Chapter #11

A VIEW OF SECONDARY TECHNICAL SCHOOL STUDENTS ON THE SUPPORT AND BARRIERS TO THEIR PROFESSIONAL GROWTH

Dana Vicherková, & Josef Malach
University of Ostrava; Faculty of Education, Department of Pedagogy and Andragogy, Czech Republic

ABSTRACT

The aim of the paper is to find out how Czech secondary technical schools students evaluate their professional growth in the course of their secondary school studies, what are the barriers to this growth and what are their views on the possibilities of schools to support their interest in the chosen field of study. Qualitatively oriented research focuses on the quality of secondary school studies as regarded by secondary technical schools students in the Moravian-Silesian Region of the Czech Republic. The research outputs provide suggestions for students to improve their professional growth throughout their secondary school studies and suggestions for procedures that may help remove barriers in their educational paths to a technically oriented profession. Respondents - secondary technical schools students - most frequently state the possibilities of their professional growth, comprising the "I-student" and "Teacher and teaching" factors. More than half of the barriers mentioned by students belong to the category of dispositional (personality) barriers. In second place are institutional barriers, and a negligible number of barriers have been included among situational barriers. The most significant number of students' opinions on how the school should deepen their interest in the field was concentrated in the group of factors "I - student". It is followed by opportunities to support interest in the "School" factor group.

Keywords: professional growth, secondary technical school students, barriers in educational paths, students' views on improving professional growth, school strategies of students' support.

1. INTRODUCTION

The current trend in the growth of education is to increase the involvement of students in teaching processes and greater responsibility for the course of education and its results. Greater involvement of students in their education can be achieved not only by using appropriate strategies supporting cooperation, teamwork between students and their teachers and among students but also by using specific evaluation tools that can assess students' satisfaction with the course, their relationship to the school as an institution or to teachers, which is the subject of a PISA questionnaire (Schleicher, 2019). Students' subjective opinions on the stated characteristics of their school education can subsequently influence their learning motivation, relationship to the field of study, interest in the selected profession, or retention.

In this study, the authors' interest focused on three interrelated educational constructs: professional growth factors, the barriers to this growth, and possible ways how the school can facilitate it. All three constructs reflected by the students have the character of subjective individual perception and assessment of educational reality in the defined territory of one region of the Czech Republic and one type of technical education in engineering fields. The

authors formulated individual categories of meaning and included them in the relevant factors after they identified, analysed and gradually generalised specific opinions of students.

The problem of changes in professional growth opportunities, school support of education and their barriers in secondary education can also be reflected in research through approaches applied more commonly in adult education. Secondary technical school students are a borderline between the end of puberty when their own identities with an inevitable transition from the status of a child to an adult (adolescent) are created with a desire to become independent, to organise one's values, attitudes, goals. The self-concept of secondary school students is influenced by the desire to take specific patterns (e.g., from the family, out-of-school context), as well as by anti-identification, postponement of decisions, deeper socialisation, fluctuations in work or school performance, etc.

This study aims to find out, based on empirical research, what opportunities for their professional growth students express, what barriers for this growth they have formulated, and how the school can facilitate the growth. This basis is further used to determine categories saturating each of the constructs, with the categories being included under one of the group of factors and the potential share of other factors affecting the level of the analysed educational constructs being determined.

2. PROFESSIONAL GROWTH AND LEARNING SUPPORT

Recent statistics show that individuals benefit from lifelong learning in various aspects, such as economic, civic, social, and technological. Due to the formation and growth of so-called human capital, it is possible to talk about shifts in the economic growth of today's economies based on knowledge and competencies, e.g., according to the concept (Rizzo & Gallo, 2012; Wawrocs & Heissler, 2013).

Educational sciences in the context of lifelong learning concepts are presently intensifying research of the role of school education in the overall growth of today's young population and the support that schools can provide to their students throughout their education and for further lifelong learning. The research results determine effective educational strategies (Walberg & Paik, 2000; IAE/UNESCO, 2005), correlates of effective schools (Campbell Union High School District, 2020) or signs of a good school (Pol & Lazarová, 2011) or a quality school (Česká školní inspekce, 2020). One of the correlates is the supportive learning environment, characterised by the following features: "The school has a safe, civil, healthy and intellectually stimulating learning environment. Students feel respected and connected with the staff and are engaged in learning. Instruction is personalised, and small learning environments increase student contact with teachers" (Campbell Union High School District, 2020, p. 1). As part of a new initiative on the Science of Learning and growth implemented at the Learning Policy Institute in California (Flook, 2019), a "whole child" approach was formulated based on scientific research, identifying how schools can fully promote child growth. This approach is based on the four main ingredients of school success that allow us to care for and nurture the potential in all children: a positive school climate, productive instructional strategies, social-emotional growth, and individualised support. Putting these ingredients into practice requires four groups of activities: "1. Foster a supportive environment that promotes strong relationships among staff, students, and families; 2. Implement meaningful, engaging instructional practices that develop students' ability to manage their own learning; 3. Develop habits, skills, and mindsets that build students' social, emotional, and academic competence and 4. Create an integrated system of school support, including extended learning opportunities and community partnerships" (pp. 1-4). Students' interest in and motivation to improve their learning

outcomes is related to the call for teaching-learning strategies, which means that students are "given opportunities to participate in the choice of learning objectives and are led to learn different ways to learn" (Kašparová, Starý & Šumavská, 2011, p. 4).

