

# The Current State of Vocational Schools in Hungary and New Strategies in Teaching

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## Abstract

The research examines the academic performance of students at vocational schools. The majority of vocational school students only want to attend school until they complete their compulsory studies. In previous experience, the authors encountered situations where students who didn't feel good at school had difficulty adapting to their peers, and had integration problems, which were also associated with behavioral and learning problems. Whether it is because they spend too much time at school or their behavior is a result of a curriculum that is abstract, the research aims to find an explanation for the recent poor academic performance of students across Hungary. The quantitative part of the research was performed at two separate vocational schools – the ADU business vocational secondary school and the “Gyemrekház” vocational school situated in the Újpest district of Budapest. The subjects of the research are senior students at the aforementioned vocational schools enrolled in travel and hospitality and business and management training. The research finds that the Hungarian vocational schooling system needs to adopt elements from the Finnish education system to increase the reading comprehension of students, furthermore, a revision is required of the latest educational law adopted in 2011 to reinstate methodological classes into the timetable of students, and finally, modernize teaching methods to adhere to nowadays technological societal and environmental standards.

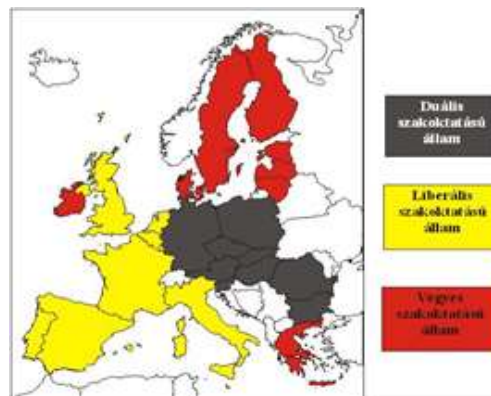
**Index Terms**— Dual Education, Education System, Hungary, Learning methodologies, Vocational Schools.

## 1. Introduction

The subject of this research is the studying habits of vocational school students and discovering the causes of poor academic performance. The results of the research are compared with national test results for hypothesis confirmation purposes. The goal of the research is to determine the attitudes of students towards education and to explore learning methods that would arouse the students' willingness to learn and motivate them to perform better in academics. Reference [1] shows that the role of the teacher has changed dramatically over the years. Nowadays, teachers are considered more than managers of lessons, but also, facilitators, and helpers. Between 2006 and 2012 vocational schooling has been the most popular form of education in Hungary among students [2], as a matter of fact, the popularity of vocational schools has not changed since the 1970s, according to [3]. According to the latest statistics, 127,000 students attend vocational schools, with 43% of them requiring special educational needs or coming from disadvantaged backgrounds [4]. Students that do not attend 4th-8th grades in secondary school are likely to pursue further education in vocational schools, however, later genuine interest in the profession decreases.

After the regime change in Hungary in 1989, many factories closed leaving many skilled workers unemployed. Their previous was insufficient to take up new positions, and therefore, training had to be organized in order for them to find employment. As a result of the ongoing

demographic decline in Hungary, fewer students start their studies in secondary schools, while the number of institutions offering professional training, however, remained the same. To solve this problem Regional Integrated Vocational Training Centers (TISZK) were created to host secondary vocational training. By 2008, the majority of secondary vocational training took place in these centers created with the involvement of vocational schools. In 2013 9th-11th grade oriented unified 3-year courses were developed according to the new education law that was adopted in 2011. Thereby, dual education in Hungary was adopted following the German model. The essence of dual education is that training takes place partly in school and partly on practical training sites. Figure 1 displays educational models across Europe.



**Figure 1: Territorial distribution of vocational education systems in the European Union (red: mixed; yellow: liberal grey: dual [5])**

Truly radical changes in Hungarian vocational training began in 2011 when new regulations came into effect. At the same time, dual vocational training also began in Hungary, the characteristics of which are as follows: (i) theoretical training takes place in vocational schools; (ii) Practical training is organized in factories and companies; (iii) the plant and the school complement each other. A vocational training apprenticeship contract for practical education is established between the student and the business organization. In addition to the aforementioned characteristics, the role of school training is to: (i) teach subjects and convey general theoretical and practical knowledge; and (ii) the acquisition of professional knowledge from 9th grade takes place within the framework of a workshop during practical training. The weekly hours of vocational schools are at least 35 hours. In the 9th grade, the number of general education lessons per subject is usually 2 per week. As of last year, so-called “class community building hours” are allocated in the time schedules of the students weekly in the framework of the new regulations. The general knowledge subjects are Hungarian communication, social studies, and nature studies, which are integrated into education. The time allotted to the individual subject weekly is as follows: Communication - Hungarian language and literature (2 hours); Natural science (3 hours); Social studies (2 hours); Mathematics (2 hours); Informatics (2 hours); Physical education (5 hours); Foreign language (2 hours); the total is 18 hours.

