

Validating the Hungarian versions of MSLQ and MAI intended for use with Hungarian minority students in Slovakia

Phavadee Sounantha¹ – Tóth Péter²

¹ Doctoral School of Education, Eötvös Loránd University, Budapest, Hungary, sounantha@student.elte.hu ORCID: 0000-0002-5952-9510

² Head of the Department of Technical Pedagogy, BME, Budapest, Hungary, toth.p@eik.bme.hu, ORCID: 0000-0002-5886-144X

Learning today provides students with several freedoms, including easy access to the content or learning materials and the flexibility to schedule their own time, in contrast to the traditional techniques of the past, where students had to spend time at school or in the classroom. The cognitive, metacognitive, and motivational skills that enable learners to overcome challenges and organize their learning depend on self-regulated learning. The Motivation Strategies for Learning Questionnaire (MSLQ) is a tool to gauge students' self-regulated learning (SRL) skills. Schraw and Dennison's Metacognition Awareness Inventory (MAI) was created to measure the metacognitive abilities of the learners. This article aims to explore and assess the relevant literature on students' self-regulated learning and metacognition, SRL theories and concepts. Furthermore, it aims to determine the reliability and validity of these two with a sample of the pedagogy students at János Selye University. The study involved 120 pedagogy students, of which 102 were female. The MSLQ motivation scale in component A has six sub-scales and their Cronbach's Alphas are as follow: IGO's $\alpha = 0.69$, EGO's $\alpha = 0.84$, TV's $\alpha = 0.86$, CLB's $\alpha = 0.52$, SE's $\alpha = 0.86$, and TA's $\alpha = 0.74$. In Component B, which includes nine subscales for learning strategies, R's α is 0.69; E's α is 0.75; O's α is 0.85; CT's α is 0.60; MSR's α is 0.80; TSE's α is 0.66; ER's α is 0.80; PL's α is 0.87; and HS's is 0.57. As far as MAI goes, its two main components' Knowledge of Cognition (KC) and Regulation of Cognition (RC), Cronbach's Alpha values, were examined. Three subscales make up the KC: PK, DK, and CK. The Cronbach Alpha of each was 0.82, 0.86, and 0.71, respectively. Five subscales make up the RC. The Cronbach Alphas of each is as follow: P's α is equal to 0.83, IMS's α is equal to 0.83, CM's α is equal to 0.77, DS's α is equal to 0.74, and E's α is equal to 0.70.

Keyword: self-regulated learning, metacognition, cognition, motivation, learning strategy, self-efficacy, pedagogue student, Hungarian minority education.

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Introduction

The emphasis in learning in the twenty-first century is on changing one's behavior. The importance of technology and social networks is growing, especially due to the recent pandemic. There are significant obstacles, though, in the online learning and teaching process: both students and teachers must put in much effort to adapt to online courses. For teachers, ICT integration expertise and knowledge are needed to resolve the problems. E-learning can be a problem for learners, too, because they cannot regulate their learning and have a limited number of learning strategies. Finding a solution to these issues presents a significant challenge for students, parents, and teachers alike (Pelikan, 2021, pp. 393–418). The crucial elements are: learner's perceived capacity, which has an impact on self-regulated learning, as well as the issue of procrastination and the lack of intrinsic motivation. Self-regulated learning has been demonstrated to be a crucial component that can guide students towards the most effective learning strategies. According to Pelikan et al. (2021), students who utilize self-regulated learning strategies have higher levels of learning competency, more intrinsic motivation, and lower levels of procrastination.

Self-regulated learning strategies are primarily metacognitive strategies, which enable individuals to think about thinking, i.e. cognition, by using their own ways of monitoring and evaluating their progress. This is how metacognition works. Students with highly developed metacognitive strategies are very competent in goal establishing, planning, monitoring, assessing, reflecting on their learning, and manage their time efficiently. They also understand how their learning plan is going and what may be improved (Pelikan et al., 2021, pp. 393–418).

It follows from the above that self-regulated learning strategies and metacognitive strategies are of crucial importance if we want to put learners on the path to life-long learning. This paper is the pilot study of a large-scale research project aimed at investigating the problem of motivation and self-regulated learning of minority students. It aims to establish the validity and reliability of two data collection instruments, Motivation Strategies for Learning Questionnaire (MSLQ) and Metacognitive Awareness Inventory (MAI), for two main reasons: students were facing many issues during online learning day by day, like how to manage themselves, how to cope with the new learning techniques of remote/online learning, how to keep up their motivation, how to acquire strategies for learning, and to manage their learning. The second reason is the minority status of the stu-

dents, which adds yet another layer to the research project. That is, minority students' motivation and self-regulated learning will be investigated in the large-scale study, for which this serves as a pilot.

This pilot study was conducted at Selye Janos University, which is located in Komarno, Slovakia. The institution's primary aim is to serve the Hungarian minority in Slovakia. The university offers programs for Hungarian ethnic minorities and offers instruction at three levels (Bachelor, Master, and PhD) in the Hungarian language. It was established under the Higher Education Act of 1990 with this mission and position. By adhering to the principles of the Bologna Process, which strongly emphasizes students' learning outcomes, Slovakia's higher education system is similar to that of other European nations (Vámos & Sándor, 2014, pp. 17-25). A new Higher Education Act was approved in 2002 and revised in 2003 (Mercator-Education, 2005, p. 36). Selye Janos University has been operational since 2004 under the revised new Higher Education Act of 2003.

Literature review

The social cognitive theory of human learning

An American psychologist, Bandura, created the social cognitive theory of human learning in 1989. Bandura's core thesis is that human behaviour is learned and can be modified via experience and observation (Bandura, 1989, p. 1175). The three pillars of the social cognitive theory of learning are self-regulation, self-efficacy, and observational learning. This theory clearly claims that imitation is the primary method of human learning. As we can see in our society, young people enjoy copying their idols' qualities, styles, and behaviours, such as dancing.

The four stages of behavioural learning are motivation, practice, purposeful learning, and storage. Individuals who are ready to alter themselves by learning new things are the ones who engage in this intentional process. Then they adapt the knowledge they retained from the model, store it, and use it practically. Finally, people will be inspired to act in a conscious way once they notice a positive change in themselves. According to Bandura, the central idea of the social cognition theory of learning is reciprocal determinism: personal, behavioural, and environmental variables continuously interact to determine human behaviour and learning. Bandura's thesis is that human behaviour always depends on the environment (Tobach et al., 1971, p. 593).