Dynamically applied teaching and learning innovations are also necessary conditions for students' interest in their education. The OECD (2017) introduced the Innovative Learning Environments (ILE) construct to find that OECD spending per student has increased by 20% in the last ten years, but the learning outcomes have only improved little. ILE is based on seven learning principles, stating that learning environment can: lead the student to active learning and engagement; view learning as a social phenomenon frequently entirely done in collaboration with others; be adapted to the emotions of the students; reflect individual differences between students, make all appropriate demands without overburdening students; use broad assessment and formative feedback and promote horizontal links across knowledge areas, subjects, community and the wider world.

These seven principles can be appropriately implemented in practice in conjunction with three main areas, i.e., a) innovation of the pedagogical core of the learning environment, including both the essential elements (students, teachers, content and learning resources) and the dynamics uniting them (methods and formative assessment), b) transformation into a "formative organisation", managing learning based on learning outcomes achieved through diverse strategies and innovations, c) open partnerships and cooperation with families and communities, universities, cultural institutions, media, businesses, especially by other schools and the educational sphere, directly creating a pedagogical core and a leading position in learning. The authors have classified this comprehensive approach to current education and learning as the ILE "7 + 3" Framework (OECD, 2017, p. 42). Innovations of the "pedagogical core" in the field of the curriculum are currently implemented as a competence approach to education, increasing information and digital literacy, shaping financial and business literacy, developing competencies for sustainable or applying integrated thematic instruction (ITI) (Malach, 2020). Several process innovations applicable without digital technologies, including deep learning, tailored learning, inquiry-based learning, CSSC learning, gamification, etc., are gaining ground (Pellegrino & Hilton, 2011). Innovations requiring digital technologies include online learning, blended learning, adaptive learning or learning with robots (Picciano, 2017; Paniagua & Istance, 2018; Ferguson et al., 2019).

Factors in the effective functioning of schools or entire school systems that translate into better learning outcomes have been addressed by Hattie (2009; 2018), who arranged them into six groups: student (child), home, school, curriculum, teacher and teaching/learning approaches. He calculated its effect size for each factor, i.e., the degree (predominantly positive but also negative) to which it affects the individual's educational outcome. By analysing the first thirty factors (which are also presented in the study on learning strategies by Echazarra, Salinas, Méndez, Denis, & Rech, 2016), it can be concluded that most (14 in total) belong to the teaching group, six to the curriculum group, five to the teacher category, three to student groups, two in the school category and none in the home category. There is no doubt that this critical analysis of the benefits or effects of factors influencing learning outcomes can break down certain stereotypes about the effects of some of them, which may have been triggered by the uncritical adoration of particular teaching and learning strategies. This categorisation of school functioning factors was used in processing the results of empirical research in this study.

3. BARRIERS TO EDUCATION

The UNESCO report (2009) identified three major barriers to more extensive participation in education: institutional, situational, and dispositional. Institutional barriers include institutional practices and procedures that discourage or hinder participation in education, e.g., lack of financial support or opportunities (in the right place or at the right time), high fees or entry qualifications. These barriers mainly affect the poor people and people educated in later stages of life. Situational barriers are based on an individual's life situations at a certain point in the family's life cycle (e.g., caring for children or parents) or working life (sufficient time and resources to study). Family-related barriers mainly affect young adults and women. Situational factors are also the place of residence or belonging to a linguistic or ethnic minority. Dispositional barriers relate to psychological factors that may hinder an individual's decision to accept participation in their education (e.g., the assumption of reward or usefulness of participation), self-concept and other attitudes. These barriers are prevalent in poor, low-literate and older individuals. Highly developed Finland assumes that 62% of the adult population have to overcome situational barriers, 54% situational barriers and 49% dispositional barriers.

Del Preto (2013) focused on people without any interest in further lifelong learning and identified the reasons for their demotivation for further education. He found that "gender" is not a barrier to interest in further education. Rubenson (2010) pointed out the educational obstacle in connection with the lack of time to learn. The adult population also shows a high workload (busyness) in relation to a lack of interest in further studies.

OECD (2011) and Kalenda and Kočvarová (2017) state that individual countries differ in the degree of perception of educational barriers. The Czech Republic is in the middle of the barrier rate (Desjardins & Rubenson, 2013). Situational and dispositional barriers to lifelong learning are managed in Nordic European countries with a stronger motivation to learn. There is a lack of influence of institutions with "welfare state" characteristics in the Czech Republic, as pointed out by structuring theory (Rubenson & Desjardins, 2009). Vanhuysee (2006) and Kalenda and Kočvarová (2017) identified a somewhat hybrid Czech model. In adults, it is clear that the structure of barriers to lifelong learning is relatively complex, as it contains situational, institutional, and dispositional barriers. Rabušicová, Rabušic, and Šeďová (2008) explain the motivation of adults for education through their relationship to it and the value they attach to it. They identified internal personality barriers (e.g., fears of failure to study, lack of meaning of further study) and external situational barriers (e.g. workload, health problems, many other interests) motivation in formal and informal adult education. Research Panadero, Jonsson, and Botella (2017) provided an interesting insight into the problem of students' self-esteem as a particular effect of learning self-regulation and students' self-efficacy. The European Union (2009) has set the need to increase participation in lifelong learning for the adult population to 15%. Removing barriers to participation in education, including in secondary schools and universities, or promoting interest in technology across the age, should help achieve this ambitious goal.

