Pedagogical Diagnostics and Pedagogical Diagnosing

Study material

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Tvorba nových předmětů
Základy pedagogicko-psychologické diagnostiky (SZ6010)
Basis of Educational-psychological Diagnostics (SZ6610)

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1 Teacher in the Role of Diagnostician

1.1 The Importance of Pedagogical Diagnosing

Requiring the teacher to diagnose is connected to the 21st-century concept of personal development in upbringing and education and with the dynamics of a person’s development. Therefore, if we are to adequately develop a pupil's personality, it is necessary to first know the person well—not just individually, but in their broader social context and existential conditions. The teacher can do so by using the knowledge and skills of pedagogical diagnostics. The diagnostic activities of the teachers are among the most important components of the educational process; without them, the teacher cannot efficiently implement the educational process. This is the starting point for individual work with the pupil, the basis for planning; it provides information about the results of educating individual pupils; it shows if the chosen teaching strategies contribute to the development of specific students. If the diagnostics is carried out sensitively, competently, and systematically over a long period of time, it enables the teacher to authenticate the quality and effectiveness of the teaching (Kratochvílová, Horká, and Chaloupková, 2015).

With the change of the educational paradigm, the meaning of educational diagnosis also changes. The point is no longer only recognizing the conditions and causes of the problems, development prognosing and comparing the pupil’s results with the defined norms (summative diagnosing), but also diagnosing that supports the pupil’s learning and development (formative diagnosing). Education and pedagogical intervention are not primarily derived from the health condition of the child (medicinal diagnosing), mental development level (psychological diagnosing), but also from pedagogical data (Mertin & Krejčová, Eds. 2012, p. 23).

1.2 Definition of Basic Terms

pedagogical diagnostics, diagnosis, diagnosing; types of diagnostic activities, diagnostic process, teachers’ errors in diagnostic activities

The term diagnostics is derived from the Greek word diagnosis, which can be defined as follows:

- Knowledge,
- discovering the condition, assessing, evaluating,
- the process of detecting, e.g. a disease,
- a testing method,
- an activity providing objective insights into the analyzed phenomenon.

From the viewpoint of the pedagogical educational process, the division according to the aims and the subject of the study is as follows:

- pedagogical diagnostics,
- psychological diagnostics,
- special pedagogical diagnostics,
- pedagogic-psychological diagnostics.

Individual types of diagnostics overlap. The intersection of the pedagogical and psychological diagnostics is the pedagogic-psychological diagnostics.
According to Mertin and Krejčová (2016), the main objective of pedagogical diagnosing of a student is to acquire information about the knowledge, command, and skills of the individual.

The main objective of the psychological diagnosing of a pupil is to acquire information about their attitudes and values, their relations with teachers and classmates, their personality characteristics and dispositions. Actors of pedagogical and psychological diagnosing of a pupil in the school environment might be teachers, parents, and professionals (e.g. psychologists, staff at the school counseling facilities).

**Pedagogical diagnostics** as science is defined differently by different experts. It can be viewed as a theoretical (scientific) or practical discipline or a discipline linking theory and practice.

**The scientific conception**

Theoretical approaches are characteristic with the orientation on the theory and methodology of diagnosing in the educational environment.

Pedagogical diagnostics is "a scientific discipline that focuses on the theory and methodology of diagnosing in the educational environment. It is the theory of objective probing, assessment, and evaluation of internal and external conditions of the educational process, its progress, and its results. It addresses the aim, subject, strategies and methods of diagnosing." (Gavora, 2001, p. 237).

Pedagogical diagnostics is a "pedagogical discipline which deals with the current performance of the individual in the educational situation and analyses the individual in the context of their personal development and external influences, which impact this development ..." (2009, Průcha, p. 717).

In summary, pedagogical diagnostics is a scientific discipline that deals with objective probing, assessment, and evaluation of external and internal conditions as well as the progress and results of the educational process. From the methodological point of view, it is close to the methodology of pedagogical research, as it uses many of the same methods.

**The scientific and the follow-up practical conception**

“Pedagogical diagnostics can be viewed as a discipline of pedagogical theory and follow-up methodical practice. Pedagogical diagnostics is most commonly understood as a theory and theoretically reasoned practice of assessment, recognition, classification, characterization, and evaluation of the level and prerequisites of the pedagogical development of the subject of education, which is the personality of the pupil (or groups of pupils).” (Mojžišek, 1987) defines it as follows: "A theory and methodological practice of assessment, recognition, classification, reviewing and evaluation of the level of pedagogical
development of the personality of the pupil or a group of pupils, developed by means of pedagogical influence.”

A combination of practical teaching and teaching theory

Educational diagnostics can be spoken about as a field of pedagogical theory and related methodological practice: finding out, identifying, classifying, characterizing and evaluating the level and projected development of pedagogical and pupil (or group of its pupils in relation to the objectives set.)

