

EMOTIONAL HABITUAL SUBJECTIVE WELL-BEING IN SELECTED LESSONS AMONG SECONDARY SCHOOL STUDENTS

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Abstract: The paper focuses on finding the relationships between the frequency of experiencing positive and negative emotional states, students' subjective evaluation of the subjects of mathematics, Slovak language and literature, English language, civics and physical education in terms of their popularity, difficulty and importance, and school achievement in these subjects. The research population consisted of 168 (100%) pupils second and third-year pupils of a secondary vocational school in Žilina. The research included: the Subjective Emotional Habitual Well-being Questionnaire (Džuka, Dalbert, 2002) and the Attitudes to Learning Subjects Questionnaire for Pupils (Hrabal, Pavelková, 2010). The most important results of the research revealed that the teaching subject of mathematics was rated the worst in all the surveyed items. Pupils perceived mathematics as the least favourite subject, the most challenging, the least important. They had the worst average school achievement in it, experienced the most negative and least frequently positive emotional state of all the subjects studied. English was the most significant teaching subject. Physical education was the most popular subject taught to the students. Pupils' attitudes towards the subjects taught did not change much over time, being stable and unambiguous. Only the subject of mathematics, which current pupils perceived to be less popular and less important than in the past, showed a change. We found a high correlation between the frequency of experiencing a positive state of mind and the popularity of the assessed teaching subjects in mathematics and physical education.

Keywords: emotional habitual subjective well-being, difficulty of teaching subjects, popularity of teaching subjects, school achievement, teaching subject, relevance of teaching subjects, pupil

1 Introduction

A school is a complex system, and many factors influence its functioning. According to Hulan and Dzuriková (2007), we can say that school should build a sense of human dignity and respect in children. Acceptance of the child and unconditional acceptance is also important. Pupils spend much time in school, getting into pleasant but also unpleasant and stressful situations, which they experience very intensely (Roľková, 2018). Emotional subjective well-being, according to Diener and Lucas (2000), Brzákova Krelková (2013), such as a good psychological state, including all the positive and negative evaluations that people make in their lives and their personal emotional reactions to experiences, as a correlation between the presence of positive relationships, the absence of negative affects and satisfaction with pupils' lives is important because it affects pupils' quality of life, behaviour and also educational outcomes (Foglová & Tomšík, 2017). The pupils' subjective perception of the teaching subject influences their motivation and attitude towards the teaching subject, which is, however, also determined by the social representation (reputation) of the teaching subject in the population (Hrabal & Pavelková, 2010).

In psychological research (Džuka & Dalbert, 1997; Brzákova Krelková, 2013; Valihorová, 2020), we can meet with the naming of a positive mood of a person using the concept of happiness, subjective well-being or satisfaction. Blatný, Dosedlová and Kebza et al. (2005) use the term subjective well-being, psychological or mental well-being. Other terms used are life satisfaction, mental health or happiness. In the Czech literature, the term personal well-being describes this phenomenon (Plevková & Peráčková, 2016). Subjective well-being consists of components such as satisfaction with life (overall evaluation and assessment of one's own life), satisfaction with significant areas of life (e.g. family, work, finances), positive emotions - experiencing pleasant emotions and moods, and low levels of negative affects - a little bit unpleasant moods and emotions (Foglová, 2018).

Subjective well-being and school

Subjective well-being also influences pupils' school performance, affecting their overall quality of life, behaviour and educational outcomes. Pupils with high subjective well-being are rated highly positively by teachers. Foglová and Tomšík (2017) confirmed in their research that high personal well-being is a very stable variable concerning pupils' school achievement. According to the authors, teachers play an essential role in creating opportunities for their pupils to be successful and should consider the findings that pupils should be happy in school and consequently will achieve higher school success.

Research on the human psyche highlights the interconnectedness of emotions and cognitive processes (Petlák, 2018). Pupils tend to perform better and learn more when they enjoy their school experiences. Conversely, if they do well and experience success in school, they are likelier to feel happy there (Vendel, 2018). School subjective well-being is crucial for pupils because it affects their overall quality of life, behaviour and educational outcomes (Foglová & Tomšík, 2017). Subjective well-being influences students' interest in school, motivation to learn, influences their success, achievement, engagement in the learning process and their satisfaction at school (Štrpková & Roľková, 2020).

It is crucial to consider the pupil's relationship to the subject, as this will also determine the pupils' emotional attitude towards the course of the lesson (Petlák, 2018; Urbanovská, 2006; Ryšavá, 2015; Antala, Šimonek & Čillík et al., 2012).

Fear, anxiety, anger, and worry about the future are emotional states that produce increased levels of the stress hormone noradrenaline in the adrenal medulla (Petlák, 2018). Even negative emotions can affect the learning outcome in a good way, but they only impact the learning outcome, not the learning process itself. It results in subsequent problems, such as forgetting the learnt topic. School should be a safe place without violence, aggression, severe conflicts and stress because all these factors slow down or even prevent the learning process (Roľková, 2020). Negative emotions block the pupil's thought activities and the progress of cognitive processes, and fatigue occurs earlier (Urbanovská, 2006).