Barriers through the lenses of students and teachers at the State University of New York (SUNY) adult student group were addressed by Lee (2017) in order to determine which ones prevent students from fulfilling their study obligations and completing their studies. The research results pointed to the personal non-involvement of students, insufficient quality of the program, work restrictions, family restrictions, professional non-involvement. The category of situational barriers included, e.g., the lack of time, while the institutional category of barriers comprised of, e.g., students' domestic and work responsibilities or the lack of funds. Lack of energy and perseverance to study (30.8% of respondents) and a lack of understanding of teaching materials by students (23.1% of respondents) prevailed in the category of personal barriers.

4. RESEARCH

The research was carried out as part of the Project of the Technology Agency of the Czech Republic, Faculty of Education, University of Ostrava, in cooperation with the application guarantor of the National Engineering Cluster of the Czech Republic. The project focused on supporting innovation in education in engineering for the needs of the current labour market.

4.1. Research methodology

The empirical research aimed to determine what possibilities of their professional growth students consider, what barriers hinder their growth, and how the school can help to facilitate the growth. After the analysis, empirical findings have been categorised and incorporated under one group of the factors. Its potential share of other factors affecting the level of the studied educational constructs was subsequently determined.

The data were collected through a self-constructed questionnaire with a total of 41 items. For this paper, three open-ended items not limited by the number of facts, or the scope, were selected. The items had the following wording:

1. State what you think could improve your professional growth.
2. State what hinders you the most (what barriers) in the professional study.
3. If you have stated that the school is deepening your interest in the field of study, elaborate how.

Data collection took place in 2020 at five secondary technical schools in the Moravian-Silesian Region of the Czech Republic. The research group consisted of 907 respondents.

An interactive data model (Miles & Hubermann, 1994) was used as the data processing and evaluation technique later commented on and extended (Hendl, 2008). The data processing consisted of several phases: in the transcription phase, authentic student statements were transcribed into concise formulations in the form of empirical concepts. In the segmentation phase, factually related concepts were categorised into individual categories using coding. In accordance with the theoretical concept of effective school functioning (Hattie 2009; 2018), the identified categories of possibilities for improving professional growth and the possibilities of its support by the school were grouped into one of six groups factors. Similarly, in relation to the accepted theoretical concept of barriers to education and learning (UNESCO, 2009), the identified categories of barriers to study were classified into one of three types of barriers.

4.2. Research results
4.2.1. Students' opinions on the possibilities of improving their professional growth

Respondents stated a total of 561 options that could help improve their professional growth. Table 1 shows on the example of three categories with the highest response frequency, how the individual categories were formulated based on coding.

Table 1.
The three most frequently mentioned categories for improving students' professional
growth including students' answers.

Category	Number of answers (abs.)	Number of answers (%)	Students' answers = Concepts
Increase the number of hours of practical training at school	113	20%	we have little practical training, I want more practical training at school, I miss more practical training at school, there is a lack of practical training, little practical training, there is little practical training
Learn more on my own	107	19%	I want to learn independently, I lack the drive to self-learning, I learn little on my own, I don't prepare for school enough, I have to force myself to learn more frequently
Increase the quality of teaching across subjects - theory and practice	84	15%	improve practice and professional teaching, more clarity in theory and practice, more world news in mechanical engineering (for machines) and technical theory, gain more experience and practice in the field (technology)

As the graph 1 suggests, the most frequent opinion was "*Increase the number of hours of practical training*" (20% of respondents) - which was stated by students (men) across all year of study of secondary schools aged 15-19. The second possibility of supporting students' professional growth was "*learning more on my own*" (19% of respondents), related more to students (men) aged 16-19. The third supportive way was "*increase the quality of teaching across subjects - theory and practice*" (15% of respondents). Other suggestions from the respondents' answers include: "more contact with machines and things that belong to mechanical engineering", "more representation in theory and practice", "improve the diversity of the type of work in practical training", "gain more experience and practice in the field". The fourth factor supporting the professional development of technical school students was "*better didactic and professional skills/competencies of teachers*" (8% of respondents), mentioned more frequently by students aged 17-19. Respondents' answers include: "better preparation of teachers", "more knowledge of teachers, discussions, better approach", "improve the innovative approach to teaching", "use of new terminology by teachers". The fifth factor was "*change in the content of vocational education*" (6% of respondents) and was mentioned by students of all years of study. From the answers of the respondents, we select: "have a possibility to see all parts of machines and think about their function", "use knowledge of the latest technologies", "see more professional things with your own eyes, touch it, connect theory with practice". The sixth factor in supporting the development was "*more school visits*" (5%) and "*better organisation of teaching in relation to the timetable*" (5%) came seventh. These opportunities for improving professionalism were most frequently

mentioned by students aged 17-18. Other student topics to support the growth of their expertise include "*higher quality of curriculum interpretation*" (4%), "*interest in technology", "engineering*" (3%), "*greater contact with the company*" (3%), "*a part-time job in the field*" (2%), "*higher quality of school aids*" (2%), "*different choice of school*" (2%), "*elimination of the student's own laziness*" (2%), "*finance*" (2%), "*higher motivation of teachers*" (1%).

