, and competencies. Such

students usually engage more actively in the learning process compared to those who are externally motivated. A typical practice used by students with identified motivation is selective approach to distributing the efforts and resources they invest in learning: they tend to devote more time and effort to courses they consider more useful for their future occupation.

> "Look, if I'm a technical specialist, why would I get distracted by humanities courses? It's good for overall development but it's no use spending too much time on it" (a male student of the technical university, 3rd year, science, mathematics, engineering and technology).

The interviews revealed some examples of integrated motivation, which implies the maximum student autonomy compared to other types of extrinsic motivation. There are also some external regulators here but they match absolutely the interests and values of individuals. In fact, extrinsic and intrinsic motivations coexist peacefully in an individual's motivational structure. For instance, a student may dream of an honors diploma but learning as such will also be interesting and valuable to her/him.

"INTERVIEWER: Is it important for you to get excellent grades or rather to learn something and be sure you're a pro in this something?
RESPONDENT: Basically, I get 'A's.
I: Are 'A's your goal or just a side effect of your efforts to get the sense of everything?
R: It was my goal to obtain an honors diploma. And, of course, I think it's all related: if you want to get 'A's, you're probably interested in acquiring some skills and more" (a female student of the classical university, 3rd year, social sciences and humanities).

An honors diploma matters here not as just a "sheepskin" but as the reflection of student's skills and interests. This student didn't believe an honors diploma was a key signal for employers or could ensure a trouble-free professional career.

> "Honestly, I don't believe it (an honors diploma—N.M.) can help because it's all about having good friends in the right places today. If you have such good friends who can give you a job, you actually may have any diploma, even with 'C's. An honors one is just a dream" (a female student of the classical university, 3rd year, social sciences and humanities).

Such motivational structure provides for active engagement in the learning process at the behavioral level and for a high degree of concerns about success and failures at the emotional level. Students with

such motivation try to invest as much as they can in learning activities and often contribute more time and effort than required to get a good grade.

Intrinsic motivation and amotivation were much less frequent than extrinsic subtypes. Amotivation is an extreme on the self-determination scale, suggesting the lowest level of student intentionality and autonomy. In fact, amotivation means little or no motivation. An individual engages in something but cannot understand or explain why.

5.2. Amotivation

"INTERVIEWER: Why do you study at the university instead of doing something else? Why don't you work?
RESPONDENT: I don't know. That's what I did and now I have to graduate and only then get a job" (a female student of the classical university, 4th year, science, mathematics, engineering and technology).

The lack of motivation to learn may be a result of randomly chosen field of study. Thus, when the respondent with the most obvious signs of amotivation was asked how she had selected the university and the field of study, she replied, "I don't know, it's just what happened." The same answer was given to the question why she was trying to study well. Besides, external regulators like the importance of getting specific skills and competencies for a future job also lose their significance due to the uncertainty about the choice of future occupation.

"INTERVIEWER: Why are you trying to study? <...> Is that because you've realized you'll need it someday?
RESPONDENT: Not every one of us will work in our field of study when we graduate. Neither do I know what the future has in store for me. I just don't know, it's true" (a female student of the classical university, 4th year, science, mathematics, engineering and technology).

Intrinsic motivation is the opposite extreme on the self-determination scale which suggests the highest possible level of autonomy. Learning becomes intrinsically valuable unlike with extrinsic motivation where the reason for getting a higher education is external to the learning process. Students engage in learning activities because these activities are inherently interesting and/or enjoyable. External regulators stop playing a critical role here. Meanwhile, extrinsically motivated students would stop learning if they lost them.

5.3. Intrinsic motivation

"INTERVIEWER: Are you trying to study well?
RESPONDENT: Rather yes.
I: And why?
R: It's not that I need to get a good grade. It depends on my interests.

If I'm interested, I will learn it. Consequently, I'll improve my academic achievements and my level of education.
I: Does it mean you're not chasing grades, you just get interested sometimes?
R: No! It's often interesting. I've chosen the field I want to study in, so interest is above anything else" (a female student of the technical university, 3rd year, social sciences and humanities).

