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Domain-Specific Context of Students´ Self-Regulated Learning in the Preparation of Helping Professions

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Abstract

The current research on self-regulated learning has stressed the important role of cognitive and non-cognitive components in achieving academic success. However, there has not been a clear consensus on whether these components are context-specific, or rather generalisable across subject domains and disciplines. Using a subject research design, the present study assessed differences in students´ self-regulated learning process (motivational beliefs and metacognitive process) among university students in the designated field (social work) and the methodological area (social research) in the university preparation of helping professions. The analysis suggested that the more positive students´ motivational beliefs are, particularly *the perceived utility* of a subject and *goal motivation* (with the exception of the *perceived difficulty* of a subject) in students, the deeper their metacognitive process becomes. If a student perceives a subject as difficult, it does not need to be a key factor/barrier in self-regulating their subject acquisition. The analyses further suggested a tendency in students to be relatively inconsistent in the metacognitive components across domains, especially in *regulation*, *intention* and *attention*. Students displayed a higher degree of *goal orientation* in the subject of social work which they perceived as more useful. Despite the above fact, a deeper level of metacognitive control was achieved in the subject of social research. We thus concluded that the level of both SRL components is higher in higher performers than lower performers. However, we did not record a significant interaction effect between the subject area and academic performance, i.e. the influence of academic performance on SRL components does not depend on a domain-specific context.

Keywords: Self-regulated learning; Domain specific differences; Metacognitive and motivational components; University students; Helping professions

Self-regulated learning (SRL) is a complex phenomenon and a multifaceted construct discussed by educational psychologist, practising educators, and educational researchers alike. However, there has not been a simple and an unequivocal definition of this construct due to its variables and functions, which have become the centre of numerous research studies on cognition, problem solving, decision making, metacognition, conceptual change, motivation or volition (Boekaerts, Corno, 2005). Researchers have agreed that students´ capacity to direct their learning process is indispensable in achieving success in school and beyond.

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Zimmerman (1998) defined academic self-regulated learning as "*not a mental ability such as intelligence, or academic skills, such as reading proficiency; rather, it is a self-directive process through which learners transform their mental abilities into academic skills*".

Studies on self-regulated learning do not focus solely on cognitive aspects of learning. They also take into account motivational, metacognitive, affective and social-behavioral factors which provide a more detailed picture of the SRL concept (Zimmerman, 2002, 2005). This process is a personal one with both behavioural and environmental effects. External environment can be of a positive role (dynamic aspect of SRL) in students´ self-regulated learning development. Teacher´s teaching methods may affect the student's awareness of his/her own thinking and learning processes. Environment can also play a negative role in the development of self-regulated learning. Vermunt and Verloop (1999) described possibilities of an interplay between a student-regulation and a teacher-regulation. The level of students´ self-regulation can differ (from high to low) and teacher´s control/regulation of learning may vary (strong, share or loose). In case that student´s learning strategies and teacher´s teaching strategies are not compatible, friction occurs. Destructive friction occurs if student's level of self-regulation of learning is high or medium-high and at the same time teacher´s regulation of learning is strong. The same friction occurs when the level of student´s self-regulation is low and the teacher's regulation of learning is loose. University education allows greater freedom in setting motivational goals, teaching strategies and learning regulation on one hand, but it may not provide sufficient time for face-to-face teaching, discussion, frequent opportunity for self-assessment and self-reflection and it thus fails to provide "powerful learning environment" that can adapt to students´ individual needs (their level of self-regulated learning). There have been findings (Neumann, Parry, Becher, 2002) which indicate that certain teaching methods are associated with a specific type of a subject area, e.g. applied hard sciences may reflect strong regulation of learning on the teacher´s part.

School environment is diverse and learning takes place on the background of various activities and tasks. Such activities may be self-initiated, however, far more common in schools are activities that are teacher-initiated. Personal goals play a key role in motivational learning processes. Internal and external influences/incentives can be classified (from the point of view of the self-determination theory) on a continuum, according to the extent to which motivation is self-determined or internalised within the student (Ryan, Deci, 2000). In an ideal situation, teacher´s and student´s goals are identical. Boekaerts (1998) points out that personal goals serve as powerful energizers of behaviour rather than "ought" goals, driven by wishes and expectations of others. Many teachers do not realise that school is a place where students are being faced with multiple goals (personal and "ought") and it may be difficult to decide which goals to pursue and which ones to put on hold, especially as some of them may be in direct conflict. Pintrich, Garcia (1991) found that students who are motivated intrinsically are more likely to be metacognitive, use various strategies and regulate their resources.

