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PAPER

Attitudes of Secondary Technical School Students towards Their Choice of Educational Path

Čestmír Serafín(✉), Michal Mrázek, Michal Sedláček

Pedagogical Faculty, Department of Technical education and Information Technology, Palacký University Olomouc, Olomouc, Czech Republic

cestmir.serafin@upol.cz

ABSTRACT

This paper addresses the challenges regarding the choice of educational pathway for an adolescent from primary to secondary education. The aim is to highlight comparative differences in student decision-making when choosing a technically oriented study program. One sub objective is to emphasise the evolving preferences and roles of students in the decision-making process. The introduction provides the reader with a definition of decision-making processes and the choice of an educational pathway in the context of the Czech Republic. The following chapters present the main findings of the study. In Chapter 4, the risks associated with choosing a study path are presented, and the transition to the research part of the article is smooth. Three research hypotheses were defined to conduct the research. The study was conducted using a specifically designed non-standardised questionnaire. Details of the questionnaire design and the sample for the new research are provided. Subsections 4.3–4.6 present an overview of the results from the confirmatory and exploratory analyses. The discussion and conclusion summarise the results within a broader professional context. The primary findings indicate that students seem to be more independent in selecting technical schools. Students most often consider three criteria when making their choice: 1. the prospect of a career as a technician or a professional; 2. professional advantages in the job market; and 3. interest in the field and its study. We also present one of the possible correlation models of students' personal preferences when choosing a secondary technical school.

KEYWORDS

choice of educational path, pupils' attitudes, technical education, transition from primary to secondary school, vocational education research

1 INTRODUCTION

Decisions are a part of a person's daily life. Each of our decisions involves choosing how we are going to resolve a situation or how we are going to behave at a given moment. Our decisions can fundamentally change our lives or, conversely, fade into insignificance amidst other events and decisions. Routine problems that are not

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significant to us (perhaps on the surface, at the moment of decision) are typically resolved through a binary yes/no, pro/con decision-making process. On the other hand, there are decisions on which we know, or at least suspect, that our future and our lives depend. These include decisions related to the allocation of significant financial resources, health-related choices, and educational direction. In these situations, we are forced to think carefully about our decisions, consider possible options and consequences, and possibly consult an expert advisor [1], [2].

Education has been, is, and probably will be one of the determining factors in a person's position in society. The process of education has always been considered the fundamental process of societal development, and currently, it is primarily characterised by a continuous state of change. We often hear from the media about the importance of lifelong learning and education, and the shift towards a knowledge-based society. The importance of education is sometimes seen as a remedy for various societal issues, such as the necessity to enhance competitiveness and stabilise the labour market [3]. In the Czech Republic, as in other countries, education is a fundamental factor that influences a person's position in the labour market. Although in a developed society there are job opportunities in all categories and levels of education, differences in financial evaluation, the nature of the work performed, and the professional perspective still depend on the level of education obtained. According to research by Median1 for People in Need, there is a significant correlation in the Czech Republic between the level of education attained and one's social background. Surprisingly, 44% of parents prefer a multi-year grammar school over a four-year grammar school for their children. Parents with college degrees are more likely to plan for their children's education. 37% of them expect their children to attend multi-year colleges [4]. This research confirms the generally accepted view that when choosing an educational path, individuals may encounter perspectives that highlight the impact of intelligence, genetic traits, and socio-psychological characteristics on attaining a specific level of education and social status. Conversely, other viewpoints emphasise the significant role of family background in shaping the educational ambitions of parents, the family, and the broader community. The results show that 69.8% of pupils who passed the Matura exam have the ambition to obtain a university degree [5]. The effort to learn is, therefore, a very important motivating factor in students' transition to high school [1] [6] [7] [8].

This paper first presents key challenges and the current state of knowledge in the field of decision-making processes and the choice of educational pathways for elementary school students. For better orientation, background information on the educational system in the Czech Republic is also provided. This is followed by a chapter describing the design of the study and the methods employed. The core of the paper consists of a chapter that includes statistical analyses, evaluation of hypotheses, and interpretation of results. At the end of the paper, the results are discussed in relation to existing professional knowledge, and a conclusion is drawn.

2 INFLUENCES ON DECISIONS REGARDING FURTHER EDUCATION

The family plays a crucial role in determining the educational path chosen. This trend concerns both pupils during their transition from primary school to secondary school and subsequently during the transition from secondary school to higher vocational or university. According to [9] and [10], parents are considered second only to the student's decision. Parents obviously have a direct and, in many ways, decisive influence on the pupil's decision regarding the choice of educational path.