## 2. Literature Review

Reference [5] defines the concept of learning through the scope of psychology, pedagogy, and the commonplace. Commonplace learning means when a person acquires knowledge that they did not have before. From the perspective of pedagogy, learning refers to the knowledge acquired

during education.[6] In this interpretation, learning is of great importance, when students try to imprint the curriculum in their memory with a specific goal, to recall it if necessary, at a later time. From the psychological perspective, learning is an achievement, - a change in behavior or knowledge that is brought about by external influence and experience, as a result of repetitions and practice. In summary, during learning we acquire the knowledge and acquire experiences that bring about a relatively permanent change in our behavior and are a condition for flexible adaptation to our environment, starting from learning how to clean a room, through tying shoelaces to learning the basic rules of etiquette. According to [7], "Learning is the acquisition of theoretical and practical knowledge, skills and abilities, the development of abilities, their specific attitudes, the development of emotional and volitional qualities, as well as the development of behavior". [8]

A person starts learning from birth. Every age has its own characteristics, and these characteristics determine which learning methodology has to be pursued to efficiently master a subject. The summarization of the learning methodologies typical for a certain age group is adopted from [9]. When the human being is born, perceptual and motor learning are dominant. The baby does and learns everything instinctively, so it is very important that it receives the appropriate stimuli from its environment that it needs for balanced nervous system development.[10] At the stage of early childhood predominantly, sensorimotor intelligence and speech are observed to develop. These are prerequisites for the development of verbal learning and memory.[11] At this age, it is important to receive appropriate speech patterns from the environment, the family, as this is known to be the primary socialization environment. At the same time, this is also the age when the child imitates not only speech, but also the behavior of those living in their narrow and wider environment, so it is important that the two- or three-year-old young child sees appropriate forms of behavior and only learns from them. The main focus for kindergartners is the development of basic skills necessary for learning. Suddenly, the development of skills comes to the fore. Both the parental environment and preschool education have a great influence.[12] The kindergartner draws, plays, runs and discovers – all of this is important for physical and mental development, the development of perceptual functions, speaking skills, motor skills, and visuomotor coordination. For example, as the motor skills of a child's arm and hand develop, a pencil, which at first might be held in a fist graduates to being held through fingertips, since the child exercises their drawing and painting in kindergarten.[13] Even though it is still spontaneous learning that dominates, and the learning process takes place in the form of playful action [14] kindergarten is not the only place where support must be provided, a learning environment should exist at home as well. Intentional learning is first emphasized at the stage of elementary school.[15] Instead of learning by playing, the child sits at the desk in the morning and does the homework in the afternoon. [16]

By the age of 7-9, learning strategies start to develop, such as repetition and memory organization. This is important because these exercises form the tools with which new knowledge can be connected to older knowledge and this allows for metamemory to appear. [17] From the point of view of school performance, metamemory means that a child learns to decide how much time studying should be dedicated to the material for effective understanding and commenting [18]. The development of this memory and, of course, the development of learning at this age means teaching elementary learning techniques and practicing them at a skill

level.[19] Elementary learning techniques include, for example, writing, reading, repeating, reviewing, and discussion the contents of the material. It is important that at this age the child becomes aware of the correct study habits, such as studying in calm conditions (for example, preferably at a desk, surrounded by order, etc.), learning to allocate his study time, etc. In their adolescence children experience rapid physiological developments in their bodies, and this includes the development of thinking. [20]

Reference [21] points out that teenagers learn only what they are interested in, and completely neglect what they are not interested in. In this stage of life, within the framework of learning development, students must be taught ways to learn meaningfully. It will be of great importance to teach writing and to practice recognizing and emphasizing key parts of the studied material.[22] At this stage the correct technique of complex learning must be introduced for the correct assembly of notes and material that will enable the acquisition of the necessary knowledge from the subject and clear noise. It is believed by the authors of this research that learning techniques must be integrated as a standalone subject into the curriculum of schools. In this case, however, the number of hours should also be increased. Class community hours must therefore also increase in frequency and in duration in the framework of a school curriculum to discuss things relevant to the subjects themselves.[23] At the same time, it should not be forgotten that each subject requires different learning techniques, so the responsibility of the teachers to practice subject-specific learning techniques with their students arises. [24]

In high school, the timetables of students are loaded with subjects. In this stage of academic education, it is assumed that students have learned to divide studying time efficiently. The order of importance of the subjects usually determines the major of the student in higher university education. At this stage, the goal is not only to assess the acquired knowledge by testing but also to offset the deficit of studying hours of other subjects with the development of skills that determine higher education. Additionally, metacognition is known to develop at this age. [25] This means that the individual is able to think about their own knowledge and are able to activate it. In other words, even if we know something, if we feel that it is not necessary for a given situation, then the knowledge will not surface. Reference [26] highlights the problem of selectivity in Hungarian schools. In Hungary, the performance differences between different school types are nearly 70 %, while in Sweden, for example, it is only 9%. This may result from the fact that some schools select children with better abilities, while other schools admit them regardless of the children's abilities.

### **3. Reading Comprehension Skills among Hungarian Primary and Secondary School Students**

The OECD measures students' knowledge at an international level in the context of the PISA (Programme for International Student Assessment) test. The assessments focus on three main areas: math, science, and reading comprehension. The very first survey took place in 2000 and is repeated every three years. PISA only focuses on one age group, not individual grades. In this way, it is possible to compare people of the same age from the point of view of the impact of starting school earlier or later, as well as a possible repetition of a year [27]. In addition to PISA, the students of our country were included in two other international performance measurements, the students in the 4th grade in the PIRLS (Progress in International Reading

