



How do self-regulation and self-efficacy beliefs associate with law students' experiences of teaching and learning?

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ABSTRACT

Self-regulation and self-efficacy beliefs are essential factors for university students' performance and academic success. Surprisingly, little is known about how these aspects are related to students' experiences of the teaching-learning environment. This study examines the relationship between self-regulation, self-efficacy beliefs, experiences of the teaching and learning among master's level law students (n=103) at a new course of legal methodologies (3 ECTS). Three different student groups with remarkable differences in self-regulation were detected. The groups differed in terms of their experiences of the teaching and learning environment, such as the relevance of this master's level course, as well as their descriptions of learning outcomes. Self-regulated students saw the teaching-learning environment in a mostly positive way, and they were able to elaborate their learning outcomes. However, there were no connections between the groups and self-efficacy beliefs. This study suggests that students' self-regulation should be taken into account when considering student-centred learning and teaching in higher education. Once there is an awareness of differences between students, pedagogical practices can be modified to suit the needs of those students who may or may not already have a more developed ability to regulate their learning processes.

Keywords

self-regulation, teaching-learning environment, self-efficacy beliefs, learning outcomes, higher education, law

SAMMENDRAG

Selvregulering (self-regulation) og oppfatninger om egen mestringsevne (self-efficacy) anses som viktige faktorer når vi skal forklare studenters læring og prestasjoner i høyere utdanning. Det vi midlertid vet overraskende lite om er hvordan studentenes selvregulering og mestringsopplevelse utarter seg i forhold til hvordan de opplever sine undervisnings og næringsomgivelser. Fokuset i denne artikkelen er å analysere hvordan dette forholdet mellom selvregulering, opplevd mestringsevne og læringsomgivelser utspiller seg for jus-studenter på et masterkurs (n=103) i en finsk utdanningskontekst. Analysen i studien viser at det utkrystalliserer seg tre ulike studentgruppering med til dels svært ulike selvreguleringstrekk og oppfatninger om egen mestringsevne, og hvordan de beskriver sitt læringsutbytte. Funnene tyder her på at selvregulerte studenter gjennomgående oppfatter sine læringsomgivelser på en positiv måte, og at de i disse omgivelsene så seg i stand til å videreutvikle sitt læringsutbytte. Konklusjonen vi trekker fra studien er at denne innsikten i hvordan studenter opplever muligheten til selvregulering i et læringsmiljø kan gi oss verdifull informasjon om hvordan vi kan utvikle og tilrettelegge læringsomgivelser for ulike studentgrupper ut fra deres spesifikke forutsetninger og behov.

Nøkkelord

selvregulering, læringsomgivelser, opplevd mestringsevne, læringsutbytte, høyere utdanning, jusstudier

INTRODUCTION

Self-regulation refers to processes that allow students to monitor their thinking, motivation, emotions and performance in order to adapt their learning processes according to the demands of teaching and learning environments (Pintrich, 2004). Self-efficacy beliefs imply students' trust in succeeding in their studies. Both self-regulation of learning and self-efficacy beliefs play a significant role in student learning and study success (Zimmerman, 2002; Haarala-Muhonen, Ruohoniemi & Lindblom-Ylänne, 2011b). Previous research shows that self-regulation and self-efficacy beliefs are positively related to each other: strong self-efficacy beliefs contribute students' motivation, the goals they set, regulation of learning, as well as their engagement and performance (e.g., Zimmerman, 2002; Räisänen, Postareff, & Lindblom-Ylänne, 2016). There is also evidence that an ability to regulate learning, together with strong self-efficacy beliefs, improves motivation and increases interest even for content and tasks that are not motivating in themselves (Zimmerman, 2002). Despite the extensive research relating to the associations between self-regulation and self-efficacy beliefs, there has been surprisingly little research on how these aspects are related to students' experiences of teaching and learning.

The present study focuses on master's level law students' self-regulation, self-efficacy beliefs, experiences of the teaching and learning environment, and their descriptions of learning outcomes in a new course in legal methodologies. The course provides the opportunities for students to monitor and regulate their learning processes in student-driven manner. We set out to analyse whether different self-regulation groups can be detected among the students, and whether these student groups differ in terms of their experiences of teaching and learning, beliefs in accomplishing the course, and descriptions regarding their learning outcomes. This allows us to better understand processes of regulation of learning and the elements of the teaching and learning environment that support students' learning processes.