This influence can also be indirect, hidden in their behaviour, attitudes, expression, or personification of the aspiration. For instance, it can manifest in the way they express themselves positively or negatively towards a certain profession. The degree of influence parents have on the choice of the educational path varies, of course, which is again due to the pupil's personality predispositions. At the same time, the trend of recent years is confirmed by an increase in pupils' educational aspirations, as evidenced by the growing number of students aspiring to pursue higher education. They recognise the significance of higher education for their future success [8].

In relation to the impact of parents on their children's decisions, the link between parental education and their children's educational aspirations cannot be overlooked. The research by [9] also addressed these issues and demonstrated a strong correlation between students' identification with their parents' education and their future employment. The aforementioned research indicates that children of parents with university education tend to favour grammar schools and pursue higher education, whereas children of apprenticeship graduates lean towards vocational fields or fields requiring a high school diploma, with fewer opting to pursue further studies at university. Based on this research, it can be concluded that parental influence determines the choice of study type rather than a specific field, and parental aspirations also significantly impact this decision.

Other factors influencing a student's decision-making process regarding their further educational progress typically include their friends and classmates. Again, like family backgrounds, these factors can play both motivating and demotivating roles. Friends and classmates play a significant role in students' decision-making processes, with up to a third of graduates in study fields and a fifth of graduates in graduation fields being influenced by their peers [11].

In addition to the influence of family or friends, schools and teachers also play a role in students' decision-making processes, although research suggests that their influence is relatively marginal [9], [12]. The school, teachers, educational counsellors, or school psychologists are involved in the decision-making process as "sources of information" from which the student gains knowledge for their decision-making process. They then compare this information with other data and attitudes that form the foundation for their own decision. As stated in reference [13], "Time spent at school provides teachers with significant potential to become a primary source of career information, advice, and assistance when selecting a profession."

In addition to social and family influences, society, and therefore the state, have a significant impact on students' decision-making. The current changing society is closely linked to robotization and digitalisation, leading to the creation of new jobs while traditional ones are disappearing or being replaced by machines. Society must adapt to these changes, and people, as part of it, are constantly coping with changing conditions. These contexts are also described in many strategic documents, such as the Strategy of the Czech Republic's educational policy until 2030+, where the specific goal is, among other things, to focus education primarily on acquiring the competencies needed for active civic, professional, and personal life [14]. According to [15], "The digital economy is a fundamental pillar of the societal changes brought about by the so-called Fourth Industrial Revolution." The digital transformation presents opportunities for the Czech Republic to internally modernise, transition to a knowledge-based economy, and foster the emergence of high-value-added domestic innovative enterprises. The key point of change is the readiness of humans to adapt to changes in the labour market and education. The crucial aspect is the development of digital skills and knowledge, specifically digital competencies. Pupils' success in school and their choice of career path are determined not only by personal will

or preconditions but also by personal external influences. When the state becomes involved in guiding pupils regarding their educational and career paths, it acknowledges this reality through its active employment policy.

3 THE CONCEPT OF THE OLOMOUC REGION EDUCATION SYSTEM IN THE CONTEXT OF VOCATIONAL SECONDARY SCHOOLS

Education in the Czech Republic is part of the overall education system, which is nowadays referred to as one of the spheres of social services. Education encompasses schools, school facilities, and human resources as both subjects and outcomes. The school system consists of kindergartens and the first level of primary schools as primary education, followed by the second level of primary schools, secondary schools, grammar schools, vocational secondary schools, and vocational training colleges. Lower-level conservatories form secondary education, while tertiary schools include colleges, universities, and colleges of higher education.

The concept of the education system in the Olomouc Region is outlined and regularly updated in a strategic document titled "Long-term Plan for Education and Development of the Education System in the Olomouc Region" [16]; [17], covering the period 2020–2024. The document is a strategic plan for the Olomouc Region outlining the fundamental directions of development in the education sector. It is regularly updated in four-year cycles. As a response to shifts in the labour market, there arose a necessity to adapt the education system in the Olomouc Region. This adaptation primarily involves fostering closer ties between the education system and employers, promoting various forms and levels of education utilising current school resources, and streamlining the school system in the region. An important requirement is that the structure of fields in secondary education align with the dynamically evolving labour market and the higher proportion of pupils subsequently entering higher vocational or higher education. This challenge also aligns with the educational policy strategy of the Czech Republic [14].

Support for polytechnic education and the enhancement of education quality at professionally-oriented secondary schools are also emphasised in a document known as the Regional Action Plan for the Development of Education in the Olomouc Region [17]. This document plays a crucial role in the strategic management of education in regional schools. The main goals include supporting the stimulation of pupils' interest in polytechnic education with close ties to employers, making teaching and pupils more attractive in this type of study, supporting career counselling through networking, creating facilities for competencies, exchanging experiences, providing methodical career guidance, and possibly having educational counsellors at schools in the region.