Pupils' attitudes to subjects

The students' subjective perceptions of the subject can influence their attitude, motivation, or experience of overload or boredom. Each subject creates unique situations that require different work by the teacher and the pupils. The subject fulfils its function when it conveys information to pupils, enabling them to lead a satisfying personal life and succeed professionally. For a subject to fulfil this function, pupils must find it attractive (it should be popular with them), easy but not too easy, and they should be aware of its importance, especially in future careers. For example, in subjects described as unpopular and difficult but highly important (mathematics, mother tongue), if pupils are aware of the importance of the subject, they consider it essential to master it and are open to the teacher's motivational influence (Pavelková, Škaloudová & Hrabal, 2010). The teacher's role is to eliminate any adverse influences related to the teaching process so that the subjective perception of a particular subject does not have a possible negative impact on the pupils' health or their future lives, for example, by limiting the choice of future profession (Cibulková, 2018). Pupils' subjective attitudes towards subjects have not changed much over the years, except for attitudes towards foreign languages and civics, which pupils favour more than in the past (Pavelková & Škaloudová, 2006). Enjoyment of the subject is defined as the emotional experience of the subject and in the subject. It represents both a prerequisite and a result of motivation for the learning activity. The teaching subject can also be perceived as a favourite by pupils because of

its low demands. Therefore, it is impossible to draw conclusions about teaching effectiveness reflected in pupils' academic performance unequivocally based on the subject's popularity alone. If pupils perceive the subjects positively, the teachers have sufficiently motivated them and have thus fulfilled part of their pedagogical mission. The low popularity of the teaching subject indicates a kind of aversion, negative emotions and withdrawal (Hrabal & Pavelková, 2010).

From the subjective evaluation of the subject's difficulty by the students, it is possible to obtain information about its performance in terms of the adequacy of the requirements, content and performance objectives. It is an experienced and perceived difference between the pupil's realised capabilities and the teacher's requirements and performance. If the teacher creates good conditions and prerequisites for pupils to solve even complex tasks, they will not experience them as too demanding. A medium level of difficulty in the subject is optimal. Increasing the difficulty of a subject has a positive effect only if it does not reduce pupils' motivation, the popularity of the subject and the intensity of pupils' preparation for other subjects. Pupils' data on the difficulty of the subject compared to other subjects is considerably stable (Hrabal & Pavelková, 2010).

We can understand the relevance of the teaching subject as a motivational resource in terms of its application in society and its importance for achieving one's own goals in the future. Asking about the significance of the teaching subject ascertains the subjective meaning of an individual's activity. Pupils of the second grade at primary school should already be able to judge to what extent a subject of teaching benefits them, bringing a gain for their life perspective and personal growth. Awareness of the importance of a particular subject is an essential component of motivation towards it. The popularity of a teaching subject with an intensely experienced meaning indicates the optimal motivational action of the teacher. However, high popularity associated with low relevance may signal cheap popularity given, for example, by the low difficulty of the teaching subject (Hrabal & Pavelková, 2010).

The characteristics of the teaching subject mentioned above depend on the social representation (reputation) of the teaching subject in the population and the individual student's subjective experience. The pupils' perception of the teaching subject reflects in their attitude towards the teaching subject. This attitude is further influenced by how successful or unsuccessful pupils are in the subject (Hrabal & Pavelková, 2010).

The relationship between popularity, difficulty and importance of the subject

When interpreting students' attitudes towards subjects, it is necessary to consider the correlation of the assessed parameters, especially the relationship between the popularity and the difficulty of the subject. The growth of both these indicators is positive. It shows how the teachers can manage the tension between the demands (effort, energy expended) on the one hand and the positive experience (attractiveness of the activity) on the other hand through their pedagogical acting. Challenging subjects are usually not popular, and pupils are likelier to underperform in them (Hrabal & Pavelková, 2010).

The more challenging the subject, the less popular it is. Such subjects include, for example, mathematics and mother tongue. A similar trend applies to medium popular and medium challenging subjects such as English. The more popular a subject is in pupils' eyes, the more important it is to them, and the more important it is to them, the more they like it. The moderate link between popularity and perceived importance holds for subjects that are perceived to be popular (most educational subjects) and subjects that are perceived to be less popular (mathematics). There is little dependence and a less stable link between the difficulty of a teaching subject and its importance. There was only a weak to moderate correlation between popularity and school achievement in a subject. Thus, it is not the case that if

pupils have good school achievement in a subject, they will also like it. It is impossible to say that pupils who do poorly in a subject also find it difficult and, conversely, pupils who do well in a subject find it easy. There is only a weak link between the importance of the subject and school achievement (Hrabal & Pavelková, 2010).