Graph 1.
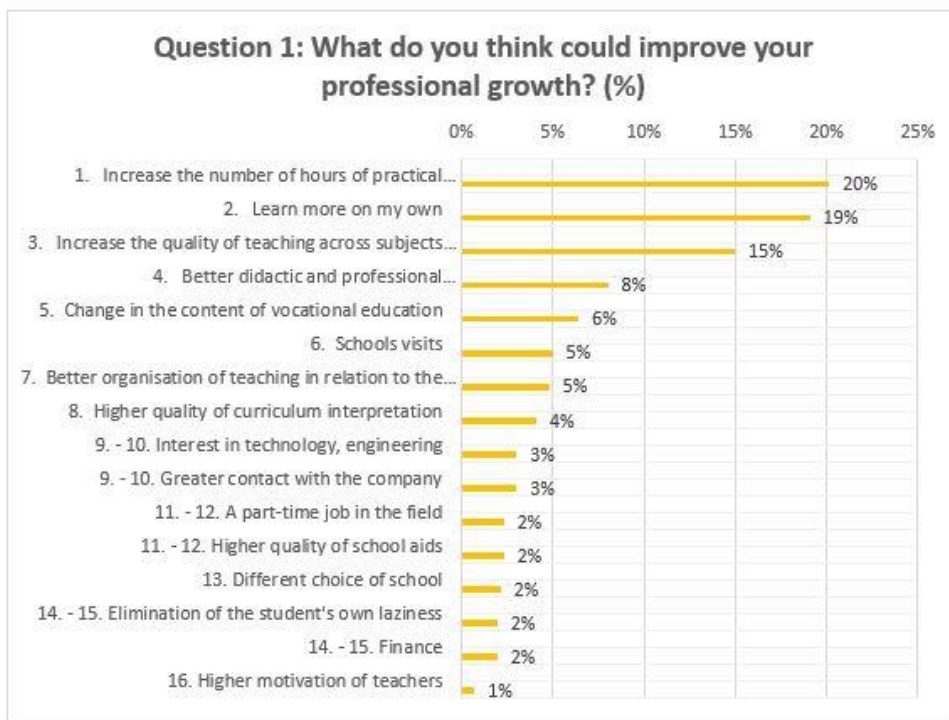*Students' opinions on the possibilities of improving professional growth.*

Question 1: What do you think could improve your professional growth? (%)

Item	%
1. Increase the number of hours of practical…	20%
2. Learn more on my own	19%
3. Increase the quality of teaching across subjects…	15%
4. Better didactic and professional…	8%
5. Change in the content of vocational education	6%
6. Schools visits	5%
7. Better organisation of teaching in relation to the…	5%
8. Higher quality of curriculum interpretation	4%
9. - 10. Interest in technology, engineering	3%
9. - 10. Greater contact with the company	3%
11. - 12. A part-time job in the field	2%
11. - 12. Higher quality of school aids	2%
13. Different choice of school	2%
14. - 15. Elimination of the student's own laziness	2%
14. - 15. Finance	2%
16. Higher motivation of teachers	1%

Table 2.
Factors that can improve students' professional growth (according to Hattie, 2009).

Group of factors	Number of concepts (abs.)	Number of concepts (%)	Category
I-student	160	28%	Learning more on their own (19%); interest in technology, mechanical engineering (3%); a part-time job in the field (2%); different school choice (2%); removal of one's laziness (2%)
Content	149	26%	Increase in the number of hours of practical training at school (20%); change in the content of vocational education (6%)
School	96	17%	School visits (5%); better teaching organization and better timetable (5%); greater contact with the company (3%); higher quality of school aids and school equipment (2%); school finance (2%)
Teacher and teaching	156	28%	Increasing the quality of teaching across subjects - theory and practice (15%); better didactic and professional skills of the teacher (8%); higher quality of the teacher's curriculum interpretation (4%); higher motivation of teachers (1%)

Due to the difficulty of differentiating the students' opinions on the possibilities of improving their professional growth towards the teacher's personality and qualifications and his teaching methods, these possibilities of improvement were integrated into one group of factors, "Teacher and teaching".

Based on the above findings (Table 2), the following conclusions can be formulated: Respondents - students of secondary technical schools - most frequently state the possibilities of their professional growth, which belong to groups of factors "I-student" and "Teacher and teaching ", naming both key subjects of education and their activities with "Content" factor group lagging only slightly behind. The students also more sporadically presented the possibilities falling under the "School" category. None of the suggestions for improving professional growth was noted for the group of factors "Family".

4.2.2. Opinions of students on barriers to their professional growth

Respondents mentioned a total of 553 obstacles, which they believe hinder their professional growth the most. Table 3 shows, on the example of the three categories with the highest response frequency, the ways in which the individual categories were formulated with the help of coding.

Table 3.
The three most frequently mentioned categories of barriers to professional growth of students and their saturation by concepts.