Teaching and learning environment matters

The teaching and learning environment can be conceptualised as a social, psychological and pedagogical context in which learning occurs and which supports student achievement and engagement (Fraser, 1998; Entwistle, McCune, Hounsell, 2002). In this study, we are interested in the following social and pedagogical elements of the teaching-learning environment (henceforth TLE) at a specific master's level law course: *constructive alignment, support provided by teachers and peers, and elements evoking interest and relevance*. These elements have been found most likely to support students' engagement and facilitate deep learning (Entwistle et al., 2002; Parpala, Lindblom-Ylänne, Komulainen, Litmanen, & Hirsto, 2010). In addition, every university teacher can address these aspects of TLE in their teaching.

The term constructive alignment refers to a learning environment where teaching and learning activities, and assessment tasks, are aligned to the intended learning outcomes of a subject (Biggs, 2003). The aim of constructive alignment is to encourage students to engage in learning activities in order to gain the desired understanding and skills (Biggs, 2003). Besides constructive alignment, previous research has found that support and feedback provided by peers and a teacher have a positive impact on the quality of students' learning outcomes (Entwistle et al., 2002) and self-regulation (Nicol & Macfarlane-Dick, 2006). Further, positive experiences of feedback and support from teachers and other students promote interest development (Hidi & Renninger, 2006). It has been noted that TLE that evokes interest leads to high quality learning outcomes (Mikkonen, Heikkilä, Ruohoniemi, & Lindblom-Ylänne, 2009), as well as increases students' self-efficacy beliefs and supports students' self-regulation skills (Mikkonen, Ruohoniemi, & Lindblom-Ylänne, 2013).

In Finland, most of the courses at the Faculty of Law are currently mainly based on large class lectures. Traditional large class lectures are seen as quite content-driven in nature i.e. teaching is considered more or less as passive knowledge transmission from the teachers to the students, (see more Postareff, Lindblom-Ylänne, & Nevgi, 2008) and they do not necessarily activate students to construct their own understanding of subject matter (Bligh, 2000). Previous research has identified that Finnish law students experience their teaching and learning environment generally more negatively than students in other disciplines (Parpala et al., 2010). There is also evidence that law students often experience a lack of support and feedback from teachers (Haarala-Muhonen, Ruohoniemi, Katajavuori, & Lindblom-Ylänne, 2011a).

The relationship between self-regulation, self-efficacy beliefs and teaching-learning environment

In the research literature on university teaching and learning, *self-regulation* is conceptualised as an intentional and adaptive process in which students plan, monitor and evaluate their cognition, behaviour, motivation and emotions in order to achieve the set goals and enhance their learning processes (Zimmerman & Schunk, 2012). Self-regulation is not a personality trait (Zimmerman, 2002). That is to say, we can both learn it and teach it. We know from previous research on regulation of learning that university students with good self-regulation skills are able to control and regulate their learning processes according to

the demands of TLE (Lindblom-Ylänne & Lonka, 2000). It follows that they can make learning environment more suitable for themselves and minimise distractions (Pintrich 2000; 2004; Vermunt & Verloop, 1999). More recently, some studies have suggested that students' positive perceptions of TLE are positively related to their ability to organise their learning and manage their effort and time, which are also seen as essential elements of self-regulation (e.g., Ruohoniemi, Parpala, Lindblom-Ylänne, & Katajavuori, 2010; Rytönen, Parpala, Lindblom-Ylänne, Virtanen, & Postareff, 2012).

In the literature on student learning in higher education, the concept of self-efficacy beliefs is defined as students' beliefs and ability to accomplish learning tasks, including expectancy for success (Pintrich, 2000; Pintrich, Smith, Garcia, & McKeachie, 1993). Research shows that *self-efficacy beliefs* are related to self-regulation of learning (Heikkilä, Lonka, Nieminen, & Niemivirta, 2012; Zimmerman & Schunk, 2012) in such a way that higher education students who are able to regulate their learning also most often have strong confidence to perform learning tasks. Self-efficacy beliefs play an especially important role in situations when students face difficult tasks because they increase students' effort and persistence (van Dinther, Dochy, & Segers, 2011). Recent research on higher education has noted that there is individual variation in students' and graduates' self-efficacy beliefs (see Räisänen, Postareff, & Lindblom-Ylänne, 2018; Tuononen, Parpala, & Lindblom-Ylänne, 2017).

