The European Proceedings of
Social & Behavioural Sciences
EpSBS

ISSN: 2357-1330

https://doi.org/10.15405/epsbs.2019.11.80

10th ICEEPSY 2019
International Conference on Education and Education Psychology

GENDER, EDUCATION LEVEL AND AUTONOMOUS LEARNING DIFFICULTY

Anna Studenska (a)*
*Corresponding author

(a) University of Silesia in Katowice, Katowice, Poland, anna.studenska@us.edu.pl

Abstract

Research have shown the frequency of various activities which students use to self-regulate their learning. There is scarcity of data concerning difficulty of autonomous learning. Therefore, the problem of the research presented in the article was: which autonomous learning activities students perceive as most difficult and as least difficult and are students` perceptions of autonomous learning activities difficulty related to students gender and educational level? Difficulty in learning evaluation, planning and motivational control was measured by 34-item Learning Autonomy Difficulty Questionnaire (alpha = 0,92). The participants were 452 students: 150 from middle school, 302 from secondary school, 248 women and 204 men. In the analyses median, number of "very difficult" answers to "very easy" answers ratio and Mann - Whitney test were used. Increasing willingness to learn in themselves proved to be the element of autonomous learning which the participants indicated as the most difficult for them. Middle school students found determinig knowledge and skills needed to achieve goals as more difficult than secondary school students. For secondary school students evaluating effectiveness of various learning strategies was more difficult than for their younger colleagues. Gender differences were also found. In learning autonomy support programmes special attention should be focused on fostering students` ability to control their learning motivation. Girls should be taught how to match learning plans to goals. For middle school students developing ability to independently formulate goals seems essential. The data also indicate the need to show various ways of goal achievement to secondary school students.

Keywords: Learning autonomy, learning difficulty, gender, educational level.

https://doi.org/10.15405/epsbs.2019.11.80
Corresponding Author: Anna Studenska
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

1. Introduction

The article presents research concerning differences in the difficulty of autonomous learning activities evaluations made by men and women on different educational levels.

1.1. Notions of autonomy and self-regulation

Autonomous actions, as defined on the ground of self-determination theory are intrinsically motivated and therefore "performed with a full sense of willingness, volition and choice" (Deci & Ryan, 2016, p. 12). Autonomy is closely linked to self-regulation. It can be understood as "self-regulation and integration in acting" (Ryan & Deci, 2017, p. 401). Self-regulation can be regarded as autonomous when and individual uses it to attain their goal or values or out of satisfaction from action itself (Grouzet, Sokol, & Müller 2013).

Self- regulation as understood in social cognitive theory is a process in which an individual organizes his or her thoughts, feelings and actions in systematic way to achieve a goal. The process is regarded to be cyclical and progressing from planning through performance and progress monitoring to evaluation of strategies used and outcomes which influences further planning (Usher & Schunk, 2018). Students master self-regulation of learning through interaction with people around them and with learning materials. Learners observe other people how they take advantage of self-regulatory strategies, imitate observed strategic behaviours, gain sense of self-efficacy, internalize use of the strategies which help them to manage their learning and finally, employ them in various contexts motivated by self-efficacy beliefs. Interaction with various learning materials allows learners with time to gain expertise in regulating their learning (Hoyle & Dent, 2018).

1.2. Learning autonomy and self - regulation development with age and educational status

Learning self-regulation skills develop with age. The basis for learning autonomy and leaning self-regulation is the development of general self-regulatory and cognitive processes connected with the capacity to inhibit responses and to focus attention. The ability to inhibit behaviours starts at the age of one, inhibition of a dominant response can be observed at the age of three. At the age of four the capacity to delay gratification appears. At preschool age children learn to focus their attention selectively and make connection between ideas they have remembered. In childhood also the capacity to use cognitive strategies and to monitor this process develops. Selecting short-term goals is observed at 8-10 years of age. At the age of ten students benefit from the ability to organize learning material. At the age of Teenagers are able to plan on middle – scale. In middle adolescence students can execute their control over learning by switching between tasks and make plans concerning their future education and employment (Demetriou 2000; Hoyle & Dent, 2018).