Intrinsic motivation is characterized by maximum engagement in the learning process and negative attitude towards academic dishonesty, like cheating, for example. Students with this type of motivation often apply much more effort to some tasks than is required to get a good grade. Such motivational structure is considered as the most preferable by the authors of the hierarchical self-determination theory. However, its stability may be jeopardized by negative impressions at the situational level. Particularly, interest for learning that motivates for active engagement in the learning process (contextual level) may die away because of some specific teaching format or personal teacher characteristics (situational level).

"When I studied management, I didn't like it and sluffed a lot. <...> We have a standard form of teaching when we just take dictation mindlessly. Seminars are held in different forms: basically, we either solve problems or have quizzes on what was delivered in the lecture—I don't like it" (a male student of the technical university, 3rd year, economic studies).

At the same time, there are contrary examples when a certain teacher sparked interest of respondents in studying specific subject (situational level) and this interest permeated the contextual level (higher education). Thus, the hierarchical model sheds light on the dynamics of two different types of motivation.

Discriminating between the three types of motivation may be productive in explaining some sorts of situations. In particular, a number of respondents explained their learning efforts by their specific psychological features.

"INTERVIEWER: Are you trying to study well?
RESPONDENT: I'm trying to deliver everything on time.
I: Just to have no overdue assignments, to get a degree, right?
R: Not to agonize afterwards. I'm a responsible person and I feel guilty when I am late with something. So, just to save my own nerves" (a female student of the technical university, 2nd year, science, mathematics, engineering and technology).

In terms of the applied theoretical model, this situation may be regarded as an illustration of how global motivational structure (per-

sonal level) extends to the contextual level (higher education). Being responsible in everything (global level), a student behaves correspondingly at university (contextual level) and in the context of specific subjects or courses (situational level).

6. Conclusion

We have discussed two approaches to research on student motivation in higher education, the achievement goal orientation theory and the hierarchical self-determination theory. They have become widespread in foreign studies, but Russian researchers use them too little, this usage being restricted to either purely theoretical or purely empirical research. One of our objectives was to introduce the theories in question into the existing Russian research practices in order to bring together different analysis levels and develop an integrated approach to research on university student motivation.

Specifics and advantages of the two theoretical approaches have been demonstrated through analysis of the bulk of data obtained in interviews with students of two regional universities of Russia. Both theories have a high heuristic potential and provide a comprehensive description of student motivation to learn. Besides, the theories are largely complementary as they focus on different aspects of student motivation. Thus, the achievement goal orientation theory studies the goals of student participation in learning activities, while the hierarchical self-determination theory investigates the reasons for engagement in the learning process.

The hierarchical self-determination theory appears to be more productive in explaining motivation to learn as it offers a more elaborated motivation typology and provides more differentiated explanations of the reasons for active engagement in learning activities. Besides, it presents a justified system explaining the sources of intrinsic motivation based on three basic needs: autonomy, competence, and relatedness. It is also essential to differentiate between four types of extrinsic motivation using the degree of frustration of the need in autonomy. Finally, the hierarchical self-determination theory is preferable as it helps explain the dynamics and genesis of different types of motivation by identifying three levels of generality: situational, contextual, and global.

The choice of a theoretical framework for research depends on the aspects of student motivation to be studied. For instance, the self-determination theory should be opted for to investigate the motives for learning, but goal orientations of students require the use of the achievement goal orientation theory.

References

1. Ames C. (1992) Classrooms: Goals, Structures, and Student Motivation. *Journal of Educational Psychology*, vol. 84, no 3, pp. 261–271.
2. Ames C., Archer J. (1988) Achievement Goals in the Classroom: Student's Learning Strategies and Motivation Process. *Journal of Educational Psychology*, vol. 80, no 3, pp. 260–267.

3. Anderman E. M., Griesinger T., Westerfield G. (1998) Motivation and Cheating During Early Adolescence. *Journal of Educational Psychology*, vol. 90, no 1, pp. 84–93.