The activities outlined in the Long-Term Plan and the Action Plan of the Olomouc Region are expected to significantly influence students and future university graduates in their decision-making process regarding professional orientation. These activities are also likely to impact their success in studying and completing technically oriented fields of study.

4 RISKS ASSOCIATED WITH DECISION-MAKING IN THE CHOICE OF EDUCATIONAL PATHWAYS FOR PUPILS

Every decision is associated with certain risks. Even in the professional literature, one can find risk analysis at various levels or in decision-making areas. In this

context, the so-called Gati's taxonomy is frequently utilised, which categorises the risks of decision-making into three distinct categories [18]:

- Lack of preparedness
- Lack of information
- Information inconsistency

Although this division is related to the area of professional decision-making in future careers. In our opinion, it can also be used to help students make decisions about their future educational paths. After all, decisions about future professions are closely linked to decisions about future education. In both cases, we are discussing motivation and the information that individuals should have when making their decisions.

The fundamental problem lies in the lack of information, which can lead to both correct and incorrect decisions. Pupils, of course, follow their own judgement when making their decisions, but this is influenced by a lot of information. Hlaďo [9] states that "most pupils tend to lack information about where and how they can access the necessary information" and categorises the lack of information into four subgroups:

- Lack of knowledge about the steps in the decision-making process
- Lack of information about oneself
- Lack of information on various alternatives
- Lack of information on how to obtain additional information

Many authors consider the lack of information about themselves and guidance on decision-making to be a key issue when choosing a further educational path. This viewpoint is also supported by [19]. Having information about oneself, one's abilities, and skills can be considered a crucial issue for self-awareness.

4.1 Attitudes of secondary technical school students to their choice of educational pathway

The theoretical background highlights the many influences that contribute to individuals' decision-making when choosing to study in high school. We directed our attention towards factors that contrast with the key influences of family background and personal preferences of the individual. We start from the historical-social context, when the study of technical disciplines was significantly influenced by the tradition of families and the craft being passed down from father to son. On the other hand, current generations have a much wider range of choices. Therefore, it raises the question of whether the decision to pursue a technically oriented field of study in secondary school is driven by individual preferences or if the influence of family background still plays a significant role. The aim of the research was to determine whether students base their decisions on family influence or their own preferences when selecting a technical field of study in secondary school. Here, we aim to address whether the influence of the family still predominates in decision-making or if today's students are more autonomous in their decisions. It was also essential to determine whether there was a correlation between the individual characteristics of the two influences. A possible confirmation of the relationship between the two influences would indicate the alignment of extrinsic and intrinsic incentives in students' decision-making. As a final goal, we aimed to explore the possibility of categorising students into specific groups based on the influences affecting their

decision-making. This exploration could potentially lead to generalisations in terms of categorising subjects and highlight the prevalence of certain influences by observing similarities in decision-making within groups.

Thus, three research assumptions were established for the implementation of the research survey:

- RA1 – According to the pupils, family background has a greater influence than personal preferences when choosing a field of study.
- RA2 – There is a relationship between family background and personal preferences when individuals choose their field of study.
- RA3 – Individuals can be divided into specific groups based on the factors influencing their choice of field of study.

In addition to the research assumptions, the factual hypothesis H1 was also established – there are differences between the identified groups based on the influences in the choice of the field studied.

4.2 Research design and methods

The study aimed to verify the validity of the research assumptions and confirm the established hypothesis. For the solution, we opted for a quantitative research methodology that relies on a non-standardised questionnaire that we created. We intended to reach as many respondents from the key region as possible. Therefore, the questionnaire was the optimal choice because, as stated in reference [20], it is a research tool that enables the collection of data from a large number of respondents quickly and economically.

When creating the questionnaire, we adhered to the generally accepted rules for constructing questionnaires [20], [21]. The questionnaire contains five demographic items and 13 scale items, which are divided into two thematic constructs (8: 5 items), forming the main part of the questionnaire. In this paper, we only publish data from the demographic items and 8 functional items (Table 1) that are thematically relevant to the focus of the paper. Using scale questions, we assessed the 'students' opinions by measuring the extent of their agreement with the given statement (scale: 1-strongly disagree, 5 strongly agree). In the following text, we will only work with demographic items and eight items from one thematic construct. The questionnaire was created using online tools that were available. The questionnaires were distributed via email with a link redirecting to the questionnaire website.