Despite increasing body of literature on self-regulation and self-efficacy beliefs, empirical analyses focusing on how these aspects are related to students' experiences of teaching and learning have been scarce. Nevertheless, on the bases of previous research on student learning in higher education, we may hypothesise that students with problems in self-regulation report lower self-efficacy beliefs and their experiences of TLE are more negative, whereas students with good self-regulation skills report higher self-efficacy beliefs and their experiences of TLE are more positive.

Aims of the study

The present study aims to gain better understanding regarding students' self-regulation of learning, self-efficacy beliefs, experiences of teaching and learning among master's level law students in the context of a new legal methodology course. The association between these aspects have been examined using a mixed-method approach. More precisely, we have posed the following research questions:

1. How are self-regulation, self-efficacy beliefs and experiences of TLE related to each other among master's level law students?
2. What kind of groups of self-regulation can be detected among the students?
3. How do these groups differ in terms of self-efficacy beliefs, experiences of TLE and descriptions of learning outcomes?

The course orients students to understand legal methodology and reasoning. These skills, especially legal reasoning, are one of the main required competencies for legal professionals (Mertz, 2007; Bager-Elsborgh, 2017; Wallace, 2017; cf. Van de Wiel, Van den Bossche, Janssen, & Jossberger, 2011). However, this is the first legal methodology course for the stu-

dents during their study path. Therefore, we expect that this large class lecture course requires from students an ability to self-regulate their learning processes, i.e. during the course students need to monitor their learning, manage their effort and time, interpret and understand the new domain-specific content knowledge and utilise that knowledge in their learning.

MATERIAL AND METHODS

Context of the study

Finnish university law studies

The study was conducted at a large research-intensive university in Finland. Students in the Faculty of Law are selected through discipline-specific entrance examinations. Each year, approximately 10% of applicants are admitted to the faculty. The target duration of degree of law is five years (180 + 120 ECTS). At the bachelor's level of law studies, most of the courses are compulsory. However, at the master's level, the curriculum allows students to make choices according to their preferences. The learning environment of the law programme has been generally experienced as very demanding because studying for a degree is mainly based on independent work, and in some courses the examinations are extensive.

Course context

This study focused on a nine-week legal methodology course (3 ECTS; 1 ECTS equals 27 hours of work) offered to students for the first time. The compulsory course is designed for master's level law students. The course aims to deepen master's students' understanding of legal methodology and reasoning and enhance their legal writing and reasoning skills (see Hyytinen & Haarala-Muhonen, 2018). The course was designed for students who are starting to write their master's thesis. The course consists of two different parts. The first part included nine compulsory large class lectures. The second part of the course was essay writing (see Figure 1). The first part of the course included two main kinds of lectures: first, four traditional content-driven lectures with main teachers, and second, five slightly more practical lectures with invited guests, who represented different traditions of legal methodologies. All lectures aimed to give an introduction to different principles of legal methodologies and conducting legal research, and provided background information to essay writing and independent learning. The content of the lectures mostly comprised factual and theoretical knowledge relating to the topic. Guest lecturers also addressed practical issues relating to the topic.

