

# Lectio

## The interaction between self- and co-regulation of learning and study-related exhaustion during university studies

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### Tiivistelmä tutkimuksesta:

Tämä väitöstutkimus tarkasteli oppimisen itse- ja yhteissääntelyn sekä opiskelu-uupumuksen välistä yhteyttä yliopisto-opintojen aikana. Tutkimuksen ensimmäisenä tavoitteena oli tarkastella oppimisen itse- ja yhteissääntelyn välistä yhteyttä yliopisto-opintojen alkuvaiheessa ja tunnistaa erilaisia opiskelijaprofiileja oppimisen itse- ja yhteissääntelyyn liittyen. Toinen tavoite oli tutkia opiskelijoiden kokemuksia opiskelu-uupumuksesta sekä oppimisen itse- ja yhteissääntelyn ja opiskelu-uupumuksen välistä yhteyttä opintojen alkuvaiheessa. Kolmantena tavoitteena oli tutkia opiskelijoiden oppimisen itse- ja yhteissääntelyyn sekä opiskelu-uupumukseen liittyvien kokemusten pysyvyyttä ja muutosta yliopisto-opintojen aikana.

Väitöstutkimus perustuu kolmeen osatutkimukseen, joissa yhdistettiin kvalitatiivisia ja kvantitatiivisia menetelmiä, muuttuja- ja henkilösuuntautunutta lähestymistapaa sekä poikkileikkaus- ja pitkittäistutkimusasetelmaa. Osatutkimukset I ja II tutkivat opiskelijoiden kokemuksia oppimisen itse- ja yhteissääntelystä opintojen alkuvaiheessa. Lisäksi osatutkimus II tarkasteli profiilien välisiä eroja koetun opiskelu-uupumuksen suhteen. Osatutkimus III tutki oppimisen itse- ja yhteissääntelyn ja koetun opiskelu-uupumuksen

pysyvyyttä ja muutosta opintojen aikana.

Osatutkimuksessa I tunnistettiin henkilösuuntautuneen lähestymistavan ja kvalitatiivisten tutkimusmenetelmien avulla kolme erilaista profiilia opiskelijoiden oppimisen itse- ja yhteissääntelyn perusteella: 1) hyviä itsesääntelytaitoja kuvaavat opiskelijat, jotka eivät korostaneet oppimisen yhteissääntelyä; 2) aktiivisesti oppimisen yhteissääntelyä hyödyntävät opiskelijat, jotka kuvasivat suhteellisen hyviä itsesääntelytaitoja ja 3) itsesääntelyn ongelmia kuvaavat opiskelijat, jotka tukeutuivat oppimisen yhteissääntelyyn.

Osatutkimuksessa II tunnistettiin neljä erilaista profiilia oppimisen itse- ja yhteissääntelyn perusteella kvantitatiivisten tutkimusmenetelmien avulla: 1) hyviä itsesääntelytaitoja raportoivat opiskelijat, jotka opiskelivat vähän muiden opiskelijoiden kanssa ja eivät kokeneet muiden opiskelijoiden tukea tärkeäksi opiskelussa; 2) hyviä itsesääntelytaitoja raportoivat opiskelijat, joilla korostuivat opiskelu muiden opiskelijoiden kanssa ja muiden opiskelijoiden tuen tärkeys opiskelussa; 3) itsesääntelyn ongelmia raportoivat opiskelijat, joilla korostuivat muiden opiskelijoiden kanssa opiskelu ja muiden opiskelijoiden tuen tärkeys opiskelussa ja 4) itsesääntelyn ongelmia raportoivat opiskelijat, jotka opiskelivat vähän muiden opiskelijoiden kanssa mutta korostivat mui-

den opiskelijoiden tuen tärkeyttä opiskelussa.

Osatutkimuksissa I ja II tunnistettiin samankaltaisia opiskelijaprofiileja. Osatutkimus II osoitti, että profiilien välillä oli eroja koetun opiskelu-uupumuksen suhteen. Hyviä itsesääntelytaitoja raportoivat opiskelijat, jotka opiskelivat vähän muiden opiskelijoiden kanssa ja eivät kokeneet muiden opiskelijoiden tukea tärkeäksi opiskelussa, kokivat vähiten opiskelu-uupumusta. Eniten opiskelu-uupumusta kokivat oppimisen itsesääntelyn ongelmia raportoivat opiskelijat, joilla korostuivat muiden opiskelijoiden kanssa opiskelu ja muiden opiskelijoiden tuen tärkeys opiskelussa. Tulokset osoittivat, että ongelmat oppimisen itsesääntelyssä olivat yhteydessä koettuun opiskelu-uupumukseen.