Category	Number of concepts (abs.)	Number of concepts (%)	Students´ answers = Concepts
Laziness	107	19%	I'm lazy to learn, laziness and indolence, laziness and procrastination, laziness is my vice, I'm lazybones
Lack of time	90	16%	Insufficient time, lack of time, lack of time to study, I don't have time to devote to school, time is not my friend, I fight against time
Other (unnecessary, non-technical) subjects	54	10%	unnecessary subjects, many unnecessary subjects, subjects not connected with the field, useless subjects, subjects that I will not need in life, meaningless subjects, annoying subjects

Students aged 15-19 most frequently selected "*laziness*" (19%) among the barriers to professional growth. The second barrier to professional growth was "*lack of time*" (19% of respondents), most frequently mentioned by students (men) aged 16-17. The third barrier to development was "*other (unnecessary, non-technical) subjects*" (10%) selected mainly by students aged 15-19. The fourth barrier to professional growth was "*school*" (8%), with the selected answers of the respondents including "my school", "school and self-study", "studying at this school". The fifth barrier to students' professional growth is "*poor teachers - low quality of teaching*" (7%), respondents' statements include "bad teachers", "poor didactic approach of some teachers", "annoying and lazy vocational training instructor in the workshop". The sixth - eighth barrier to development is "*ways of teaching*" (6%). Some of the answers include "everything is very theoretical, and I do not have the opportunity to try how it works", "speed of dictation by the teacher", illogical system of explaining", "a lot of information at once", "insufficient explanation". Other barriers to development include "*other interests*" (6%) and "*little practical training*" (6%). An alarming finding is that students consider "*lack of interest in the field*" (5%) as a barrier to their development. Students stated: " I lost interest in the field during my studies", "lack of interest in studying the field", "lack of interest in the technical field". A total of 5% of students said that they a barrier to their development, a problem called "me". Answers include "my clumsiness", "my brain", "my intelligence", "*myself*". A total of 19 students (3%) considers the "*quality of the curriculum*" to be a barrier to growth, with answers including "uninteresting topics", "information about cars that everyone knows", "lack of information". The twelfth barrier to development is "*I don't know how to do something, I don't understand something*" (3%.), e.g., "because of the amount of theory I don't understand it", "sometimes I don't understand something", "I can't draw". Only 11 (2%) students admitted the barrier of "*learning little*". The list of barriers to growth also includes: "*inattention*" (1%), "*classmates*" (1%), *housework* (1%), *health* (1%). Several students also mentioned barriers: "*transport*", "*money*", "*memory*", "*disruptive digital technologies*".

Graph 2.
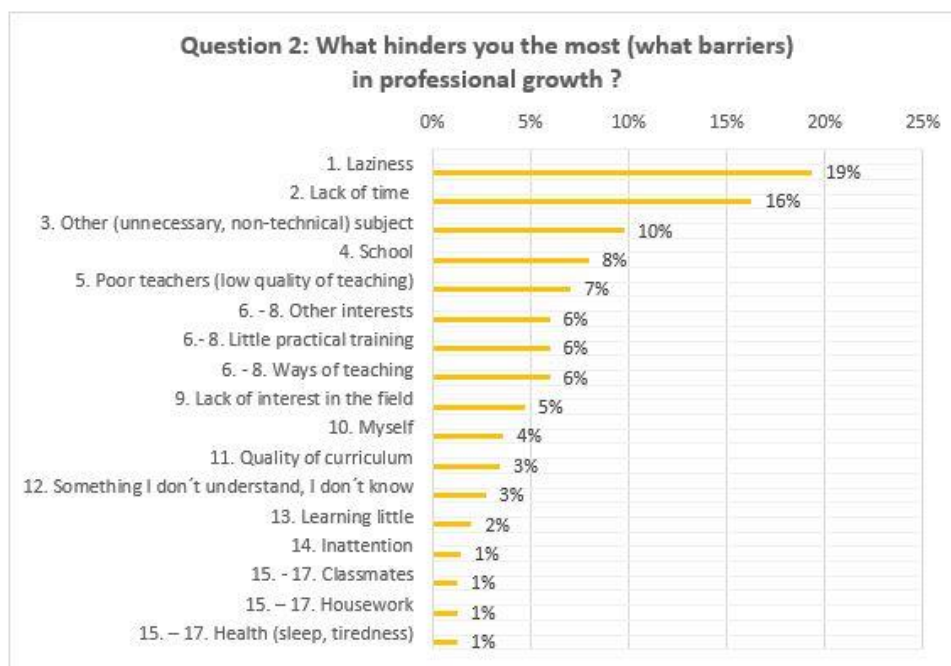*Categorisation of barriers to professional growth.*

Table 4.
Student-listed barriers by type of barriers (based on UNESCO, 2009).

Type of barrier	Number of concepts (abs.)	Number of concepts (%)	Category
Situational	14	2%	classmates (1%), health, sleep, fatigue (1%)
Institutional	222	41%	other - unnecessary, non-technical subjects (10%), school (8%), bad teachers - low-quality teachers (7%), little experience (6%), way of teaching (6%), quality of teaching (4%)
Dispositional / Personal	317	57%	laziness (19%), lack of time (16%), other interests (6%), lack of interest in the field (5%), myself (4%), something I don't know, something I don't understand (3%), I learn little (2%), inattention (1%), housework (1%)

Based on the above findings (Table 4), the following conclusions can be formulated: More than half of the barriers to study students mentioned belong to the category of dispositional (personal) obstacles. In the second place, students list barriers belonging to the institutional obstacles. Finally, a negligible number of barriers can be labelled as situational obstacles.

4.2.3. Opinions of students on school´s support of their professional growth

A total of 479 respondents (half of all respondents) mentioned 1172 ways they believe the school extends their interest in the field studied. Table 5 shows, on the example of the three categories with the highest frequency of responses, how the individual categories were formulated based on coding to express the ways implemented by the school to expand students' interest in the field.