The study sample was intentionally selected using stratified sampling–. The selection criteria were determined as follows:

- Type of school: secondary industrial school and technical lyceum;
- The school's focus is on technical fields such as electrical engineering, mechanical engineering, technical lyceum, construction, and information technology);
- Region: The school is located in the Olomouc region.

In this case, the group of respondents is referred to as a sample. The availability of schools in the Olomouc Region was analysed using the official list of secondary schools. A total of 8 secondary vocational (technical) schools were surveyed, collectively offering 20 key fields of study. A total of eight schools provided feedback, from which we obtained n_r = 187 completed questionnaires from the pupils. Based on these numbers, the representativeness of the sample was verified.

As part of the research survey, as shown in (1), the representativeness of the sample was calculated according to [22], including adjustments for the minimum sample size (for basic sets N < 10.000).

$$n = r \times q \times \left(\frac{z}{e}\right)^2 = 25 \times 75 \times \left(\frac{1{,}96}{5}\right)^2 = 289 \quad (1)$$

Where n is the minimum sample size, r is the specific category [%], q is the non-specific category [%], e is the marginal error [%], and z is the table value for the confidence level.

The determination of q, a, r values belonging to specific and non-specific categories can be achieved by analysing the return values of questionnaires (positive versus negative feedback) from previous research or by conducting a pilot questionnaire survey. Because the piloting was not performed for organisational reasons, we decided to estimate the value *of r ourselves* (*estimated r* = 20–30% return) based on return studies of questionnaires distributed via email, as shown in [23].

Due to the specificity of the sample, a milder value of $r = 25$ ($q = 75$) was chosen. The adjustment of the minimum sample size for basic files $N < 10{,}000$ is shown in (2).

$$n' = \frac{n}{\left(1 + \frac{n}{N}\right)} = \frac{289}{\left(1 + \frac{289}{1760}\right)} = 249 \quad (2)$$

Table 1. Questions from the questionnaire

Q6	My family considers the completion of this field to be the right way, they expect it from me.
Q7	I am a study type, I wanted to study this field. I have been interested in the field for a long time.
Q8	I chose the field because it has, in comparison with other fields, attractive and high-quality content. Graduation from the field will give me an advantage when looking for a job.
Q9	Someone from the family has already studied the field
Q10	Friends and peers study the same or a similar field. I want to stay with my friends
Q11	I want to be a technician in the future, a professional
Q12	I want to continue my studies at a technical university
Q13	The study of this field is based primarily on digital technologies

The comparison $n' > n_r$ (249 > 187) shows that the sample of respondents obtained by us is completely representative. Therefore, we will label it, according to Gavora (2008) as the best possible under the given conditions.

A non-standardised questionnaire was selected for the research (refer to above). McDonald's ω was chosen for the calculation of reliability. The use of Cronbach's α to determine reliability is accompanied by well-documented limitations that may lead to less accurate results [6]. We supplemented the results by calculating the greatest lower bound (GLB), which is appropriate for assessing the reliability of a questionnaire after a single administration [24].

The optimal value of the coefficient ω is 0.7 or greater [1]; [25]. The value of $\omega = 0.640$ determined by us is lower than optimal. Nevertheless, considering the value of GLB > 0.8 (GLB = 0,820), we accept it as relatively sufficient when using a non-standardised questionnaire. Statistical data processing was performed using the statistical software Statistica and JASP.

4.3 Summary of RA1

Descriptive statistics were used to evaluate research assumption RA1, which posits that family background has a more significant influence than an individual's personal preferences when choosing a field of study. The classified results are presented in Table 2 and depicted in Figure 1. The following criteria were considered in the evaluation: 5 – significant; 3 – neutral (half and half); 1 – insignificant.

According to the students, the most important criterion when choosing a technical field of study at a secondary school is the vision of the future profession. This is indicated by the highest average value of the responses to item Q11 – "I want to become a technician or a professional in the future." Pupils consider the completion of the chosen technical field Q8 to be another important criterion, as they believe it will be advantageous in the future labour market. Pupils' autonomy in choosing to study at secondary school is also supported by the third highest-rated item, Q7. In this item, pupils expressed that they have had a long-standing interest in the field and view it as a preferred area of study, which influenced their decision.