Pupils have different attitudes to the subject depending on their abilities, interests or family background. The attitude of the school class towards the subject or the teacher's influence is also crucial. The more moderate the school grade, the more likely the subject will be considered easier and probably more popular, but its importance is likely to decrease (Hrabal & Pavelková, 2010). Based on the theoretical and empirical findings of, for example, Džuka and Dalbert (2002), Pavelková and Škaloudová (2006), Hrabal and Pavelková (2010), Foglová and Tomšík (2017), Petlák (2018), Vendel (2018), Cibulková (2018), we have identified the following research objectives:

- to find out the subjective attitudes of secondary vocational school pupils towards the subjects mathematics, Slovak language and literature, English language, civics and physical education in terms of their popularity, difficulty and importance,
- to find out the academic achievement of secondary vocational school pupils in mathematics, Slovak language and literature, English language, civics and physical education,
- to find out the frequency of emotional habitual subjective well-being of secondary vocational school pupils expressed by the frequency of positive and negative emotional states in the subjects of mathematics, Slovak language and literature, English language, civics and physical education,
- to identify possible differences in the subjective evaluation of the subjects mathematics, mother tongue, English language, civics and physical education between pupils of a secondary vocational school in the Slovak Republic in 2021 and pupils of grammar schools in the Czech Republic in the years 2005-2007,
- to identify possible differences in school achievement in the subjects of mathematics, mother tongue, English language, civics and physical education between pupils of a secondary vocational school in the Slovak Republic in 2021 and pupils of grammar schools in the Czech Republic in 2005-2007,
- to find out the possible relationship between the frequency of emotional habitual subjective well-being of secondary vocational school students and their subjective evaluation of the subjects of mathematics, Slovak language and literature, English language, civics and physical education,
- to find out the possible relationship between the frequency of emotional habitual subjective well-being of secondary vocational school pupils and their academic achievement in the subjects of mathematics, Slovak language and literature, English language, civics and physical education.

Based on the objectives presented, we established the following research questions:

RQ1: How do secondary vocational school pupils subjectively evaluate the subjects of mathematics, Slovak language and literature, English language, civics and physical education in terms of popularity, difficulty and importance?

RQ2: What educational results (average school achievement) do pupils of secondary vocational school achieve in mathematics, Slovak language and literature, English language, civics and physical education?

RQ3: How do secondary vocational school students subjectively experience the subjects of mathematics, Slovak language and literature, English language, civics and physical education?

RQ4: Is there a difference in the subjective evaluation of the subjects of mathematics, mother tongue, English language, civics and physical education between pupils of a secondary vocational school in the Slovak Republic in 2021 and pupils of grammar schools in the Czech Republic in 2005-2007?

RQ5: Is there a difference in school achievement in the subjects of mathematics, mother tongue, English language, civics and physical education between pupils of a secondary vocational school in the Slovak Republic in 2021 and pupils of grammar schools in the Czech Republic in 2005-2007?

RQ6: Is there a correlation between the frequency of emotional habitual subjective well-being of secondary vocational school students and their subjective evaluation of the subjects of mathematics, mother tongue, English language, civics and physical education?

RQ7: Is there a correlation between the frequency of emotional habitual subjective well-being of secondary vocational school pupils and their academic achievement in the subjects of mathematics, Slovak language and literature, English language, civics and physical education?

2 Methods

The research population comprised 168 (100%) participants, students of the Secondary Vocational School of Agriculture and Rural Services in Žilina. 83 pupils (49.40%) attended the second, and 85 pupils (50.60%) attended the third school grade. A total of ten school classes (five second-grade and five third-grade classes), in which pupils took the same subjects in a given school year: mathematics, Slovak language and literature, English language, civics and physical education, participated in the questionnaire survey. Of the 168 (100%) participants, 29 (17.26%) were boys, and 139 (82.74%) were girls. The mean age of the participants was 17.13 ± 0.71 years.

We chose the questionnaire method to obtain the necessary data. We administered the questionnaires to the students in an online form. The research participants were informed about the primary aim of the work, voluntariness and anonymity of the provided data. Instructions for completion were in the introduction of the questionnaire. The demographic data in the questionnaire consisted of information about the gender, school grade, and age of the participants. We used the following research methodology:

The students' subjective well-being was measured using the SEHP Emotional Habitual Subjective Well-being Questionnaire (Džuka & Dalbert, 2002).

To determine pupils' attitudes towards the evaluated subjects, we used the Attitudes towards Subjects Questionnaire for Pupils (Hrabal & Pavelková 2010).

In order to compare the subjective attitudes of pupils towards subjects in our research with the subjective attitudes of pupils towards subjects that were analysed in the research in 2005-2007, we used the reference standards presented by Hrabal and Pavelková – *Postoje k předmětům – referenční normy – gymnázium* (Attitudes towards subjects – reference norms – secondary grammar schools, Hrabal & Pavelková, 2010). These norms represent the research results carried out in the last four years of grammar schools in the Czech Republic. Since the subject assessed in the reference standards is the Czech language and, in our research, the Slovak language and literature, we compare these subjects in the context of the mother tongue taught in the country.