Practical conception (a part of the curriculum)

According to Zelinková (2001, p. 12), pedagogical diagnostics is a comprehensive process that aims to explore, assess, and evaluate the educational process and its actors. She characterizes it as a long-term and spiral process. Hence, Zelinková sees pedagogical diagnostics as interchangeable with pedagogical diagnosing.

Similarly, Tomanová (2006, p. 7) understands pedagogical diagnostics as “the direct diagnosing activity in the pedagogical process.”

Pedagogical diagnostics requires theoretical knowledge, methodological facilities, practical experience, a lot of time and effort, not only for the actual diagnosing activities but also for the evaluation (time requirements are often the reason why teachers neglect quality diagnosing activities). It requires ethical conduct.

If we discuss educational diagnostics, we view it as a theory, a scientific discipline, which is the starting point for diagnosing in practice.

Pedagogical diagnosing – a process of which the goal is getting to know the pupil in the educational situation, in connection with their personal development and the external influences that affect their development. It is based on what has gone before in the pupil’s life (anamnesis), what is their situation now (diagnosis), and what is their positive perspective on education (prognosis).

The general process of pedagogical-psychological diagnostics according to Mertin and Krejčová (2016) involves collecting data using valid and reliable tools and its analysis, interpretation, and use for specific purposes of education.

The process of pedagogical diagnosing is conducted in certain steps. Gavora (2001) lists the following stages of pedagogical diagnosing:

- Diagnostic hypothesis (the assumption that directs diagnostic activities in a certain direction).
- Planning for diagnosing (who, when, how, how often, and in what intervals to diagnose, facilities, equipment).
- Collection and processing of data.
- Evaluation and interpretation of data.
- Establishing the diagnosis.
- Pedagogical measures, intervention.
- Stating a prognosis.
- Communicating the diagnosis.
Figure 1.2: stages of pedagogical diagnosing

**Diagnosis** is the result of diagnosing activities; it is an oral or written (graphic) expression of the results of a diagnosing survey (usually a collection of processed data). It is an evaluating conclusion regarding the established level of development of the pupil. It is never closed or final; it must count on changes in the pupil’s development. Hence, diagnosis is an evaluating finding of the current status of the pupil’s level. The purpose of the whole process of diagnosing is to determine pedagogical educational strategies and suggest pedagogical measures – to determine the **prognosis**.

**Diagnosing activities:**
- indication (detecting occurrence),
- identification (recognizing the type),
- classification (categorizing)
- evaluation (establishing the level),
- interpretation (explaining causes, conditions)
- prognosing (forecasting development),
- regulating (designing a streamline of the development).

**1.3 Diagnosing methods and tools and types of pedagogical diagnosing**

Diagnostic activities can be carried out via a variety of methods and tools provided by the scientific discipline of pedagogical diagnostics. Methods differ in their requirements for preparation, implementation, and evaluation. Their use requires a certain level of experience. When diagnosing, it
is necessary to combine appropriate diagnostic methods, rather than relying on only one of them. A wide choice of options is available, e.g.:

- oral test,
- written and graphic test,
- didactic test,
- experimental exam,
- analyzing the result of the pupil’s activity
- observing the pupil,
- interview,
- questionnaire,
- anamnesis,
- sociometry,
- studying pedagogical documentation.

In practice, direct diagnosing activity takes many forms. There are several types of educational diagnosing:

a) Informal diagnosing – microdiagnosing
ongoing diagnosing of knowledge, skills, opinions, ideas, attitudes, beliefs, discipline, psychomotor skills, the position of the pupil in the team ...

b) Formal diagnosing
is a clearly outlined diagnostic situation in certain stages of teaching. There are notes and records of it; it uses specific methods.

c) Formative diagnosing
helps the teacher to shape the pupil. It serves the teacher as feedback about their work. The teacher takes measures based on this.

d) Summative diagnosing
aims to determine the level reached by the student in a certain period (usually at the end of a specific stage of teaching). It summarizes information about the pupil. Usually, it is formally expressed by marks, points, etc.

e) Normative diagnosing
the result of an individual is compared with the results of a representative sample of the population in the same test. A comparison among peers.

f) Criterion-based diagnosing
is a comparison with external benchmarks, with objectively defined tasks (correct command of a specific grammar rule, etc.)

g) Individualized diagnosis
comparing the child only in relation to him/herself, without comparing to other peers.

h) Differential diagnosing
is used to distinguish issues that may have the same symptoms but different causes.

For good quality diagnosing it is important to cooperate with other professionals. They work together in the school counseling center or school counseling facility. Providing counseling services is covered in Regulation No. 197/2016 Coll. on the provision of counseling services at schools and educational facilities.