Self-regulated learning

According to the social cognitive theory learning, self-regulation entails three processes: self-observation, self-judgment, and self-reaction. These three processes are interconnected, according to Bandura (1986). Why is self-control crucial? Students are not only motivated to participate in any kind of classroom activity; they are also motivated to maintain focus and manage well the distractions when working on their assignment at home or outside the classroom. They are capable of self-management and self-control so they can work independently at home or elsewhere. They can gain numerous important skills and extend their knowledge in this fashion, improving their learning outcomes. Sanrong et al. (2019) found that there are numerous relationships between self-regulated learning (SRL) and academic achievement, including the beneficial effects of intentional, goal-oriented incorporation and application of distinct strategic behaviours on academic achievement (Xiao, Yao, & Wang, 2019, pp. 1-4; Triquet, Peeters, & Lombaerts, 2017, pp. 2-27). According to Disa and Adis (2019), four out of the five SRL factors - goal setting, metacognition, environment structuring, and self-efficacy - have a beneficial impact on academic accomplishment (Ejubović & Puška, 2019, pp. 345-363; Martos, Jagodics, Kőrössy, & Szabó, 2021, pp. 8051–8065)

Metacognition in Learning

SRL is an approach that focuses on how students learn and how their surroundings affect their academic performance (Zimmerman & Schunk, 1989, pp. 51-82). According to Zimmerman and Martinez's handbook (1988) on self-regulated learning and performance, it was found that learners have better initiative skills, can better build their intrinsic drive, and succeed in taking personal responsibility for their academic achievement if they have well-developed SRL strategies. Students who have mastered self-regulated learning strategies can succeed in school at all levels (Dignath et al., 2008, pp. 101–129). The perceived improvement in students' performance is related to cognitive, metacognitive, behavioural, motivational, and emotional factors, according to numerous studies on students in higher education (Broadbent & Poon, 2015, pp. 1–13; Panadero, 2017, pp. 1–28). Self-regulated learning is also associated with better student achievement, academic growth, and professional competence in teacher preparation. SRL supports active learning (Virtanen, 2019) and enhances lifelong learning sustainability (Taranto & Buchanan, 2020, pp. 5-15). Self-regulated learning is connected to interacting with the environment (Phavadee, 2020); for instance, it helps people to

keep an eye on and managing their behaviours and emotions while assessing how things are progressing.

The impact of self-regulated learning (SRL) on students' learning

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Motivation Strategies for Learning Questionnaire (MSLQ) and Metacognitive Awareness Inventory (MAI)

Motivation Strategies for Learning Questionnaire (MSLQ)

Pintrich and McKeachie initiated the creation of the MSLQ in the 1980s to examine students' motivation and learning strategies. The instrument was based on the self-regulated learning paradigm introduced by Pintrich and colleagues (McKeachie et al., 1986, p.3). The MSLQ was employed in their study to assess students' levels of self-regulated learning (Pintrich, Smith, García, & McKeachie, 1991, 1993). SRL has to do with motivational abilities, metacognition, and cognition. Several studies have revealed that students' self-regulation levels correlate with how much they practice their cognitive and self-regulation abilities. A number of

factors affect how well students can learn, including procrastination, feelings of low self-efficacy, and anxiety.

Several studies have established that self-regulated learning is essential for students to learn effectively since SRL enhances their motivation, improves their goal planning skills and results in their using highly developed metacognitive strategies. Additionally, SRL is related to developing professional competencies in higher education (Karlen, Hertel, & Hirt, 2020, p. 159), although the issue of how to adapt general frameworks of teachers' professional competencies to teachers' professional competencies in SRL has yet to be addressed. However, SRL plays a crucial role in teacher competency building, especially in enhancing teachers' metacognitive skills and their ability to realize their strengths and weaknesses, which are crucial in their professional careers so that they can better meet their student's needs.

MSLQ is a self-report instrument which measures students, mostly higher education students', motivation through the four phases of learning established in Pintrich's framework of the phases of self-regulated learning (Boekaerts et al., 2000); the four phases of Pintrich's framework include 1) Forethought, planning, and activation, 2) Monitoring, 3) Control, and 4) Reaction and reflection. The items of this framework are based on several inventories from earlier research (Pintrich, David, Garcia, & McKeachie, 1993, pp. 801-813; Pintrich, Smith, Garcia, & McKeachie, 1991, pp. 5-77). Pintrich and his colleagues created the instruction booklet for the instrument in 1991, but Pintrich and De Groot created the instrument a year earlier. However, the National Center for Research on Improving Post-secondary Teaching and Learning (NCRIP TAL), an organization, developed the MSLQ in 1982 in an unofficial capacity and in an official capacity in 1986 (Pintrich, Smith, Garcia, & McKeachie, 1993, pp. 901-813). The 81 items of MSLQ are divided into two main sections; the first half, (items 1-31) covers motivation and the second part (items 32 to 81), covers learning strategies. MSLQ is the most frequently used instrument to assess self-regulated learning and self-efficacy, according to Roth and his colleagues (Roth & Schmitz, 2016, pp. 225-250; Honicke & Broadbent, 2016, pp. 63-84). It has been categorized as a self-regulated learning aptitude test (Jackson, 2018). The tool is beneficial for students since it can help them become better learners (Duncan & McKeachie, 2005, pp. 117-128).

Metacognitive Awareness Inventory (MAI)

Metacognitive Awareness Inventory (MAI) was developed by Schraw and Dennison in 1994. It is a self-report questionnaire on adolescents and adults' knowledge of cognition and regulation of cognition, which was administered before the start of the academic semester, during the institutional administrative admission process to assess prospective students' metacognitive awareness. It has two main components: knowledge about cognition and regulation of cognition, which are the two main clusters of activities in metacognition, established by the theory of metacognition (Flavell, 1987, pp. 21-29; Brown, 1987, pp. 65-116; Jacobs & Paris, 1987, pp. 255-278). According to Schraw and Dennison (1994) developing this research tool included three main stages: 1) investigation, 2) addressing the issue through statistical relationship analysis, and 3) experimentation. In the first stage, there were 120 items in the self-report questionnaire; however, by elimination, in the end, a total of 52 items were accepted for MAI, divided into two parts and a total of 9 sub-scales. The first part, knowledge about cognition, has 17 items under three sub-variables (procedural, declarative, and conditional knowledge), and the second part, regulation of cognition, has 35 items under five sub-variables (planning, information management strategies, comprehension monitoring, debugging strategies, and evaluation). The MAI was first administered to 197 undergraduate students at Midwestern University, and there are several researchers who have applied the MAI from time to time since then. (Schraw & Dennison, 1994, pp. 460-475).

Summary

In the literature review part, the relevant professional literature was reviewed, approximately 20-30 studies on self-regulated learning, its models, and its benefits for students' learning. The study so far has focused on the history of the development of the social cognitive model of human learning, its benefits, and the tools used to assess students' SRL at the higher education level, and the history of the instruments' development. Specifically, it presented the instrument developed by Pintrich and his colleagues, called MSLQ (Motivation Strategies and Learning Questionnaire), which is a self-report instrument and focuses on students' motivation and learning strategies. The review presented yet another self-report tool, the Metacognitive Awareness Inventory (MAI), developed by Schraw and Den-

nison in 1994 to investigate the metacognitive awareness of adolescent and adult learners.

Methods

The methods section includes the aims of the research, the details of participants, the data collection instruments, and the ways of data analysis applied.

Aims of the research

This study aims to examine the reliability and validity of the Motivation Strategies and Learning Questionnaire (MSLQ) and Metacognitive Awareness Inventory (MAI) instruments in their Hungarian versions. The sample for this study's investigation was recruited from among the first-year pedagogy students at János Selye University, Slovakia, all Hungarian minority students.

Participants

The data collection took place after the pandemic, during the 2023 spring semester. The research participants were from the pedagogy faculty of Janos Selye University, Slovakia. They were first-year teacher trainees. Participants in the study included 118 students, 84.7% of females (101) and 15.3% of males (17), from the teacher education programme; the average age of the sample was 21.29 (SD = 2.37).