The collected data were processed using SPSS statistical program and Excel. We interpreted correlation coefficients according to Hinkle, Jurs and Wiersma (1994).

3 Results

In RQ1, we asked how secondary vocational school students subjectively evaluate the subjects of mathematics, Slovak language and literature, English language, civics and physical education in terms of popularity, difficulty and importance. Based on the obtained data, we can express the following characteristics of the subjectively evaluated subjects in terms of their popularity, difficulty and importance by the pupils of secondary vocational school:

Students subjectively rated mathematics as a subject they disliked (AM = 3.92; SD = 1.16) and found it challenging (AM = 2.12; SD = 1.03); it was partially significant for students (AM = 3.43; SD = 1.06). The Slovak language and literature subject was a moderately popular (AM = 2.85; SD = 0.71) and moderately challenging (AM = 2.86; SD = 0.66) subject among pupils. Pupils also rated it subjectively as an important teaching subject (AM = 2.14; SD = 0.83). The English language was subjectively rated as a moderately popular (AM = 2.71; SD = 1.19) and moderately challenging (AM = 2.71; SD = 1.06) teaching subject by pupils. At the same time, pupils considered it an important teaching subject (AM = 1.70; SD = 0.94). Civics was moderately popular (AM = 3.13; SD = 0.96), moderately challenging (AM = 3.30; SD = 0.79), and partially important (AM = 3.17; SD = 0.94) to students. Students reported physical education as a favourite (AM = 2.39; SD = 1.02), easy (AM = 3.83; SD = 0.95), and partially significant subject (AM = 2.87; SD = 1.09).

In RQ2, we asked what educational results the pupils of the secondary vocational school achieved in mathematics, Slovak language and literature, English language, civics and physical education. Based on the research results, we can say that pupils achieved the worst academic achievement in the assessed subjects in mathematics (AM = 2.75; SD = 1.05). In the Slovak language and literature, pupils had similar learning results (AM = 2.25; SD = 0.95) as in English (AM = 2.27; SD = 0.91). In civics, pupils had the second-best academic achievement (AM = 1.79; SD = 0.78) after physical education (AM = 1.8; SD = 0.44), in which pupils had the best school marks in the last end-of-year report card.

In RQ3, we sought to answer the question of how secondary vocational school students subjectively experience the subjects of mathematics, Slovak language and literature, English language, civics and physical education. In mathematics, pupils experienced more often a negative emotional state (AM = 2.52; SD = 1.22) and less often a positive emotional state than in the other subjects assessed (AM = 1.66; SD = 0.68). In the Slovak Language and literature subject, students sometimes experienced a positive (AM = 2.85; SD = 0.90) and rarely a negative emotional state (AM = 2.06; SD = 1.11). In the English language, students experienced positive (AM = 3.10; SD = 1.24) more often than negative emotional states (AM = 1.88; SD = 0.95), similar to the civics (positive emotional states: AM = 2.71; SD = 1.19; negative emotional states: AM = 1.57; SD = 0.71). In physical education, students often experienced positive (AM = 3.70; SD = 1.31) and seldom negative emotional states (AM = 1.73; SD = 0.85).

Physical education was the most positively subjectively evaluated and experienced teaching subject by secondary vocational school pupils. On the other hand, mathematics was the worst subjectively evaluated and experienced teaching subject. Pupils perceived mathematics as the least liked subject (AM = 3.92; SD = 1.16), the most challenging (AM = 2.12; SD = 1.03), the least important (AM = 3.43; SD = 1.06). They achieved the worst arithmetic mean in it (AM = 2.75; SD = 1.05), experienced the most frequent negative emotional states (AM = 2.52; SD = 1.22), and the least frequent positive emotional states (AM = 1.66; SD = 0.68) among all the subjects studied. These findings are alarming as mathematics is an integral part of a person's life, and a negative attitude towards mathematics can be a limiting factor in a young person's choice of future college and career.

Overall, in the subjects of mathematics, Slovak language, English language, civics, and physical education, students were more likely to experience positive (AM = 2.88; SD = 1.15) than negative emotional states (AM = 1.87; SD = 0.82).

Table 1 compares the ranking of the subjects of mathematics, Slovak language and literature, English language, civics and physical education by popularity among pupils of grammar schools in the Czech Republic in 2005-2007 and pupils of the secondary vocational school in the Slovak Republic in 2021.

Table 1: Comparison of the popularity of teaching subjects in the Czech Republic (2005-2007) and the Slovak Republic (2021).