The school counseling center consists of:

- educational counselor;
• school prevention methodist;
• school psychologist;
• school special education expert.

School counseling facilities include:
• pedagogic-psychological counseling center
• special pedagogical center

1.4 Teacher as a Diagnostician

It is obvious that the results of diagnosing activities help in defining learning objectives, for both the individual as well as the group. There is a common aspiration to fulfill the objectives, while it is essential to distinguish those for teachers and those for pupils. Through the educational content and the choice of suitable education and teaching strategies, the teacher contributes to the maximum possible development of the pupils. The teacher achieves this by a suitable reaction to a specific need of the diverse spectrum of pupils in the classroom and by providing appropriate feedback, which boosts the pupils’ responsibility for their learning results. The teacher acquires a new role of a “diagnostician” in the process of upbringing and education, which brings many benefits - the teacher:

• can recognize abilities and individual needs of the pupils;
• can personalize and differentiate the process of upbringing and education;
• can obtain the foundation for the ongoing formative and summative evaluation of the pupil and the pupil’s evaluation in the key stages of school attendance (5th and 9th year);
• helps create a climate of mutual respect, security, and cooperation;
• allows students to achieve their personal maximums;
• consciously increases the efficiency of the educational process.

The role of a diagnostician – "evidence-informed" practice (Pollard et al., 2014, p. 73), is defined as being competent to practice pedagogical diagnosing and to make decisions based on reliable data. It is mentioned in the context of the teacher’s professional qualities (Tomková et al. 2012. The teacher’s standard mentions the competence to diagnose and to intervene. Its contents might be:

The teacher:

• recognizes different learning needs and capabilities of individual pupils and responds to them; shows understanding for the pupils’ needs,
• actively acquires information on the pupil and their needs in an appropriate form (e.g. interviews, student portfolio),
• adequately responds to both direct and indirect incentives of the pupils in the course of teaching and accommodates them into the lessons,
• helps the pupils who are isolated and rejected by the class,
• differentiates and individualizes the teaching according to the capabilities and needs of individual pupils, strives to achieve personal highs for each pupil,
• keeps records of individual pupils’ needs and opportunities (e.g. based on continuous systematic observation, in the form of pupils’ portfolios),
• uses deliberate observation and other appropriate techniques to collect data about the pupil’s advances in learning,
• supports the cohesion of the class and cooperation between pupils,
• analyzes the relationships in the classroom and tries to positively influence them with appropriate interventions.
• source: Framework of teacher professional qualities, Tomková et al. 2012

1.5 Levels of diagnosing in practice

Two levels of diagnosing in the classroom can be differentiated:

a) Descriptive-analytical
• what is the pupil like, diagnosis of the pupil.
• determining room for improvement, possibilities of the pupil.
• Individualization; Mastery learning

b) Prescriptive-analytical
• What is the teacher like?
• Increasing the efficiency of the process.
• The responsibility of the teacher for the quality and the results of the child.

Complex conception is essential. An essential principle of diagnosing is including different sources of information, different methods, and different environments. Only in this manner is it possible to gain a comprehensive picture of the characteristics of the pupil.

Approaches and current trends in pedagogical-psychological diagnostics:

a) Case-based clinical strategy – also called cognistic (e.g. in Gavora)
• focuses on the individuality of the diagnosed;
• stresses empathy and acceptance of the diagnosed as a partner that we want to help;
• tracks as many features, influences and causes of behavior as possible;
• is directed toward understanding the uniqueness of the qualitative examination of the phenomenon, the description of the individual case – a case study.

b) Psychometric strategy (educometric)
• the degree of a given phenomenon is measured;
• transferring the data into quantifiable units (transferable units, points), which are evaluated with the help of statistics;
• based on the assumption that we all have basically the same dispositions, which occur to a specific extent and are therefore measurable.

The development of pedagogic-psychological diagnostics experiences changes that respond to societal changes and the requirements of the curriculum. There is greater emphasis on the formative diagnosing. The aim of diagnosing is to discover what the pupil understood and what they are capable of doing, not comparing the pupil with a certain social norm, which is the development and educational standards for a given age group.

1.6 Errors in diagnostic activities

The most common errors in diagnostic activities include:

• the information is incomplete;
• conclusions and measures are general, we are not specific;
• symptoms are listed, but causes and measures are omitted;
• manifestations and causes are confused;
• swift conclusions and prejudices;
• evaluation criteria are missing;
• perceptual stereotypes (errors in assessment).

Perceptual stereotypes include:

• The halo-effect, the influence of the first impression, overrating some properties, prominence of manifestations, reputation inertia.
• The Golem effect – negative expectations of the teacher self-fulfilling predictions.
• The effect of the order – the previous evaluation influences the following.