Boekaerts (1997; Boekaerts, Niemivirta, 2005) assumes that an important role in regulating learning is played by two key priorities, which the students have to consider. Either they may prefer to achieve growth goals (e.g. deepen their understanding) or emotional well-being goals (so called "ego" goals). Ego-oriented students tackle tasks with intention to demonstrate their success and performance or to avoid failure. The aforementioned parallel processes change the direction of action fundamentally. In the first case, the student is energised by motivation such as personal interest, values or expected satisfaction, and we talk about a "top down self-regulation". If the process of self-regulation is induced by cues from the environment, it is a "bottom-up self-regulation".

Goal/motivational orientation (purposes for performing a certain task) is another significant motivational precondition in the process of self-regulated learning. Self-efficacy (judgements of one´s own competence to perform a task), task value (beliefs about importance, difficulty, utility, relevance of the task), test anxiety (worry about test performance) or causal attribution (individual interpretation of causes of behaviour) are some of the key variables (Pintrich, 2005). Self-regulated learning research studies show that students with higher levels of self-efficacy are more likely to engage in activities, persist when encountering difficulties and use effective learning strategies (Schunk, Ertmer, 2005). Attribution tendencies of students also contribute to the process of regulating their own learning (Schunk, Zimmerman, 2008). If the student is able to interpret the causes of their success and failure correctly, he/she can regulate their own learning process in a more efficient way. Vermeer, Boekaerts and Seegers (2001) also found that student's ability to maintain learning intentions and persist in learning in the face of difficulty, depends on their awareness and access to volitional strategies. Low motivation control can be compensated by volitional control (the ability to initiate, persist and disengage from a task). The self-regulated process requires the student to be willing to see various aspects of self (Boekaerts, 1999). High degree of self-

regulation development is characterised by the fact that the student can monitor himself/herself and is willing to make certain corrections and adjustments in the learning process based on the results of introspection (Vávrova, 2010).

To date, numerous SRL approaches incorporate three general components into models of students´ academic learning – apart from motivational beliefs, we also distinguish cognitive and metacognitive regulation. Metacognition is seen as knowledge about and regulation of one´s cognitive activities in the learning process and represents an indispensable component of the process of self-regulated learning (Veenman, Van Hout-Wolter, Afflerbach, 2006). For this reason several research studies focus on the question of why students who lack metacognitive knowledge and skills are not able to direct their own learning process. Successful students are able to transfer knowledge of their cognitive process to new situations, modify and extend such knowledge and strategies along the way. The process incorporates a use of metacognitive skills, such as planning, monitoring, evaluating or correcting. In this context Shapiro, Schwartz (2005) offer a systemic model based on an intention to mindfulness, which refers to a broad self-regulatory scope. The model in question focuses on regulation of behaviour (achieving optimal health). In our study the model was applied to the context of learning regulation. We believe that the metacognitive process, in accordance with the dynamic systemic process, incorporates several phases - intention, attention, connection, regulation and order. Zimmerman (1995) claims that the process of metacognition involves, among other things, putting self-beliefs into effect. We hence tackle the issue of metacognitive components of self-regulated learning (see measuring the level of metacognition) in this way.

Numerous research studies on self-regulated learning claim that SRL is highly related to the quality of learning, performance, positive academic outcomes (Corno, 1986; Dweck, 1986; Zimmerman, 1989; Zimmerman and Martinez-Pons, 1990) and expertise (Zimmerman, 2006). Hwang and Vrongistinos (2002) found out that high achieving in-service teacher students were more likely to use various SRL strategies, such as intrinsic goals, task value, self-efficacy, elaboration, metacognition, and regulatory process, than low achievers.

There is no clear consensus on whether these components are context-specific or rather generalisable across subject domains and disciplines. In other words, if motivational beliefs, cognitive and metacognitive process of self-regulation are dependent on learning context or are transferable across domains, can we perceive them as permanent dispositions of the learner? Let us bear in mind that there are different views of the contextual nature of self-regulated learning.

The first view claims that SRL is highly dependent on learning context in which it takes place and it is assumed that if the students are able to regulate their learning process in one subject, their self-regulating efforts can fail in another subject completely. This has been confirmed by several studies focused mainly on students' motivational beliefs (Bong, 2004; Pintrich, 2004; Schunk, 1991). Self-efficacy and task-value are highly sensitive to the function of domain. Also, the use of cognitive strategies may, to some extent, depend on the nature of the learning task and environment. Stodolsky (1988) proved that mathematics tasks were more sequential and often cognitively less engaging than social open-ended and diverse tasks. The nature of the subject or the task can hence significantly affect the use of self-regulatory strategies.