The level of self-regulatory skills development is related to metacognition understood as the knowledge concerning information input and output of cognitive processes and about how this information

https://doi.org/10.15405/epsbs.2019.11.80
Corresponding Author: Anna Studenska
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

is processed (Winne, 2018). The relationship is evidenced for example in the study by Dağal and Bayindir (2016). The level of self-management and self - control skills and motivation in learning measured by Self-Directed Learning Readiness Scale proved to be positively related to scores of Metacognitive Awareness Inventory capturing the level of students declarative, procedural and conditional knowledge of cognitive processes and regulation of cognition including planning, managing information, comprehension monitoring and searching for information strategies.

Research results concerning motivation to regulate learning process show its relationship with educational status. Martinek, Hofman, and Kipman (2016) both in literature review and in their original study provided evidence that the level of students` academic self-regulation decreases with age. Authors gathered measurements of three types of motivation to self-regulate learning from 413 students at the age ranging from 6 to 20 years. The analysed types self-regulated learning motivation were: rather controlled regulation (self-regulating learning for external rewards or to comply to the rule although and individual does not regard it as their own), rather self-detemined regulation (managing learning because one agrees it is valuable) and intrinsic regulation (self- regulating learning because a student wants it and has chosen to do so. The results showed that as students age increased, all three types of analysed motivation to self-regulation of learning decreased.

Contrary results were found in the research with adult learners. Rothes, Lemos, and Gonçalves (2017) in the study of adult learners` motivation to attend a course found that participants who obtained secondary level of education or higher had higher scores on autonomous regulation of learning, which means intrinsic motivation and use of learning strategies than students below secondary level of education.

Measurements of learning autonomy which distinguish such components as desire, initiative, resourcefulness persistence and autonomy appraisal (self-efficacy) showed that there is no linear relationship between learning autonomy and educational level in the group of young adults. Master degree university students had higher results than bachelor degree students only in desire scale measuring capacity to intentional action. Scores in resourcefulness, initiative and persistence scales were higher in secondary school students and in master degree university students than in bachelor degree students (Derrick, Rovai, Ponton, Confessore, & Carr, 2007).

Empirical evidence confirms the increase of learning strategies use with age. Research by Cadime et al. (2017) showed that when doing homework students from elementary school more rarely used self-regulatory strategy of planning than students from middle school. No differences between students of various educational levels in learning self-regulation of homework was found in terms of execution of learning plans and evaluation of learning outcomes.

1.3. Gender and learning autonomy and self-regulation

There is agreement that women in comparison to men approach learning differently from motivational, emotional and behavioural perspective (Grover & Miller, 2014). Research review made by

https://doi.org/10.15405/epsbs.2019.11.80
Corresponding Author: Anna Studenska
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

Rothes et al. (2017) showed that female students usually score higher in autonomous learning and intrinsic motivation measures than male students. Rothes et al. (2017) in a study with 188 persons aged between 25-64 years, confirmed that men answering questions concerning motives to attend a course for adults scored lower than women on autonomous scale of Self-regulation Questionnaire (SRQ-L). There were also significantly less men than women in the group with high autonomous learning regulation and low controlled learning regulation. There was no statistically significant difference between men and women in the use of learning strategies.

Gender differences were also found in the scores of learning autonomy measurements. Derrick et al. (2007) in their study used Learner Autonomy Profile. Data gathered showed that women had higher scores in such autonomy dimensions measured like initiative and resourcefulness understood as prioritizing learning over other activities ability to overcome obstacles.

Researchers studied gender differences in metacognitive processes, which form the basis for learning self-regulation and autonomy. Tock and Moxley (2018) gathered evidence that there was no difference in the way men and women answered 12 items of Metacognitive Self-Regulation Revised Scale reflecting two dimensions of metacognition: control and regulation. Data from 111 male and 236 female students showed that the model fit where all Scales`items loaded on the same variable was satisfactory in the group of women and the group of men. However, the fit was better for the group of men due to differences in arithmetic mean for answers of men and women to two items.