Osatutkimus III osoitti, että koettu opiskelu-uupumus lisääntyi opintojen aikana. Tulokset osoittivat kuitenkin suurta yksilöllistä vaihtelua opiskelu-uupumuksen suhteen. Opiskelijat, joiden uupumus väheni opintojen aikana, kuvasivat pystyneensä kehittämään itsesääntelytaitoja muiden opiskelijoiden tuen avulla. Opiskelijat, joiden uupumus pysyi vähäisenä, kuvasivat hyviä itsesääntelytaitoja. He kokivat, että he eivät tarvineet muiden opiskelijoiden tukea oppimisen sääntelyssä. Opiskelijat, joiden uupumus pysyi suhteellisen korkeana, korkeana tai lisääntyi opintojen aikana, kuvasivat enemmän ongelmia oppimisen itsesää-

telyssä. Suurin osa heistä kuvasi tarvitsevansa muiden opiskelijoiden tukea opiskelussa oppimisen säätelyn ongelmien vuoksi. Kaikki opiskelijat eivät kuitenkaan hyödyntäneet muiden opiskelijoiden tukea oppimisen säätelyssä itsesäätelyn ongelmista huolimatta.

Tämä väitöstutkimus tuottaa uutta tietoa opiskelijoiden oppimisen itse- ja yhteissäätelyn sekä opiskelu-uupumuksen välisestä yhteydestä yliopisto-opintojen aikana. Väitöstutkimus osoitti yksilöllisiä eroja opiskelijoiden oppimisen itse- ja yhteissäätelyssä tunnistamalla erilaisia opiskelijaprofileja. Tutkimus osoitti, että profiilien välillä oli eroja koetussa opiskelu-uupumuksessa. Väitöstutkimuksen perusteella voidaan sanoa, että oppimisen säätelytaidoilla on tärkeä merkitys opiskelu-uupumuksen kannalta. Tutkimus osoitti, että monimene- telmällisen lähestymistavan avulla oli mahdollista saada syvällisempi käsitys oppimisen itse- ja yhteissäätelyn sekä opiskelu-uupumuksen välisestä yhteydestä opintojen aikana.

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University students in Finland are highly selected. Only a small number of those who apply to university are accepted. Even though university students are highly selected, the transition to university is challenging for many students and even the most successful students experience this transition as difficult. Especially the first study year is critical. One of the key challenges in the transition is the requirement for independent studying. Indepen-

dent studying requires self-regulation of learning. Self-regulation of learning refers to a process during which students plan their own studying, set their own goals for learning and analyse the tasks before studying, use different strategies, monitor and make changes in studying if necessary during studying and reflect on their own learning after studying. Many students have problems in regulating their own learning especially at the early phases of university studies. Self-regulation becomes even more important when students encounter challenges such as the need to combine study with work and free time.

Self-regulation of learning is one of the most examined areas in educational psychology. However, in recent years, researchers in educational psychology have acknowledged that the examination of individual self-regulation of learning is inadequate. There has been an increased interest in research on co-regulation of learning, which refers to how students regulate their learning together with others.

Regulation skills should develop during university studies because these skills are also essential in working life after graduation in an expert's work. Experts need to continue learning as part of their everyday work, be able to reflect on their learning and performance and work collaboratively. In addition, much of the learning takes place at work and requires the ability to regulate learning individually and together with others. Therefore, regulation skills are important 21st century skills that are a basis for lifelong learning.

In recent years, concern about students' well-being has increa-

sed. The national Finnish Student Health Survey, which is conducted every four years and includes a representative sample of Finnish higher education students, shows that students experience significant levels of study-related exhaustion during their studies. Research also shows that students' experiences of exhaustion increase during studies. Study-related exhaustion refers to a lack of emotional energy, tiredness and chronic fatigue as a result of studying. Exhaustion develops because of long-term stress related to studying when a student experiences a taxing study load and study demands and does not have enough resources to respond to these demands. Study-related exhaustion is considered to be a core component of study-related burnout.