Data Collection Instruments

In the course of setting up the pilot study, first the MSLQ and MAI were translated from English into Hungarian by language experts. Then, the field expert of our research area, SRL, checked if the Hungarian terminology in the translated version was appropriate and comprehensible to the participants. The Hungarian version was modified and amended twice after the first pilot, because the Cronbach's Alpha values were not acceptable.

Data Analysis

Finally, the data was collected and analyzed to check the reliability of the final versions of the two instruments. The Cronbach Alpha values of the instruments were calculated using SPSS version 28; descriptive statistical analysis was performed using Microsoft Excel.

Data analysis included the examination of the reliability index, Cronbach's Alpha, of each sub-scale and, overall, of both parts of the Hungarian version of the MSLQ instrument. Descriptive statistics were used to calculate the means and

standard deviations of the age groups of the participants and of the subscales. MSLQ Part 1 has six subscales, while Part 2 has nine sub-scales, so the total of subscales equals fifteen. It has 96 Likert type items; in response to each statement participant have to mark whether, in their opinions, each statement is 1) not true at all, 2) not true, 3) rather not true, 4) cannot decide, 5) rather true, 6) true, 7) completely true about them.

The other instrument, MAI, has two parts: Knowledge about Cognition, which has three subscales, and Regulation of Cognition, which has five subscales. Altogether, it has 52 Likert type items, in each of which the participants have to choose one of five Likert scale points, starting from 1) not at all true of me, 2) not really true of me, 3) somewhat true of me, 4) fairly typical of me, 5) very true of me. The original version of Schraw & Dennison's (1994) MAI used only 0 or 1, which is a true or false style of self-reporting.

Results

The results show that at the first two trials significant two outliers appeared when analyzing the data to establish the Hungarian instruments' Cronbach's Alpha; that is, in all the subscales the Cronbach's Alpha values were below 0.5, which is considered unacceptable (George & Mallery, 2003).

Descriptive analysis

MSLQ Hungarian Version (MSLQ-HUV) and Pintrich P. et. al. (1991) (MSLQ)

The respondents filled in the MSLQ HUV for 96 items by choosing from one upto seven on a Likert scale, marking whether, in their opinions, each statement is 1) not true at all, 2) not true, 3) rather not true, 4) cannot decide, 5) rather true, 6) true, 7) completely true about them. After the second pilot study, it was realized that the unacceptable value of Cronbach's Alpha stemmed from some sub-scales having a limited number of items, having a substantial impact on the sensitivity of the reliability score. After discussing this with the supervisor, the number of items was increased on some sub-scales, and, consequently, the calculated values of the Cronbach Alpha became acceptable. This is why the number of items in the Hungarian version increased from 81 items in the original MSLQ to 96 items in the MSLQ HUV. The highest mean score of a subscale was from Task Value – Part 1 Motivation, $\bar{X} = 5.73$, $SD = 0.99$, compared with the lowest mean score from Test Anxiety – Part 1 Motivation, $\bar{X} = 4.12$, $SD = 1.33$. The subscale details are shown in Table 1 below.

Sub-scales	\bar{X}	SD
<i>Part A – Motivation</i>		
<i>Intrinsic Goal Orientation (IGO)</i>	5.24	0.88
(1) Azt a tananyagot szeretem leginkább, ami kihívást jelent és új számomra. (In a class like this, I prefer course material that really challenges me so I can learn new things.)	3.77	1.84
(16) Azt a tananyagot szeretem leginkább, ami felkelti az érdeklődésemet, még akkor is, ha nehéz. (In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn.)	6.07	1.36
(22) Akkor leszek elégedett magammal, ha megértem azt, amit tanulok. (The most satisfying thing for me on this course is trying to understand the content as thoroughly as possible.)	6.42	0.90
(24) Ha lehetőségem van, akkor olyan tanulnivalót választok, amiből akkor is tanulok, ha nem garantált a jobb osztályzat. (When I have the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade.)	5.00	1.67
(82) Ha a tananyaggal kapcsolatban bármilyen kérdés felmerül bennem, akkor addig keresem rá a választ, amíg meg nem kapom. (In class, when any question comes to my mind, I like to find the answer until I get it.)	5.17	1.49
(85) Mindent megteszek azért, hogy az órán tanultakat megértsem. (I have to ensure that I understand the concepts in a class like this.)	5.58	1.26
(89) Szeretek gyakorolni, amikor az időm csak engedi, vagyis elsajátítani új dolgokat, amit az órán tanultam. (I like to practice whenever I have time, that is, to master a new thing I have learned from the class.)	4.69	1.72
<i>Cronbach's Alpha = 0.69</i>		
<i>Extrinsic Goal Orientation (EGO)</i>	4.93	1.51
(7) Akkor vagyok igazán elégedett, ha a félév végén jó jegyeket kapok. (Getting a good grade in this class is the most satisfying thing for me right now.)	5.54	1.70
(11) Az a legfontosabb számomra, hogy minél job legyen a félév végi átlagom, ezért jól szeretnék teljesíteni most is. (The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade.)	5.06	1.77
(13) Szeretnék a csoport átlagánál jobb eredményt elérni. (If I can, I want to get better grades in this class than most of the other students.)	4.34	1.91
(30) Jó eredményt akarok elérni a tankörben/csoportban, mert szeretném megmutatni a többieknek (családtagok, barátok stb.), hogy mire vagyok képes. (I want to do well in this class because it is important to show my ability to my family, friends, employer, or others.)	4.80	1.94
<i>Cronbach's Alpha = 0.84</i>		
<i>Task Value (TV)</i>	5.73	0.99
(4) A megszerzett ismereteket fogom tudni hasznosítani más tantárgyakban is. (I think I will be able to use what I learn on this course in other courses.)	5.73	1.31
(10) Fontos számomra, hogy elsajátítsam a tananyagot. (It is important	6.14	1.17
	5.31	1.50

for me to learn the course material in this class.)	5.78	1.22
(17) Nagyon érdekesnek tartom a tananyagot. (I am very interested in the content area of this course.)	5.25	1.39
(23) Hasznos számomra a tananyag. (I think the course material in this class is useful for me to learn.)	6.20	1.01
(26) Kedvelem a tananyagot. (I like the subject matter of this course.)		
(27) Fontos számomra, hogy megértem a tanulnivalót. (Understanding the subject matter of this course is very important to me.)		