Popularity of the teaching subject	CZ 2005-2007		SVK 2021	
	teaching subject	AM	teaching subject	AM
1.	PE	1,8	PE	2,4
2.	EL	2,3	EL	2,7
3.	CZL	2,4	SL	2,8
4.	SS	2,7	SS	3,1
5.	MATH	2,8	MATH	3,9

Legend: 1. = the most popular subject, 2. = the second most popular subject, 3. = the third most popular subject, 4. = the fourth most popular subject, 5. = the least popular subject, AM = arithmetic mean, MATH = mathematics, SL = Slovak language and literature, CZL = Czech language, EL = English language, SS = civics, PE = physical education, CZ = Czech Republic, SVK = Slovak Republic

Table 2 compares the ranking of the subjects of mathematics, Slovak language and literature, English language, civics and physical education by difficulty for pupils of grammar schools in the Czech Republic in 2005-2007 and pupils of the secondary vocational school in the Slovak Republic in 2021.

Table 2: Comparison of difficulty of teaching subjects in the Czech Republic (2005-2007) and the Slovak Republic (2021).

Difficulty of the subject	CZ 2005-2007		SVK 2021	
	teaching subject	AM	teaching subject	AM
1.	MATH	2,4	MATH	2,2
2.	EL	2,9	EL	2,7
3.	CZL	3,0	SL	2,9
4.	SS	3,3	SS	3,3
5.	PE	4,2	PE	3,8

Legend: 1. = the most difficult subject, 2. = the subject ranked second in terms of difficulty, 3. = the subject ranked third in terms of difficulty, 4. = the subject ranked fourth in terms of difficulty, 5. = the least demanding subject, AM = arithmetic mean, MATH = mathematics, SL = Slovak language and literature, CZL = Czech language, EL = English language, SS = civics, PE = physical education, CZ = Czech Republic, SVK = Slovak Republic

In RQ4, we wanted to find out whether there is a difference in the subjective evaluation of the subjects of mathematics, mother tongue, English language, civics and physical education between pupils of a secondary vocational school in the Slovak Republic in 2021 and pupils of grammar schools in the Czech Republic in 2005-2007. Based on the results of the research, the order of the evaluated subjects in terms of popularity was the same among secondary vocational school pupils in 2021 in the Slovak Republic as among grammar school pupils in 2005-2007 in the Czech Republic. We observed the difference for the subject of mathematics, which was subjectively rated as a moderately popular subject (AM = 2.8) by pupils of grammar schools in the Czech Republic in 2005-2007, while in 2021, it was rated as an unpopular subject (AM = 3.9) by pupils of a secondary vocational school in the Slovak Republic (Table 1). The ranking of the rated subjects in terms of difficulty was the same for the compared pupils (Table 2). We recorded differences in the item of the importance of the teaching subject. In both groups compared, pupils ranked English as the most important subject (CZ, AM = 1.3; SVK, AM = 1.7) followed by their mother tongue (CZ, AM = 1.9; SVK, AM = 2.1). We found that secondary vocational school pupils in the Slovak Republic considered civics (AM = 2.9) and physical education (AM = 3.1) more important subjects than mathematics (AM = 3.43) compared to pupils in grammar schools in the Czech Republic (SS, AM = 2.8; PE, AM = 3.1; MATH, AM = 2.4).

Table 3 shows a comparison of the ranking of the subjects of mathematics, Slovak language and literature, English language, civics and physical education by school achievement for pupils of grammar schools in the Czech Republic in 2005-2007 and

pupils of a secondary vocational school in the Slovak Republic in 2021.

Table 3: Comparison of school achievement in teaching subjects in the Czech Republic (2005-2007) and the Slovak Republic (2021).

School mark in the subject	CZ 2005-2007		SVK 2021	
	teaching subject	AM	teaching subject	AM
1.	PE	1,1	PE	1,2
2.	SS	1,9	SS	1,8
3.	EL	2,2	SL	2,3
4.	CZL	2,3	EL	2,3
5.	MATH	2,5	MATH	2,8

Legend: 1. = the subject with the best school achievement, 2. = the subject with the second best school achievement, 3. = the subject with the third best school achievement, 4. = the subject with the fourth best school achievement, 5. = the subject with the worst school achievement, AM = arithmetic mean, MATH = mathematics, SL = Slovak language and literature, CZL = Czech language, EL = English language, SS = civics, PE = physical education, CZ = Czech Republic, SVK = Slovak Republic

In RQ5, we asked whether there is a difference in school achievement in the subjects of mathematics, mother tongue, English language, civics and physical education between pupils of a secondary vocational school in the Slovak Republic in 2021 and pupils of grammar schools in the Czech Republic in 2005-2007. We observed minimal differences in the assessed parameters. As in the past, pupils in the Czech Republic had the worst school achievement in the subject of mathematics (CZ, AM = 2.5; SVK, AM = 2.8) and the best school achievement in the subject of physical education (CZ, AM = 1.1; SVK, AM = 1.2) (Table 3). Typical pupils' largely stable attitudes are associated with each subject.

Table 4 shows the correlations between the frequency of experiencing a positive state of mind and the subjectively rated popularity, difficulty and importance of the subjects of mathematics, Slovak language and literature, English language, civics and physical education by secondary vocational school students.