Table 5.
The three most frequently mentioned categories of school support for professional growth of students and their saturation by concepts.

Category	Number of concepts (abs.)	Number of concepts (%)	Students´ answers = Concepts
Emphasis on practice and its quality	203	17%	at school practice training they show us various aids from engineering practice and real life, I have excellent practice training, I am interested in how things work in practice, which I wanted, practice is a basis of technical field
Motivational factors to study	192	16%	studying engineering is a good and safe job, I want to be good in the field - I make money by studying engineering, I enjoy the world of technology, and it motivates me to work and study with a technical focus, studies support my interest in cars and motorcycles, machines and technologies are the future, machines are my love

School interest in professional growth			the school supports my interest in the field (cars) more than I thought, thanks to the school I understand the professional matter, and I can participate in them, which I suspected, the school is of high quality, in my field it is all as I imagined it, I know more professional things than I did when I started school, the school points out the importance of engineering (e.g. inventor, machine operation), which I expected, I know more professional things than I started school, the school points out the importance of engineering, the school makes me happy, it makes sure that we are good professionals and people
	148	13%	

The most frequently mentioned category of support for interest in the field was "*emphasis on practice and its quality*" (17.3% of answers). The second most frequently mentioned answers fall into "*motivational factors for study*" (16.38%). Category "*school's interest in professional growth*" (12.6%) came on third. Students' fourth most frequently mentioned category is "*excursions to companies*" (11.5% of answers). Students aged 17-19 mainly reported these categories. We state from the answers: "in addition to learning, we deal with things that are not in the curriculum, we have school visits to companies". "They take us on school visits", "school visits combine theory with practice", "I like school visits", "school supports school visits", we enjoy school visits "," I wanted school visits at school, they are here in large numbers ". The fifth most frequent expression of students about the amount of fulfilling the agreement between the ideas about the study and the reality was "*modern (innovative) didactic strategies, methods, forms of teaching*" (8.8%). The answers mostly related to students (men and women) aged 17-19. From the statements of the respondents, we state: "at school, we learn where to find what and how to put it in context", "we have the opportunity to try many procedures in our way", "I can improve, I learn new things, I still want to know more, teaching methods are modern", "learning supports my curiosity and expands knowledge and skills through interesting learning with things that I enjoy", "they show us and explain models and in connection with practice in workshops I learn a lot", emphasis on the functionality of information and finding them", "they actively ask us questions and discuss with us", "the school teaches me and makes me think", "teaching at school takes place through mistake, I learn a lot by learning from mistake, I learn from mistakes".

Graph 3.
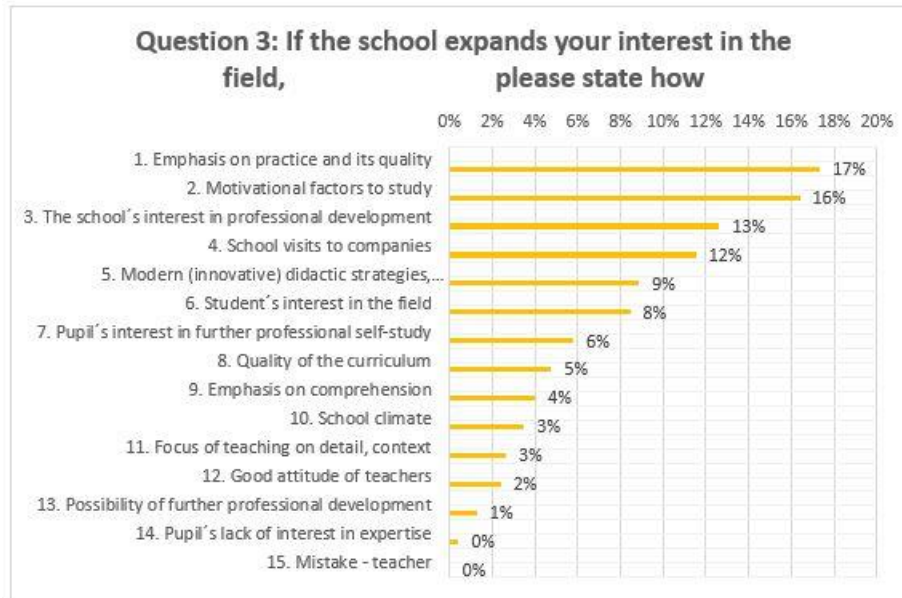*Categorisation of school support for professional growth of students.*

Table 6.
*Factors, a school can expand students' interest in professional growth with
(according to Hattie, 2008).*

Group of factors	Number of concepts (abs.)	Number of concepts (%)	Category
I-student	364	31%	motivational factors in learning (16%), students' interest in expertise, field (8%), students' interest in further professional self-study (6%), students' lack of interest in expertise, field (1%)
Content	259	22%	emphasis on practice and its quality (17%), quality of curriculum content (5%)
School	339	29%	school's interest in professional growth (13%), excursions to companies (12%), school climate (3%), an offer of further professional growth (1%)
Teacher and teaching	210	18%	modern (innovative) didactic strategies (9%), emphasis on understanding the curriculum (4%), focus on detail, context (3%), good attitude of teachers (2%), error - teacher (0%)

The result of item 3 presented in Table 6 is the following conclusions: The most significant number of students' opinions on how the school should expand their interest in the field was concentrated in the group of factors "I - student". Students also mention possibilities to support interest by means from the group of factors "School". The groups of factors "Content" and "Teacher and teaching " are following with slight differences.