A different point of view assumes that students who are aware of and are able to control their own learning process (learning strategies and motivational beliefs) are able to overcome contextual differences. This means that the student is able to apply his metacognitive experience, for example in mathematics as well as in English. Such notion of SRL postulates, that the use of self-regulatory strategies is consistent across all school subjects (Sternberg, 1988; Zimmerman and Martinez-Pons, 1990).

There is also a viewpoint of contextual determinacy of SRL which assumes that there are certain general features of SRL. These are relatively stable and do not vary across subject domain and at the same time it can be assumed that some components of SRL may vary depending on the subject area. For example, students can experience different levels of task value (e.g. in mathematics and English language) but in spite of this, they can adjust their learning strategies (due to their effective metacognitive process) to their own goals.

Research studies in recent years did not confirm the hypothesis that SRL is context dependent (Wolters, Pintrich, 1998; Rotgans, Schmidt, 2009; Virtanen, Nevgi, 2011), as had been previously assumed.

Aims of the study

We have therefore aimed at explaining how self-regulated learning processes of students of helping professions differ across domain specific context. Firstly, we investigated how components of self-regulated learning in students are related. In examining the motivation, we took into account not only *the goal orientation* of students (in the continuum from motivation through external motivation, introjected, identified to internal motivation) but also *perceived self-efficacy* of the student, the *perceived difficulty* of the subject*, the perceived value* of the subject and the perceived *utility* of the subject from the perspective of the student. The metacognitive component was based on a factor analysis divided into four sub-dimensions - *intention, attention, regulation* and *order.*

Our main objective was to determine significant differences in the students´ level of motivation and metacognitive process of self-regulated learning for the subject areas of social work and social research. We assumed that the students would report greater levels of motivation in their main subject rather than in social research, which to students in helping professions may seem more detached from their study field. We have also been questioned whether the process of self-regulated learning in students differs according to their academic performance. Higher performers were expected to achieve a higher level of motivation and of metacognitive process of self-regulated learning than lower performers. The final research question was, whether there are performance differences in the self-regulated learning components that are connected to subject area? Based on current studies it was believed that the influence of the academic performance on the level of the metacognitive process will be similar across both subject areas examined.

Method

286 university students of a third year of full-time bachelor programme and a first year of full-time master's programme in humanities in Zlín region who specialise in helping professions (namely social pedagogy) comprised the research sample. The majority of respondents were female (n = 269, 94%), males (n = 17, 6%) were represented sporadically (reflecting the overriding interest of women to work/study in the helping professions). Therefore we did not deal with gender differences on the level of individual components of self-regulated learning. The average age was 22.13 years (SD = 1.46). Students completed a self-report questionnaire in the subject of social work and the same self-report questionnaire in the subject of social research. Social work is very closely related to their field of study, while social research may pose major difficulties to students of humanities, caused by a completely different nature of the subject which requires a different mindset. Humanities are generally referred to as "soft disciplines", while social research can be seen as a part of the bordering "hard disciplines." The subject was also deliberately chosen because of the fact that in previous years it amounted to certain problems for students and became a reason of their study failure. Each subject was taught by a different teacher.

A*cademic performance.* Students´ performance in individual subjects was assessed through their final evaluation at the end of the summer semester of 2011. The evaluation was conducted according to the system of ECTS labels - A (5), B (4), C (3), D (2), E (1), F (0). Students who scored A and B were identified as *higher performers* (n = 88, 31%), students who scored C and D as *average performers* (n = 87, 30%) and students who scored E and worse were marked as *lower performers* (n = 111, 39%).

The questionnaire used in this study was divided into two components – motivational beliefs and metacognitive process. It does not mean that we have neglected the third important component of self-regulation – use of cognitive strategies. Our assumption was that the metacognitive process is not possible without self-regulation and knowledge of cognitive processes.

Motivation. In determining the *goal orientation* of students we drew mainly from the self-determination theory and also from studies of Valleranda (1997) and Vandergrift (2005). *Goal orientation* was measured through a 23 item questionnaire. Students selected any items with different goal orientations to answer why they study for the selected subject. Each item represented a value of *goal orientation* on a continuum from amotivation (1), external regulation (2), through introjected regulation (3), identified regulation (4) to internal motivation (5). The values of items that students selected were then averaged. The higher the value of *goal orientation* (5) was, the greater level of intrinsic motivation it represented and the lower the value of *goal orientation* (1) was, the more external motivation in the student it represented.

In addition to *goal orientation,* the students were interviewed (in separate items) about their perceived *self-efficacy ("How would you assess your current level in this subject?"),* their *perceived difficulty* of the subject *("How would you assess the complexity of this subject?")*, the *perceived value* of the subject *("How important is it for you*

to understand the subject?") and *perceived utility* of the subject *("How do you think you will use the knowledge and skills gained in this subject in your future?")*. Students answered on a scale from 1 to 10. A higher value indicated a position of the most/the best, and a lower value stood for the least/the worst.