Table 4: Correlation between the frequency of experiencing positive moods, popularity, difficulty and importance of teaching subjects.

	popularity of the subject		difficulty of the subject		importance of the subject	
	r	r ²	r	r ²	r	r ²
MATH	-0.79	0.62	0.55	0.30	-0.58	0.34
SL	-0.61	0.37	0.16	0.03	-0.27	0.07
EL	-0.67	0.44	0.34	0.12	-0.43	0.18
SS	-0.70	0.48	0.27	0.07	-0.48	0.23
PE	-0.74	0.55	0.46	0.21	-0.55	0.30

Legend: F+ = frequency of experiencing positive mood, r = Pearson's correlation coefficient, r² = coefficient of determination, MATH = mathematics, SL = Slovak language and literature, EL = English language, SS = civics, PE = physical education

Table 5 presents the correlations between the frequency of experiencing a negative mood and the subjectively rated popularity, difficulty and importance of the subjects of mathematics, Slovak language and literature, English language, civics and physical education by secondary vocational school students.

Table 5: Correlation between frequency of experiencing negative mood, popularity, difficulty and importance of the subjects.

F-	popularity of the subject		difficulty of the subject		importance of the subject	
	r	r ²	r	r ²	r	r ²
MATH	0.64	0.42	-0.52	0.27	0.40	0.16
SL	0.30	0.09	-0.26	0.07	0.11	0.01
EL	0.56	0.31	-0.48	0.23	0.39	0.15
SS	0.38	0.15	-0.38	0.14	0.29	0.08
PE	0.43	0.19	-0.44	0.19	0.24	0.06

Legend: F- = frequency of experiencing negative mood, r = Pearson's correlation coefficient, r² = coefficient of determination, MATH = mathematics, SL = Slovak language and literature, EL = English language, SS = civics, PE = physical education

In RQ6, we wanted to determine the possible relationship between the frequency of emotional habitual subjective well-being of secondary vocational school students and their subjective evaluation of the subjects of mathematics, Slovak language and literature, English language, civics and physical education.

We found a moderately strong correlation between the frequency of experiencing a positive state of mind and the popularity of subjectively rated subjects in the subjects of Slovak language and literature ($r = -0.61$) and English language ($r = -0.67$). The value of $r = -0.70$ found in the teaching subject of civics is on the borderline of moderate and high correlation. We observed a high correlation between the teaching subjects of mathematics ($r = -0.79$) and physical education ($r = -0.74$). We found a moderately strong correlation between the frequency of experiencing a positive state of mind and the subjectively rated difficulty of the subjects of mathematics ($r = 0.55$). For the other rated teaching subjects, we observed only a weak correlation. We found a moderate correlation between the frequency of experiencing a positive state of mind and the subjectively rated importance of the teaching subject in mathematics ($r = -0.58$) and physical education ($r = -0.55$). For the other assessed teaching subjects, we observed only a weak correlation (Table 4).

We found a moderately strong correlation between the frequency of experiencing a negative state of mind and the popularity of the subjectively rated subject of mathematics ($r = 0.64$) and English ($r = 0.56$). For the other rated teaching subjects, we found only a weak correlation (Table 5). We found a moderately strong correlation between the frequency of experiencing a negative state of mind and the subjectively rated difficulty of the subject of mathematics ($r = -0.52$). For the other rated teaching subjects, we observed only a weak correlation. There was only a weak correlation between the frequency of experiencing a negative state of mind and the importance of the subjectively assessed teaching subjects in all the assessed subjects (Table 5).

We observed the highest coefficients of determination for the correlation between the frequency of experiencing a positive state of mind and the popularity of the subject of mathematics ($r^2 = 0.62$) and physical education ($r^2 = 0.55$) (Table 4) and for the correlation between the frequency of experiencing a negative state of mind and the popularity of the subject mathematics ($r^2 = 0.42$) (Table 5). The coefficient of the determination reached low values for the other variables assessed. Other factors, which could be identified in further research, also impact the emotional habituation of subjective well-being in the classroom and the students' subjective evaluation of the subjects taught.

In mathematics and physical education, the frequency of pupils' emotional habitual subjective well-being (positive state of mind) is related to the subjective evaluation of the teaching subject by secondary vocational school pupils in terms of their popularity.

Table 6 shows the correlations between the frequency of experiencing positive and negative moods and school achievement in the subjects of mathematics, Slovak language

and literature, English language, civics and physical education by secondary vocational school students.

Table 6: Correlation between frequency of experiencing positive and negative moods and school achievement in school subjects.

F+	school achievement		F-	school achievement	
	r	r ²		r	r ²
MATH	-0.51	0.26	MATH	0.34	0.12
SL	-0.19	0.04	SL	0.35	0.12
EL	-0.38	0.14	EL	0.42	0.18
SS	-0.16	0.03	SS	0.27	0.07
PE	-0.29	0.08	PE	0.32	0.10

Legend: F+ = frequency of experiencing positive mood, F- = frequency of experiencing negative mood, r = Pearson's correlation coefficient, r² = coefficient of determination, MATH = mathematics, SL = Slovak language and literature, EL = English language, SS = civics, PE = physical education

In RQ7, we wanted to determine the possible relationship between the frequency of emotional habitual subjective well-being of secondary vocational school pupils and their school achievement in mathematics, Slovak language and literature, English language, civics and physical education.