The new strategic plan of the University of Helsinki emphasises the enhancement of students' well-being. It states that one way to enhance students' well-being is to promote students' learning. Promoting students' learning and studying and well-being may now be more important than ever. During the past pandemic year, students have faced challenges in studying that they have never faced before. The coronavirus has extensively affected university students' studying when studying has been transformed into distance learning. The regulation of learning is highly needed to manage studying in these new and unprecedented circumstances.

The overall aim of the present doctoral dissertation was to examine the interaction between university students' experiences of self- and co-regulation of learning and study-related exhaustion during studies. The first aim was to

examine the interaction between self- and co-regulation of learning at the early stages of university studies and to explore individual differences in self- and co-regulation of learning by identifying different student profiles. The second aim was to examine students' experiences of study-related exhaustion and the interaction between students' experiences of self- and co-regulation of learning and study-related exhaustion at the early stages of their studies. Third, the aim was to investigate stability and change in students' experiences of self- and co-regulation of learning and study-related exhaustion during university studies and how these were related to each other during studies.

This dissertation consists of three sub-studies. The study was a mixed-methods study which combined quantitative and qualitative research methods, a variable- and a person-oriented approach as well as cross-sectional and longitudinal data.

Study I was a qualitative study that examined university students' experiences of self- and co-regulation of learning and different student profiles through qualitative methods by applying a person-oriented approach. The study examined students' experiences of self-regulation of learning in different phases and areas of self-regulation. The study also investigated students' experiences of co-regulation of learning and how students regulated different areas of the regulation of learning together with other students. The quality of co-regulation of learning was also examined. The participants were 33 first- and second-year students of bioscience, educational sciences, mathematics and theology

who were interviewed about their studying and learning at university. Students' experiences were explored in general during studies and in a specific course that they had just completed.

In Study II, student profiles based on students' experiences of self- and co-regulation of learning were examined in more detail through quantitative methods. This study examined self-regulation more broadly by exploring different dimensions of self-regulation of learning: self-regulation, external regulation and lack of regulation. Since students had described co-regulation of learning in Study I, Study II investigated co-regulation of learning in more detail by examining students' experiences of engaging in studying with other students and as how important students experienced peer support in their own studying. The participants were 188 first-year students of bioscience, dentistry, medicine and mathematics. Students' experiences were investigated in more general during studies.

The results of Studies I and II showed that different profiles related to self- and co-regulation of learning could be identified. In Study I, three distinct student profiles were identified through qualitative methods. In Study II, four distinct student profiles were identified through quantitative methods. There were similarities in the profiles although different methods were used.

In both studies, a group of students who reported good self-regulation skills and who did not emphasise co-regulation of learning was found. In Study I, the students' descriptions in the interviews showed good self-regulation

skills in general and in a specific course. The students reported that they planned their studying, set their own goals for learning, studied regularly, used multiple study strategies and monitored their studying. They were able to study the same way regardless of the learning environment. These students' descriptions did not reveal the use of co-regulation. They emphasised that they mostly studied independently. Study II complemented the results of co-regulation of learning by showing that it seemed that peer support and peer learning did not play an important role in these students' studying.

In both Studies, students who reported good self-regulation skills but also some problems in regulating their learning were identified. These students reported co-regulation of learning. In Study I, these students showed evidence of good self-regulation skills when they described their studying in general. However, they described problems in regulating their learning, such as procrastination and difficulties in maintaining their motivation when they described their studying in the specific course. The learning environment seemed to affect these students' studying more, unlike the students in the first profile. These students were aware of how they should study but they were not always able to study in that way. These students described co-regulation of learning in studying as actively regulating their learning with others. Study II complemented the results of co-regulation of learning by showing that the students scored highly on studying with other students and experienced other students' support as important in their own studying.

In both Studies, a group of students who reported more problems in self-regulation of learning than the students in the other profiles was found. These students emphasised co-regulation of learning. The students emphasised that they relied on other students in the regulation of learning because of problems in self-regulation. In Study I, the students described many problems in different phases and areas of self-regulation. They emphasised that other students' support in studying was essential because of problems in self-regulation. Study II complemented these results by showing that the students reported more problems in self-regulation compared to other students in the other profiles and they scored the highest on co-regulation: on studying with other students and experiencing other students' support as important in their studying.