Řezáč (1998, p. 102) lists the following errors in the diagnostic activities:

• The central tendency – the tendency to the average (uncertainty, low erudition, low maturity of the personality)
• A logic error – indicates that some characteristics appear together (who lies, also steals)
• Assessing the tendency – mildness, own experience ...
• Projecting errors – projecting own issues, problems onto the diagnosed person
• Prejudices

To prevent errors, it is recommended:

• to view diagnostics as an essential prerequisite of education;
• to create a "system" of diagnosing;
• to compare our own findings with other people;
• to know errors in diagnostic activities;
• to use multiple diagnostic methods.

Works Cited


2 Observing as a Diagnostic Method

According to Dvořáková (2002), observation is one of many diagnostic methods (oral examinations, written examinations, analysis of outputs from an activity, diagnostic interviews, tests, questionnaires, scaling, sociometry, anamnesis, the study of pedagogical documentation, and observation). Observation, along with interviews, anamnesis, analysis of outputs and projective methods is one of the most frequently used methods by teachers.

In their publication, Mertin and Krejčová (2016) characterize observation as a deliberate and systematic monitoring of a certain phenomenon, manifestations of behavior, interaction between people, etc. It captures – in the long run, systematically and reflectively – the activities taking place in the monitored field. It enables to capture both unconscious routine behavior and facts that individuals are reluctant to talk about in interviews or unexpected topics.

We focus specifically on the observed and we attribute particular importance to what we see. This is the main difference between watching and observing.

2.1 Types of observation

- Structured observation: In the case of a structured observation, we work with a predefined list of phenomena and manifestations we aim to observe. We observe whether that phenomenon does or does not occur, possibly focusing on its frequency and intensity of occurrence. We usually enter the results of the observation in a score sheet.
- Non-structured observation: This type of observation focuses on any behavioral manifestations we observe in the person or the group of persons observed. Observation is only governed by generally defined questions. A good practice is to put down the observation results in writing.
- Semi-structured observation: The third type, semi-structured observation, is a combination of the previous two types. On the one hand, we have an idea about what we need to observe, but on the other hand, we also pay attention to other manifestations that occur.
- Participating and non-participating observation: There are varying degrees of involvement by the researcher in the activities observed from non-participation to full participation.
- Direct and indirect observation: If the researcher is physically present during the observation, this is called direct observation. The second type, indirect observation, occurs when the researcher uses, for example, video footage or other means of mediation to observe people.
- Open and concealed observation: In open observation, research participants are openly informed about the role of the researcher, whereas in concealed observation, their identity is concealed.
- Individual and group observation: We work with a different number of observed persons.

2.2 What can we, for example, observe and how do we record it?

The answer to the question in the subtitle is apparent in conceptual map 2.1, which provides examples of which persons and phenomena can be focused on during observation. We can observe the activities of a teacher, a student or a group of students in diverse environments. A student often engages our attention with their behavior or results, and we pay attention to the student in pedagogical diagnosing. For example, we look for the answers to the following questions: How does the student respond to the presentation of new matter? What is their facial expression – is it rather confused or does it appear that they have understood everything? For how long is the student able to focus? Is the student able to talk about life in the classroom? Can the student reflect on what is happening in the classroom?
the student appreciate their classmates or constructively communicate their reservations? Has the student’s appearance or their relationship with the subject changed recently?

During observation, it is important to realize that we record what we see and hear. There are many ways to keep records and the method of data collection is related to the type of observation. In principle, it is important to realize that we can record for how long a phenomenon has been occurring; and what phenomenon is occurring, either naturally or in a controlled way according to various rules, e.g., in a certain interval. Natural recording of the occurrence of a phenomenon and its duration is used more often in teacher’s practice.

Recording categories from observation

Fig. 2.2 Scheme of recording phenomena during observation

1. Pupil observation - self observation
2. Social behavior observation
3. Pupil observation in the classroom
4. Pupil observation during the break
5. Pupil observation off the school
6. Pupil observation in difficult situations

Fig. 2.1 Subject of observation
Data record

Every data record should contain information about the place and time of observation, the subject of observation, methodological notes, and the person who made and recorded the observation. There should also be a brief description of the situation in which the observation took place and a summary of information about the outcome of our efforts.

How to record an observation?

We can use observation sheets, systems (e.g., the Flanders system), a pedagogical journal, classroom map, and various student records. A classroom map can be used, for example, in observations where we record in the map the frequency of communication of the teacher with each student, the path of the teacher in the classroom, forms of support to various groups of students, activities of students, shout outs, etc.

2.3 What can the Flanders system capture?

The Flanders system can capture the occurrence of each category (frequency analysis), what the proportion of the teacher’s and student’s speech is, what the sequence or order of each category is (sequence analysis) or, for example, what the frequency of categories of “indirect influence” of the teacher is compared to “direct influence”.