Literacy Study) reading comprehension test and in the 4th and 8th grades the TIMSS (Trends in International Mathematics and Science Study) in the study of mathematics and science. The PISA reports also highlighted that Hungarian students are weak in text comprehension and text interpretation exercises because there is little time devoted to Hungarian education for the foundation of these skills or the development of the skills that serve as a basis for these. It is pointed out by [28] that lexical knowledge and the absence thereof is a major problem in primary education in Hungary. The article goes on to say that the Anglo-Saxon and Scandinavian countries perform much better in the task of reading comprehension because they have much more time to develop reading comprehension competencies than in our country, where only four years of lower school are available to acquire basic skills, which, evidently is too short of a timeframe.[29] The students then accumulate the disadvantages that they carry through the entire school. The number of students performing poorly is approximately 30-35%, which is a very high number and the students belonging to this group are demonstrably the lagging, disengaged children who have almost no chance of getting into a school other than vocational. [30]

At the same time, it is not only inadequate school practice that can be blamed for children's insufficient reading comprehension abilities. Reference [31] points out that "the journey to reading begins with the story you hear at first. A child will not be a good reader if they have not listened to enough fairy tales. A child who listens to many fairy tales will later become a good - understanding and enjoyable - reader". However, in order to become a reader, it is also necessary for the child to see people around them reading books - parents, and teachers - and also, at an early age. József Nagy and his colleagues conducted a survey back in the 1970s and found that a child to whom stories were read regularly is 1.5 years ahead of their contemporaries who have not been read tales in their native language. The development of the mother tongue is also a prerequisite for the development of thinking, which is closely related to the ability to understand the text. [32]

While listening to a story, images appear in the mind of the listener, and the "rhythm and melody of the story" turns into an image, which stimulates cognitive development. If the child sits in front of the TV and listens to the story, they receive the ready images, and the imagination part is done basically for them. The external image literally limits the subject's movement, not just their mind. The Hungarian education system on average sets 30% of students every generation at a disadvantage. [33] This means that allowing some children with exceptional learning abilities to start school sooner or starting school directly from 6th grade puts those with less remarkable skills at a disadvantage. Those who do not even get into a vocational secondary school after finishing the eighth grade will be enrolled in a vocational school. This process is not good for anyone, since the early selection among the students further worsens the already significant cultural gap between the individual students.

#### **4. Practical Application of Learning Techniques and Methodologies in Vocational Schools**

Teaching methods help students acquire knowledge. The most frequently used teaching methods are the following: lecture, explanation, narration, student presentations, discussion, debate, illustration, simulation, role play, project, and cooperative learning organization methods.

Choosing the right method is not easy even for an experienced teacher, because the teacher must take into account all influencing factors during the preliminary preparation of the lesson, in order to ensure that effective and efficient knowledge transfer can take place. It is important that the teacher knows the full range of applicable methods and selects the most effective one for the given lesson. Iván Falus and his colleagues' research highlighted that this rarely happens in school practice [34]. The authors of this research interpret that there exists a pedagogical method that the teacher thinks is good, or that they like, and depending on the class and curriculum, the methodology is the same. According to [34], educational methodologies are classified the following way:

**Lecture:** one of the most frequently used knowledge transfer methods among teachers, which is used to explain a topic in a logical, detailed manner in a span of one or a few lectures. It usually combines the elements of narration, explanation, and illustration, which at other times appear as independent methods. This kind of method is also used in vocational schools, especially when the teacher's goal is only to communicate information. The length of this presentation should not be more than 15-20 minutes, as the attention span of the students deteriorates rapidly after that timeframe. The experience of vocational school students is that they have to "enliven" the class with some kind of break or game.

**Explanation:** with explanations, the understanding of legal relationships, rules, and concepts is achieved. It is thought that explanations are one of the most important teaching methods, as they often help to understand a concept or phenomenon. The effectiveness of the method is greatly enhanced if the teacher brings their own experience into it.

**Narration:** during narration, the teacher presents some phenomenon, event, or process, often accompanied by a vivid presentation of some historical person. Images, film clips, real objects, and models can be of particular importance during the application of this method

**Seminar:** The teacher-student role changes in the case of a seminar, because the student undertakes a certain topic, and presents it to the class. Experience shows that in a vocational school, seminars do not really work, least of all in the 9th grade. A seminar is good if the time devoted to each presentation is relatively short and the lesson is itself well-structured. Since vocational school students rarely have the experience of putting together a short lecture or presentation, the teacher has to help the students with most of it. [35]

**Discussion:** during the discussion, the students process the curriculum by answering the teacher's questions. The method is resultful if the questions are simple, interesting, well planned, and if the atmosphere is relaxed. It is one of the best methods for reviewing the course material, mainly because students can be praised for good answers, and possible shortcomings can be revealed in case of bad answers, furthermore, mistakes can be corrected with encouraging evaluation.

**Debate:** in addition to the acquisition of knowledge, the aim is to develop thinking and communication skills. Generally, with this method, it is assumed that the student can formulate an opinion independently and without influence and can defend it with facts, examples, and theses. However, experience shows that it is difficult to implement this kind of structure in

vocational schools. On one hand, the debate culture of the students is not appropriate, and on the other hand, they cannot really formulate their (subject) opinions. [37]

**Demonstration:** with this method objects, phenomena, and processes are studied through observation and analysis. Comenius realized in the 17th century that it is not enough to just talk to a teacher about things, but it is more effective if he also presents or shows the objects. In addition to the verbal delivery of knowledge, the learning process is enhanced by the perception of objects and phenomena. The demonstration method is one of the best ways to activate students' interest. It also greatly improves visual thinking. We distinguish three main types of illustration: demonstration, presentation, and illustration. A demonstration is primarily a common tool in science education (chemistry, biology, or physics experiments). However, you have to prepare thoroughly for each demonstration, because one faulty demonstration or one botched experiment can significantly reduce the students' motivation and cause long-term damage to the student's attitude toward the curriculum and the subject itself. We call it a presentation when real objects and work methods are presented to the students. This is a fairly common teaching method in vocational schools. For example, consider training as a chef or confectioner. The student imagines that they themselves teach other students how to cook. An illustration means showing a phenomenon using a picture, figure, drawing, poster, or model.