Differences between male and female students in self-regulation processes other than metacognition were also confirmed. Dresel and Haughwitz (2005) found that in the sample of mathematically gifted teenagers that girls in comparison to boys reported more frequent use of metacognitive strategies, adjusting effort and note taking. The results proved significant independent of participants ability in mathematics and motivation to learn the subject. Data gathered by Gover and Miller (2014) from 165 adult participants showed that women more frequently than men purchased equipment needed to acquire new knowledge and skills and attended workshops and subscribe to mailing lists connected with their interests. Testing factorial structure and validity of Homework Behavior Questionnaire on sample of elementary and middle school students showed that girls in comparison to boys more frequently used self-regulatory strategies connected with planning, execution of learning plans and evaluation of outcomes when doing homework. Karimpour, Sayad, Taheri, and Shelbani (2019) to test gender differences in learning self-regulation administered Self-Regulation learning strategies questionnaire by Zimmerman and Pounz (as cited in Usher & Schunk, 2018) to 200 Iranian students aged between 20 and 40. Data showed that women have higher score in in comparison with men in goal – setting, planning and expectations concerning outcomes. Men obtained higher scores in comparison to women in seeking support from a teacher, reviewing notes and doing homework.

https://doi.org/10.15405/epsbs.2019.11.80
Corresponding Author: Anna Studenska
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

2. Problem Statement

Literature reviewed showed inconsistent results concerning relationship between learning regulation and educational status. Negative or positive correlations were obtained depending on the way learning regulation was operationalized and on context in which research were made – schools or non-obligatory courses for adults. Gender differences in learning regulation were also inconsistent, although generally data gathered showed that women obtain higher scores than men in use of learning strategies of planning and evaluation of outcomes. Studies by Grover & Miller (2014) and Tock and Moxley (2018) indicate that gender differences in self-regulation may be constrained to particular activities connected with autonomous learning. Moreover, the measures used in the research concerned intensity of motivation or frequency of learning strategies used. There is scarcity of data concerning subjective difficulty experienced by students during autonomous or self-regulated learning. Given the need to know the level of difficulty experienced by students during autonomous learning and ambiguous results concerning the relationship between gender, educational level and learning autonomy the following research problem was formulated: **which autonomous learning activities are regarded by students as the easiest and which as the most difficult and is the evaluation of autonomous learning difficulty related to gender and educational level?**

3. Research Questions

Three specific research questions were:

- Which activities connected with autonomous learning participants experience as the most difficult and which as the least difficult?
- The difficulty of which activities connected with autonomous learning is evaluated differently by men and women?
- The difficulty of which activities connected with autonomous learning is evaluated differently by students of junior and secondary high schools?

4. Purpose of the Study

There were three purposes of the study. The first one was to know how students evaluate difficulty experienced during performing 34 activities connected with autonomous learning. The activities were selected based on learning autonomy and self-regulation definitions and components. The second purpose of the research was to verify hypotheses concerning differences between male and female students in evaluation of difficulty for each selected autonomous learning activity. The third purpose of the research was to verify hypotheses concerning differences between students from secondary school and university students in difficulty evaluations for each autonomous learning activity selected for the study.

https://doi.org/10.15405/epsbs.2019.11.80
Corresponding Author: Anna Studenska
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

5. Research Methods

5.1. Research tool

In the study Learning Autonomy Difficulty Questionnaire (LADQ) was used. The tool was constructed for the purpose of the research on the basis of Self-regulation Model suggested by Zimmermann (as cited in Usher & Schunk, 2018). The tool was constructed to measure perceived difficulty of actions connected with independent learning not their frequency. The final LADQ version contains 34 items. Each item begins with phrase: "When you study how difficult is it for you independently to …". The phrase is followed by a short description of action connected either with planning, realization, motivation control or evaluation of learning. Each ALDI item is evaluated on a seven-point scale ranging from: very easy (0 points) to very difficult (6 points). The higher the number on the scale the respondent indicates, the more difficult is it for them to perform activity described in an item. During factor analysis of answers of 264 students to 34 LADQ items (KMO=0,904) with oblimin rotation three main components emerged, explaining 44,9% of variance in the data. On the basis of this analysis LADQ items were divided into three scales labelled: difficulty of reflective evaluation, difficulty of learning motivation control and difficulty of planning learning

5.2. Participants

There were 454 persons who took part in the research. The participants were 150 middle school students (average age M=14,63; sd=0,93) and 302 secondary school students (average age M= 16,47, sd=1,56)). Among middle school students there were 77 women (51,3%) and 73 men (48,7 %). The group of secondary students consisted of 171 women (56,6%) and 131 men (43,4%). Two persons in this subgroup did not provide data concerning their gender.