Metacognitive process. To measure the metacognitive processes of self-regulated learning in students we used a 30 item self-report questionnaire.The scales of the questionnaire comprised five-point Likert type statements, ranging from (1) least accurate to (7) most accurate. Responses to negatively stated items (n = 7) were reversed so that the highest score for all items was an indicative of a positive rating. Items were developed based on MSLQ (Pintrich et al., 1993), MAI (Schraw, Dennison, 1994) and SRSI-SR (Cleary, 2006). To determine dimensionality an exploratory factor analysis was used. Based on the Scree test, a 4-factor solution was designed. Four extracted factors explained 47.5% variance. When determining validity and reliability of the assessment scales of metacognitive components of self-regulated learning in students, the factor analysis selected as the strongest factor (1) *Intention*, *Attention* (2), *Regulation* (3) and *Order* (4). Cronbach´s alpha for all items reached the value of 0.854. *Intention* was represented by nine items and expressed the inner driving force of humans, the ability to continually work on ourselves, to improve in learning and have our learning process under control (e.g. *"If I don´t fulfill the task as I intended to, I try to catch up", "If I come across something that I cannot do quite well, I always seek ways to improve")*. This is primarily an off-line process that takes place before or after the actual activity and involves primarily volitional processes of learning. *Attention* containes 7 items concerning the degree of control of study (failure) and expresses helplessness in the process of student self-regulation of learning (e.g. *"I do not know how to study to understand the subject", "Home preparation for this subject causes significant troubles to me"*). *Regulation* (10 items) represents the implementation (on-line) component of learning, which is the result of a prudent metacognitive process (e.g. *"I give a lot of thinking to the preparation for this subject at home", "In this course I have set my own goals", "I look for opportunities to practice the course curriculum", "I often test myself to make sure that I understand the subject")*. *Order* contains 4 items that reflect the student's ability to cope with all learning situations, while manifesting student´s faith in himself, shows student´s power over learning and an ability to control the conditions (internal and external) for learning (e.g. "*I know exactly what to do to master the subject", "I know exactly who could help me if I did not understand something")*.

Analysis

The consistency of the sum scales of the questionnaire was examined by calculating Cronbach´s alpha coefficients. In addition, the confirmatory factor analysis was used in order to find the factor structure of the metacognitive scales. The inter-correlations among the sub-scales of questionnaires were analised by the Pearson´s correlation coefficient analysis. Analyses of variance (ANOVAs along with post-hoc tests) and T-tests were applied to explore the differences in the students´ level of motivational beliefs and metacognitive process of self-regulated learning for the subject areas and academic performance. A two-way between groups ANOVAs were used to check for the main effects for a subject area by academic performance interaction. To determine between which groups the differences are significant, we used post-hoc tests. When processing data, we used the statistical software IBM SPSS Statistics 19.0.

Results

Relationships between SRL components

Table 1 presents the correlations among motivational and metacognitive components of self-regulated learning. Perceived *self-efficacy* of the students was strongly and positively related to *order* and *regulation*. The students who perceived themselves as competent, also manifested a greater level of metacognitive process. The students perceived the subject as important, if they took into account its future utility. It turned out that for the metacognitive process *goal orientation* of the students and *perceived utility* of subject in practice are crucial. The analysis showed that the higher the values of the motivational components are (with the exception of the *perceived difficulty* of course), the higher the student's control of his learning is, i.e. the student demonstrates a higher degree of *intention, attention* and *regulation*. It seems that if a student perceives a subject as difficult, it may not be a key factor in managing/regulating his learning in the subject. *Order* situation differs though. *Perceived difficulty* and *value* of the subject is unrelated to whether the student "knows how" and can organise the conditions for learning (*order*). The strongest correlation was observed between *intention* and *regulation*, but also between *intention* and *order.* On the

contrary, it turned out that *attention* with *intention* and *regulation* are quite unrelated. Whether a student pays attention or does not pay attention to the regulation of his learning is unrelated to his metacognitive experience.