**Simulation:** this is an educational method in which students acquire knowledge of concepts, events, phenomena, and practice activities through experiential learning. It is known to be the most practical teaching method. Simulations are always linked to some life situation, thus requiring direct participation from the students. Their motivating effect lies in the fact that they give students a high degree of freedom, develop their communication skills, debate culture and encourage creativity. [38]

## **5. Methodology**

This research sheds light on some of the causes of poor academic performance among students at vocational schools. To achieve this, several methods are being used: a questionnaire, a structured interview, and a text comprehension task. The sample consists of 10th-grade vocational school students. The number of vocational school students included in the survey was 170 from the Gyermekház vocational school and 430 from the ADU school - totaling 600 participants. The control group included 110 students from the Gyermekház vocational school and 350 students from ADU, a total of 460 participants. The gender ratio for the test sample was 400 female and 200 male and for the control group - 230 girls and 230 boys. The students enrolled in business administration, travel and hospitality, and culinary and trade courses. The students are subjected to a reading comprehension exercise, after which they fill out a questionnaire and finally, a set of structured questions intended for interviewing purposes. The time allotted for class community hours was used in order to perform the research. It must be further noted that many of the fellow teachers from the schools agreed to provide advice and help with the development of the questionnaire. In this effort, we thank their contribution.

Following the reasoning established in the introduction and the subsequent chapters of the literature review, the next hypotheses are formed:

H1: The main cause of learning difficulties is the poor reading ability of vocational school students. Poor text comprehension has a negative impact on student's academic results and causes them to fall behind and perform poorly in most subjects.

H2: Vocational school students have unsuitable or ineffective learning techniques.

H3: New learning techniques (cooperative techniques, project methods) could improve students' learning effectiveness, but the majority of teachers are not open enough to these methods.

To examine the first hypothesis, we chose a text sample from the PISA (Programme for International Student Assessment) 2000 assessment book. The text sample was chosen so that it would be relevant to the courses the students take. The second and third hypotheses were tested through a student and teacher questionnaire. In the results section, the statements are verified with statistical tests and supplemented with empirical experiences.

The survey was carried out in the fall semester with a revised questionnaire put together with the help of fellow teachers. The questionnaires were completed under the teacher's supervision, thereby minimizing the chance of errors or inappropriate answers. Completing the questionnaire was voluntary and anonymous. The student's text comprehension abilities did not differ significantly, with the exception of one aspect. The results showed that the Gyermekház vocational school had more students with learning difficulties, which, in retrospect is unsurprising, since the pedagogical program of the school places additional emphasis on helping students struggling with learning problems to catch up with their peers. The completion of the questionnaire took 45 minutes.

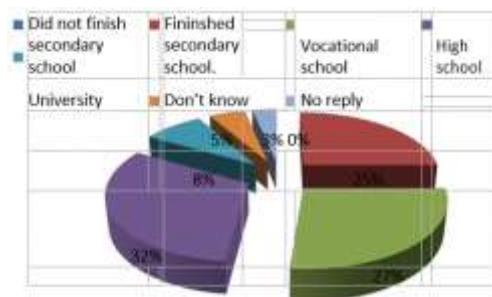
The questionnaire contains 20 open-ended questions. The questions included: what gender the respondent was, whether they were a vocational school or vocational high school student, whether they lived in the capital or commuted to school from around Budapest, whether they lived in a full family or with only one parent, and finally we asked about the parents' education. The questionnaire did not include the question: "What does your mother or father do now?", but this was mentioned verbally. A significant proportion of the students lives in households with at least one unemployed parent, but there are cases where both are unemployed. The questions in the questionnaire, with the exception of question 6, are all self-administered, short, concise, easy to understand, and quick to answer. In most cases, only a tick is required in the right place, or any other indication of selecting the option. Likert-scale questions are also used in the research. The 6th question was adopted from [15]. The questionnaire is divided into the following groups: (i) General questions (What average did you have in the former school? Have you ever repeated a grade? What was the reason for this? What do you spend your free time on? Were you read tales as a child? Are your parents and yourself regular readers, and if so, what do you read regularly?); (ii) Lesson-specific questions (Which teaching method do you prefer the most?); (iii) Learning habits-related questions (How much time do you spend in a day studying? Which subject is the most difficult? Which subject is your favorite one? What learning techniques do you prefer?). Dividing the questionnaire into chapters is intended to make the questionnaire to be perceived less long. After the questions were answered, a discussion followed on opinions and additional comments that turned out to be useful in the interpretation of the results. The final question was: "how successful do you feel?". With this question, we were curious about the learning confidence of individual students. The data were processed using the Excel program. With the help of this



program, we also confirmed the authenticity of each result with statistical tests. The work of [16] was a great help in preparing the statistics.