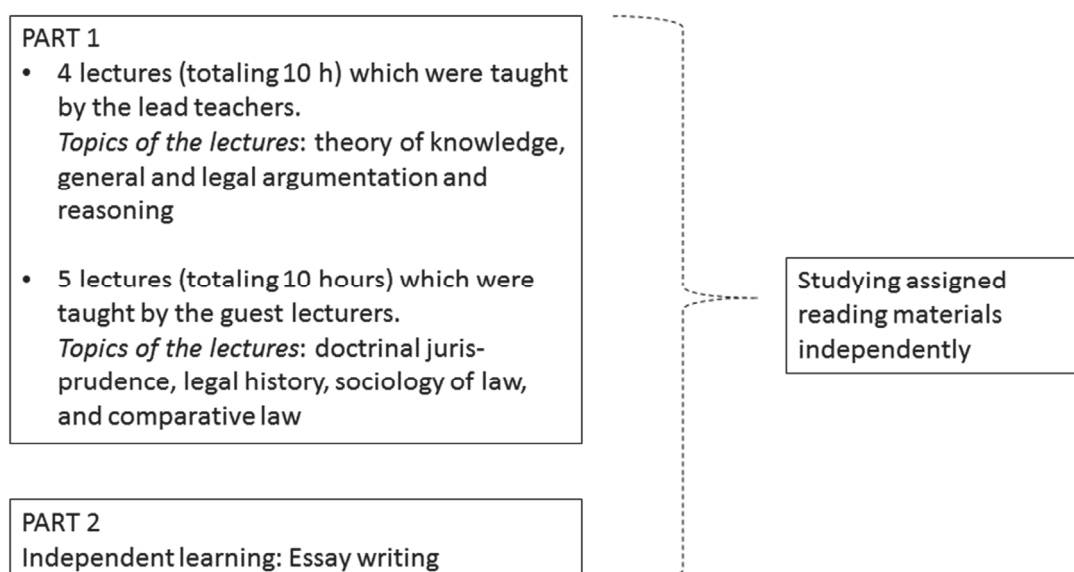


Figure 1. Structure of the course in methodologies in law

After the nine large-class lectures, students were expected to write their essays independently. Students were informed in the assignment that the written text needed to be critical and analytical. However, students did not get any further support or guidance on essay writing from teachers. The assessment of essays focused on mastery of the taught perspectives. The lead teachers assessed the essays and provided general feedback for the students. The grading scale of the course followed the six-level grading scale from 0 to 5. The course grade was based on the essay. The teachers organised the course in such a way that peer support, such as active learning together with fellow students, was not utilised.

Participants

The total number of students who completed the course was 243. Of these 243 students, 103 participated in this study on a voluntary basis. All students had completed a bachelor's degree in law. However, this group of students were heterogeneous in terms of which year they had started their studies in the Faculty of Law ($M=2012$; the range from 2004 to 2016). At the master's level studies, there is no pre-scheduled timetable. Students have the right to choose and complete the courses during the academic year at their own pace. Thus, participants do not represent the same cohort. The mean age of the participants was 27.8 years (min/max: 22/54 years). Most respondents were female ($n=71$), with fewer male students ($n=32$).

Measures and data collection

The students completed a questionnaire regarding their perceptions of their self-regulation, experiences of TLE and self-efficacy beliefs at the end of the course. Self-regulation, i.e. students' ability to regulate their own learning, was measured using a seven-item scale,

which was modified from the Inventory of Learning Styles (ILS, Vermunt, 1994). Self-efficacy beliefs were measured by using a modified Finnish version of the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich et al., 1993). Students' experiences of the TLE were measured by using four subscales from HowULearn questionnaire (Parpala & Lindblom-Ylänne, 2012), namely constructive alignment, constructive feedback provided by teacher, peer-support, and interest and relevance. Likert-scale ranging from 1 (=totally disagree) to 5 (=totally agree) was used for rating all the items. The questionnaire also included an open-ended question in which students were asked to describe what they learned during the course. All personal information was removed before the analysis phase and the participants' anonymity was ensured by using ID numbers as identifiers.

Analyses

The analysis of this study combined quantitative and qualitative analysis. Firstly, exploratory factor analysis was conducted to explore the factor structure of the scales that were used in the inventory. Fourteen items measuring TLE, seven items measuring self-regulation of learning and five items measuring self-efficacy were separately subjected to an exploratory factor analysis (principal axis factoring with promax rotation). The items and factor loadings for each item are presented in Appendix 1. Explorative analysis of the items measuring self-regulation revealed that a one-factor solution was the clearest. This concurs with previous studies (e.g., Donche & Van Petegem, 2009). Cronbach's alpha for the self-regulation scale was .77, meaning that the internal reliability of the self-regulation scale was good. Analysis of the items measuring students' experiences of TLE revealed that three items (01, 02, 13) cross-loaded and they had very low communalities or no sizeable loadings. These three items were thus removed from the final analysis. For the TLE, the exploratory factor analysis yielded a four-factor solution, which is in line with previous studies (e.g., Herrmann et al., 2016). The reliability of all these scales was above .60, which can be considered to be acceptable. The relationship between students' experiences of TLE, self-regulative strategies and self-efficacy beliefs was examined using Pearson's correlation and multiple regression analysis. The last phase of the quantitative analysis focused on analysing the differences in experiences of TLE and self-efficacy beliefs within the three student groups scoring below, average, or above the mean of the self-regulation scores (for a more detailed description of creating the groups, see next section) by using ANOVA with the Bonferroni's post-hoc test.

The second stage of analysis was qualitative analysis. The qualitative data derived from students' open-ended answers of their learning outcomes were analysed by inductive strategy and combined with self-regulation groups. Coding concentrated on the following aspects: (1) students' experienced learning outcomes and (2) characteristic features of the descriptions of learning outcomes. These different aspects were systematically coded within each written answer. Next, the two first authors grouped codes into categories and then finally to the types of answers. Then, the categories and types of answers were refined, labelled and crosschecked in relation to the entire data set. The occurrence of the categories through the data set was also examined. After that, the similarities and differences within and between the student groups were examined. The final interpretation was discussed with all three authors until full agreement was reached.