Table 1. The Pearson correlation

Sub-scales	1	2	3	4	5	6	7	8	9
1. Self-efficacy	—								
2. Perceived difficulty	,079	—							
3. Perceived value	,191**	,089	—						
4. Perceived utility	,201**	,028	,542**	—					
5. Goal orientation	,146*	-,065	,401**	,423**	—				
6. Intention	,144*	,030	,309**	,173**	,354**	—			
7. Attention	,189**	-,272**	,166**	,296**	,330**	,019	—		
8. Regulation	,249**	,194**	,247**	,218**	,292**	,667**	-,075	—	
9. Order	,309**	-,035	,112	,176**	,180**	,426**	,237**	,319**	—

*Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed);

Subject area differences in SRL components

The analysis results showed that differences in individual subject components of self-regulate learning are evident especially in the metacognitive area, i.e. *intention* ($p < .001$), *regulation* ($p = .003$) and *attention* ($p < .001$), but also in *goal orientation* ($p = .01$) and perceived subject *utility* ($p < .001$). Although the students were significantly more motivated to the subject of social work and perceived this subject as more useful than social research, the level of their *regulation* and *intention* was significantly lower in this subject. In the subject of social research, students focused significantly less on controlling their learning than in their main subject of social work. By being aware of some difficulties in the subject they can stimulate a more conscious regulation process of their learning, even though their source of motivation is not intrinsic. It comes across as surprising that social research (like social work) was perceived as highly important, but the students perceived social work as a significantly more useful subject.

Academic performance differences in SRL components

It has already been proven by previous studies (Hrbáčková, 2010) that academically successful students achieve a higher degree of self-regulated learning. The study in hand offers the same conclusion. Academically successful students achieved significantly higher values in the individual components of self-regulated learning than students who were academically less successful ($p <.001$) with the exception of the perceived *difficulty* of the course ($p = .906$). The students perceived subjects as relatively difficult regardless of their academic success. In a more detailed analysis of the differences in academic performance, it was found that the level of SRL components varies in different subjects. In social work no differences between higher, average and lower performance were significant in motivation of students, i.e. *self-efficacy* ($p = .392$), *perceived difficulty* of the course ($p = .579$), the *perceived value* of the subject ($p = .346$) nor in *perceived utility* ($p = .246$). In social research, the differences between higher and lower performers could be seen in all areas. These findings led us to believe that significant differences in SRL components between subjects may be caused by varying levels of academic performance. We therefore launched a further analysis, which involved a test on interaction of these variables.

Subject area-by-academic performance interaction

Final mean scores for particular subjects, as well as for higher, average and lower performers separately in SRL component are presented in *Table 2*.

Self-efficacy. Self-efficacy of students remained resistant in both subjects, but varied between performance groups ($p <.001$) only in the subject of social research. The interaction effect between subject area and academic performance was not statistically significant, $F(2, 280) = 2,673$, $p = .071$.

Perceived difficulty. Students´ evaluations of subject difficulty did not differ in particular performance groups and also remained similar for the two subjects. Students rated the subjects of social research and social work as relatively difficult subjects. As in *self-efficacy* the subject area-by-academic performance interaction did not reach significance, F(2, 280) = 0,297, p = .743.

Perceived value. Results for students´ *perceived value* indicated a main effect of academic achievement. Regardless the subjects, the higher performers perceived the value more positively than average performers and lower performers. The main effect of the interaction between academic performance and subject area was not significant, F(2, 280) = 1,504, p = .224.

Perceived utility. It was found that usefulness of the subject of social work and social research is perceived differently by the students. Greater utility was seen in the subject of social work. Similarly, different performance groups rated utility of the two subjects differently. Higher performers perceived greater utility than average and lower performers. Significant differences between the performance groups were observed only in the subject of social research. Differences in *perceived utility* of subjects by different performance groups were not significant, F (2, 280) = 0.227, p = .797.

Goal orientation. Results for students´ *goal orientation* indicated a major effect of subject area (p < .001), and of academic performance (p = .001), as well as interaction between a subject area and academic performance, F(2, 280) = 3,213, p = .042. The degree of motivation was higher in students in the subject of social work. Higher performers were motivated for social work more than lower performers. In social research, the differences in *goal orientation* among all performance groups were apparent. The higher the level of academic performance, the higher motivation of the student for the subject of social research.

Intention. For students´ level of *intention* a main effect of a subject area and a main effect of academic performance was detected. But unlike *goal orientation* the differences in academic performance were not caused by subjects, F(2, 280) = 0,368, p = .693. Higher level of empowerment was displayed by the students of social research. In both subjects higher performers achieved higher levels of *intention* than average performers and they scored higher levels than lower performers.

Attention. The measure examining *attention* indicated an effect of subject area and academic performance. Lower performers reported less *attention* than higher performers. In the subject of social research, students paid significantly less attention on control of their learning than in their main subject of social work. However the relationship between subject areas was similar for higher, average and lower performers, F(2, 280) = 0,026, p = .974.

Regulation. Similar results were collected for the area of *regulation* but with the difference in a higher level of regulation observed in the subject of social research. Academic performance played a role in the level of *regulation*, where higher performers achieved higher levels than average performers and average performers achieved a significantly higher level than lower performers. Even in this case we did not detect significant results for interaction effect, F(2, 280) = 0,450, p = .638.