## 6. Results

The student questionnaire starts with the assessment of background factors. This was done, because, as research shows, in vocational schools, the students' learning problems can be traced back to the parents' education and the parents' financial situation, which further affects cultural habits which are passed on to children. The first question concerned the highest degree of education obtained by the parents. This question meant to reveal how much the parents' background influenced the academic performance of the secondary and high school students. Of the 600 vocational school students who responded, two students did not answer this question, and 3 students could not say their mother's highest education.



**Figure 2 Mother's highest attained education. N=600 Source: own compilation**

It can be summarized that all of the mothers completed primary school. 25% of the mothers did not continue their education, 27% continued their vocational education, 32% also obtained a high school diploma, and 8% of the mothers have a higher degree.



**Figure 3 Father's highest attained education. N=600 Source: own compilation**

It is a bit surprising that 50 students did not even answer this question, and a fairly high proportion did not know what their father's highest education was, 100 out of a sample of 600. All fathers finished primary school and only 2 did not obtain a secondary certificate in some institution. Almost half of the examined parents, i.e. 43%, have some kind of professional qualification and only 17% have a high school diploma. 12% of the fathers studied further in an institution offering a higher degree.

Though it is unclear from the literature review if the mother's educational level in any way influenced the further academics of the student, from the aggregated results, it can be suspected that it does. At the same time, it doesn't matter which parents' educational qualification is higher, according to the results, since 100 students had no idea about their father's highest attained

education. A few deductions can be made from the above. First, children typically do not discuss school issues with their father, and second, although a little more than half of the respondents live in a complete family, the student rarely lives with their father. Although the questionnaire did not include an inquiry about the financial situation in the family, it can be said that based on internal knowledge, none of the students had parents that were long-term unemployed, but usually, the majority of the income in the family comes from benefits.

Because parents have little or no formal schooling, the children's speech and cultural development are hindered. The lack of linguistic expressiveness makes it difficult to receive and process information. As a result, the interpretation of the school curriculum becomes even more difficult, so they cannot even learn, as a consequence, motivation decreases, which, if persistent, means that the student's dropout chance increases. Disadvantaged students studying in vocational schools are unable to attain more complex knowledge due to their linguistic inexpressiveness. The greatest challenge is that such disadvantages can't be corrected in vocational schools, since there is no time in the curriculum allotted for the improvement of basic reading, writing, and arithmetical skills. When we mention the word disadvantaged, we do not strictly mean a low parental income background, but also a lower cultural standard that impairs the child's progress in school. The pedagogic community calls them 'problematic students. A partial task of the school is to equalize the differences between students, although, as it is evident from the Hungarian education system, in Hungarian schools it is as of now an impossibility.

### ***A. Hypothesis I***

Following the examination of background factors, we move on to examine the hypotheses. The PISA 2000 reading comprehension assessment allows us to estimate the performance of Hungarian students relative to international results. The evaluation is straightforward: 1 correct answer equals 1 point. Questions 1 and 2 were multiple choice, therefore 1 or 0.5 points could be given to each. The third and fourth questions were open-ended, so the students had to give their answers. 580 of the 600 students answered the first question, 530 of whom answered the questions correctly. Among the control group (460 students), one student interpreted the task incorrectly. The second question was aimed at the general interpretation of the text. 310 of the 540 respondents answered correctly, 600 missed the correct answer completely, and out of the 460 students from the control group, 290 marked the correct answer. Compared to the 72% of international students who answered it correctly, 63% of the control group and 57% of the test group answered correctly. The numbers clearly show that the percentage of good answers by vocational school students falls far short of the results of international examinations. I think that the students who answered this question correctly were those who themselves are regular readers and had a story read to them, at least rarely, in our childhood.

The next question of the text comprehension task proved to be complex and difficult for both groups. The third question of the survey also examined the extent to which the students understand the essence of the text and what it has to say. Answering the question turned out to be very difficult and only the minority answered correctly. The type of question is open-ended. Only 48% of the students who took part in the PISA examination achieved the maximum score. 450 out of 600 students answered at all, and only 210 chose the correct answer. Out of the total

of 460 students who responded, 70 left the answer to this question blank, and only 180 were able to give the right answers.

Question 4 was also open-ended, so the students answered in writing. To give the correct answer, you only had to focus on the last sentence, and write the answers in a list. Despite this, only 66% of the students participating in the international PISA examination were able to retrieve the requested information, which was hidden in the last sentence of the text. The control group achieved better results by a margin of 5%, and what is even more surprising is that the test group outperformed international peers by a margin of 16%.

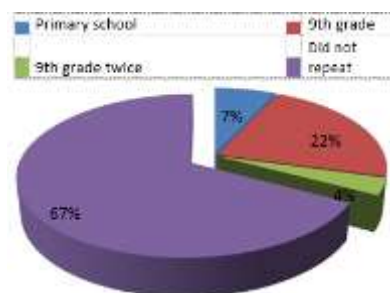
The above observations are summarized in Table 1.

**Table 1 Correct answer ratio of test group and control group. N=600. Source: own calculation**

|               | Q1  | Q2  | Q3  | Q4  |
|---------------|-----|-----|-----|-----|
| Pisa 2000     | 91% | 72% | 48% | 66% |
| Test group    | 91% | 57% | 47% | 82% |
| Control group | 98% | 63% | 47% | 71% |

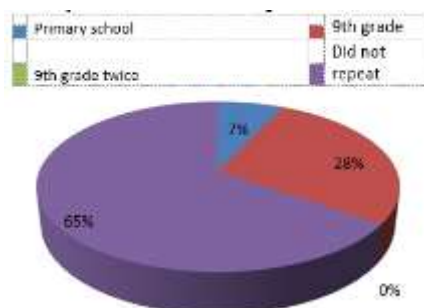
It can be concluded that the students came to vocational school with a substandard set of reading skills.