Cronbach's Alpha = 0.86

<i>Control Learning Beliefs (CLB)</i>	5.72	0.93
(2) Ha megfelelő módon tanulok, akkor megértem a tanulnivalót. (If I study in appropriate ways, then I will be able to learn the material on this course.)	6.30	0.95
(9) Az én hibám, ha elmulasztom megtanulni a tananyagot. (It is my own fault if I don't learn the material on this course.)	6.08	1.60
(18) Ha elég energiát fordítok a tanulására, akkor megértem azt. (If I try hard enough, then I will understand the course material.)	6.09	1.15
(25) Ha nem értem a tananyagot, akkor az azért van, mert nem fektettem a tanulásra elég energiát, időt. (If I don't understand the course material, it is because I didn't try hard enough.)	4.44	1.88

Cronbach's Alpha = 0.52

<i>Self-Efficacy for Learning & Performance (SELP)</i>	5.48	0.95
(5) Úgy érzem, képes vagyok jó eredmények elérésére. (I believe I will receive an excellent grade in this class.)	5.79	1.19
(6) Még a legnehezebb tananyagrészt is képes vagyok megérteni. (I'm certain I can understand the most difficult material presented in the readings for this course.)	4.55	1.63
(12) Bízom benne, hogy meg tudom tanulni az alapvető fogalmakat. (I'm confident I can learn the basic concepts taught on this course.)	6.23	1.09
(15) Bízom magamban, hogy képes vagyok megérteni még a legbonyolultabb tananyagrészeket is. (I'm confident I can understand even the most complex material presented by the instructor on this course.)	5.36	1.35
(20) Bízom magamban, hogy jól teljesítek a dolgozatok, a beadandók és a számonkérések során. (I'm confident I can do an excellent job on the assignments and tests on this course.)	5.60	1.40
(21) Elvárom magamtól, hogy jól teljesítsek a tankörömben/csoportomban. (I expect to do well in this class.)	5.55	1.37
(29) Biztos vagyok benne, hogy elsajátítom az oktatott készségeket, kompetenciákat. (I'm certain I can master the skills being taught in this class.)	5.48	1.25
(31) A tanulási nehézségeket, a saját képességeimet és a tanár személyét is figyelembe véve, úgy érzem jól teljesítek. (Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class.)	5.36	1.34

Cronbach's Alpha = 0.85

<i>Test Anxiety (TA)</i>	4.12	1.33
(3) Amikor dolgozatot írok vagy vizsgázom, akkor arra gondolok, hogy mennyivel rosszabbul teljesítek másoknál. (When I take a test, I think about how poorly I am doing compared with other students.)	2.53	1.86
(8) Dolgozatírás vagy vizsga közben folyton azokra a feladatokra, kérdésekre gondolok, amiket nem tudok megoldani, megválaszolni. (When I take a test, I think about items on other parts of the test I can't do or answer.)	3.45	2.09
(14) Dolgozatírás vagy vizsga közben a sikertelenség következményei járnak a fejemben. (When I take tests, I think of the consequences of failing.)	5.60	1.77
(19) Ha vizsgázom, akkor feszült, ideges vagyok. (I have an uneasy, upset feeling when I take an exam.)	5.94	1.62
(28) Gyorsabban ver a szívem, ha vizsgázom. (I feel my heart beating fast when I take an exam.)		
<i>Cronbach's Alpha = 0.74</i>		

Part B – Learning strategies

<i>Rehearsal (R)</i>	5.09	1.03
(39) Úgy tanulok a dolgozatra vagy a vizsgára, hogy többször is felmondom magamban a leckét. (When I study for this class, I practice saying the material to myself over and over.)	5.57	1.63
(46) Tanuláskor, vizsgára készüléskor többször is átolvasom a tankönyvet és a jegyzeteimet. (When studying for this course, I read my class notes and the course readings over and over again.)	6.08	1.23
(59) Kulcsszavakat memorizálok, hogy jobban emlékezzek a tananyag fontosabb részeire. (I memorize key words to remind me of important concepts in this class.)	5.56	1.43
(72) A tananyag fontosabb kulcsfogalmaiból listát készítek, majd azt memorizálok. (I make lists of important items for this course and memorize the lists.)	4.97	1.85
(84) Hangosan tanulok, amikor a dolgozatokra vagy a vizsgára készülök. (I practice speaking out loud what I have learned from the class.)	4.98	2.15
87 Szeretem lejegyzetelni a füzetembe vagy az okos telefonomba, amit az órán hallok. (I like to write down the important points in my notebook or type it on my electronic device after class.)	5.88	1.57
90 A tananyag kulcsfogalmait Post-it (öntapadós színes) lapokra felírom és felragasztom a szobám falára. (I write down the important keywords from the class on the Post-it notes (paper) and stick them on my room wall.)	2.59	2.15

Cronbach's Alpha = 0.69

<i>Elaboration (E)</i>	5.45	1.00
(53) Tanuláskor több forrásból szedem össze a szükséges ismereteket, például tankönyvből, jegyzeteimből, internetről vagy a csoporttársaimmal folytatott beszélgetésekből stb. (When I study for this class, I pull together information from different sources, such as lectures, readings, and discussions.)	5.74	1.41
	5.29	1.50

(62) A tanultakat megpróbálom hozzákapcsolni a más tantárgyakban tanultakhoz. (I try to relate ideas in this subject to those in other courses whenever possible.)	5.73	1.29
(64) A tanultakat megpróbálom hozzákapcsolni ahhoz, amit már tudok. (When reading for this class, I try to relate the material to what I already know.)	5.25	1.84
(67) Tanuláskor összefoglalót készítek, kidolgozom a tételeket a tankönyv és az órai jegyzeteim alapján. (When I study for this course, I write brief summaries of the main ideas from the readings and my class notes.)	5.50	1.41
(69) A tanultakat úgy próbálom megérteni, hogy az előadáson vagy a szemináriumon elhangzottakat hozzákapcsolom a tankönyvben olvasottakhoz. (I try to understand the material in this class by making connections between the readings and the concepts from the lectures.)	5.25	1.49
(81) A tankönyvben olvasottakat igyekszem hasznosítani az órai aktivitások során, például a szemináriumokon. (I try to apply ideas from course readings in other class activities such as lecture and discussion.)		

Cronbach's Alpha = 0.75

<u>Organisation (O)</u>	5.52	1.35
(32) Tanuláskor, vizsgára készüléskor saját vázlatot készítek, ami nagyban segíti a gondolataim rendszerezését. (When I study the readings for this course, I outline the material to help me organize my thoughts.)	5.66	1.54
(42) Amikor tanulok, átnézem a tankönyvet és az órai jegyzeteimet, hogy kiemeljem a fontosabb gondolatokat. (When I study for this course, I go through the readings and my class notes and try to find the most important ideas.)	5.99	1.31
(49) Egyszerűbb vázlatokat, esetleg ábrákat, táblázatokat, fogalomgyűjteményt készítek, amik segítenek a tananyag rendszerezésében. (I make simple charts, diagrams, or tables to help me organize course material.)	4.97	1.90
(63) Tanuláskor átnézem az órai jegyzeteimet, és a fontosabb dolgokból, fogalmakból vázlatot készítek. (When I study for this course, I go over my class notes and make an outline of important concepts.)	5.46	1.69

Cronbach's Alpha = 0.85

<u>Critical Thinking (CT)</u>	4.71	0.99
(38) Többször is kételkedve fogadom azt, amit hallok vagy olvasok, ha nem találok elég meggyőzőnek az érvelést. (I often find myself questioning things I hear or read on this course to decide if I find them convincing.)	3.58	1.99
(47) Amikor egy elméletet, érvelést vagy következtetést elmagyaráznak az órán, vagy olvasok a tankönyvben, akkor megpróbálom eldönteni, hogy van-e elég bizonyíték, ami azt alátámasztja vagy sem. (When a theory, interpretation, or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence.)	3.69	1.91
(51) A tananyagot kiindulópontként kezelem, és megpróbálom kialakítani a saját elképzeléseimet róla. (I treat the course material as a starting point and try to develop my own ideas about it.)	5.58	1.34
	5.80	1.13