FINDINGS

Law students' self-regulation of learning, experiences of TLE, self-efficacy beliefs and their relationships

Table 1 provides summaries about the sample. Law students scored low especially on self-regulation and constructive feedback, whereas the scores of self-efficacy beliefs were high. Table 2 illustrates the relationship between scales measuring self-regulation, experiences of TLE and self-efficacy beliefs. All the scales describing students' experiences of TLE correlated positively with each other. In addition, the scale describing students' self-regulation correlated positively with all scales measuring experiences of TLE. All these correlations were statistically significant. The correlational analysis showed that the scale measuring self-efficacy beliefs did not correlate with the scales measuring experiences of TLE and self-regulation.

Table 1. Descriptive statistics of self-regulation, experiences of TLE and self-efficacy beliefs (Scale 1-5; N=103)

	Minimum	Maximum	Mean	SD
Self-regulation	1.00	4.00	2.35	0.71
Interest and relevance	1.00	5.00	2.77	0.86
Peer support	1.00	5.00	3.07	0.85
Constructive feedback	1.00	4.33	2.54	0.78
Alignment	1.00	5.00	2.84	0.93
Self-efficacy beliefs	2.00	5.00	4.09	0.66

Table 2. Correlations between self-regulative strategies, experiences of TLE and self-efficacy beliefs (N=103)

	1.	2.	3.	4.	5.	6.
1. Self-regulation	1					
2. Interest and relevance	.571**	1				
3. Peer support	.272**	.360**	1			
4. Feedback	.369**	.497**	.324**	1		
5. Alignment	.208*	.440**	.384**	.553**	1	
5. Self-efficacy beliefs	.059	.044	.057	.027	.093	1

** $p < 0.01$, * $p < 0.05$, statistically significant correlations shown in bold

It was found that students' experiences of interest and relevance explained a significant amount of experiences of self-regulation ($F[4, 84] = 12.541$, $p < .0005$, with R^2 of .374). Interest and relevance added statistically significantly to the prediction, $p < .0005$. Thus, the regression analyses confirmed that students' experiences of TLE have a positive relationship with self-regulative strategies.

The results illustrate that, at the group level, students' self-regulation was relatively low, peer support was emphasised the most of all the aspects of TLE, and most students shared high self-efficacy beliefs. Students who reported good self-regulation skills experienced the aspects of TLE more positively than students who reported lower levels in self-regulation.

Three groups of self-regulation of learning

The students were divided into three groups based on their self-regulation scores. We used the mean (2.35) and standard deviation (0.71) of the self-regulation to create the groups. The group with average scores consists of students ($n=45$) scoring half of the standard deviation (0.36) above or below the average (2.35 ± 0.36). With this procedure, the lowest self-regulation score in this group is 1.99 and the highest 2.71. The group with the lowest self-regulation scores consists of students ($n=30$) scoring below 1.99, while the group with the highest scores includes students ($n=25$) scoring above 2.71. The group with the highest scores was labelled as *Self-regulated students*, the group with the lowest scores as *Students with self-regulation problems*, and group with average scores as *Students with average self-regulation*. To conclude, at the individual level, there was a large variation in the law students' self-regulation and experiences of TLE.

Differences in the experiences of TLE and self-efficacy beliefs among the self-regulation groups
The results showed differences in experiences of TLE among the groups. *Self-regulated students* scored the highest of all the groups on all scales measuring experiences of TLE compared to the *Students with self-regulation problems* and *Students with average self-regulation groups*. However, the Bonferroni post hoc test showed that only the mean scores on interest and relevance ($M = 3.47$, $SD = 0.73$; $F[2,99] = 17.91$ $p=0.000$) and constructive feedback ($M=2.92$, $SD=0.77$; $F[2,94]=6.46$ $p=0.002$) were significantly higher than the other two groups (see Table 3). In addition, the analysis indicated that there were no significant differences in self-efficacy beliefs among the self-regulation groups.