4. Archer J. (1994) Achievement Goals as a Measure of Motivation in University Students. *Contemporary Educational Psychology*, vol. 19, no 4, pp. 430–446.

5. Bogoslovskaya O. (2006) Motivatsiya polucheniya vysshego obrazovaniya v kontekste vybora professii [Motivated Higher Education in the Context of Occupational Choice]. *Vysshee obrazovanie v Rossii*, no 5, pp. 44–47.

6. Brandão M., Teixeira A. (2005) *Crime without Punishment: An Update Review of the Determinants of Cheating among University Students*. FEP Working Papers No 191. Porto: Universidade do Porto. Available at: http://www.fep.up.pt/investigacao/workingpapers/05.10.14_WP191_brandaoteixeira.pdf (accessed 19 April 2015).

7. Bushway A., Nash W. R. (1977) School Cheating Behavior. *Review of Educational Research*, vol. 47, no 4, pp. 623–632.

8. Busato V. V., Prins F. J., Elshout J. J., Hamaker C. (2000) Intellectual Ability, Learning Style, Personality, Achievement Motivation and Academic Success of Psychology Students in Higher Education. *Personality and Individual Differences*, vol. 29, no 6, pp. 1057–1068.

9. Chirkov V., Ryan R. M., Kim Y., Kaplan U. (2003). Differentiating Autonomy from Individualism and Independence: A Self-Determination Theory Perspective on Internalization of Cultural Orientations and Well-Being. *Journal of Personality and Social Psychology*, vol. 84, no 1, pp. 97–110.

10. Covington M. V. (2000) Goal Theory, Motivation, and School Achievement: An Integrative Review. *Annual Review of Psychology*, vol. 51, pp. 171–200.

11. Davy J. A., Kincaid J. F., Smith K. J., Trawick M. A. (2007) An Examination of the Role of Attitudinal Characteristics and Motivation on the Cheating Behavior of Business Students. *Ethics & Behavior*, vol. 17, no 3, pp. 281–302.

12. Deci E., Ryan R. (1985) *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Plenum Press.

13. Deci E., Ryan R. (2002) *Handbook of Self-Determination Research*. Rochester: University of Rochester.

14. Deci E., Vallerand R. J., Pelletier L. G., Ryan R. (1991) Motivation and Education: The Self-Determination Perspective. *Educational Psychologist*, vol. 26, no 3, 4, pp. 325–346.

15. Dushko M. (2009) Vzaimosvyaz globalnykh, kontekstualnykh i situatsionnykh motivov izucheniya inostrannogo yazyka u studentov razlychnykh spetsialnostei [Interrelation between Global, Contextual and Situational Motives of Students of Various Specialities Studying a Foreign Language]. *Vestnik Adygeiskogo gosudarstvennogo universiteta, Series 3: Pedagogy and Psychology*, no 2, pp. 214–219.

16. Dweck C. (1986) Motivational Processes Affecting Learning. *American Psychologist*, vol. 41, no 10, pp. 1040–1048.

17. Elliott E. S., Dweck C. (1988) Goals: An Approach to Motivation and Achievement. *Journal of Personality and Social Psychology*, vol. 54, no 1, pp. 5–12.

18. Elliot A. J. (1999) Approach and Avoidance Motivation and Achievement Goals. *Educational Psychologist*, vol. 34, no 3, pp. 169–189.

19. Elliot A. J., Chirkov V. I., Kim Y., Sheldon K. M. (2001) A Cross-Cultural Analysis of Avoidance (Relative to Approach) Personal Goals. *Psychological Science*, vol. 12, no 6, pp. 505–510.

20. Elliot A. J., Harackiewicz J. M. (1996) Approach and Avoidance Achievement Goals and Intrinsic Motivation: A Mediational Analysis. *Journal of Personality and Social Psychology*, vol. 70, no 3, pp. 461–475.

21. Elliot A.J, Thrash T. M. (2001) Achievement Goals and the Hierarchical Model of Achievement Motivation. *Educational Psychology Review*, vol. 13, no 2, pp. 139–156.