(66) Megpróbálom a saját elképzeléseimet, tapasztalataimat hozzákapcsolni ahhoz, amit tanulok. (I try to play around with ideas of my own related to what I am learning in this course.)	4.92	1.41
(71) Amikor új, de vitatható dolgokat hallok vagy olvasok, akkor megpróbálok a lehetséges alternatívákon elgondolkodni. (Whenever I read or hear an assertion or conclusion in this class, I think about possible alternatives.)		
<i>Cronbach's Alpha = 0.59</i>		
<i>Metacognitive Self-Regulation (MSR)</i>	4.95	0.86
(33R) Az órákon gyakran elkalandoznak a gondolataim, így elszalasztok fontos ismereteket. (During class time I often miss important points because I'm thinking of other things.)	4.37	1.97
(36) Tanuláskor kérdéseket teszek fel magamnak, ami segít a megértésben. (When reading for this course, I make up questions to help focus my reading.)	4.89	1.86
(41) Ha a tanulás során nem értek valamit, akkor addig nem megyek tovább, amíg rá nem jövök. (When I become confused about something I'm reading for this class I go back and try to figure it out.)	5.42	1.37
(44) Ha nehezen értek meg valamit, akkor próbálok másként megközelíteni, megérteni. (If course readings are difficult to understand, I change the way I read the material.)	5.24	1.77
(54) Mielőtt elmélyedek a tanulnivalóban, előbb átfutom, átnézem az egészet, miként épül fel. (Before I study new course material thoroughly, I often skim it to see how it is organized.)	4.88	1.67
(55) A tanulás során kérdéseket teszek fel magamnak, hogy biztos legyek abban, értem-e a tanulnivalót. (I ask myself questions to make sure I understand the material I have been studying in this class.)	4.91	1.69
(56) Megpróbálom a saját tanulási módszereimet a tantárgyi követelményekhez és az oktató tanítási módszereihez, stílusához igazítani. (I try to change the way I study in order to fit the course requirements and the instructor's teaching style.)	3.91	1.84
(57R) Gyakran előfordul, hogy olvasom a tananyagot, de nem értem, hogy miről szól. (I often find that I have been reading for this class but don't know what it is all about.)	5.53	1.44
(61) Megpróbálom végig gondolni, mit is kellene megtanulnom az adott tananyagból, helyett, hogy csak átolvasnám, átfutnám. (I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying for this course.)	4.93	1.64
(76) Tanuláskor előbb számba veszem, hogy mi az, amit nem értek. (When studying for this course I try to determine which concepts I don't understand well.)	5.01	1.73
(78) Tanuláskor célokat tűzök ki magam elé, ami meghatározza a tevékenységeim ütemezését a félév során. (When I study for this class, I set goals for myself in order to direct my activities in each study period.)		
(79) Amikor az órai jegyzetelés során elrontok valamit, akkor tisztázom a problémát, majd javítom a leírtakat. (If I get confused taking notes in class, I make sure I sort it out afterwards.)		
<i>Cronbach's Alpha = 0.74</i>		
<i>Time & Study Environment (TSE)</i>	5.14	0.86

(35) Olyan helyen szeretek tanulni, ahol nem zavar semmilyen háttérköörülmény, és tudok a tanulnivalóra koncentrálni. (I usually study in a place where I can concentrate on my course work.)	6.22	1.38
(43) Amikor tanulok, jól kihasználom a rendelkezésre álló időt. (I make good use of my study time for this course.)	5.10	1.86
(52R) Nehezen tudom betartani a tanulási feladataim ütemtervét. (I find it hard to stick to a study schedule.)	3.87	1.85
(65) Szeretek mindig ugyanazon a helyen tanulni. (I have a regular place set aside for studying.)	5.67	1.82
(70) Fontosnak tartom, hogy hétről hétre készüljek, hogy ne maradjak el a feladataimmal, a beadandókkal. (I make sure that I keep up with the weekly readings and assignments for this course.)	4.92	1.72
(73) Minden órán igyekszem ott lenni. (I attend this class regularly.)	6.55	1.07
(77R) Gyakran van az, hogy más tevékenységem miatt a tanulásra már nem jut elég időm. (I often find that I don't spend very much time on this course because of other activities.)	3.57	1.88
(80R) Alig van arra időm, hogy a zárthelyi dolgozat/vizsga előtt átolvassam a tankönyvet, a jegyzeteimet. (I rarely find time to review my notes or readings before an exam.)	5.07	1.94

Cronbach's Alpha = 0.56

<i>Effort Regulation (ER)</i>	4.62	0.97
(37R) Tanuláskor lustának érzem magam, unatkozom, és abbahagyom még mielőtt mindent megtanultam volna. (I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do.)	4.85	2.09
(48) Keményen dolgozom, megpróbálok jól teljesíteni, még akkor is, ha nem kedvelem azt, amit tanulni kell. (I work hard to do well in this class even if I don't like what we are doing.)	5.25	1.56
(60R) Ha nehéz a tananyag, akkor feladom, vagy csak a könnyebb részeket tanulom meg. (When course work is difficult, I either give up or only study the easy parts.)	5.01	1.87
(74) Még akkor is kitartok a tanulásban, ha a tanulnivaló unalmas, érdektelen. (Even when course materials are dull and uninteresting, I manage to keep working until I finish.)	4.50	1.93
(83) Hosszú órákat vagyok képes eltölteni a bonyolultabb feladatok megoldásával, a nehezebb tananyagrészek megértésével. (I can spend long hours working on difficult tasks.)	4.55	1.78
(88) Ha valami elvonja a figyelmemet az íróasztalomnál, akkor is képes vagyok legyőzni a „kísértést” és folytatni a tanulást. (When something distracts me in my study, I can still calm myself and continue working on my tasks.)	3.91	1.86
(92) Ha sok órák van egy nap, akkor is képes vagyok odafigyelni anélkül, hogy unatkoznék vagy elfáradnék. (I can study many courses in a day without getting bored.)		

Cronbach's Alpha = 0.56

<i>Peer Learning (PL)</i>	3.77	1.53
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(34) Szeretek együtt tanulni másokkal. (When studying for this course, I often try to explain the material to a classmate or friend.)	3.44	2.08
(45) A követelmények teljesítése érdekében igyekszem együtt tanulni másokkal. (I try to work with other students from this class to complete the course assignments.)	3.40	1.82
(50) Gyakran szánok időt arra, hogy a csoporttársaimmal átbeszélhessük a tanultakat. (When studying for this course, I often set aside time to discuss course material with a group of students from the class.)	3.64	1.84
(86) Ha csoporttársaimmal dolgozom egy feladaton vagy tanulok, akkor azt jobban megértem. (It increases my understanding when I work on the task with my classmate(s).)	3.92	2.01
(93) Szeretek valaki mással együtt tanulni, mert akkor visszajelzéseket adhatunk egymásnak. (I like to practice the course material with my friend, and we always give feedback to each other.)	3.28	2.03
(96) Tudom, hogy a csoportban ki milyen dolgokban a legjobb, és kérhetek tőle segítséget, ha szükségem van rá. (I know who is good at what kind of things in my class, and I ask for their help when I have any questions from the target person.)	4.95	1.85