Order. The level of *order* was similar in both subjects. Although it differed significantly among all performance groups, the following rule was observed - the higher academic performance, the higher the rate of *order*. The interaction effect between subject area and academic performance was not statistically significant, F(2, 280) = 0,198, p = .820.

Table 2. Descriptive statistics for the motivational and metacognitive components of SRL in social work and social research for total sample and academic performance.

		Performance							
		high performers		average		low performers		Total	
	Discipline	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Self-efficacy	Social research	5,95	1,75	5,49	1,52	4,76	1,75	5,36	1,76
(1-10)	Social work	4,44	,88	5,32	1,49	4,90	2,02	5,00	1,65
Perceived difficulty	Social research	6,90	1,65	6,89	1,95	6,91	1,99	6,90	1,86
(1-10)	Social work	6,11	,78	6,36	1,33	6,70	1,84	6,45	1,47

Perceived value	Social research	8,30	1,65	7,14	1,92	6,92	2,13	7,45	2,01
(1-10)	Social work	7,44	1,42	7,68	1,84	6,90	1,74	7,33	1,74
Perceived utility	Social research	7,18	2,04	5,80	2,17	5,36	2,35	6,09	2,33
(1-10)	Social work	8,56	1,42	7,50	1,63	7,35	2,16	7,63	1,84
Goal orientation	Social research	3,08	,44	2,68	,52	2,54	,51	2,76	,54
(1-5)	Social work	3,11	,35	3,17	,48	2,70	,47	2,98	,50
Intention	Social research	4,71	,69	3,78	,69	3,01	,85	3,80	1,05
(1-7)	Social work	3,90	,75	3,25	,86	2,36	,83	3,02	1,00
Attention	Social research	5,12	,96	4,27	1,14	4,02	1,12	4,46	1,17
(1-7)	Social work	6,10	,37	5,34	1,03	5,09	,94	5,38	,97
Regulation	Social research	3,95	,90	3,11	,74	2,49	,72	3,15	1,00
(1-7)	Social work	3,50	,72	2,93	,59	2,10	,69	2,70	,83
Order	Social research	4,83	,93	4,17	,90	3,57	1,07	4,16	1,11
(1-7)	Social work	4,92	1,11	4,34	1,06	3,53	1,00	4,12	1,15

Summary

The results of our analysis showed that the perceived subject *utility* and *goal orientation* correlated significantly with the metacognitive component of self-regulation. On the other hand *perceived difficulty* of the subject did not correlate with students´ ability to regulate their own learning process, nor with any other component of motivation (with the *utility* of the subject, its perceived *value* or with student´s motivation). Students´ *self-efficacy* significantly correlated with the *perceived utility* and *value* of the subject. The higher the *self-efficacy*, the greater the level of metacognition. The strongest correlation pattern has been observed between *intention* and *regulation* and between *intention* and *order*. Students who displayed the *intention* to regulate one´s own learning, also carried out the self-*regulation* while being able to arrange the learning conditions (both internal and external).

Students´ *self-efficacy* levels of students were similar in both subject of social research and social work. However, it varied according to performance groups. In social research, the differences amongst performance groups were more pronounced, while in social work they were not significant. Nevertheless, the performance groups did not vary significantly in the level of *self-efficacy* in individual subjects. The *perceived difficulty* was consistent in both subjects, and also amongst performance groups. Students consistently rated both subjects as fairly difficult. Social research was perceived by students as a really valueable subject, despite its difficulty, and yet significantly less useful than social work. The degree of *perceived value*, however, was similar in both subjects. Regardless of the subject, significant differences in were recorded in perceiving *value* of the subjects in relation to academic performance. More successful students tend to perceive subjects more positively than less successful students. The differences were rather more pronounced in social research. Overall, we have not seen significant results for interaction effect. The profile subject of social work was perceived significantly more useful than social research, which is understandable. Differences in *perceived utility* were apparent in various performance groups. Higher performers perceived the subjects as more useful than lower performers. Such difference was significant in the subject of social research. In general, differences between the subjects in different performance groups were similar. The same could not apply to *goal orientation*. The degree of motivation was higher among students in the subject of social work. Higher performers were significantly more motivated to social work, as well as to social research, than the lower performers. Here we also observed differences in mean scores between the two subjects in relation to performance groups. The discrepancy was caused by a performance group of average performers who were more motivated to the subject of social work rather than to social research. In examining the discipline differences on the level of *intention*, we found that students show greater *intention* to regulate their learning in the subject of social research. We also found that this *intention* was higher in high performers than in average performers and higher in