22. Elliot A. J. (2005) *A Conceptual History of the Achievement Goal Construct. Handbook of Competence and Motivation* (eds A. Elliot, C. Dweck), New York: Guilford, pp. 52–72.

23. Epifanova S. (2000) Formirovanie uchebnoy motivatsii [Shaping Academic Motivation]. *Vysshee obrazovanie v Rossii*, no 3, pp. 106–107.

24. Fortier M. S., Vallerand R. J., Guay F. (1995) Academic Motivation and School Performance: Toward a Structural Model. *Contemporary Educational Psychology*, vol. 20, no 3, pp. 257–274.

25. Gordeeva T. (2005) Motivatsionnye factory, vliyayushchie na dostizheniya v utchebnoy deyatelnosti [Motivation Factors Affecting Educational Achievements]. *Psikhologiya v vuze*, no 4, pp. 3–27.

26. Gordeeva T. (2006) *Psikhologiya motivatsii dostizheniya* [Achievement Motivation Psychology]. Moscow: Smysl.

27. Gordeeva T. (2010) Teoriya samodeterminatsii: nastoyashchee i budushchee. Chast I: Problemy razvitiya teorii [Self-Determination Theory. Present and Future. Part I: Theory Development Challenges]. *Psikhologicheskie issledovaniya: online scientific journal*, vol. 4, no 12. Available at: http://psystudy.ru (accessed 19 April 2015).

28. Gordeeva T., Shepeleva E. (2011) Vnutrennyaya i vneshnyaya utchebnaya motivatsiya akademicheski uspeshnykh shkolnikov [Internal and External Academic Motivation of Academically Successful School Students]. *Vestnik Moskovskogo universiteta, Serie 14: Psychology*, no 3, pp. 33–45.

29. Gordeeva T., Osin E. (2012) Osobennosti motivatsii dostizheniya i utchebnoi motivatsii studentov, demonstriruyushchikh raznye tipy akademitcheskikh dostizheniy (EGE, pobedy v olimpiadakh, akademicheskaya uspevaemost [Special Aspects of Achievement Motivation and Academic Motivation of Students Demonstrating Various Types of Academic Achievements (CSE, Winning Academic Competitions, Academic Excellence)]. *Psikhologicheskie issledovaniya: online scientific journal*, vol. 5, no 24. Available at: http://psystudy.ru (accessed 19 April 2015).

30. Gordeeva T., Sychyov O., Osin E. (2013) Vnutrennyaya i vneshnyaya motivatsiya studentov: ikh istochniki i vliyanie na psikhologicheskoe blagopoluchie [Internal and External Motivation of Students: Sources and Effects on Psychological Wellbeing]. *Voprosy psikhologii*, no 1, pp. 1–11.

31. Gordeeva T., Sychyov O., Osin E. (2014) Oprosnik "shkaly akademicheskoy motivatsii" [Academic Motivation Scale Questionnaire]. *Psikhologicheskiy zhurnal*, vol. 35, no 4, pp. 96–107.

32. Graham S., Weiner B. (1996) *Theories and Principles of Motivation. Handbook of Educational Psychology* (eds D. C. Berliner, R. C. Calfee), New York: Macmillan, pp. 63–84.

33. Guay F., Mageau G. A., Vallerand R. J. (2003) On the Hierarchical Structure of Self-Determined Motivation: A Test of Top-Down, Bottom-Up, Reciprocal, and Horizontal Effects. *Personality and Social Psychology Bulletin*, vol. 29, no 8, pp. 992–1004.

34. Isachenkova L. (2010) Uchebnaya motivatsiya studentov geograficheskogo fakulteta MGU im. M. V. Lomonosova [Academic Motivation of Students Attending Geography Faculty of Lomonosov Moscow State University]. *Vestnik Moskovskogo universiteta. Series 20: Pedagogical Education*, no 2, pp. 37–49.

35. Kaplan A., Maehr M. L. (2007) The Contributions and Prospects of Goal Orientation Theory. *Educational Psychology Review*, vol. 19, no 2, pp. 141–184.