Cronbach's Alpha = 0.87

<i>Help Seeking (HS)</i>	4.41	0.91
(40R) Ha nem értek valamit, akkor egyedül próbálok meg rájönni. Nem kérek segítséget még akkor sem, ha nehezen boldogulok vele. (Even if I have trouble learning the material in this class, I try to do the work on my own, without help from anyone.)	4.39	2.03
(58) Ha nem értek valamit, akkor a tanártól kérek segítséget. (I ask the instructor to clarify concepts I don't understand well.)	3.17	1.91
(68) Ha nem értek valamit, akkor valamelyik csoporttársamtól kérek segítséget. (When I can't understand the material on this course, I ask another student in this class for help.)	4.84	1.63
(75) Tudom, hogy kitől kérhetek segítséget a csoportból, ha nem értek valamit. (I try to identify students in this class whom I can ask for help if necessary.)	5.91	1.54
(91) Ha nem értek valamit és segítségre van szükségem, akkor az Interneten keresek a témában anyagot. (I try to search many articles or related websites when I need help finding a good answer from the class.)	5.83	1.26
(94) Ha problémával szembesülök a tanulnivalóval vagy a beadandó feladattal kapcsolatban, akkor az oktatóval veszem fel a kapcsolatot. (When I face a problem, I note the point and make an appointment with my instructor.)	3.69	2.07
(95) Ha szeretném magam továbbfejleszteni a tanulnivalókkal kapcsolatban, akkor online tanfolyamot keresek az interneten. (I like to look for an extra online course to learn which course I want to improve.)	3.16	1.99

Cronbach's Alpha = 0.52

Table 1. MSLQ HUV Mean (\bar{X}) Standard Deviation (SD), reliability (N=118) The reliability of MSLQ Hungarian version and MSLQ developed by Pintrich P. et al. (1991)

The reliability values of the Motivation and Strategies for Learning Questionnaire (MSLQ) are as follow. Table 2 shows the Cronbach's Alpha of each dimension of MSLQ; the highest was $\alpha = 0.87$ in Peer Learning (PS) – Part 2, Learning Strategies. The lowest was $\alpha = 0.52$ in Control Learning Beliefs (CLB) – Part 1 Motivation and Help-Seeking (HS) –in Part 2 Learning Strategies.

Comparisons of these Cornbach Alpha values with the Cornbach Alpha values of subscales' from Pintrich et al. (1991, pp. 5-77) are shown in Table 2; a difference in the value of Cornbach Alpha was found in terms of Critical Thinking (CT). The Hungarian version's α is 0.59, while Pintrich et al's α is 0.80. There were still some subscales with questionable Cornbach Alpha values, i.e. subscales with $\alpha < 0.60$. In the HUV the sub-scale CLB featured a Cornbach Alpha of 0.52; HL $\alpha = 0.52$, TSE $\alpha = 0.56$, ER $\alpha = 56$, and CT $\alpha = 0.59$. However, when compared with the original version, the sub-scale HS has the same score = 0.52 in both the English and the Hungarian versions.

<i>Dimension</i>	<i>No of items (original)</i>	<i>No of items (HUV)</i>	<i>Cronbach's Alpha (Pintrich et al., 1991)</i>	<i>Cronbach's Alpha (MSLQ HUV)</i>
<i>Part 1 – Motivation</i>				
IGO	4	7	0.74	0.69
EGO	4	4	0.62	0.84
TV	6	6	0.90	0.86
CLB	4	4	0.68	0.52
SELP	8	8	0.93	0.85
TA	5	5	0.80	0.74
<i>Part 2 – Learning strategies</i>				
R	4	7	0.69	0.69
E	6	6	0.76	0.75
O	4	4	0.64	0.85
CT	5	5	0.80	0.59
MSR	12	12	0.79	0.74
TSE	8	8	0.76	0.56
ER	4	7	0.69	0.56
PL	3	6	0.76	0.87
HS	4	7	0.52	0.52

Table 2. Cronbach's Alpha values of MSLQ HUV compared with those of Pintrich, et al. (1991) original English language version. MAI Hungarian Version (MAI-HUV)

The respondents filled in the MAI HUV for 52 items by choosing one of five Likert scales starting from 1) not at all true of me, 2) not really true of me, 3)

somewhat true of me, 4) pretty typical of me, 5) very true of me. The original version of Schraw & Dennison (1994) MAI used 0 or 1, that is it was a true or false style of self-report. The highest mean score of the subscale of MAI-HUV was Procedural Knowledge – Knowledge about Cognition, $\bar{X} = 3.93$, $SD = 0.74$, compared with the lowest mean score, which was for Evaluation – Regulation of Cognition, $\bar{X} = 3.41$, $SD = 0.65$. The subscale details are shown in Table 3 below. The Cronbach's Alpha values of two main parts, Knowledge about Cognition (KC) and Regulation of Cognition (RC) were also calculated. The highest Cronbach's Alpha value was found for the Planning sub-variable – Regulation of Cognition $\alpha = 0.80$, and the lowest was found for Conditional Knowledge – Knowledge about Cognition $\alpha = 0.60$, as shown in the table below.

Sub-scales	\bar{X}	SD
<i>Knowledge about Cognition</i>		
<i>Procedural Knowledge (PK)</i>	3.93	0.74
(3) Többnyire olyan tanulási módszereket választok, amelyek korábban már beváltak. (I try to use strategies that have worked in the past.)	4.47	0.71
(14) Tanulási módszereimet, stratégiáimat tudatosan, célirányosan választom meg. (I have a specific purpose for each strategy I use.)	3.68	1.06
(27) Többnyire tisztában vagyok azzal, hogy a tanulás során milyen módszereket, stratégiákat alkalmazok. (I am aware of what strategies I use when I study.)	3.97	0.94
(33) Automatikusan alkalmazok hatékony tanulási módszereket, stratégiákat. (I find myself using helpful learning strategies automatically.)	3.64	1.13
<i>Cronbach's Alpha = 0.76</i>		
<i>Declarative Knowledge (DK)</i>	3.89	0.59
(5) Tisztában vagyok saját szellemi (intellektuális) teljesítőképességem erősségeivel, gyengeségeivel. (I understand my intellectual strengths and weaknesses.)	4.25	0.82
(10) Tudom, hogy tanuláskor mire kell leginkább odafigyelni. (I know what kind of information is most important to learn.)	3.97	0.92
(12) Erősségem a tanultak rendezése, rendszerezése. (I am good at organizing information.)	3.39	1.18
(16) Tisztában vagyok azzal, hogy az adott tananyagból a tanár mit vár el tőlem. (I know what the teacher expects me to learn.)	3.69	0.97
(17) Jól emlékszem mindarra, amit olvastam vagy az órán hallottam. (I am good at remembering information.)	3.45	1.02
(20) Többnyire tudatában vagyok annak, hogy megértettem-e valamit, vagy sem. (I have control over how well I learn.)	4.12	0.85
(32) Képes vagyok megítélni, hogy az, amit tanulok, mennyire érthető	4.10	0.79

számomra. (I am a good judge of how well I understand something.) 4.16 0.86
 (46) Több időt fordítok a tanulásra, ha a tanulnivaló érdekel. (I learn more when I am interested in the topic.)
Cronbach's Alpha = 0.78