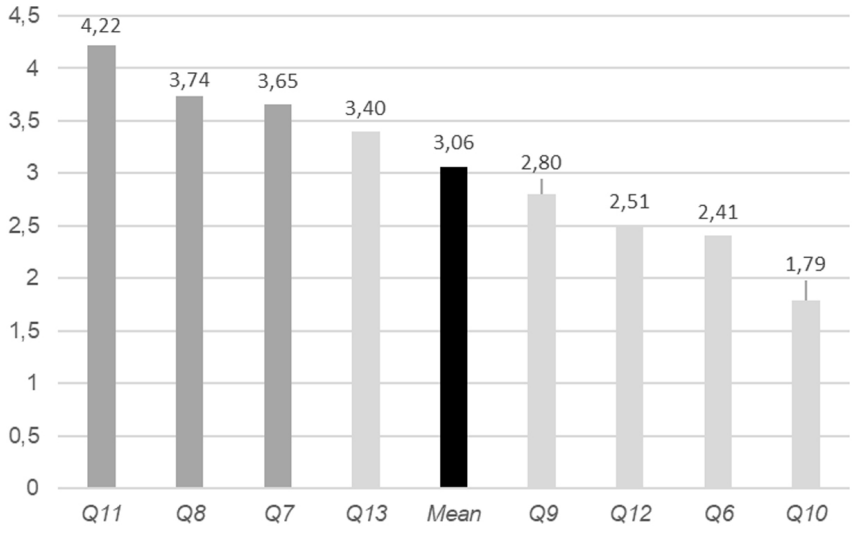

Fig. 1. The sorted mean values of respondents' answers supplemented by the overall mean (RA1)

The fact that the study of the field is based on digital technologies (Q13) is partly reflected in the pupils' decision-making, but this phenomenon can already be considered rather neutral. All items related to the influence of family background (Q6 and Q9) on the decision to enrol a student in a technical secondary school received values lower than 3. This implies the neutrality or lower importance of this criterion in pupils' decision-making. Although students may reflect their family background in their decision-making, they do not attach significant importance to it. They tend to be more independent and self-reliant. When choosing a secondary technical school, consideration of further studies at a technical university (Q12) does not play an important role for students. The responses indicate that students of this age do not think much about pursuing higher education or view this decision as distant, assigning it a neutral significance. The influence of peers or comrades (Q10) is the least significant when choosing a secondary technical school, so pupils mostly do not decide to study the same field together with their peers or comrades.

Table 2. Sorted mean values of respondents' answers (RA1)

Item	N	Mean	Min	Within	Stand. Dev.
Q11	187	4.224599	1	5	0.99614
Q8	187	3.737968	1	5	1.097799
Q7	187	3.652406	1	5	1.132146
Q13	187	3.395722	1	5	1.241566
Q9	187	2.802139	1	5	1.086771
Q12	187	2.508021	1	5	1.123402
Q6	187	2.406417	1	5	1.268121
Q10	187	1.791444	1	5	1.109263

4.4 Summary of RA2

To determine the relationship based on assumption RA2. *There is a relationship between* family background and personal preferences when choosing a field of study. To analyse this relationship, a correlation matrix using Pearson's coefficient r_p was employed. Pearson's coefficient ranges from –1 to +1. If the value of the coefficient approaches the limits of the interval, we speak of a relationship between variables. In this case, the variables interact [26]. The results are presented in Table 3.

Correlation (Questionnaire – study of the field Olomouc region)
The marked correlations are significant at the level of p < .01000
N = 187 (All cases omitted in MD)

Table 3. Pearson coefficient values between elements

	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13
Q6	1.000000	0.016541	–0.019640	0.132784	0.159952	–0.089673	0.046760	0.088527
Q7	0.016541	1.000000	0.302664	0.127327	–0.130812	0.436671	–0.278903	–0.165532
Q8	–0.019640	0.302664	1.000000	0.271755	–0.212887	0.413001	–0.153046	0.021262
Q9	0.132784	0.127327	0.271755	1.000000	0.233173	0.09033	0.263325	0.046387
Q10	0.159952	–0.130812	–0.212887	0.233173	1.000000	–0.161734	0.327085	0.239820
Q11	–0.089673	0.436671	0.413001	0.09033	–0.161734	1.000000	–0.174574	–0.254827
Q12	0.046760	–0.278903	–0.153046	0.263325	0.327085	–0.174574	1.000000	0.190443
Q13	0.088527	–0.165532	0.021262	0.046387	0.239820	–0.254827	0.190443	1.000000

Note: The values in red color indicate that these are values of coefficients that are close to the boundaries of the interval –1 to +1 – we are talking here about the relationship between variables.

Although the Pearson's coefficient matrix (r_p) significantly demonstrated a functional relationship between students' opinions, the sought functional relationship between family background and personal preferences of the individual was not proven. The obtained values of the coefficients were not excessively high. It is therefore possible to discuss soft bonds further. Nevertheless, the results provided us with interesting information about the potential relationships among items Q7, Q8, and Q11, which had the highest average values in the previous analysis. Therefore, it can be argued that responses related to personal preferences are interconnected and come from a cohesive set of factors influencing an individual's choice to enrol in a technical high school.