Flanders system:

<table>
<thead>
<tr>
<th>Teacher</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>He/she accepts pupil’s feelings, expresses sympathy in a constructive way.</td>
</tr>
<tr>
<td>T2</td>
<td>He/she praises and encourages, jokes, agrees with pupil’s performance.</td>
</tr>
<tr>
<td>T3</td>
<td>He/she uses, accepts, clarifies and develops the ideas of the pupils.</td>
</tr>
<tr>
<td>T4</td>
<td>He/she asks a questions, stimulates the pupils, it’s not just a rhetorical question.</td>
</tr>
<tr>
<td>T5</td>
<td>He/she interprets, communicates, lectures, express his/her opinions.</td>
</tr>
<tr>
<td>T6</td>
<td>He/she gives instructions, or commands.</td>
</tr>
<tr>
<td>T7</td>
<td>He/she criticizes, applies authority, wants to change pupil’s inappropriate behavior or activity.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pupil</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>He/she asks questions, looks for the support, and help of the teacher.</td>
</tr>
<tr>
<td>P2</td>
<td>He/she asks questions, looks for the support and help of the classmates.</td>
</tr>
<tr>
<td>P3</td>
<td>He/she communicates, explains, gives opinions - “by the pressure” and the action of the teacher (other persons).</td>
</tr>
<tr>
<td>P4</td>
<td>He/she communicates, explains, gives his opinions - from his own activity and motivation.</td>
</tr>
<tr>
<td>P5</td>
<td>He/she manages, modifies, provides assistance in the activities of the other (other persons).</td>
</tr>
<tr>
<td>P6</td>
<td>There is an obvious group (or class) discussion.</td>
</tr>
<tr>
<td>P7</td>
<td>Pupils perform an independent learning activity - without the apparent interaction.</td>
</tr>
<tr>
<td>O1</td>
<td>Silence or chaos in the classroom (blurred communication).</td>
</tr>
</tbody>
</table>

Conclusions we reach through observation can reveal directions for more effective work with students, help the teacher understand the class, get to know the students, choose the appropriate intervention, etc. Although observation seems to be an easy diagnostic method, it definitely requires practice and experience. A good practice is to cooperate with a colleague (teacher, assistant, educational counselor, prevention methodology specialist, school psychologist, etc.). Video footage can also be helpful, but it is always necessary to abide by the rules for recording.
The observation procedure is clearly shown in Figure 2.3.

**Figure 2.3 Observation procedure**

**Works Cited**


3 Interview as a Diagnostic Method

3.1 Introduction

Some authors point out that we live in an “interview society” (e.g. Kvale, 2009), meaning that an interview as a specific form of communication intensely permeates various areas of our lives. In relation to education, there are several types of interviews:

- **DIAGNOSTIC (cognitive) interview** – focuses on personal motives, beliefs, experiences, preconceptions, opinions, and values of the individual; their relationships with others (parents of classmates, teachers); it reveals facts about personal, health, family or social history; the course, methods, and outcomes of learning. It makes it possible to obtain information based on direct personal contact between the interviewer and the speaker.

- **RESEARCH interview** – contributes to exploring a particular issue in order to better understand or get to know social reality; it contextualizes an individual’s subjective view of a given process or phenomenon.

- **CORRECTIVE (remedial) interview** – its primary objective is the optimal effect on the development of the personality and the social situation of the individual, following up on the findings of the diagnostic process.

The boundaries between the individual types of interview are permeable. The main difference between the diagnostic and the research interviews lies in the fact that in the diagnostic interview, specific facts are sought that could be used in intervention, that is when supporting the individual’s education (e.g. establishing supporting measures).

3.2 The diagnostic interview, types, and stages

There are individual or group interviews and structured/semi-structured and non-structured interviews. For the purposes of educational-psychological diagnostics, the most frequently used interview is the individual and semi-structured interview, while the non-structured interview is also often used.

**Phases of a diagnostic interview**

The quality of the interview and its evaluation is closely related to the professional diagnostic skills of the teacher (see Chapter 1). Schematically, we can distinguish 5 STAGES OF CONDUCTING THE INTERVIEW (especially fitting for interviews between the teacher and the pupil or parent), (adapted from Kohoutek, 2005):

**Preparatory phase**

- Before the interview, the teacher should become acquainted with basic information (e.g. the anamnesis) of the pupil/parent (family situation, school results and grades, health situation, extracurricular activities, etc.).
- To conduct the interview, the teacher should find a quiet environment pleasant for the pupil/parent.
- The teacher should formulate the goal of the interview;
- estimate the approximate length of the interview;
- and decide on how to record the interview (recording, notes, observation sheet, etc.)
Introductory phase

• It is a good idea to assure the pupil/parents of the confidentiality of the provided information (where appropriate, negotiate the possibility of publication).
• The option not to respond should be pointed out.
• It should be emphasized that there are no right or wrong answers.
• It is not appropriate to start with topics that remind the pupil of their problems (e.g. failures, misdemeanors).
• In all problematic situations, it is better to proceed from the relatively positive characteristics to those less favorable.
• At the beginning of the interview, the respondent should be given the opportunity to talk about their problems or discharge negative emotions.
• The teacher should ensure the pupil/parents has enough space to express themselves.
• It is advisable to choose open questions.
• It is important to establish a positive atmosphere and to encourage the respondent with active listening (nonverbal communication).