6. Findings

6.1. Activities connected with autonomous learning participants experienced as the most difficult and the least difficult

To verify which activities connected with autonomous learning participants experience as most difficult and which as least difficult, for each LADQ item median of students` answers and number of "very difficult to number of "very easy " answers ratio were calculated. The higher the difficulty experienced by the participants during performing autonomous learning action described in a given item, the higher the median and the ratio of number of "very difficult to number of "very easy " answers. The results are shown in Table 01.

Among 34 activities included in Learning Autonomy Difficulty Questionnaire (LADQ) there were two with median of answers distribution equal to five, two with median equal to four, in the case of eighteen items median value was three and for 12 answers median equalled two. The value of number of "very

https://doi.org/10.15405/epsbs.2019.11.80
Corresponding Author: Anna Studenska
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

difficult to number of "very easy " answers ratio ranged from 0,05 to 9,55. On the basis of median and the number of number of "very difficult to number of "very easy " answers ratio it can be concluded that autonomous learning actions which participants experienced as the most difficult were:

- Increasing the willingness to learn in themselves (median equal to 5, number of "very difficult to number of "very easy " answers ratio equal to 9,55);
- Continuing learning when other activities would be more pleasant (median equal to 5, number of "very difficult to number of "very easy " answers ratio equal to 7,26);
- Concentrating on learning in the face of distractors (median equal to 4, number of "very difficult to number of "very easy " answers ratio equal to 9,6,39);
- Resigning from doing things which distract from learning (median equal to 4, number of "very difficult to number of "very easy " answers ratio equal to 2,67);

All statements concerning the four activities described by the participants as the most difficult in autonomous learning belong to ALDI scale measuring difficulty in learning motivation control.

Table 01. Perceived level of activities connected with autonomous learning included in Learning Autonomy Difficulty Questionnarire (LADQ)

LADQ item no.	LADQ scale*	LADQ item content When you study how difficult is it for you independently to:	Median	Number of "very difficult" answers	Number of „very easy" answers	Number of "very difficult" to number of "very easy" answers ratio
23	DMC	increase the willingness to learn in yourself	5	191	20	9,55
26	DMC	continue learning when other activities would be more pleasant	5	138	19	7,26
25	DMC	concentrate on learning in the face of various distractors	4	115	18	6,39
27	DMC	resign from doing things which distract you from learning	4	88	33	2,67
18	DMC	put learning plans into practice	3	78	34	2,29
7	DMC	assign time for learning on your own besides formal classes	3	69	40	1,73
21	DRE	check the effectiveness of various ways of learning	3	39	32	1,22
22	DMC	master emotions you experience in connection with your learning	3	75	65	1,15
6	DP	plan what you will learn in the distant future	3	49	45	1,09
30	DRE	reflect what changes you should introduce to make your learning better	3	31	31	1,00
19	DRE	use various ways of learning	3	36	38	0,95
20	DRE	pay attention whether your learning proceeds correctly	3	31	35	0,89
24	DMC	take advantage of your disposition, interests and circumstances to help yourself in learning	3	39	50	0,78
31	DRE	make changes in your learning when you think it is necessary	3	28	37	0,76
10	DP	determine the level of detail at which you should master learning material	3	22	40	0,55
28	DRE	evaluate the effectiveness of your learning	3	22	42	0,52
14	DP	to choose the way of learning which will enable you to obtain results you want to achieve	3	26	57	0,46

https://doi.org/10.15405/epsbs.2019.11.80
Corresponding Author: Anna Studenska
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

8	DP	look for people, materials or courses which could help you in your learning	3	25	56	0,45
15	DRE	choose the way of checking the level at which you have mastered learning material	3	24	55	0,44
29	DRE	determine whether the level at which you have mastered a certain knowledge or skill is satisfactory	3	14	35	0,40
4	DP	plan how you will use what you are good at to help you with your learning	3	18	48	0,38
16	DRE	determine how you will use your strong points during the test or the presentation of your work results	3	19	50	0,38
5	DP	plan what you will learn in the nearest future	2	33	77	0,43
12	DP	plan how much time you will devote to learn a given material	2	24	59	0,41
32	DRE	determine whether goals you want to achieve are worth your time and effort	2	20	79	0,25
13	DP	decide how you will learn a given material	2	17	72	0,24
33	DRE	identify causes of your learning results	2	20	85	0,24
34	DRE	determine whether what you are going to do will help you to achieve goals you strive for	2	18	75	0,24
11	DP	identify what is required to master certain material or to perform a given task	2	13	60	0,22
1	DP	determine what kind of knowledge or skill you need to achieve goals you have set yourself	2	10	49	0,20
17	DP	organize a place advantageous for your learning	2	26	136	0,19
2	DP	identify which goals connected with learning you want to achieve	2	14	78	0,18
9	DP	decide what learning outcomes you want to achieve	2	12	82	0,15
3	DP	determine what helps and what disturbs your learning	2	7	131	0,05