Based on the data obtained, it is possible to construct a model of high school students' personal preferences regarding their attitudes, opinions, or the individuals who have influenced their decision-making. The model is shown in Figure 2.

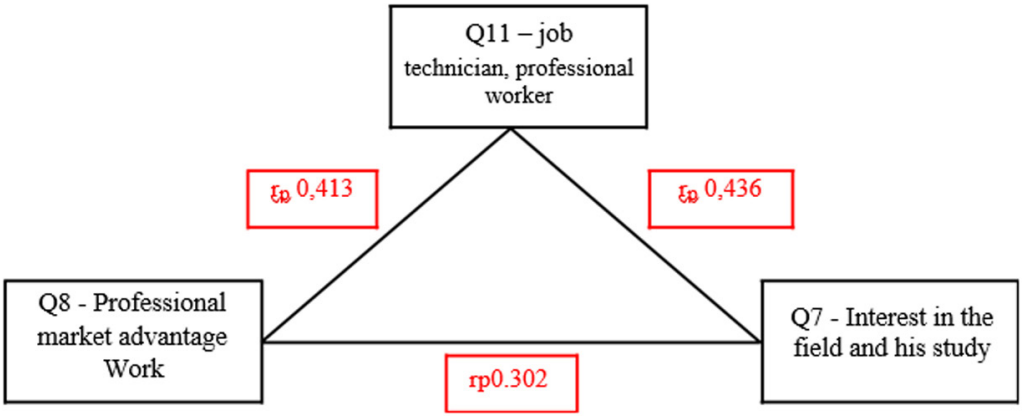

Fig. 2. Model of students' personal preferences when choosing a technical secondary school

Note: The values in red color indicate that these coefficient values are closest to the boundaries of the interval –1 to +1 – we are talking about a close relationship between the variables.

In the model shown in Figure 1, which is based on data from the research survey, it is evident that students transitioned between the three vertices of the triangle when selecting their educational path, namely:

1. Vision of the profession of a technician or specialist
2. Professional benefits in the labour market
3. Interest in the field and its study

The priority can be seen at the top of this triangle, i.e., the vision of the profession of a technician, a professional. However, all three peaks form a unity in the decision-making process of pupils and are relatively consistent, especially in the area of the conditions for choosing an educational path.

4.5 Summary of RA3

The last assumption was RA3*: Individuals can be divided into specific groups according to the influences on the choice of the field studied.* For this assumption, multidimensional statistics were used by applying cluster analysis (CA). This method is used to classify objects by sorting units into groups (clusters) so that units belonging to the same group are more similar than objects from other groups [27]. K-means cluster analysis of non-hierarchical type utilizes the method of reverse analysis of variance (ANOVA) for calculations, which will significantly help verify the differences between groups [20]. The results are shown in Tables 4 and 5. Differences between identified clusters were found for all variables through reverse ANOVA at a significance level of $p < 0.01$.

Using cluster analysis, we identified three groups of students that significantly differ in their answers. The most numerous group, Group No. 1, is characterised by considering the field's focus on digital technologies when selecting a secondary technical school. This finding is not surprising to us at the moment, as students frequently use digital technologies in their everyday lives, often at the expense of other

leisure activities. In the case of choosing a technical high school with a focus on ICT or electrical engineering, students' preferences are also taken into consideration. Groups No. 2 and 3 are less numerous and almost equal in quantity. When analysing the average values of the responses in these groups, we identified that both groups consider the desire to work as a technician or professional in the future important in their decision-making. On the contrary, the groups differ in their responses to questions Q7 and Q8. In our opinion, this difference is not accidental but is based on individual needs, personal interests, and a pragmatic approach to preparing for a future profession. The two groups of students identified and their characteristics, according to the partial results, support the proposed model of students' personal preferences when choosing a technical secondary school. The key answers Q11, Q8, and Q7 form the basis of this model based on the relationships found.

Table 4. Summary of k-means cluster analysis

Summary for k-means clustering Number of clusters: 3 Total number of training cases: 187	
Algorithm	k-Means
Distance method	Euclidean distances
Initial centers	Maximize initial distance
MD casewise deletion	Yes
Cross-validation	10 folds
Testing sample	0
Training cases	187
Training error	0.662522
Number of clusters: 3	3

Table 5. Highest average response values for the identified groups

Group	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	N	%
1	2.911111	3.333333	3.455556	2.777778	2.322222	3.7	2.877778	**4.244444**	90	48.13
2	2.326531	**4.204082**	3.387755	1.938776	1.183673	**4.653061**	1.714286	2.204082	49	26.20
3	1.541667	3.6875	**4.625**	3.729167	1.416667	**4.770833**	2.625	3.020833	48	25.57

Note: The values in red color indicate that the results of the cluster analysis where the largest values in Q7, Q8, Q11 and Q13 identify 3 groups of students.