Developing the interview

In the later stages of the interview, cognitively or emotionally more challenging questions usually continue.

• The interviewer should be able to respond to the speaker’s personality and tailor the order of the questions, language or wording to fit the given situation.

Conclusion

• Each interview should be concluded in such a manner that further contact with the respondent can follow later.
• The teacher strives for emotional closure.

Types of questions asked in the context of the diagnostic interview (adapted from Kohoutek, 2005)

• Introductory – should establish the atmosphere, help create contact
• Basic – introduce a new topic
• Exploring – try to develop these topics further, reach deeper
• Filtering – help to establish the competency of the respondent to answer the given question.
• Inviting questions – are relatively wide-ranging and allow the respondent to speak relatively freely.
• Open versus closed questions: open questions leave room for the informant to formulate the answer (e.g., What do you think about the benefits of tutoring?), while closed questions usually lead to concise answers, answers, yes/no answers, or choosing from only a few possible answers (e.g. Did you study mathematics yesterday?)
• Projective: based on the pupil’s opinions or reactions to certain hypothetical situations, conclusions are made about the pupil’s motives, values, characteristics, etc. (e.g. Children usually love to play with other kids during recess... What do you usually do during the breaks?)
• Suggestive questions: These are dangerous in that they raise misleading and deceptive answers. It is extremely easy to stylize or formulate a question so that it encourages a certain type of response, which the interviewer would like to hear or expects (e.g. You didn't do it on purpose, right?)
• Concluding questions: These are not related to the topic of the interview but help to conclude the interview in a pleasant manner.

3.3 Principles of conducting the interview

• The context of the interview should be reflected as well as the relationship between the speakers (e.g. Is the pupil maybe upset after a failed test? Would the pupil prefer to spend the break with their classmates?)
• A clear goal for the interview should be set.
• It should be actively sought after establishing a relationship of trust (e.g. not talking with the pupil in a lofty tone, maintaining eye contact, nodding, using words like hmm..., etc.).
• A suitable place should be chosen to conduct the interview.
• Simple language should be used, without technical terms, and adjusted to the age of the pupil.
• The order of the question and the dramaturgy of the interview should be well designed (at the beginning, more general and fewer personal questions should be asked).
• Positive feedback should be provided ("your answers help me to understand what is going on..." or, "I think I learned a lot of new information from you...").
• Nonverbal communication should be noted (voice intonation, accent, pace, any changes in facial expressions, blushing, looks, sweating, tearfulness, folding arms across the chest, coughing). Changes are important, e.g. the pupil starts to crumple up a handkerchief, etc.
• Own beliefs and stereotypes about the pupil should be reflected to avoid the halo effect (the so-called first impression error).

Common mistakes when conducting an interview (adapted from Mertin, Krejčová et al. 2016). There are some mistakes illustrated in the extract from an interview conducted by a student within the Basis of Educational-Psychological Diagnostics course.

• The informant’s answers are insufficiently developed.
  Barbora: Well, what a question, it’s obvious, no. But well, I like some subjects.
  Věra: Do you think that what you’re learning at school will be useful for you later in life?

  Věra does not develop the Barbora’s answer sufficiently and starts to open another topic.
  She returns to Barbora’s relationship to particular school subjects later.
• More than one question is asked at the same time.
  Věra: Hi Baru. How are you? How did you do at school today?
  Věra: Good. And which lessons did you have? Do you have any homework?
• Closed questions are asked which can only be answered with yes or no.
  Věra: Ok. And do you enjoy school?
• Suggestive questions are asked.
  Věra: So, you don’t know?
• Manipulative questions are asked to support (on the conscious or subconscious level) the interviewer’s presuppositions
  Barbora: I don’t like Czech, history, German, because we have a lame teacher. I like chemistry, math, natural history, arts. Music is fine and physics as well, because we have a cool teacher, and that is it.
  Věra: So, you don’t like English? And would you like it, if you had a different teacher?
We can notice that Barbora answers to the question on which subjects she dis/like, Czech language, History and German language. However, Věra jumps in the following question to the English language while supposing that Barbora does not like the English language. This meaning shift is probably connected to the fact that Věra wanted to find out what is Barbora’s relationship to English language as the main goal of the interview.