5. DISCUSSION

By categorising students 'views on how to improve their professional growth and incorporating them into the factors, it was found that the most common categories for improvement were to increase the level and quality of internships, increase students' learning efforts and improve teaching. The main improvement factors are students and teachers themselves. Emphasis on professional practice and quality of teaching is currently preferred, among others, by the Hospodářská komora ČR (2021). The emphasis on the fact that students and competent and motivated teachers are key actors in an effective education has also recently been confirmed by a World Bank study (2018).

By categorising students' views on barriers to their professional growth and incorporating them into the types of barriers, it is possible to state that the most frequently mentioned categories of barriers include laziness, lack of time and unnecessary subjects in the study program. Furthermore, the aggregation of categories into types of barriers showed that the most common barriers are dispositional (personality), followed by institutional and situational barriers. An American study came to very similar conclusions (Lee, 2017).

The students' views on the role of the school in extending their interest in the field of the study showed they see it primarily in their motivation to study and stimulate the relationship to the chosen field, which can be included in the group of factors. "I-student". It is followed by a group of "School" and "Curriculum" factors according to the frequency of students' statements. The 30 factors listed according to the educational effect by Hattie (2009) can be, with a certain tolerance, used to compare our findings. While the group of factors "Student" ranks fourth according to the size of the expected effect on his list, in our research, it ranks first. The group of factors "School" is in second place in our ranking, while according to Hattie, it would belong to the fifth ranking. According to our research, the "Curriculum" ranks third compared to the second place on Hattie's list.

6. CONCLUSION

We understand the reflection and self-reflection of educational reality by students as one of the highest evaluation categories with considerable educational potential. Through self-reflection, students can realise the stimulus for developing their personality, facts affecting their knowledge growth, or barriers hindering their professional growth. Therefore, effective educational communication of the school with the students' parents and the students themselves about barriers to education and the offer to develop plans for solving selected educational barriers (INEE, 2010) is a necessary educational support for students 'professional growth. The presented results of research based on reflections and self-reflections of high school students allow us to state that current students of the examined age cohort can think critically about their approach to education, barriers to study and school opportunities to support their interest in the field as a critical component of their study motivation and commitment.

REFERENCES

Campbell Union High School District (2020). *Effective schools characteristics*. Retrieved from https://www.cuhsd.net/documents/General%20Information/LCFF%20and%20LCAP/Effective_Schools_Characteristics.pdf)

Česká školní inspekce (Czech School Inspectorate) (2020). *Kvalitní škola* [Quality school]. Retrieved from https://www.csicr.cz/cz/Kvalitni-skola

Del Preto, D. (2013). Students' voices: The live dexperience of faculty in civility as a barrier to professional formation in associate degree nursing education. *Nurse Education Today, 33*(3), 286–290.

Desjardins, R., & Rubenson, K. (2013). Participation patterns in adult education: The role of institutions and public policy frameworks in resolving coordination problems. *European Journal of Education, 48*(2), 262–280.

Echazarra, A., Salinas, D., Méndez, I. Denis, V. & Rech, G. (2016). *How teachers teach and students learn: successful strategies for school* (OECD Education Working Paper No. 130). Paris: OECD Publishing.

European union (2009). Council conclusions of 12 May 2009 on strategic framework for European cooperation in education and training („ET 2020'), 2009/C 119/02.

Ferguson, R., Coughlan, T., Egelandsdal, K., Gaved, M., Herodotou, C., Hillaire, G., Jones, D., Jowers, I., Kukulska-Hulme, A., McAndrew, P., Misiejuk, K., Ness, I. J., Rienties, B., Scanlon, E., Sharples, M., Wasson, B., Weller, M. & Whitelock, D. (2019*). Innovating Pedagogy 2019: Open University Innovation Report 7*. Milton Keynes: The Open University.

Flook, L. (2019). *Four ways schools can support whole child. Beyond just teaching academics, schools can foster students' development in their relationships, identity, emotional skills, and overall well-being.* Retrieved from https://greatergood.berkeley.edu/article/item/four_ways_schools_can_support_the_whole_child

Hattie, J. A. C. (2009). *Visible learning. A synthesis of over 800 meta-analyses relating to achievement.* London and New York: Routlege.

Hattie, J. A. C. (2018). *Hattiesˊ2018 updated list of factors related to student achievement: 252 influences and effect sizes.* Retrieved from https://visible-learning.org/hattie-ranking-influences-effect-sizes-learning-achievement/

Hendl, J. (2008). *Kvalitativní výzkum. Základní teorie, metody a aplikace* [Qualitative research. Basic theories, methods and applications]. Praha: Portál.

Hospodářská komora ČR (Czech Chamber of Commerce) (2021). *Otevřená strategie odborného vzdělávání* [Open technical education strategy]. Retrieved from https://www.komora.cz/vzdelavani/

IAE/UNESCO (2005). *Efektivní učení ve škole* [*Effective learning at school*]. Praha: Portál.

INEE (2010). *Minimum Standards for Education: Preparedness, Response, Recovery.* Retrieved from https://inee.org/standards.