Study II further deepened the understanding of different student profiles by identifying a group of students who reported problems in self-regulation of learning. They experienced that other students' support would be important in studying but they reported low levels of studying with other students.

Study II also examined whether the student profiles differed in experienced study-related exhaustion. The results indicated that the student profiles differed in terms of self-reported study-related exhaustion. Students who reported good self-regulation skills and lower levels of co-regulation reported the lowest levels of study-related exhaustion. Students who reported problems in self-regulation and scored highly

on co-regulation of learning experienced the highest levels of study-related exhaustion. The results showed that problems in self-regulation explained self-reported study-related exhaustion.

Study III examined stability and change in self- and co-regulation of learning and study-related exhaustion during university studies. Ninety-one of the 188 students of bioscience, dentistry, medicine and mathematics who participated in Study II participated in the longitudinal study and completed the survey at the end of their fourth study year. In addition, 12 students were interviewed. The survey results showed that students' experienced study-related exhaustion increased from the first to the fourth study year. However, the results also showed a large individual variation in study-related exhaustion. Based on the variation, three student groups were identified: students whose experienced exhaustion 1) decreased, 2) remained relatively stable and 3) increased during studies. The results revealed variation in students' self- and co-regulation of learning among these groups.

The students whose exhaustion decreased during studies reported that problems in self-regulation had decreased during studies and the importance of other students' support had increased during studies. The students had experienced long-term stress, worry about study-matters in free time and sleeping problems but these had decreased. They had experienced difficulties especially in planning their own studying and in time management. They described that they had been able to develop planning, monitoring and reflecting on their own learning

through other students' support that had decreased their feelings of exhaustion.

Regarding the students whose experienced exhaustion remained relatively stable during studies (either low, average or high), the quantitative results did not show statistically significant changes in self- and co-regulation of learning. However, the students' descriptions in the interviews revealed variation in experienced self- and co-regulation of learning that was not shown in the quantitative results. The students whose experienced study-related exhaustion remained low positively described their well-being during their studies. They reported that they did not need other students' support in the regulation of learning.

The students whose study-related exhaustion remained average, high or increased during studies reported experiencing more exhaustion, which was exhibited as long-term stress, sleeping problems, worry about study matters during free time and difficulties in recovering from studying. Many students also described feelings of inadequacy as a student. The students reported many challenges in self-regulation, particularly in planning their own studying, setting reasonable goals, in time management and in monitoring and reflecting on their own learning. Most students emphasised that other students' support had an important role in their studying because of problems in self-regulation. They described that other students had helped them to plan, monitor and reflect on their own learning. However, not all students took an advantage of other students' support in the

regulation of learning despite of problems in self-regulation.

It was worrying that many students in the present study experienced problems in self-regulation of learning and study-related exhaustion at the first study year but also later during studies. It would be important that the development of self- and co-regulation skills and students' well-being would be promoted from the beginning of university studies.

In the current situation during the pandemic, some students may have been able to develop their regulation skills but especially students who have problems in self-regulation are at serious risk for study-related exhaustion. Distance learning also decreases opportunities for co-regulation of learning. It is more difficult for

students to regulate their learning together and utilise peer support in studying and in problems related to studying. Therefore, many students may try to manage their studies alone.

In conclusion, this doctoral dissertation provides new knowledge on the interaction between self- and co-regulation of learning and study-related exhaustion during university studies. The dissertation showed individual differences in self- and co-regulation of learning by identifying different student profiles related to self- and co-regulation of learning. The study revealed problems that students may have in different phases and areas of self-regulation of learning. The individual sub-studies showed different types of empirical evidence on co-regulation of learning and

different elements of co-regulation of learning. The study showed that the student profiles differed in terms of experienced study-related exhaustion.

The dissertation showed that examining different dimensions of self- and co-regulation of learning and study-related exhaustion through different methods provided new knowledge and complemented each other. Based on the results of the present dissertation, I argue that regulation skills have an important role in experienced study-related exhaustion during university studies. Self-regulation skills can be developed through co-regulation of learning. Developing regulation skills may provide one way to buffer study-related exhaustion during studies. ■