36. Kudrinskaya L., Kubarev V. (2012) Osobennosti uchebnoy motivatsii studentov tekhnicheskogo vuza [Special Aspects of Academic Motivation of Students Attending Engineering Higher Education Schools]. *Sotsiologicheskie issledovaniya*, no 3, pp. 145–150.

37. Lipatnikova O. (2011) Vzaimosvyaz reprezentativnoy sistemy, motivov uchebnoy deyatelnosti i uspevaemosti studentov [Interrelation between Representational System, Study Process Motives and Academic Standing of Students]. *Vestnik Moskovskogo universiteta. Series 20: Pedagogical Education*, no 1, pp. 62–70.

38. Midgley C., Kaplan A., Middleton M. et al. (1998) The Development and Validation of Scales Assessing Students' Achievement Goal Orientations. *Contemporary Educational Psychology*, vol. 23, no 2, pp. 113–131.

39. Murdock T. B., Anderman E. M. (2006) Motivational Perspectives on Student Cheating: Toward an Integrated Model of Academic Dishonesty. *Educational Psychologist*, vol. 41, no 3, pp. 129–145.

40. Patrick H., Anderman L. H., Ryan A. M. (2002) Social Motivation and the Classroom Social Environment. *Goals, Goal Structures, and Patterns of Adaptive Learning* (ed. C. Midgley), Mahwah, New Jersey: Erlbaum, pp. 85–108.

41. Reeve J., Kim E. J., Jang H. (2012) Longitudinal Test of Self-Determination Theory's Motivation Mediation Model in a Naturally Occurring Classroom Context. *Journal of Educational Psychology*, vol. 104, no 4, pp. 1175–1188.

42. Rogov M. (1998) Motivatsiya uchebnoy i kommercheskoy deyatelnosti studentov [Motivation of Students' Academic and Commercial Activities]. *Vysshee obrazovanie v Rossii*, no 4, pp. 90–96.

43. Rochev K. (2014) Tipologicheskiy analiz motivatsii studentov [Typological Analysis of Students' Motivation]. *Vysshee obrazovanie v Rossii*, no 2, pp. 113–118.

44. Ryan R. M., Chirkov V. I., Little T. D., Sheldon K. M., Timoshina E., Deci E. L. (1999) The American Dream in Russia: Extrinsic Aspirations and Well-Being in Two Cultures. *Personality and Social Psychology Bulletin*, vol. 25, no 12, pp. 1509–1524.

45. Sivak E. (2006) *Prestuplenie v auditorii. Determinanty nechestnogo povedeniya studentov (plagiata i spisyvaniya)* [Wrongdoing in the Classroom. Students' Foul Play Determiners (Plagiary and Copying)]. Working paper WP10/2006/06. Moscow: HSE.

46. Urdan T. C., Maehr M. L. (1995) Beyond a Two-Goal Theory of Motivation and Achievement: A Case for Social Goals. *Review of Educational Research*, vol. 65, no 3, pp. 213–243.

47. Vallerand R. J. (1997) Toward a Hierarchical Model of Intrinsic and Extrinsic Motivation. *Advances in Experimental Social Psychology*, vol. 29, pp. 271–360.

48. Vishtak O. (2003) Motivatsionnye predpochteniya abiturientov i studentov [Motivational Preferences of Entrants and Students]. *Sotsiologicheskie issledovaniya*, no 2, pp. 135–138.

49. Whitsel D. (1954) What Price Grades? *Peabody Journal of Education*, vol. 31, no 6, pp. 347–348.

50. Wolters C. A. (2004) Advancing Achievement Goal Theory: Using Goal Structures and Goal Orientations to Predict Students' Motivation, Cognition, and Achievement. *Journal of Educational Psychology*, vol. 96, no 2, pp. 236–250.

51. Zimmerman B. J., Bandura A., Martinez-Pons M. (1992) Self-Motivation for Academic Attainment: The Role of Self-Efficacy Beliefs and Personal Goal Setting. *American Educational Research Journal*, vol. 29, no 3, pp. 663–676.