4.6 Summary of H1

Finally, the factual hypothesis H1 was established: *"There are differences between the identified groups according to the influences in the choice of the field studied."*

To test this, it was necessary to create three sets of statistical hypotheses to determine the differences between pairs of groups:

a) 1H0 – There are no differences between group 1 and group 2 in terms of the influences at work.

1HA – There are differences between group 1 and group 2 in terms of the influences at work.

b) 2H0 – There are no differences between groups 1 and 3 in terms of the influences at work.
2HA – There are differences between groups 1 and 3 in terms of the influences at work.

c) 3H0 – There are no differences between groups 2 and 3 in terms of the influences at work.
3HA – There are differences between groups 2 and 3 in terms of the influences at work.

Parametric two-sample T-tests were used to compare independent groups. Normality of the response distribution and homogeneity of variances were not demonstrated for most variables. Therefore, a nonparametric Kolmogorov-Smirnov test was used.

Hypothesis H1 regarding the differences between the identified groups based on the influences in choosing the field of study cannot be confirmed. The differences were not statistically significant for all variables in all sub-hypotheses. More results are not relevant.

5 DISCUSSION AND CONCLUSIONS

The data collected and processed reveal a relatively high level of independence among students and consistency in the belief that the decision to pursue education is made independently of parents and other authorities. This result is consistent with an earlier finding [9] that suggested a non-significant impact of the family environment on students' selection of secondary schools. In the case of choosing technical education, our results emphasise the evolving role of the student as an autonomous decision-maker who bases their choice on their preferences [3], [28].

The results of our survey show that respondents are aware of the importance of selecting higher education and its long-term influence on their careers. The data obtained and processed reveal a relatively high degree of student independence and consistency in the belief that decisions about careers in higher education are made independently of parents and other authorities. This result is not entirely consistent with previous research [9], which emphasised the significant influence of the family environment on students' choice of secondary school. In choosing the choice of technical education, our results emphasise the evolving role of the student as an autonomous decision-maker who bases their choice on their own preferences.

Individuals who have focused on technical education are likely to have achieved a higher level of self-awareness, which is crucial for autonomous decision-making. It is also positive that the students had a relatively clear choice of technical specialization, aligning with current trends in the education system regarding new technologies in the industry. The proposed model, which focuses on students' personal preferences in selecting a technical high school, is considered one of the primary findings of the study. It is supported by partial results and emphasizes the connections between key criteria in students' future career decisions in technical fields of study. The model is based on criteria that are consistent with the empirical results of [9] on a larger, less stratified sample.

We do not yet have enough data to generalise and decipher detailed relationships between parents' and students' expectations, nor do we have a comprehensive understanding of all the factors influencing students' career choices. Although the Czech Republic is a small geographical unit, regional connections are likely to play a

significant role in students' and parents' decision-making processes. Unfortunately, no nationwide studies have been conducted in this area. A priority for future research should therefore be to explore these issues on a national scale and then to extend this research, at least within an Eastern European context, in an international survey. Our regional investigation suggests that the factors we have identified are associated with future pathway decision-making. Therefore, the results of the investigation are pertinent for educational institutions, future employers, and professional practice. Another area that is likely to necessitate mixed research designs is a more in-depth analysis of the variances between expectations and actual outcomes, specifically between decision-making and subsequent realisations over a span of several years. Also of interest is the relationship between the choice of study pathway and career realisation in practice. Research investigations in these areas have so far been carried out in the Czech Republic by the National Institute of Education. It is observed that a significant number of graduates from both apprenticeship courses and secondary vocational schools with a secondary school leaving certificate tend to leave after graduation to work in another field. This trend of graduates moving away from their field of study continues in the following years. Thus, around 40% or more of secondary school graduates work outside their field of study for several years after graduation. The reasons for transitioning to work in another field are crucial, especially whether they stem from low employer demand for graduates in the field and the unfavourable situation in the labour market, or conversely, from graduates' lack of interest in working in the field, such as due to low salaries or poor working conditions. The reasons for transitioning to other fields often depend on the current labour market situation. When the market is favourable, graduates tend to leave the field more frequently due to receiving better offers and financial remuneration. Conversely, during times of crisis, the inability of a graduate to secure a job is a common reason for leaving.