- The interview is too long or too short.

  This interview is relatively short. Věra was not able to gain enough diagnostically rich as well as relevant information.

- The interview misses its goal.

  Věra formulated the following goal of this interview: she wanted to find out what is Barbora’s relationship to school in general and specifically what is her relation to the English language which Věra tutors her. What are the problems Borbora faces in the process of learning English language and what are her strategies to solve particular tasks during tutoring. Having this goal in mind, it is questionable if it was necessary to put so many warm-up questions (e.g. the question concerned with the application of knowledge learned in school in Barbora’s later life) and if Věra should not focus more on the second part of the interview when she tried to diagnose the difficulties Barbora faces in the English language.

  At the same time, the goal Věra formulated is too broad. Within such a short interview she was not able to gain more detailed information.

- Non/verbal expressions of the speaker ("e.g. s/he appears hostile") are explained, or conclusions are rushed.

- Complex language (e.g. professional jargon) is used.

- The interview is conducted at a fast pace and the speaker is not given enough room to think about their answers.

- The cultural or family background of the child is not sufficiently reflected by the interviewer.

- Errors occur at the level of interpreting the recorded data – e.g. drawing premature or evaluating conclusions.
Figure 2.1 Conceptual map that summarizes the basic information for preparing and conducting a diagnostic interview.

An example of an interview with a pupil during tutoring:

**Věra:** Hi Baru. How are you? How did you do at school today?

**Barbora:** Pretty bad, I had a headache. After three lessons, mom had to pick me up.

**Věra:** I’m sorry to hear that, and is it better now?

**Barbora:** Yeah, it’s better. I slept the whole time until you came.

**Věra:** Good. And which lessons did you have? Do you have any homework?

**Barbora:** I had chemistry, natural history, and Czech. No homework.

**Věra:** Ok. And do you enjoy school?

**Barbora:** Well, what a question, it’s obvious, no. But well, I like some subjects.

**Věra:** Do you think that what you’re learning at school will be useful for you later in life?

**Barbora:** Yeah, some things. I don’t know, something from Czech, probably yes. But if you think you would come home from work and do some sentence analysis or write a dictation instead of having a rest, well, not likely. But I think maybe English, German, and math might come in handy. And physics could be useful for some people, but not for me. In my opinion, there is no way to use history. Or perhaps natural history could be used, like, maybe you go picking mushrooms and say, well, this is this or that, or chemistry, when you know what to mix so that a cake rises properly or something like that. I doubt that I could make use of music.

**Věra:** Which subjects do you like at school, and which ones don’t you like?
Barbora: I don’t like Czech, history, German, because we have a lame teacher. I like chemistry, math, natural history, arts. Music is fine and physics as well, because we have a cool teacher, and that is it.

Věra: So, you don’t like English? And would you like it, if you had a different teacher?

Barbora: I don’t like it. The teacher never teaches us anything, she just gives us tasks to do by ourselves or she only teaches what is easy and what is hard we have to study at home. Otherwise, I would like it, because last year we had Ms. Holubová and that was fine. She could teach us stuff.

Věra: So, what is the subject matter in English now?

Barbora: The environment and from grammar, passive voice, but I wasn’t there for quite a while.

Věra: And do you understand it? The passive voice?

Barbora: I was there for only one lesson, so I don’t really know if I understand it.

Věra: Aha. So, we could have a look at the passive voice together.

Barbora: OK.

Věra: Do you know when it is used and how to make it?

Barbora: (Starts to laugh) I was there, and some sentence was written on the board and I was just looking at it and thinking, well, OK then... (she grimaces.)

Věra: So, you don’t know?

Barbora: I know that if the thing does it then it is the other voice.

Věra: You mean the active voice?

Barbora: Yeah, that one. And if the thing does not do it but just suffers it. Like houses were built. That’s passive voice.

Věra: Great, so you know what it is. Let’s just look at it a bit closer and I will tell you how it is put together.

Barbora: OK.

Věra: Thanks, Baruška.

3.4 Anamnesis and the anamnestic interview

According to Zelinková (2001, 31-34) “Anamnesis is one of the methods that helps us to gain such information from the pupil’s previous life that could contribute to clarify the current situation.”

The anamnesis is usually produced by the psychologist at the school counseling center; however, the teacher can produce the anamnesis, for example, during the child’s adaptation to the school environment, etc. Information for the anamnesis is provided through a questionnaire or an interview.

Anamnesis types according to their focus:

- **PERSONAL** (DEVELOPMENTAL) – includes data about the prenatal and perinatal development of the individual (pregnancy, childbirth, 10 days after birth), on their development in the first years of life (speech, development of psychomotor or graphomotor skills or games, drawing skills, etc.).
It also contains information about the health of the individual (diseases, injuries, allergies, hospitalizations, medication, etc.)