*Abbreviations in the column: LADQ scale:
DRE – difficulty of reflective evaluation
DMC – difficulty of learning motivation control
DP – Difficulty of planning learning

As the easiest autonomous learning activities the participants indicated

- Determining what helps and what disturbs their learning (median equal to 2, number of “very difficult” to number of “very easy “answers ratio equal to 0,05);
- Deciding what learning outcomes they want to achieve (median equal to 2, number of “very difficult” to number of “very easy “answers ratio equal to 0,15);
- Identifying which goals concerned with learning they want to achieve (median equal to 2, number of “very difficult” to number of “very easy “answers ratio equal to 0,18);
- Organizing a place advantageous for learning (median equal to 2, number of “very difficult” to number of “very easy “answers ratio equal to 0,19);

The four activities indicated by the participants as the easiest during autonomous learning are included in the statements belonging to difficulty of planning learning ALDI scale.

https://doi.org/10.15405/epsbs.2019.11.80
Corresponding Author: Anna Studenska
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

6.2. Gender, educational level and experienced autonomous learning difficulty evaluations

For each ALDI items answers of men and women as well as answers of middle and secondary school students were compared by means of Mann-Whitney test. The results are presented in Table 02.

The results presented in Table 02 show that women in comparison to men indicated greater difficulty in performing eight out of 34 activities connected with autonomous learning described in ALDI items. These eight autonomous learning activities experienced as more difficult by women than by men were:

- Four activities connected with reflective evaluation of learning
  - determining whether what a person is going to do will help them to achieve their goals (p=0,001)
  - determining how a person will use their strong points during the test or the presentation of their work results (p=0,003)
  - determining whether the level at which one has mastered a certain knowledge or skill is satisfactory (p=0,022)
  - evaluating the effectiveness of one`s learning (p=0,046)
- Two activities related to planning
  - determining what kind of knowledge or skill is needed to achieve goals a person has set for themselves (p<0,001)
  - determining the level of detail at which learning material should be mastered (p=0,022)
- Two activities pertaining to learning motivation control
  - mastering emotions a person experiences in connection with their learning (p=0,016)
  - concentrate on learning in the face of various distractors (p=0,029)

Hypotheses assuming differences between men and women in difficulty evaluation was verified in the case of eight out of 34 autonomous learning activities described by LADQ items no. 10, 16, 22, 25, 28, 29 and 34.

Table 02. Differences between women and men as well as between middle school and secondary school students in evaluations of experienced difficulty of autonomous learning actions.

LADQ item no.	LADQ scale	LADQ item content When you study how difficult is it for you independently to:	Comparison of difficulty evaluations made by men and women					Comparison of difficulty evaluations made by middle school and secondary school students				
			average rank by men (N=204)	average rank by women (N=248)	Mann-Whit Ney U	Z	p	average rank in middle school students (N=150)	average rank in secondary school students (N=304)	Mann-Whit Ney U	Z	p
1	DP	determine what kind of knowledge or skill you need to achieve goals you have set yourself	203,35	245,54	20573	-3,49	**0,001**	246,45	218,15	19958	-2,21	**0,027**
2	DP	identify which goals connected with learning you want to achieve	214,58	236,31	22863,5	-1,79	0,074	244,85	218,94	20198	-2,01	**0,044**
3	DP	determine what helps and what disturbs your learning	222,26	229,99	24430,5	-0,64	0,521	228,42	227,05	22662	-0,11	0,914

https://doi.org/10.15405/epsbs.2019.11.80
Corresponding Author: Anna Studenska
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