Kalenda, J. & Kočvarová, I. (2017). Proměny bariér ke vzdělávání dospělých v České republice. [Changes in barriers to adult education in the Czech Republic]. *Studia paedagogica, 22*(3), 69-89.

Kašparová, J., Starý, K. & Šumavská, G. (2011). *Výukové strategie v praxi pilotních odborných škol.* [Teaching strategies in the practice of pilot technical schools]. Praha: Národní ústav pro vzdělávání.

Lee, J. M. (2017). *Exploratory Study of Perceived Barriers to Learning in an Urban Educational Opportunity Center*. Retrieved from https://files.eric.ed.gov/fulltext/ED576996.pdf

Malach, J. (2020). Pro nové výzvy nová řešení [New solutions for new challenges]. In Malčík, M. et al. *Vzdělávání ve společnosti 4.0*. (*Education in society 4.0.*) (pp. 109-162). Ostrava: VŠB-TU.

Miles, M. B. & Hubermann, A. M. (1994). *Qualitative data analysis. A sourcebook of new methods*. London: SAGE.

OECD (2011). *Education at a glance*. Paris: OECD Publishing.

OECD (2017). *The OECD handbook for innovative learning environment*. Paris: OECD Publishing.

Panadero, E., Jonsson, A., & Botella, J. (2017). Effects of self-assessment on self-regulated learning and self-efficacy: four meta-analyses. *Educational Research Review, 22*, 74–98. doi: 10.1016/j.edurev.2017.08.004

Paniagua, A. & Istance, D. (2018). *Teachers as designers of learning environments. The importance of innovative pedagogies.* Paris: Educational Research and Innovation, OECD Publishing.

Pellegrino, J. W. & Hilton, M. L. (2012). *Education for life and work: developing transferable knowledge and skills in the 21st century*. Washington: The National Academies Press.

Picciano, A. G. (2017). Theories and frameworks for online education: Seeking an integrated model. *Online Learning*, *21*(3), 166-190.

Pol, M. & Lazarová, B. (2011). *Dobrá škola. Metoda pro stanovení priorit školy* [Good school. Method for setting school priorities]. Praha: Národní ústav odborného vzdělávání.

Rabušicová, M., Rabušic, L., & Šeďová, K. (2008). Motivace a bariéry ve vzdělávání dospělých. [Motivation and barriers in adult education]. In M. Rabušicová & L. Rabušic (Eds.), *Učíme se po celý život? O vzdělávání dospělých v České republice [Do We Learn Through whole Life? On adult education in the Czech Republic]*, (pp. 97-112). Brno: Masarykova univerzita.

Rizzo, M. & Galllo, A. (Eds.). (2012). *Human capital and resources: Developments, management and strategies.* New York: Nova Publishers.

Rubenson, K. (2010). Barriers to participation in adult education. In P. Peterson, E. Baker, & B. McGaw (Eds.), *International encyclopedia of education (*234–239). London: Elsevier.

Rubenson, K. & Desjardins, R. (2009). The impact of welfare state requirements on barriers to participation in adult education. A bounded agency model. *Adult Education Qaurterly, 59*(3), 187–207.

Schleicher, A. (2019). *PISA 2018. Insights and interpretations*. Paris: OECD.

UNESCO (2009). *GRALE - The Global Report on Adult Learning and Education.* Hamburg: UNESCO Institute for Lifelong Learning.

Vanhuysee, P. (2006). Czech Exceptionalism? A Comparative Political Economy Interpretation of Post-Communist Policy Pathways, 1989–2004. *Czech Sociological Review, 42*(6), 1115–1136.

Walberg, H. & Paik, S.J. (2000). *Effective educational practices*. Paris: International Academy Education. UNESCO. Educational Practices Series -3.

Wawrocs, P. & Heissler, H. (2013). Vybrané bariéry investic do lidského kapitálu [Selected barriers to investment in human capital]. *Naše společnost, 11*(1), 36–45.

World Bank (2018). *World Development Report 2018: Learning to Realize Education's Promise.* Washington: World Bank. doi:10.1596/978-1-4648-1096-1

ACKNOWLEDGEMENTS

AUTHORS' INFORMATION

Full name: Dana Vicherková
Institutional affiliation: Faculty of Education, University of Ostrava
Institutional address: Fráni Šrámka 3, Ostrava, Czech Republic
Email address: dana.vicherkova@osu.cz
Short biographical sketch: Mgr. Dana Vicherková, Ph.D. works as an assistant professor at the Department of Pedagogy and Andragogy at the Faculty of Education, University of Ostrava in the Czech Republic. She deals with the issues of pedagogical communication, reading literacy of students, general didactics, pedagogical diagnostics, vocational training and pedagogical practice. She is the executive editor of New Education Review. ORCID: 0000-0003-0566-2786

Full name: Josef Malach
Institutional affiliation: Faculty of Education, University of Ostrava
Institutional address: Fráni Šrámka 3, Ostrava, Czech Republic
Email address: josef.malach@osu.cz
Short biographical sketch: Professor Josef Malach is the guarantor of the Ph.D. study of Pedagogy at the Faculty of Education, University of Ostrava. His research activities cover the vocational training, application of ICT in education, educational assessment and entrepreneurship education. He works as a co-editor of the New Education Review and he is a member of many editorial boards. ORCID: 0000-0002-3960-486X