average performers than in lower performers, in both social work and also in social research. The ability to pay *attention* to regulation of learning was higher in the subject of social work than in social research and performance differences amongst groups were also significant. Lower performers often failed to pay *attention* to the regulation of their learning compared to those who demonstrated the best performance. Such interaction tendencies were similar in both subjects. Discipline differences were also observed on the level of *regulation*. Students regulated their learning in the subject of social research significantly more. Nevertheless, the values were relatively low in metacognitive *regulation*. With higher performance in the subject, student´s *regulation* in social research and social work increased as well. Lower achievers admitted that their *regulation* in the subject of social work oscillates around the average value of 2.1 (out of 7). Although the values of all previous metacognitive variables differed across different domain context, the variable *order* remained the same for both subjects. Whether the students were able to adjust their learning conditions (internal and external) was conditioned by their academic performance. Once again, higher performers were able to adapt to conditions better than average performers and average performers better than lower performers. These tendencies were similar in both subjects, i.e. the interaction effect between the subject area and academic performance did not reach significance.

Should we summarise the results for individual components of self-regulated learning, we come to a conclusion that the more positive motivational beliefs are, particularly *the perceived utility* of a subject and *goal motivation* (with the exception of the *perceived difficulty* of a subject) in students, the deeper their metacognitive process becomes. If a student perceives a subject as difficult, it does not need to be a key factor/barrier in self-regulating their acquisition of the subject. The analyses further discovered a tendency in students to be relatively inconsistent in the metacognitive components across domains, especially in *regulation*, *intention* and *attention*. Students displayed a higher degree of *goal orientation* in the subject of social work which they perceived as more useful. Despite the above stated, a deeper level of metacognitive control was achieved in the subject of social research. Similarly to findings from other studies (Corno, 1986; Dweck, 1986; Zimmerman, 1989; Zimmerman and Martinez-Pons, 1990; Hwang and Vrongistinos, 2002), we found that the level of self-regulated learning varies depending on academic performance. High performing students achieved a higher degree of self-regulated learning than lower performers. Students perceived *utility* of the subject across domain differently. They were more motivated to their main/profile subject while they achieved a higher degree of metacognition (*intention* and *regulation*) in the subject of social research. We did not, however, record a significant interaction effect, i.e. that the influence of academic performance on SRL components (motivational beliefs and metacognitive process) does not depend on a domain-specific context (with the exception of the *goal orientation*).

References

Boekaerts, M. (1999). Self-regulated learning: where we are today. *International Journal of Educational Research*, 31, 445-457.

Boekaerts, M. (1998). Boosting students´ capacity to promote their own learning: A goal theory perspective. *Research Dialogue*, 1 (1), 13-22.

Boekaerts, M. (1997). Self-regulated learning: A new concept embraced by researchers, policy makers, educators, teachers, and students. *Learning and Instruction*, 7 (2), 171-186.

Boekaerts, M., Corno, L. (2005). Self-regulation in the classroom: A perspective on assessment and intervention. *Applied Psychology: An International Review*, 54 (2), 199-231.

Boekaerts, M., Niemivirta, M. (2005). Self-regulated learning: Finding a balance a learning goals and ego-protective goals. In M. Boekaerts, P. R. Pintrich, M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 417-450). San Diego: Academic Press.

Bong, M. (2004). Academic motivation in self-efficacy, task value, achievement, goal orientations, and attributional beliefs. *Journal of Educational Research*, 97 (6), 287-297.

Clearly, T. J. (2006). The development and validition of the self-regulation strategy inventory – self-report. *Journal of School Psychology*, 44, 307-322.

Corno, L. (1986). The metacognitive control components of self-reegulated learning. *Contemporary Educational Psychology*, 11, 333-346.

Dweck, C. (1986) Motivational processes affecting learning. *American Psychologist*, 41, 1040-1048.

Hrbáčková, K. et al. (2010). *Cognitive and noncognitive determinants of the self-regulated learning development.* Brno: Paido.

Hwang, Y. S., Vrongistonos, K. (2002). Elementary in-service teachers´self-regulated learning strategies related to their academic achievements. *Journal of Instructional Psychology*, 29 (3), 147-154.

Neumann, R., Parry, S., Becher, T. (2002). Teaching and learning in their disciplinary contexts: A conceptual analysis. *Studies in Higher Education*, 27, 405-417.

Pintrich, P. R. (2005). The role of goal orientation in self-regulated learning. In M. Boekaerts, P. R. Pintrich, M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 452-502). San Diego: Academic Press.

Pintrich, P. R. (2004). A conceptual framework for assessing motivation and self-regulated learning in college students. *Educational Psychology Review*, 16 (4), 385-407.