Conditional Knowledge (CK) 3.77 0.61
 (15) Akkor tanulok a legkönnyebben, ha már van előzetes ismeretem az adott témáról. (I learn best when I know something about the topic.) 4.21 0.91
 (18) A tananyag jellegétől és a tanulási szituációtól függően választom meg, hogy miként tanulok. (I use different learning strategies depending on the situation.) 3.46 0.98
 (26) Szükség esetén képes vagyok ösztönözni, rávenni magamat, hogy tanuljak. (I can motivate myself to learn when I need to.) 4.08 0.91
 (29) Szellemi (intellektuális) erősségeimet a gyengeségeim ellensúlyozására, kompenzálására használom. (I use my intellectual strengths to compensate for my weaknesses.) 3.53 0.97
 (35) Többnyire tisztában vagyok azzal, hogy mely tanulnivalóhoz milyen tanulási módszer, stratégia a leghatékonyabb. (I know when each strategy I use will be most effective.) 3.60 1.12
Cronbach's Alpha = 0.60

Regulation of Cognition

Planning (P) 3.47 0.77
 (4) Tanuláskor ütemtervet készítek, hogy jusson mindenre elegendő idő. (I pace myself while learning in order to have enough time.) 3.32 1.38
 (6) Előbb végiggondolom, hogy mire van szükségem, mielőtt belekezek egy feladat megoldásába. (I think about what I really need to learn before I begin a task.) 3.86 0.98
 (8) Egy feladat megoldása előtt konkrét célokat tűzök ki magam elé. (I set specific goals before I begin a task.) 3.47 1.16
 (22) A tanulás megkezdése előtt kérdéseket teszek fel magamnak a tanulnivalóval kapcsolatban. (I ask myself questions about the material before I begin.) 2.94 1.19
 (23) Mielőtt nekikezdek egy feladatnak, több lehetséges megoldási módot is számba veszek, és csak azt követően választom ki a legjobbat. (I think of several ways to solve a problem and choose the best one.) 3.94 0.95
 (42) Figyelmesen elolvasom a feladat szövegét és az instrukciókat, mielőtt nekilátok a megoldásnak. (I read instructions carefully before I begin a task.) 3.76 1.17
 (45) Úgy osztom be az időmet, hogy a lehető legkönnyebben megtanuljam, amit meg kell. (I organize my time to best accomplish my goals.)
Cronbach's Alpha = 0.80

Information Management Strategies (IMS) 3.73 0.56
 (9) Alaposan átgondolom, amikor fontos, új ismerettel találkozom a tanulás során. (I slow down when I encounter important information.) 3.58 1.05
 (13) A tanulás során tudatosan koncentrálok a fontosabb ismeretekre. (I

consciously focus my attention on important information)	3.97	0.93
(30) Odafigyelek az új ismeretek jelentésére, jelentőségére. (I focus on the meaning and significance of new information.)	3.99	0.88
(31) Saját szavaimmal példá(ka)t alkotok, hogy az, amit tanulok még érthetőbb legyen számomra. (I create my own examples to make information more meaningful.)	3.95	0.96
(37) A tanulás során ábrákat készítek, hogy jobban megértsem a tanulnivalót. (I draw pictures or diagrams to help me understand while learning.)	3.07	1.27
(39) A tanulnivalót megpróbálom a saját szavaimmal is elmondani. (I try to translate new information into my own words.)	4.12	0.92
(41) A tanulás során a tananyag logikus felépítésére támaszkodom. (I use the organizational structure of the text to help me learn.)	4.04	0.90
(43) A tanulás során kérdéseket teszek fel magamnak, hogy amit tanulok, az kapcsolódik-e ahhoz, amit már tudok. (I ask myself if what I'm reading is related to what I already know.)	3.53	1.12
(47) A tananyagot megpróbálom több kisebb egységre, részre felbontani. (I try to break studying down into smaller steps.)	3.82	0.99
(48) Inkább a tanulnivaló átfogó/áttekintő értelmezésére koncentrálok, és nem mélyedek el a részletekben. (I focus on overall meaning rather than specifics.)	3.24	1.08
<i>Cronbach's Alpha = 0.75</i>		
<i>Comprehensive Monitoring (CM)</i>	3.48	0.59
(1) A tanulás során gyakran teszem fel a kérdést, hogy értem-e azt, amit tanulok. (I ask myself periodically if I am meeting my goals.)	3.34	1.06
(2) Ha válaszolni kell egy bizonyos kérdésre, akkor több lehetőséget is számba veszek. (I consider several alternatives to a problem before I answer.)	3.60	0.89
(11) Egy feladat megoldásakor felteszem magamnak a kérdést, hogy minden lehetőséget számba vettem-e. (I ask myself if I have considered all options when solving a problem.)	3.24	1.08
(21) Időnként visszagondolok arra, mi segített abban, hogy rájöjjek bizonyos összefüggésekre. (I periodically review to help me understand important relationships.)	3.52	1.02
(28) Figyelni szoktam arra, ahogy tanulok az kellően hatékony-e, eredményes-e vagy sem. (I find myself analysing the usefulness of strategies while I study.)	3.74	0.89
(34) A tanulás során megállok, és ellenőrzöm, hogy értem-e azt, amit tanulok. (I find myself pausing regularly to check my comprehension.)	3.86	0.95
(49) Amikor tanulok, gyakran teszem fel magamnak a kérdést, hogy „jó úton járok-e”. (I ask myself questions about how well I am doing while I am learning something new.)	3.09	1.14
<i>Cronbach's Alpha = 0.68</i>		
<i>Debugging Strategies (DS)</i>	3.70	0.65
(25) Ha valamit nem értek, akkor másoktól kérek segítséget. (I ask others for help when I don't understand something.)	3.36	1.23

(40) Ha nem sikerül megérteni valamit, akkor tanulási módszert váltok. (I change strategies when I fail to understand.)	3.34	0.98
(44) Ha egy bizonyos fogalmat nem értek, akkor újraértékelem az előzetes feltevéseimet, sejtéseimet. (I reevaluate my assumptions when I get confused.)	3.49	1.01
(51) Ha nem világos számomra valami, akkor megállok és újra átnézem azt. (I stop and go back over new information that is not clear.)	4.09	0.89
(52) Ha a tanulás során nem értek valamit, akkor megállok, majd újra átolvasom a tanulnivalót. (I stop and reread when I get confused.)	4.25	0.83
<i>Cronbach's Alpha = 0.66</i>		
<i>Evaluation (E)</i>	3.41	0.65
(7) Amikor befejezek egy dolgot, akkor többnyire tudom, hogy az hogyan sikerült. (I know how well I did once I finish a test.)	3.69	1.04
(19) Egy feladat megoldása után felteszem magamnak a kérdést, hogy vajon nem lett volna-e másféle, egyszerűbb megoldás. (I ask myself if there was an easier way to do things after I finish a task.)	2.97	1.20
(24) A tanulás végén saját szavaimmal összefoglalom, hogy mit is tanultam. (I summarize what I've learned after I finish.)	3.93	1.09
(24) A tanulás végén saját szavaimmal összefoglalom, hogy mit is tanultam. (I summarize what I've learned after I finish.)	3.56	1.08
(36) A tanulás végén felteszem magamnak a kérdést, hogy mennyire sikerült megértenem a tanulnivalót. (I ask myself how well I accomplish my goals once I'm finished.)	2.86	1.07
(38) Egy feladat megoldását követően felteszem magamnak a kérdést, hogy vajon minden lehetőséget figyelembe vettem-e. (I ask myself if I have considered all options after I solve a problem.)	3.46	1.21
(50) A tanulás végén felteszem magamnak a kérdést tanultam-e annyit, amennyit kellett volna. (I ask myself if I learned as much as I could have once, I finish a task.)		
<i>Cronbach's Alpha = 0.61</i>		

Table 3 MAI Mean (\bar{X}) Standard Deviation (SD), reliability (N=118)

Validity of the questionnaires

Two processes were conducted to check the validity of both MSLQ and MAI:

1. When translating the two data collection tools from English into Hungarian, the language experts worked on the questionnaires before the content experts checked the Hungarian versions.
2. The computer program experts entered the two tools onto an online platform so that the participants can access the tools comfortably.
3. During the data collection process, the participants were provided with a PC at their institution; all of the participants got instructions before starting to answer questionnaires; they were provided with sufficient time for each section, and they were observed and supported along the way while they were filling in the questionnaires.