4	DP	plan how you will use what you are good at to help you with your learning	215,13	235,85	22977	-1,71	0,087	230,6	225,97	22335	-0,36	0,719
5	DP	plan what you will learn in the nearest future	226,45	226,54	25285	-0,01	0,994	235,16	223,72	21651	-0,88	0,376
6	DP	plan what you will learn in the distant future	214,49	236,38	22846	-1,79	0,073	232,14	225,21	22104,5	-0,54	0,592
7	DMC	devote time for learning on your own besides formal classes	232,32	221,71	24109	-0,87	0,385	219,22	231,58	21558,5	-0,96	0,339
8	DP	look for people, materials or courses which could help you in your learning	216,07	235,08	23168,5	-1,56	0,118	226,29	228,1	22619	-0,14	0,889
9	DP	decide what learning outcomes you want to achieve	221,74	230,42	24325	-0,72	0,474	239,22	221,72	21042	-1,36	0,173
10	DP	determine the level of detail at which you should master learning material	211,31	239	22197	-2,28	**0,022**	235,86	223,38	21546,5	-0,97	0,332
11	DP	identify what is required to master certain material or to perform a given task	219,19	232,52	23804	-1,1	0,270	233,88	224,35	21843	-0,74	0,457
12	DP	plan how much time you will devote to learn a given material	227,77	225,46	25037	-0,19	0,849	225,04	228,71	22431	-0,28	0,776
13	DP	decide how you will learn a given material	229	224,45	24787	-0,37	0,708	232,98	224,8	21978	-0,64	0,525
14	DP	to choose the way of learning which will enable you to obtain results you want to achieve	221,2	230,86	24214,5	-0,8	0,426	222,23	230,1	22010	-0,61	0,541
15	DRE	choose the way of checking the level at which you have mastered learning material	214,82	236,11	22913,5	-1,75	0,080	223,21	229,62	22156,5	-0,5	0,619
16	DRE	determine how you will use your strong points during the test or the presentation of your work results	206,6	242,87	21237	-2,99**	**0,003**	235,38	223,61	21618	-0,92	0,360
17	DP	organize a place advantageous for your learning	237,21	217,69	23111,5	-1,62	0,106	215,81	233,27	21047	-1,36	0,173
18	DMC	put learning plans into practice	222,28	229,97	24435	-0,63	0,528	196,95	242,57	18218	-3,53	**0,001**
19	DRE	use various ways of learning	223,97	228,58	24779	-0,38	0,704	204,86	238,67	19404	-2,62	**0,009**
20	DRE	pay attention whether your learning proceeds correctly	228,77	224,63	24832,5	-0,34	0,733	215,5	233,42	20999,5	-1,39	0,164
21	DRE	check the effectiveness of various ways of learning	221,92	230,26	24362,5	-0,69	0,493	196,6	242,75	18165	-3,58	**0,001**
22	DMC	master emotions you experience in connection with your learning	210,32	239,81	21995	-2,42	**0,016**	219,29	231,55	21569	-0,95	0,343
23	DMC	increase the willingness to learn in yourself	227,88	225,37	25015	-0,21	0,832	217,15	232,61	21247,5	-1,23	0,218
24	DMC	take advantage of your disposition, interests and circumstances to help yourself in learning	217,61	233,81	23482	-1,33	0,183	221,52	230,45	21903	-0,69	0,489
25	DMC	concentrate on learning in the face of various distractors	211,95	238,47	22328	-2,19	**0,029**	211	235,64	20325,5	-1,92	0,055
26	DMC	continue learning when other activities would be more pleasant	219,93	231,9	23956,5	-0,99	0,321	211,86	235,22	20454	-1,83	0,068
27	DMC	to resign from doing things which distract you from learning	233,08	221,08	23953	-0,99	0,324	225,42	228,53	22488	-0,24	0,810
28	DRE	evaluate the effectiveness of your learning	213,27	237,39	22596,5	-2	**0,046**	222,59	229,92	22064	-0,57	0,567
29	DRE	determine whether the level at which you have mastered a certain knowledge or skill is satisfactory	211,28	239,02	22191,5	-2,3	**0,022**	234,08	224,25	21813,5	-0,77	0,443
30	DRE	reflect what changes you should introduce to make your learning better	217,17	234,17	23393	-1,41	0,158	213,34	234,49	20675,5	-1,66	0,098
31	DRE	make changes in your learning when you think it is necessary	223,36	229,08	24656	-0,47	0,637	214,85	233,74	20903	-1,47	0,141

https://doi.org/10.15405/epsbs.2019.11.80
Corresponding Author: Anna Studenska
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