Table 3. Differences between self-regulation groups according to their experiences of TLE and self-efficacy beliefs

		Students with self-regulation problems (n=30) self-regulation range 1-1.86 M= 1.53		Students with average self-regulation (n=45) self-regulation range 2-2.71 M= 2.31		Self-regulated students(n=28) self-regulation range 2.86-4.0 M= 3.26	
Variable	Difference between groups	M	SD	M	SD	M	SD
Interest and relevance	$F[2,99] = 17.91$ $p=0.000$	2.32	.80	2.65	.71	3.47	.73
Peer Support	$F[2,96]=2.09$ $p=0.123$	2.92	.97	2.99	.78	3.35	.78
Constructive feedback	$F[2,94]=6.46$ $p=0.002$	2.22	.68	2.52	.75	2.92	.77
Alignment	$F[2,99]=1.58$ $p=0.211$	2.67	.93	2.80	.77	3.09	1.14
Self-efficacy beliefs	$F[2,99]=.49$ $p=0.615$	4.14	.76	4.02	.44	4.16	.72

As could be expected on the basis of the correlations and regression analysis, the self-regulated students perceived all the aspects of TLE most positive compared to the other groups of students, especially interest and relevance and constructive feedback provided by the teacher. All students reported high self-efficacy beliefs; therefore no differences among the groups were found.

Qualitative differences in the descriptions of learning outcomes among the self-regulation groups. The qualitative analysis of students' open-ended answers about their learning outcomes revealed that nearly three-quarters of the students (n=76) reported that they learned *research methods* during the course. Furthermore, *doing research* (n=19) and *argumentation* (n=17) were often emphasised in the students' answers. In addition, some students mentioned that they learned *literature and criticism of sources* (n=8), *scientific writing* (n=6), *jurisprudence* (n=5), *scientific thinking* (n=2) and *comparative law* (n=2). These reported learning outcomes were consistent with the intended learning outcomes displayed in the course outline. There were no differences in the terms of experienced learning outcomes among the self-regulation groups (see Table 4).

Next, the characteristic features of the descriptions of learning outcomes were examined. Four types of answers were found: (1) mentioning no explicit learning outcomes, (2) naming learning outcomes, (3) describing learning outcomes and (4) elaborating the meaning of the learning outcomes (see Table 4). These four types of answers characterise how students described and elaborated the learning outcomes.

The first type of answer was labelled 'mentioning no explicit learning outcomes', and it contained answers in which students described their learning in a general way, but they did not explicitly provide any learning outcomes. Many of these students stated that they did not learn any new or useful knowledge or skills during the course that they could utilise later in thesis writing, as the following extract illustrates: "*Something from here and there, but nothing that I can use in master's thesis writing*" (Student 89). One-fifth of the *Students with self-regulation problems* group provided this kind of answer. Correspondingly, in the other two self-regulation groups, only a small number of students reported no explicit learning outcomes in their answers.

'Naming learning outcomes' refers to a situation in which students listed at least one learning outcome in their written answers without describing the content or reflecting the meaning of the outcome. This type of answer was most typical in the *Students with self-regulation problems* group. However, analyses showed that most students in the other two self-regulation groups also described their learning outcomes in their written answers simply by naming the particular learning outcome, such as "*Methods of some disciplines. A little bit general argumentation and criticism of sources*" (Student 8).

The third type of answers consisted of descriptions that aimed at shortly describing the subject they learned. These kinds of answers were typical for the *Students with average self-regulation* and *Self-regulated students*. The following extract describes a typical response:

At the course I learned about different methods and what the meaning of methods in argumentation is. I especially remember the pluralism of methods. Certain branches of jurisdiction have their own typical methods, however it is possible to use these methods in different ways (Student 53)

The fourth type of answer ‘elaborating the meaning of the learning outcomes’ refers to situations in which students described the content of learning outcomes and reflected on their meaning (i.e. how they would use it later in their studies, working or everyday life). These kinds of answers were very rare among *Students with self-regulation problems* and *Students with average self-regulation*. On the contrary, one-quarter of *Self-regulated students* explained their learning outcomes and elaborated how they would use them later in their studies, work or everyday life, as the next extract shows:

The course helped me to understand how important choosing the method is for the research process and for results as well. I also understood better how important critical thinking and argumentation is. The argumentation methods, which were taught in the later face-to-face sessions, were not only useful for research but also for everyday life. (Student 54)

Three students did not answer the open-ended question. Two of them belonged to *the Problems with self-regulation* group and one to the *Average self-regulation* group. In sum, as Table 4 illustrates, the majority of the self-regulated students and the students with average self-regulation did not just name the learning outcomes, they also described and elaborated the meaning of the learning outcomes.

Table 4. Frequency of the learning outcomes and the types of answers within the self-regulation groups.