There are two computer laboratories at the research venue, and each room has about 30-35 computers. All processes of filling out the questionnaires for every participant were the same.

Conclusion

Self-regulated learning involves using both self-regulation and metacognition (Mannion, 2020). Self-regulation deals with how behaviour and emotion interact with the environment and maintain observation of and control over the interaction of behaviour and emotion toward the environment, whereas metacognition is concerned with observation of and control over the processes of thinking. All things considered, SRL aims to aid learners to become more effective through the preparation, observation, and evaluation of their learning processes. Cognition, metacognition, and motivation are the three key components of self-regulated learning (Foundation, 2016) and self-regulated learning itself is crucial in students' learning. Self-regulation plays a central role in effective learning, as a result of which it is one of the key areas of research in educational psychology (Panadero, 2017, pp. 1-28). Although MSLQ, a self-report tool, does not work as perfectly as idealistic literature assumes, as it does not dynamically gather data on self-regulated learning behaviours, it plays an outstanding role in group difference measurements. (Chemers et al., 2001, pp. 55-64 & Schraw et al., 2006, pp. 111-139), Jackson, 2018, pp. 191-196). At the same time, MAI can help teachers learn how aware their students are of metacognition, and it is also a good way to foster students' metacognitive reflection.

This study aimed to establish the reliability of the Hungarian versions of two data collection tools, namely MLSQ and MAI. These data collection tools will be used in a doctoral research project on the self-regulated learning, metacognition, and motivation of Hungarian minority students. The Hungarian version of MSLQ and MAI were created to have two reliable instruments that can be used in the intended research context, with Hungarian minority students. The Cronbach's Alphas of both parts of the last version of MLSQ HUV were acceptable, with the highest value from Part 1, motivation, where $\alpha = 0.86$ (TV) and Part 2, learning strategies, where $\alpha = 0.87$ (PL). On the other hand, the MAI Cronbach's Alpha score for its two parts and all sub-scales have high values. The highest score of Cronbach's Alpha = 0.86, and the lowest score = 0.70.

According to George & Mallery (2003), Cronbach's Alpha values below 0.5 are considered unacceptable. In contrast, in an article by Shi et al. (2012), the acceptable Cronbach's alpha values range from 0.6 to 0.8 (Shi, Mo, & Sun, 2012, pp. 152–155). Therefore, according to George & Mallery (2003), it is acceptable to keep the CLB section of MLSQ intact, since its $\alpha = 0.52$. However, based on Shi et al., it is debatable whether to reject this sub-scale or not in the future. Another challenge of using MSLQ is the small number of the items in some of its sub-scales. The low number of items in sub-scales can result in the sensitivity of the Cronbach Alpha: sometimes the calculated score is too high or too low. In the first two pilots of MLSQ HUV some Cronbach's Alpha values were unacceptable. To remedy this problem adding several items to the subscales with a low number of items was attempted, for example, the Peer-Learning subscale, which had only 3 items was amended. This attempt proved to be successful.

The ability to manage and organize one's learning, to self-reflect through monitoring and observing, and to evaluate one's abilities are only a few areas where SRL is crucial. The key point is that self-regulated learning is indispensable for self-direction, which in turn is essential for lifelong learning, the most effective means of personal development, improvement, and study. As a result of students' motivation to study and to develop learning strategies suitable for their surroundings and the task at hand, learners with self-regulated learning skills can become active learners.

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A MSLQ és a MAI magyar változatainak validálása a kisebbségi magyar hallgatók körében folytatandó kutatáshoz

Ma a tanulás több szabadságot biztosít a diákoknak, mint a múltban, többek között a tartalomhoz vagy a tananyagokhoz való könnyű hozzáférést és a rugalmas időbeosztás lehetőségét, szemben a hagyományos oktatással, amikor az iskolában, a tanteremben kellett tölteniük az idejüket. Az önszabályozó tanulás képességének (angolul self-regulated learning: SRL) fejlettségétől függenek azok a kognitív, metakognitív és motivációs készségek, amelyek lehetővé teszik a tanulók számára a kihívások leküzdését és saját tanulásuk hatékony megszervezését. A 'Motivated Strategies for Learning Questionnaire' (MSLQ) elnevezésű kérdőív a diákok önszabályozó tanulási készségeinek felmérésére szolgáló eszköz. Schraw és Dennyson 'Metacognition Awareness Inventory (MAI) elnevezésű kérdőíve a tanulók metakognitív képességeinek vizsgálatát szolgálja. E cikk célja, hogy feltárja és értékelje a tanulók önszabályozó tanulásával és metakogníciójával, az SRL elméletekkel és fogalmakkal kapcsolatos releváns szakirodalmat. Célja továbbá, hogy a Selye János Egyetem pedagógiai szakos hallgatóinak mintáján meghatározza a fent említett két eszköz magyar nyelvű változatainak megbízhatóságát és érvényességét. A vizsgálatban 120 pedagógia szakos hallgató vett részt, akik közül 102 nő volt. Az MSLQ motivációs skála A komponensében hat alskála található, és ezek Cronbach-alfái a következők: IGO $\alpha = 0,69$, EGO $\alpha = 0,84$, TV = 0,86, CLB $\alpha = 0,52$, SE $\alpha = 0,86$ és TA $\alpha = 0,74$. A B komponensben, amely a tanulási stratégiák kilenc alskáláját tartalmazza, az R α értéke 0,69; az E α értéke 0,75; az O α értéke 0,85; a CT α értéke 0,60; az MSR α értéke 0,80; a TSE α értéke 0,66; az ER α értéke 0,80; a PL α értéke 0,87; és a HS α értéke 0,57. Ami a MAI-t illeti, két fő komponensének, a megismerés ismeretének (KC) és a megismerés szabályozásának (RC) Cronbach alfa értékeit vizsgáltuk. A KC-t három alskála alkotja: PK, DK és CK. Cronbach Alpha értékeik pedig 0,82, 0,86 és 0,71 voltak. Az RC-t öt alskála alkotja. Ezek Cronbach-alfa értékei a következők voltak: A P α értéke 0,83, az IMS α értéke 0,83, a CM α értéke 0,77, a DS α értéke 0,74, az E α értéke pedig 0,70.

Keywords: önszabályozó tanulás, metakogníció, megismerés, motiváció, tanulási stratégia, önhatékonyság, pedagógia szakos hallgató, magyar kisebbségi oktatás