We found a moderately strong correlation between the frequency of experiencing a positive state of mind and school achievement in mathematics ($r = -0.51$). For the other subjects assessed, we observed only a weak correlation. There was only a weak correlation between the frequency of experiencing negative mood and school achievement in all subjects assessed (Table 6).

The research instrument, the Emotional Habitual Subjective Well-being Questionnaire (Džuka & Dalbert, 2002), showed high-reliability values for both positive and negative students' moods in all the subjects assessed ($\alpha = 0.80$ to 0.94). Our instrument had high internal consistency and reliability across items.

4 Discussion

We wanted to find an answer to the question of how students of secondary vocational school subjectively evaluate the subjects of mathematics, Slovak language and literature, English language, civics and physical education in terms of popularity, difficulty and importance. Pupils subjectively evaluated mathematics as unpopular and challenging; it was partly important for pupils. Pupils rated the subject of Slovak language and literature as a moderately popular and moderately challenging subject. At the same time, pupils subjectively rated it as an important subject. Pupils subjectively rated English as a moderately popular, moderately challenging and essential subject. Civics was moderately popular, moderately challenging and partly important to pupils. Pupils rated physical education as a popular, easy and partly significant subject. Pupils perceive subjects in school very individually. Each subject is unique and requires specific work by the teacher, especially with pupils' motivation. The pupil's subjective representation of the teaching subject (the idea of the subject) influences the pupil's attitude and motivation towards the subject (Pavelková, Škaloudová & Hrabal, 2010; Hrabal & Pavelková, 2010).

We asked what educational results the pupils of the secondary vocational school achieved in mathematics, Slovak language and literature, English language, civics and physical education. We found that pupils achieved the worst academic achievement in the assessed subjects in mathematics and the best in physical education. Pupils achieved better learning outcomes in the popular and easy subjects than in the unpopular and challenging subjects. However, it is not generally the case that subjects in which pupils achieve well are also popular. It is also impossible to say that pupils with poor school achievement in a particular subject also subjectively evaluate it as challenging and, conversely, that pupils with good school achievement consider the subject easy (Hrabal & Pavelková, 2010).

We were also looking for an answer to the question of how the pupils of secondary vocational school subjectively experience the subjects of mathematics, Slovak language and literature, English language, civics and physical education. In mathematics, pupils experienced a negative emotional state more often and a positive emotional state less often than in the other subjects assessed. Pupils sometimes experienced positive and rarely negative emotional states in Slovak Language and literature. In English, pupils sometimes experienced positive and almost never negative emotional states, similar to civics. In physical education, pupils often experienced a positive and rarely a negative emotional state. A positive emotional state of mind promotes the optimal functioning of cognitive processes and has an impact on the learning process and school success of pupils (Petlák, 2018; Petlák, 2020; Urbanovská, 2006; Urbanovská & Škobrtal, 2012). Physical activity has a significant impact on the level of subjective well-being; it has both short-term and long-term beneficial effects on well-being, namely, it positively affects mood, self-esteem, anxiety, depression, pressure, tension, and perception of stress (Plevková & Peráčková, 2016).

We also wanted to find an answer to the question of whether there are differences in the subjective evaluation of the subjects mathematics, mother tongue, English language, civics and physical education between pupils of a secondary vocational school in the Slovak Republic in 2021 and pupils of grammar schools in the Czech Republic in 2005-2007. The attitudes of the secondary vocational school participants towards the popularity, difficulty and importance of the assessed subjects in the Slovak Republic replicated to a large extent the results of methodologically identical but older studies from grammar schools in the Czech Republic (Hrabal & Pavelková, 2010). The subjective evaluation of the subjects of Slovak language and literature, English language, civics and physical education by secondary school pupils did not change significantly. We found the only significant change in pupils' subjective attitudes towards the popularity and importance of the subject of mathematics. In earlier research from 2005-2007 in the Czech Republic, pupils described the subject of mathematics as moderately popular and essential, and in 2021 in the Slovak Republic as unpopular and partly important. Pupils' attitudes towards mathematics have worsened, which may again be related to the aforementioned mathematical anxiety (Cibulková, 2017). Hrabal and Pavelková (2010) write that typical pupils' attitudes are more or less stable and unambiguous and are related to each subject. Pavelková and Škaloudová (2004, 2006) noted similar results of the survey of pupils' attitudes towards teaching subjects as in the research carried out in the 1980s.

When comparing school marks in the end-of-year report cards for the subjects assessed, pupils in both countries achieved almost identical learning outcomes.