		Problems with self-regulation (n=30)	Students with average self-regulation (n=45)	Self-regulated students (n=28)
		Frequency	Frequency	Frequency
Learning outcomes	Research methods	19	32	25
	Doing research	6	7	6
	Argumentation	4	6	7
	Literature and criticism of sources	3	3	2
	Scientific writing	2	3	1
	Jurisprudence	1	2	2
	Scientific thinking	1	1	0
	Comparative law	2	0	0
Types of answers	Mentioning no explicit learning outcomes	5	5	1
	Naming learning outcomes	18	18	11
	Describing learning outcomes	5	18	9
	Elaborating the meaning of the learning outcomes	0	3	7

DISCUSSION AND CONCLUSIONS

Findings in the light of the previous literature

As we expected, students who reported problems in self-regulation experienced the aspects of TLE more negatively than students with good self-regulation skills in this new course in legal methodologies. The results further showed that the law students reported considerably varying abilities to regulate their own learning. The results suggest that the self-regulated students saw the content of the course as the most relevant and interesting, whereas the students who reported few or major problems with self-regulation did not see the relevance of what they were taught during the course. The self-regulated students were also most satisfied with feedback they received about their learning. Taken together, our findings seem to be consistent with other research that has found that the positive experiences of the learning environment are positively related to students' ability to organise their learning and manage their effort and time (Ruohoniemi et al., 2010; Rytönen et al., 2012).

This study provides new evidence on how master's level law students differ from each other in self-regulation of learning by exploring different student groups and how students with different self-regulation skills differ in terms of their experiences of the teaching and learning environment and their descriptions of learning outcomes. We detected three different student groups with different reported self-regulation skills. The results show that the groups differ especially in terms of the experiences of feedback and the relevance of the course. One possibility for the negative experiences of learning environment in the *Students' with self-regulation problems* group is that there might have been destructive friction between the students and the learning environment (cf. Lindblom & Lonka, 2000). The course required good self-regulation skills from students because external support from the teachers was limited. We know from previous research that destructive friction occurs when the learning environment does not provide support if the student has problems in self-regulation (Vermunt & Verloop, 1999). This may explain why students with problems in self-regulation may have negative experiences of the teaching and learning environment. It is also possible that students with low self-regulation have difficulty in seeing the demands of the course. It has also been shown that students who have problems in organising and monitoring their learning are the most unaware of the expectations and demands of their studies, and they suffer the most from the workload and pressure of progressing in their studies (e.g., Ruohoniemi et al., 2010). Previous research also shows that students who illustrated well-developed individual interest seemed to be the most self-regulated compared to students who did not show individual interest (Mikkonen et al., 2013).

The results of this study stress that self-regulated students do not only share the most positive experiences of the TLE, they also elaborate most often their learning outcomes, especially how they can transfer the knowledge and skills they have acquired to new environments and situations. A similar finding is also demonstrated in the earlier study by Tuononen, Parpala and Lindblom-Ylänne (2017), who found that students who are able to describe and evaluate their own competencies also report good metacognitive skills. It follows that students who have better self-regulation and metacognitive strategies are able to reflect and evaluate their learning and competencies better than students with limited strategies. It was alarming that many students experienced problems in self-regulation because they were master's level students. It is to be expected that self-regulation skills

should develop during university studies because these skills are essential in the work of academic experts (Van de Wiel et al., 2011).

The results indicated that the students highlighted peer support as an important element of TLE, although this was not taken into account in the course outline by teachers. At the same time, they scored low on constructive feedback provided by the teacher. It thus seems that limited feedback provided by the teacher may encourage students to independently organise (i.e. outside of formal teaching) peer support activities in order to enhance their studies.

The present study contributes to current research on self-regulation and self-efficacy beliefs by revealing that students with strong self-efficacy beliefs may have problems in self-regulation. That said, strong self-efficacy beliefs do not alone facilitate students' learning processes. Understanding the regulation of learning is important from the perspective of improving quality in higher education. Contrary to the results of recent studies on student learning in higher education (e.g., Räisänen et al., 2018; Tuononen et al., 2017), our results suggest that the master's level law students are a homogeneous group in terms of self-efficacy beliefs: they shared very strong self-efficacy beliefs related to their abilities to learn and accomplish their studies. The reason may be that the student population in law is highly selected. However, it is possible that different results would have emerged if the study was focusing on students who are early on their study path, or if the response rate of this study had been higher.