32	DRE	determine whether goals you want to achieve are worth your time and effort	224,02	228,54	24790	-0,37	0,709	237,99	222,32	21226	-1,22	0,223
33	DRE	identify causes of your learning results	218,3	233,24	23623,5	-1,23	0,219	240,56	221,06	20841,5	-1,51	0,130
34	DRE	determine whether what you are going to do will help you to achieve goals you strive for	204,92	244,25	20893	-3,24	**0,001**	224,39	229,04	22333	-0,36	0,718

*Abbreviations in the column LADQ scale: DRE – difficulty of reflective evaluation; DMC – difficulty of learning motivation control; DP – Difficulty of planning learning

Secondary school students in comparison with middle school students evaluated as more difficult the following autonomous learning activities:

- Two activities from the scale of reflective evaluation of learning
    - checking the effectiveness of various ways of learning (p= 0,001)
    - use various ways of learning (p=0,009)
- One activity belonging to controlling learning motivation scale, namely putting learning plans into practice (p=0,001).

The data gathered also show that middle school students in comparison with secondary school students among 34 autonomous learning activities described in LADQ items indicated two as more difficult. These activities were:

- determining what kind of knowledge or skill you need to achieve goals you have set yourself (p=0,027), and
- identifying which goals connected with learning you want to achieve (p=0,044).

The results obtained support hypotheses assuming differences between middle and secondary school students in evaluation of autonomous actions difficulty in the case of actions described in 5 LADQ items numbered 1, 2, 18, 19 and 21.

7. Conclusion

The study presented in the article aimed at testing gender and educational level differences in students` evaluations of difficulty of activities connected with autonomous learning. For the purpose of the research Learning Autonomy Difficulty Questionnaire (LADQ) was constructed measuring difficulty of reflective evaluation of learning process and outcomes, difficulty of learning motivation control and difficulty of planning learning. Students from middle school (77 women and 73 men) and from secondary school (171 women and 131 men) participated in the study. Analysis of students' responses may be summarized in five main points.

- The most difficult aspect of autonomous learning regulation for the participants proved to be learning motivation control.
- Activities connected with planning learning were reported as the easiest ones by the participants of the study.

https://doi.org/10.15405/epsbs.2019.11.80
Corresponding Author: Anna Studenska
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

- Women in comparison to men experienced as more difficult activities connected with reflective evaluation of learning process, deciding what knowledge and skill should be mastered and to what extent, as well as controlling learning motivation through managing emotions and coping with distractions.
- Middle school students in comparison with their older colleagues reported more difficulty experienced during goal setting and deciding on knowledge and skills they need to achieve their goals.
- Secondary school students in comparison to younger ones reported as more difficult checking the effectiveness of various ways of learning and using them when attempting to master knowledge or skills.

Comparison of present study results with research described in the literature review indicates that collecting data concerning autonomous learning difficulty may help to interpret results concerning frequency of regulatory strategies use. Literature review concerning gender differences showed that women either do not differ from men in frequency of their learning self-regulation (Rothes et al., 2017) or more frequently than men use metacognitive strategies of adjusting effort to work demands, planning, formulating expectations concerning outcomes (Dresel & Haugwitz, 2005; Karimpour et al., 2019) and manage learning resources more intensively than their male counterparts (Grover & Miller, 2014). The data gathered in own research indicate that women in comparison to men regard motivation regulation and using metacognitive strategies as more difficult. This refers specifically to such regulation strategies as deciding on knowledge and skill to be mastered to achieve a goal, desired level of material mastery, selecting learning activities to achieve goals, benefiting from one`s strong points in learning, and evaluating learning outcomes. The comparison of research presented in literature review and own results indicates that women may use metacognitive strategies despite experiencing them as difficult.

Research by Derric et al. (2017) and by Rothes et al. (2017) show that older students report more difficulty in putting learning plans into practice than younger ones. Study by Cadime et al. (2017) showed that the use of planning learning strategies increases with students age. Present study gave evidence that planning strategies are regarded as more difficult for younger students than for older ones.