To investigate why these differences occur, we examined the grade repetition of the students in both test and control groups.



**Figure 4 Grade repetition of test group students. N=600. Source: own compilation**

Test group students performed poorly in the elementary school, with 53% having an average between 1.5 and 2.5 at the end of eighth year. 35% had an average of 3.5. Nowadays, one can get into a vocational school with an average of 3.5.



**Figure 5 Grade repetition of control group students. N=600. Source: own compilation**

To the question: Did your parents or grandparents tell you stories when you were a child? 43% of test group students claimed that they rarely listened to stories, 48% indicated that they regularly were read stories at home, and 8% indicated that their parents did not tell stories at home.

**Table 2 How often did the students read/listen to stories in childhood. Source: Own calculation**

| Frequency | Often | Rarely | Never |
|-----------|-------|--------|-------|
| Average   | 3.109 | 2.905  | 2.376 |
| St.dv     | 0.787 | 0.763  | 1.088 |

The academic performance of those who regularly listened or read to fairy tales and those who rarely read or listened to fairy tales is the same at the 95% significance level. At the same time, it can be proven that those who were not read stories had worse results. Those who read fairy tales regularly had a 3.1 academic average, those who rarely read 2.9, and those who never read 2.3.

The Yule correlation test was used to examine the relationship between a reading parent and a reading child. The results are shown in Table 3. There is a statistically weak, moderately positive relationship in the data of the students participating in the survey, i.e. children that grow up in 'reading' families often read themselves.

**Table 3 Does a 'reading' parent bring up a 'reading' child? Source: own calculation**

|                 | Parent reads or does not read |    |        |
|-----------------|-------------------------------|----|--------|
| Number students | Reads                         | 44 | 13     |
|                 | Does not read                 | 23 | 13     |
|                 | Yule                          | Y  | 0.3134 |

### ***B. Hypothesis II***

The second hypothesis was that another possible reason for poor academic results could be that vocational school students have incorrect learning techniques or do not even know them. Paper [17] points out that the time spent on learning usually determines the level of success of the mastered material, so by spending enough time, many things can be learned regardless of the abilities.

The average study time of the 106 examined students was 51 minutes in a day, calculated using an arithmetic mean. If we examine separately the time devoted to learning by groups, 0.82 hours, i.e. 49 minutes are spent on learning by the test group, while 53 minutes per day are spent on learning by the control group. Apparently, the difference is so small that we cannot even statistically support that a student from the test group would be more motivated to study and spend more time on preparation than a student from the control group.

The majority of teachers, 39%, think that at least two hours of study is necessary for high school, and 21% stated that even one hour is enough without breaks and distractions. 16% of teachers say that students should study for more than two hours. All in all, one hour of study a day is

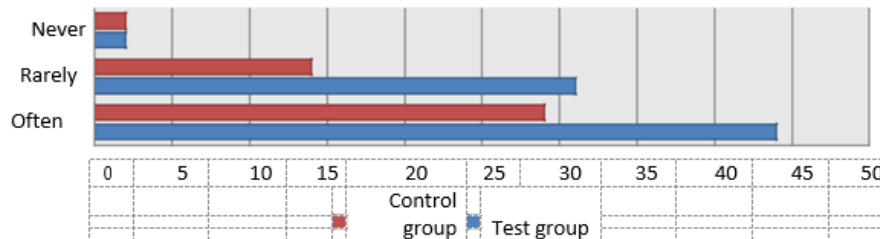
enough to achieve a low-level result, "pass", according to the teachers, and most students are satisfied with this mark. In the case of 'pass', the knowledge is not mastered, and therefore, knowledge at a skill level cannot be developed.

It is not typical for either group to repeat the material of previous lessons. 42% of the test group students and 30% of the control group students stated this. Only 8% of the test group, revises previous material, compared to 7% of the control group. The fact that few people repeat it and probably spend little time on it (after all, they study for almost an hour on average) may be due to an incorrect study routine - they don't even know that they should repeat it. Fatigue and lack of time might also be causes. A way of memorizing the studied material could be by the preparation of homework assignments. 42% of the students from the test group conscientiously always prepare homework, 52%, however, only rarely and 3% admittedly do not prepare homework. 2% skipped answering this question. The picture is worse among the control group students. 24% diligently prepare homework, 61% only rarely, and 15% never. Based on the data, one could think that vocational high school students do not excel in preparing homework. At the same time, the teachers' answers confirm that giving homework is not very typical. Of the 19 teachers surveyed, 5- (Teachers who teach mathematics and economic calculations) often assign homework. Three teachers rarely give any. They shared the same opinion: nowadays homework has lost its importance, and the more diligent and motivated students always complete it, but most students cram it in before class, but in most cases, they don't even do it. You should only check the solution of the task, but there is nothing left but to do it together in class. Thus, after a while, the majority of teachers see giving homework as unnecessary. All colleagues compile their own set of tasks, but they are also solved in class.