Limitations

As with any study, this study has several limitations: (1) this study is based on students' self-reports, (2) a relatively small sample of students in one discipline was involved, (3) only one course was represented, (4) only one research-intensive university was involved, and (5) the internal reliability of lack of regulation and external regulation scales restricted their usefulness in the final analyses. In addition, only one-half of the cohort participated in this study. This may indicate the risk of potential bias in the results. That said, the level regulation as well as the experiences of teaching and learning of those students who did not participate in the research remains unknown. Thus, the results should not be interpreted as an accurate prediction of the whole target population. In this study, we rely only on self-report questionnaire data collected at the end of the course, and thus do not know how students constructed their goals and monitored their learning processes during the course. Understanding how they actually regulated their learning processes during the course would be important to explore. Furthermore, it would be important to examine the differences in terms of actual learning outcomes – such as how the comprehension of relevant legal methods, argumentation and research techniques manifest themselves in the essays between the self-regulation groups – can be detected. Therefore, further studies utilising different research methods on the current topic are recommended.

Pedagogical implications

Based on our results we now present important aspects for teachers regarding pedagogic implications. First, in order to create a student-centred teaching and learning environment,

it is important that teachers are aware how to support the development of students' self-regulation skills. Teachers should understand processes of regulation of learning and the elements of the TLE that support students' goal setting as well as their monitoring and reflection on learning processes. One concrete way to support students' regulation skills is to provide opportunities for peer learning. Especially, it supports the development of regulation skills in those students' who have problems in regulating their learning.

Second, teachers should also pay attention to the clarity of intended learning outcomes. It would be important to clarify the way students' intended learning outcomes in the course relate to other courses and to their longer learning trajectory throughout the programme, as well as later in working life. This would help students to better understand the relevance of the course.

Third, it is important to acknowledge different student groups because this helps to identify those students who may be at risk and in need of more support in their learning. Special attention should be paid to those who have problems in regulating their learning, because it may have significant consequences for their learning during university studies and for their working life, where these skills are needed. Learning domain-specific competencies is amplified by processes of self-regulation in which students evaluate their thinking, motivation and performance, and their limits. By understanding the differences between the students, it is also possible to modify pedagogical practices to suit the needs of different students. Students who have problems in regulation would benefit from tasks in which they need to reflect on their learning. We also know that the different forms of formative assessment, such as feedback and self- and peer-assessment facilitate students' regulation of learning. In conclusion, this article highlights that self-regulation has a strong effect on students' learning and their experiences of TLE. This aspect should thus be taken into account when developing courses further towards becoming more student-centred in nature.

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APPENDIX I.

Factor loadings of the items measuring self-regulation of learning, experiences of TLE and self-efficacy beliefs

<i>Self-regulation scale, $\alpha = .77$</i>	
1. When I am studying, I also pursue learning goals that have not been set by the teacher or the course but by myself.	.704
2. When I have difficulty understanding particular subject matter, I try to analyse why it is difficult for me.	.551
4. To test whether I have mastered the subject matter, I try to think of examples and problems besides the ones given in the study material or by the teacher.	.586
6. To test my learning progress, I try to formulate the main points in my own words.	.383
7. In addition to the course requirements, I have studied other literature related to the content of the course.	.610
11. If I do not understand the subject matter, I search for more material related to the subject concerned.	.421
13. I do more than I am expected to do in the course.	.714
<i>Interest and relevance scale, $\alpha = .85$</i>	
3. I can see the relevance of what we are taught	.791
5. I find most of what I have learned in this course really interesting.	.941
7. I have enjoyed participating in this course.	.659
<i>Peer support scale, $\alpha = .70$</i>	
4. Students have supported each other and tried to give help when it is needed.	.689
6. Talking with other students has helped me to develop my understanding.	.694
8. I have been able to work comfortably with other students.	.697
<i>Constructive feedback scale, $\alpha = .80$</i>	
9. I have received enough feedback about my learning.	.766
12. The feedback given on my work has helped me to improve my ways of learning and studying.	.829
14. The feedback given on my set work (i.e., assignments, tasks) has helped to clarify things I haven't fully understood.	.584
<i>Alignment scale, $\alpha = .79$</i>	
10. It is clear to me what is expected in the assessed work (i.e., essay).	.778
11. I can see how the set work (i.e., assignments, tasks) fit in with what we are supposed to learn.	.787
<i>Self-efficacy scale, $\alpha = .87$</i>	
1. I'm certain I can learn the skills required in my study field well.	.841
2. I'm confident I can understand the basic concepts of my own study field.	.784
3. I believe I will do well in my studies.	.707
4. I'm certain I can understand the most difficult material in my studies.	.713
5. I expect to do well in my studies.	.734