Pintrich, P. R., Garcia, T. (1991). Student goal orientation and self-regulation in the college classroom. In M.L. Maehr, & P.R. Pintrich (Eds.), *Advances in motivation and achievement: Goals and self-regulatory processes*, (pp. 371-402). Greenwich: JAI Press.

Pintrich, P. R., Smith D. A. F., Garcia T., McKeachie W. J. (1993). Reliability and predictive validity of the motivated strategies for learning questionnaire (MSLQ), *Educational and Psychological Measurement,* 53, 801-803.

Rotgans, J., Schmidt, H. (2009). Examination of the context-specific nature of self-regulated learning. *Educational Studies*, 35 (3), 239-253.

Ryan, R. M., Deci, E. L. (2000) Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78.

Shapiro, S. L., Schwartz, G. E. (2005). The role of intention in self-regulation: Toward intentional systemic mindfulness. In M. Boekaerts, P. R. Pintrich, M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 253-273). San Diego: Academic Press.

Schraw, G., and Dennison, R. S. (1994) Assessing metacognitive awareness. *Contemporary Educational Psychology,* 19*,* 460-475.

Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational Psychologist*, 26 (3), 207-231.

Vandergrift, L. (2005). Relationships among Motivation Orientations, Metacognitive Awareness and Proficiency in L2 Listening. *Applied Linguistics*, 26 (1), 70-89.

Schunk, D. H., Ertmer, P. A. (2005). Self-regulation and academic learning: Self-efficacy enhancing interventions. In M. Boekaerts, P. R. Pintrich, M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 631-649). San Diego: Academic Press.

Schunk, D. H. Zimmerman, B. J. (2008). *Motivation and self-regulated learning: Theory, research, and applications*. New York: Routledge.

Sternberg, R. J. (1988). *The triarchic mind: A new theory of human intelligence*. New York: Viking.

Stodolsky, S. S. (1988). *The subject matters: Classroom activity in math and social studies*. Chicago: University of Chicago Press.

Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. *Advances in Experimental Social Psychology*, 29, 271-360.

Vávrová, S. (2010) Motivation and self-restraint as a basis of self-regulation: Self-regulation through Peck´s conception. In K. Hrbáčková et al. *Cognitive and noncognitive determinants of the self-regulated learning development*. Brno: Paido.

Veenman, M. V. J., Van Hout-Wolters, B. H. A. M, Afflerbach, P. (2006). Metacognition and learning: conceptual and methodological considertations. *Metacognition Learning*, 1, 3-14.

Vermeer, H., Boekaerts, M., and Seegers, G. (2001) Motivational and gender differences: Sixth-grade students´ mathematical problem solving behavior. *Journal of Educational Psychology*, 92 (2), 308-315.

Virtanen, P., Nevgi, A. (2010). Disciplinary and gender differences among higher education students in self-regulated learning strategies. *Educational Psychology*, 30 (3), 323-347.

Vermunt, J. D., Verloop, N. (1999) Congruence and friction between learning and teaching. *Learning and Instruction*, 9, 257-280.

Wolters, Ch. A., Pintrich, P. R. (1998). Contextual differences in student motivation and self-regulated leanring in mathematics, English, and social studies classrooms. *Instructional Science*, 26, 27-47.

Zimmerman, B. J. (2006). Developmental and adaptation of expertise: the role of self-regulatory process and beliefs. In K. A. Ericsson (Ed); N. Charness (Ed); P. J. Feltovich (Ed); R. R. Hoffman (Ed). *The Cambridge handbook of expertise and expert performance*, (pp. 705-722). New York, NY, US: Cambridge University Press.

Zimmerman, B. J. (2005). Attaining Self-Regulation: A Social Cognitive Perspective. In M. Boekaerts, P. R. Pintrich, M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13-39). San Diego: Academic Press.

Zimmerman, B. J. (2002). Becoming a self-regulated learner: an overview. *Theory into practice* , 41 (2), 64-70.

Zimmerman, B. J. (1998). Developing self-fulfilling cycles of academic regulation: An analysis of exemplary instructional models. In D. Schunk & B. Zimmerman (Eds.), *Self-regulated learning: From teaching to self-reflective practice* (pp. 1-19). New York: The Guilford Press.

Zimmerman, B. J., Martinez-Pons, M. (1990). Student differences in self-regulated learning: Relating grade, sex, and giftedness to self-efficacy and strategy use. *Journal of Educational Psychology*, 82 (1), 51-59.

Zimmerman, B. J. (1995) Self-regulation involves more than metacognition: A social cognitive perspective. *Educational Psychologist*, 30 (4), 217-221.

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