However, it is also a common phenomenon that students miss a lot. When asked the students whether they make up for the missed classes the answers were the following: 20% of them honestly admitted that they never make up the parts of the curriculum they missed. These students don't even think to make up the parts of the material they missed. They take it for granted if they missed one of the classes, that subject material is not for them to learn, since they missed it. We can rightly call these students "problematic students". It is quite common that they miss whole weeks, and comes to school the following week, but cannot be held accountable for anything because they have not yet been able to take on the material. The high dropout rate in the ninth grade can also be attributed to this phenomenon since in many cases the teacher cannot even give the student three marks in one semester. In this way, they cannot be graded during the semester, and if the students do not have grades, they need to take a test, which they are likely to fail. Almost half of the vocational school students (48%) rarely make up parts of the material, 20% diligently make up for gaps, but 32% never do this. A different result was obtained in the case of vocational high school students, as a fairly large percentage (41%) always make up parts of the material, 46% rarely, but typically do, and 11% do not care if they do not have the material for one or more lessons. It is a common experience in both schools that they copy from each other's notebooks.

The first step in learning the school material is having the necessary equipment for the lesson. The teachers agreed that only a few students in each class (53%) have textbooks, not even the more diligent students, but this is also due to the fact that the use of textbooks in the classroom is

not typical in vocational schools. Regarding the frequency of use of textbooks, 84% of the teachers stated that they do not use them in the lessons and only 16% said that they do. Figure 6 shows that 73% of the test group students admit that they bring their study supplies with them, and only 3% said that they do not carry equipment with them. The control group has the following results: 63% always have their supplies at hand, and 4% typically do not have equipment.



**Figure 6: Do students bring their study supplies with them (books, pens, copybooks)?**  
N=600. Source: Own calculation

### C. Hypothesis III

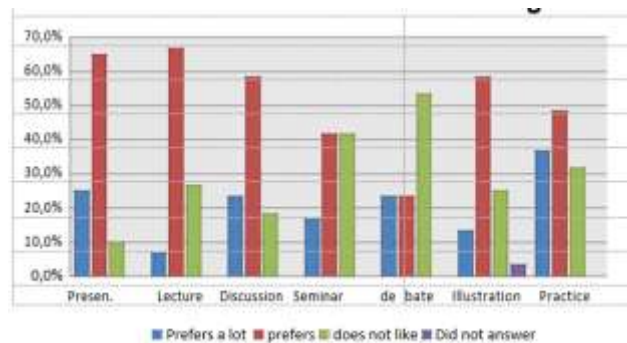
Nowadays, teachers must not only be professionally prepared, but also incredibly flexible, keeping up with the technological requirements and advances. The 21st century is about competence-based education: we can use what we learn, and all of this requires deep, ingrained subject knowledge, which leads us through a wide methodological repertoire, such as the involvement of ICT tools. But the teacher's task, in addition to communicating information, is also to educate. However, this goal has recently been pushed into the background, as the treatment of "problematic students" makes the daily work of teachers more and more difficult, and the teacher is often happy if they "survived" a day, or better, it can be considered a significant achievement if four or five students pay attention in a class. A lot of time is spent on discipline in the lessons, the background noise is almost a part of the lessons, this is often associated with discipline problems.

Recently, the number of disadvantaged students in schools, especially in vocational schools, has increased significantly. Therefore, today's pedagogue is faced with new tasks in school education, as is some cases such students make up the majority of some schools. A student who has been taken into protection by the registrar due to their family circumstances and social situation, or who is entitled to regular child protection support, is in a disadvantaged situation. Within this group, the student whose parent providing legal custody has only completed primary school at the time of the child's compulsory schooling is at a cumulative disadvantage, especially if more than three siblings are brought up in the same household.

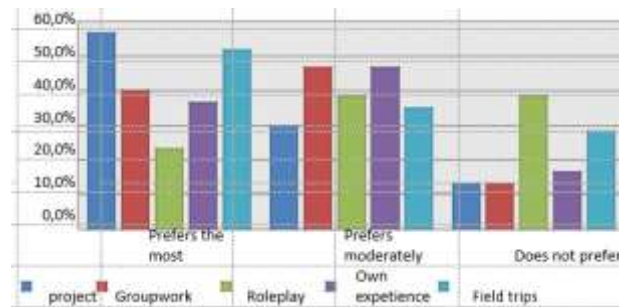
In the teachers' structured interview, it was confirmed that the dominance of live education is very much in effect. The most frequently used methods are presentation, explanation, and discussion. The teachers' answers match those of the students.

The students' answers turned out to be interesting. Despite the fact that most of them are admittedly bored in the classes and are uninterested in the teacher's explanation, still, out of the three possible answers - likes a lot - likes - dislikes- the lecture - 65% of the students chose option 2 - which means they like it. Although 10% went for option 3 - don't like. Half of the

students do not like debate as a method, but 23% do. The illustration method is liked by almost three quarters of the students and this method is the least rejected. Apparently, none of the methods has become particularly popular or has been completely rejected, which is also illustrated in the Figure 7:



**Figure 7 Preference of teaching methodologies. N=600. Source: Own compilation**



**Figure 8. Popularity of cooperative forms of work. N=600. Source: Own compilation**

The majority of teachers prefer cooperative lesson organization. Among the responding teachers, the younger ones practiced this specific lesson organization in university, while colleagues who had been in the trade for a longer time introduced cooperative methods into the lectures during further training. With the exception of the two colleagues who teach mathematics, all 15 teachers consider the cooperative lessons to be productive, even though they are the discipline of the lesson. But if this is so, then why are these methods not used more often in teaching practice? In response to this question, most people mentioned the following difficulties: (i) the interviewed professional colleagues teach five or six groups, they have 25-28 hours a week, and they also find it impossible to prepare for cooperative lessons more often than once or twice a month. There is simply no time for this, as it takes at least one to one and a half hours to prepare for each such class. They mentioned that, in contrast to general knowledge subjects, there are no or hardly any useful cooperative methods of lectures in professional or even economic subjects. Although the teachers could, in principle, exchange the elaborated lesson plans among themselves, this does not happen; (ii) It is often thought that the use of cooperative techniques in the classroom is more popular among younger teachers. Still, among the colleagues who took part in the survey, teachers who have been using it for a long time use it and would use it more often in their classes. It is difficult for teachers who have just started their careers to coordinate the work of several groups at the same time. One group is ready sooner, it needs evaluation, while the other group is lagging behind, and it needs to be helped. In the case of teachers who have been teaching for a couple of decades, many things are routine, and this type of class organization is a new

challenge to diversify the lessons. They all said that 45-minute classes are not suitable for holding such classes.

**Table 4. students opinions on learning technology**

| How important do you consider learning techniques to be?                                    | N   | Mean*       | Std. Deviation | szignif. |
|---|-----|-------------|----------------|----------|
| Weak learner  | 143 | 4,07        | 0,842          | 0,01     |
| moderately weak learner   | 217 | 3,21        | 0,775          |          |
| medium learner  | 117 | <b>4,53</b> | 0,861          |          |
| excellent learner   | 213 | 2,45        | 0,717          |          |
| Total   | 600 | 3,72        | 0,832          |          |
| 1= strongly disagree, 5= strongly agree; analysis of variance; One Way Anova, Post Hoc Test |     |             |                |          |

Source: our own research, N=600, \*average, where 1=strongly disagree, 5= strongly agree; analysis of variance; One Way Anova, Post Hoc Test.

It is clear from the research that for the average learner, learning techniques are of paramount importance. Or that technology is less important for the outstanding learners.

**Table 4. Distribution of regular learners**

| Do you study regularly?   | N   | Mean*       | Std. Deviation | szignif. |
|---|-----|-------------|----------------|----------|
| Weak learner  | 143 | <b>4,99</b> | 0,972          | 0,05     |
| moderately weak learner   | 217 | 3,21        | 0,675          |          |
| medium learner  | 117 | 3,84        | 0,834          |          |
| excellent learner   | 213 | 3,47        | 0,731          |          |
| Total   | 600 | 4,29        | 0,6782         |          |
| 1= strongly disagree, 5= strongly agree; analysis of variance; One Way Anova, Post Hoc Test |     |             |                |          |

Source: our own research, N=600, \*average, where 1=strongly disagree, 5= strongly agree; analysis of variance; One Way Anova, Post Hoc Test.

## 7. Discussion and Conclusion

The total number of the surveyed vocational school students was 600. The qualitative methods used in this research were: observation, questionnaire survey, and interview supplemented with the personal experiences of the authors who taught in these schools. The aim of this research was to reveal some of the possible reasons behind poor performance in vocational schools. Collecting the theoretical material for the research took almost a year with shorter and longer interruptions.

### 1. The first hypothesis was confirmed partly.

The first hypothesis was tested using a reading comprehension test. This hypothesis was only partially confirmed because although every second student is functionally illiterate, it cannot be



clearly demonstrated that the poor performance can be traced back only to deficiencies in text comprehension, it can only be assumed.

### **2. Hypothesis 2 was fully confirmed.**

Poor academic results can be traced back to incorrect learning techniques since students use study techniques improperly. Students do not study regularly, they spend little time actively learning, and in case of absence, they do not make up what they need to learn.

### **3. Hypothesis 3 was confirmed partly.**

It is true that the results improved in the group learning with the cooperative working method, but it was not proven that the teachers implemented different learning organizational procedures. The teachers dislike these methodologies and are reluctant to use them.

Hypothesis 1 highlighted that vocational school students have a weak ability to understand texts. At the social level, there may also be a (permanent) danger of functional illiteracy if the education system fails to make effective changes in time. Writing, reading, and arithmetic are all school skills that require sufficient time and practice to master. In the fast-paced world, time is the least available, and it follows that there is not enough time for practice either. It is in vain that our children learn to write, read, and count quickly if there is no time to master and develop these school skills at the appropriate level and in the absence of sufficient practice. It would be worthwhile to think about this and even adopt elements from the Finnish education system that are clearly effective in ensuring effective learning for students. One such element could be to eliminate early school selection and to "keep the children together" for as long as possible in order to build skills because then significant differences between individual schools could not develop at the institutional level. The ability to understand text must be continuously developed not only in literature classes but also in every lesson. The development of text comprehension can only be achieved by reading, so the emphasis should be on reading development. Among the Finns, the desire to read requires collaboration with an extensive network of libraries, unsynchronized films, and coordinated media actions to increase the desire to read, and it would be good if there were also opportunities to read and interpret texts appropriate to the subject in other classes.

In the case of the second hypothesis, it is necessary to re-insert learning methodology classes into the timetable.

When examining the third hypothesis, the biggest problem is the fact that the education system wants to teach too much at once. Both students and teachers are overburdened. The new learning organization methods are suitable for motivating students, teachers also want to use them more often, but they are not always able to do this due to workload.

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