At the same time, we asked whether there is a difference in school achievement in the subjects of mathematics, mother tongue, English language, civics and physical education between pupils of a secondary vocational school in the Slovak Republic in 2021 and pupils of grammar schools in the Czech Republic in 2005-2007. We observed only minimal differences in the assessed parameters. As in the past, pupils in the Czech Republic had the worst school achievement in mathematics and the best school achievement in physical education. Typical and mainly stable attitudes of pupils (Hrabal & Pavelková, 2010) are related to individual subjects, which is probably also reflected in the school achievement of the evaluated subjects.

We wanted to investigate the possible relationship between the frequency of emotional habitual subjective well-being of secondary vocational school students and their subjective evaluation of mathematics, Slovak language and literature, English language, civics and physical education.

We found a moderately strong correlation between the frequency of experiencing a positive mood and the popularity of subjectively evaluated subjects in the subjects of Slovak language and literature and English language. The value found in

the teaching subject of civics is on the borderline of moderate and high correlation. We observed a high correlation in the teaching subjects of mathematics and physical education. We found a moderately strong correlation between the frequency of experiencing a positive state of mind and the subjectively rated difficulty of the teaching subject in the teaching subject of mathematics. We found a moderately strong correlation between the frequency of experiencing a positive state of mind and the subjectively rated importance of the teaching subject in mathematics and physical education.

We found a moderate correlation between the frequency of experiencing negative moods and the popularity of subjectively rated subjects in mathematics and English. We found a moderately strong correlation between the frequency of experiencing a negative state of mind and the subjectively rated difficulty of the teaching subject in mathematics. We found only a weak correlation between the frequency of experiencing a negative state of mind and the importance of the subjectively rated teaching subject in all subjects assessed. We observed the highest coefficients of determination for the correlation between the frequency of experiencing a positive state of mind and the popularity of mathematics and physical education. A similar correlation was between the frequency of experiencing a negative state of mind and the popularity of mathematics. From our findings, we can hypothesise that in mathematics and physical education, there is a correlation between emotional experience and subjective evaluation of the selected teaching subjects, mainly in terms of their popularity (Vendel, 2018; Foglová, 2018; Foglová & Tomšík, 2017). Subjective well-being also influences pupils' ability to cope with risky situations (Pilková & Valihorová, 2019). Other factors, such as the social representation of the subject in the population, also impact the experience of positive and negative moods during the lessons and pupils' subjective evaluation of the subject. Based on their experiences, teachers and pupils create subjective images of teaching subjects' difficulty, interestingness and social significance (Hrabal & Pavelková, 2010).

We asked whether there is a possible relationship between the frequency of emotional habitual subjective well-being of secondary vocational school students and their academic achievement in the subjects of mathematics, Slovak language and literature, English language, civics, and physical education. We found a moderately strong correlation between the frequency of experiencing a positive state of mind and school achievement in mathematics. For the other assessed teaching subjects, we observed a weak correlation. We found a weak correlation between the frequency of experiencing a negative mood and school achievement in all assessed subjects. Experiencing a positive and negative state of mind in a teaching subject had no clear correlation with school achievement. Although studies report that school subjective well-being influences learning outcomes (Foglová, 2018; Foglová & Tomšík, 2017), there are likely other factors influencing the assessed variables that would be worthy of further investigation in the future.

In the following section, we present the limitations of the research we have designed, as well as recommendations for future research: non-homogeneous research population in terms of gender, administration of questionnaires only online, the use of reference standards of pupils' subjective attitudes towards subjects from grammar schools in the Czech Republic, assessment of subjective emotional well-being in selected classes in secondary vocational school's second and third grades only, assessing only the frequency of experiencing positive and negative states of mind. In the future, we recommend researching a population with equal representation of both genders. Further research must compare the variables under study among the same type of secondary schools in the Slovak Republic. Therefore, we recommend that future longitudinal research compares the variables under study over a more extended period, for example, at the beginning and end of the study, i.e., in the first and fourth grades.

5 Conclusion

Answering the research questions was in line with the findings of several authors: Abu-Hilal (2000), Pavelková and Škaloudová (2004, 2006), Hrabal and Pavelková (2010), Gaotlhobogwe, Laugharne and Durance (2011), Bačová and Leláková (2014), Cibulková (2017, 2018), Foglová and Tomšík (2017), Foglová (2018), Bücker, Nuraydin and Simonsmeier et al. (2018), Steinmayr, Heyder and Naumburg et al. (2018), Mazana, Suero Montero and Olifage (2019), Pitoňáková and Augustínová (2022) and others.

The results of our research can serve as a basis for teachers' self-diagnostic work and thus can help to improve their professional competences and optimise teaching. In the future, we consider it beneficial to conduct further research that would focus on a deeper investigation of the factors influencing the experience of positive and negative emotional states in the lessons and the subjective evaluation of teaching subjects by pupils. It is also crucial to conduct more research on the issue of pupils' negative attitudes towards mathematics and the more frequent experience of negative moods in this subject.

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Primary Paper Section: A

Secondary Paper Section: AN