The crucial decision-making process that every primary school pupil goes through is whether to continue in secondary education or to enter the workforce. In the Czech Republic, like in other developed countries, most pupils continue their education at various types of secondary schools, with only a small portion entering the labour market directly. Students select the type of secondary school and the field of education and search for a specific educational institution they would like to attend. At this stage, he is also choosing his future profession. The concept of choice mentioned last has its roots mainly in vocational education, which some primary school graduates pursue. The second part focuses on general grammar education, delaying the decision about professional orientation until later.

We perceive the limitations of our empirical findings from an objective standpoint, particularly concerning the adequacy of a representative sample of respondents for the fundamental dataset. It is not our intention to generalize the results to the entire population of students across the Czech Republic. These are the results of a specific area within the Olomouc Region, characterised by partial cultural, economic, and industrial distinctions from other regions. It seems appropriate to us that the general validity of our proposed model be verified in the future on a broader scale through a national or international research survey.

Based on our findings, recommendations for practice can be directed to elementary school career advisors. Modelling pupils' personal preferences may help identify their interpersonal characteristics according to career decision-making theory based on structural approaches [11]. Self-knowledge of personal preferences is currently a very important part of interpersonal characteristics that form criteria for making the right career decisions while eliminating risks [19], [9], [29].

Recruitment discussions, popularisation events, and open days in schools should aim to identify students who are interested in technical subjects and exhibit a positive attitude towards technical professions. These students should be targeted with the option of a technical field of study, emphasising the expected level of autonomy in the students' decision-making regarding their choice of study path. A more direct solution is to establish cooperation between secondary and primary schools. This collaboration would involve not only systematically promoting technical subjects by primary school teachers but also identifying potential candidates for secondary technical education and facilitating communication between pupils and secondary schools. The aim of these efforts should be, first and foremost, to increase pupils' interest in technical subjects and to identify suitable candidates for secondary technical education [30], [31].

The collected and processed data show a relatively high level of independence among students and consistency in the belief that the decision about their further educational career was made independently of parents and other authorities. This finding is consistent with a previous study [9], which indicated a non-significant impact of family background on a student's decision regarding secondary school choice. In the case of choosing technical education, our results indicate a shift in the role of the students as autonomous decision-makers who select based on their preferences [3], [31], [32]. Individuals who have focused on technical education are likely to have achieved a higher level of self-knowledge, which is crucial for autonomous decision-making. It is also positive that selecting a technical specialisation is a relatively straightforward decision for students, aligning with current trends in the education system regarding new technologies in the industry. We consider the proposed model (the model of students' personal preferences in choosing a technical high school) as one of the main outcomes of the article. It is supported by partial results and emphasizes the connection between key criteria in students' future career decisions related to technical fields of study. The model is based on criteria that are consistent with the empirical findings of [9] on a larger, less stratified sample.

We acknowledge the limitations of our empirical results from an objective standpoint, especially concerning the representativeness of the sample of respondents to the core group (comprising all students from technical high schools in the Czech Republic). The categorization of participants unveiled a relatively novel and relevant decision factor in the shape of students' inclination towards a technical school that utilizes digital technologies.

Based on our findings, practical recommendations can be provided to elementary school guidance counsellors. The model of students' personal preferences can help identify students' interpersonal characteristics according to the theory of career decision-making based on structural approaches [9]. Self-knowledge and personal preferences are currently crucial components of the interpersonal characteristics that form the basis for effective career decision-making and risk mitigation [19], [9], [29], [32].

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8 AUTHORS

Čestmír Serafín is a Full Professor in the Department of Technical Education and Information Technology at the Faculty of Education, Palacký University, Olomouc. His scientific research focuses on didactics in the field and subjects emphasizing electrical and electronic engineering in education, as well as on teaching methods and tools in technically oriented fields. He was the Dean of the Faculty of Education, Palacký University, Olomouc from 2014 to 2018 (E-mail: cestmir.serafin@upol.cz).

Michal Mrázek has been working for 7 years in the Department of Technical Education and Information Technology at the Faculty of Education, Palacký University, Olomouc. He is currently an assistant professor. His professional focus is on the development of technical skills and dexterity, psychomotor teaching and learning, as well as CNC and conventional machining in education (E-mail: michal.mrazek@upol.cz).

Michal Sedláček is an Assistant Professor at the Department of Technical Education and Information Technology, Faculty of Education, Palacký University, Olomouc. Professionally, he specializes in the didactics of IT and technical subjects, progressive teaching methods, simulation models in technical subject teaching, technology-, IT- and physics-oriented subject didactics, vocational logistics education, and Industry 4.0 (E-mail: michal.sedlacek@upol.cz).