The results of the present study allowed for formulation of the following conclusions:

- Students should be instructed how to control motivation and emotions which accompany learning.
- Goal setting should be taught especially to 13-16 – year old students attending middle school.
- Fostering autonomous learning of female students should emphasize matching learning plans to goals.
- Students on secondary level of education would benefit especially from instruction concerning usage of various ways of learning and evaluating their effectiveness of learning strategies.

https://doi.org/10.15405/epsbs.2019.11.80
Corresponding Author: Anna Studenska
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

Current study shows that future research would benefit from data showing direct relationship between frequency and difficulty measures of the use of learning regulatory strategies by students.

References

Cadime, I., Cruz, J., Silva, C., & Ribeiro, I. (2017). Homework self-regulation strategies: a gender and educational level invariance analysis. *Psicologia: Reflexão e Critica, 30*, 8.

Dağal, A. B., & Bayindir, D. (2016). The investigation of the relationship between the level of metacognitive awareness, self-directed learning readiness and academic achievement of preschool teacher candidates. *Universal Journal of Educational Research*, *4*(11), 2533-2540.

Deci, E. L., & Ryan, R. M. (2016). Optimizing students` motivation in the era of testing pressure: a self-determination theory perspective. In W. Chia Liu, J. Chee Keng Wang, & R. M. Ryan (Eds.), *Building autonomous learners. Perspectives from research and practice using Self-Determination Theory* (pp. 9-29). Springer.

Demetriou, A. (2000). Organization and development of self-understanding and self-regulation. Toward a general theory. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 209–254). San Diego: Academic Press.

Derrick, M. G., Rovai, A. P., Ponton, M., Confessore, G. J., & Carr, P. B. (2007). An examination of gender, maritial status and prior educational attainment and learner autonomy. *Educational Research and Review, 2*(1), 1-8.

Dresel, M., & Haugwitz, M. (2005) The relationship between cognitive abilities and self-regulated learning: evidence for interactions with academic self-concept and gender. *High Ability Studies, 16*(2), 201–218.

Grouzet F. M., Sokol, B. W., & Müller, U. (2013). Self-regulation and autonomy. An Introduction. In B. W. Sokol, F. M. Grouzet, & U. Müller (Eds.), *Self-regulation and autonomy. Social and developmental dimensions of human conduct* (pp. 1-18). Cambridge University Press.

Grover, K., & Miller, M. (2014). Gender differences in self-directed learning practices among community members. *PACE Journal of Lifelong Learning, 23*, 19-31.

Hoyle, R. H., & Dent, A. L. (2018). Developmental trajectories of skills and abilities relevant for self-regulation of learning and performance. In: D. H. Schunk, J. A Greene (eds.). *Handbook of Self-Regulation of Learning and Performance Routlege*: New York and London, pp 49-63.

Karimpour, S., Sayad, A., Taheri, M., & Sheibani, K. A. (2019). A gender difference in emotional intelligence and self-regulation learning strategies. Is it True? *Novelty in Biomedicine, 2*, 38-44.

Martinek, D., Hofmann, F., & Kipman, U. (2016). Academic self-regulation as a function of age: the mediating role of autonomy support and differentiation in school. *Social Psychology Education, 19,* 729-748.

Rothes, A., Lemos, M. S., & Gonçalves, T. (2017). Motivational profiles of adult learners. *Adult Education Quarterly, 67*(1), 3-29.

Ryan, R., Deci, E. (2017). *Self-determination theory: basic psychological needs in motivation, development, and wellness*. New York, NY: The Guilford Press.

Tock, J. L., & Moxley, J. H. (2018). Measurement invariance across gender for the Metacognitive Self-Regulation revised scale. *Journal of Psychoeducational assessment, 36*(5), 509- 515.

https://doi.org/10.15405/epsbs.2019.11.80
Corresponding Author: Anna Studenska
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

Usher, E. L., & Schunk, D. H. (2018). Social cognitive theoretical perspective of self-regulation. In D. H. Schunk, & J. A Greene (Eds.). *Handbook of Self-Regulation of Learning and Performance* (pp. 19-35). New York, NY: Routlege.

Winne, P. H. (2018). Cognition and metacognition within self-regulated learning. In D. H. Schunk, & J. A Greene (Eds.). *Handbook of Self-Regulation of Learning and Performance* (pp. 36-48). New York, NY: Routlege.