- **FAMILY** (RELATED TO UPBRINGING) – includes basic information about the family (e.g. family structure, number of family members, age of parents, etc.). It also reflects the relationships between family members, type and style of upbringing, behavior of the individual in the family, difficulties in upbringing, and the socio-economic situation of the family.

- **SCHOOL** – monitors the development of the individual within the institutional education (e.g. entering nursery or primary school, adaptation to the (pre-)school environment, etc.), behavior towards classmates and teachers, reactions to school routines and standards, lists of schools attended.

- **SOCIAL** – examines the development of the individual from the viewpoint of integrating into peer groups, the individual’s interests, and leisure time activities.

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4 Working with a Pupil Portfolio

The requirement for the teacher’s diagnostic activity is related to the paradigm of the personal developmental conception of upbringing and education in the 21st century, which focuses on the child and their overall development in relation to their individual predisposition and possibilities (Syslová, Kratochvílová, 2017). The aim of this chapter is to introduce a pupil portfolio as one of the tools of a teacher’s diagnostic activities.

4.1 Portfolio definition

When observing others, it is possible to come across the term portfolio in any field. Pedagogy is no exception. There are many concepts and definitions of a pupil portfolio. Different authors define this term more or less specifically; approaches to this diagnostic method or its subdivisions also differ.

Sharp (1997) states that the term portfolio comes from the Latin portare (to carry) and foglio (sheets of paper). In English language literature, the notion is primarily associated with the terms "collection", "folder", and "teaching diary". In the Czech environment, a portfolio in school practice is often more likely associated with saved artifacts, which are the basis for evaluation.

For illustration, several Czech and foreign definitions follow:

- The authors of the Quality I project define a portfolio as “a tool for the long-term collection of information on results, learning progress, and other characteristics connected to educating a specific pupil” (CERMAT, 2008).

- Tomková (2007) states that “a portfolio is not the goal of teaching pupils, but rather a means to achieve it.” Hence, those activities that pupils engage in when working with the portfolio, which most importantly are collecting, sorting, and continuously reflecting, as well as self-evaluation, sharing, presenting and defending.

- Syslová, Kratochvílová, Fikarová (2018) view the portfolio as “a structured set of a child’s work collected during a specific period, which is actively worked with by all participants in the educational process. It fulfills a diagnostically formative and summative purpose. It provides the most comprehensive information about the child’s results (with respect to all areas of the child’s personality), and their progress and development. The information is used by the child, parents, and teacher or other specialists to communicate for the purpose of the further development of the child and the adjustment of the educational strategies in the nursery school classroom.”

- Lustig (1996, p. 14) writes about a portfolio as “a collection of a pupil’s work, which reflects the individual growth and progress of the child over a specific period of time.”

- The authors Sweet (1993) and Arter (1995) view a portfolio not only as a collection of pupils' work but also view how it is worked with as important. "All portfolios share the fact that students must collect, select, and reflect their work."

Regardless of the definition we identify with, a portfolio does not need to have a unified content and form, but instead, it is important that it brings overall benefits and a feeling of satisfaction for both the pupil and the teacher (Havlíčková, 2007).
4.2 Types of portfolios

The two most common concepts of a portfolio, which in practice can blend together and complement each other, can be described as the path and the destination. Professionally, these two concepts can be defined as constructivist and positivist paradigms.

- The constructivist view
  - The emphasis is more on the process rather than the final product. The evaluation has a formative character; the content is structured and retold by the pupil. Meanings of individual material can vary over time (Barrnett, Carney, 2005).

- The positivist view
  - The portfolio is understood as a tool, channel or goal. It is the place for examples of a pupil’s work used to derive which outcomes of the learning process have been attained. Monitoring over time is not important in this respect (Barrnett, Carney, 2005; Paulson, Paulson, 1994).

As outlined in the introduction, there are many subdivisions, which focus on goals, activities, the resulting form, etc. For our purposes, the following threefold division by Horká and Kratochvílová (2014) will be sufficient:

- **Collective portfolio**: Or working, documentational. It contains all of the pupil’s work, created during the course of teaching. It is "merely gathering" rather than a method with an educational goal.

- **Selective portfolio**: Also called a representative or sample portfolio. It is used to show the pupil’s best work. Sometimes it is used for self-presentation at entrance exams and similar occasions. However, it lacks the possibility to see change, progress, and improvement.

- **Diagnostic portfolio**: Also called an assessment portfolio, it serves as a custom tool for pedagogical diagnostics. This type is distinguished by extending the range of collected information, which is then further worked with (self-assessment of the pupil, teacher’s evaluation, comments, extracurricular activities, etc.). It is a form of monitoring the complex development of the child or the pupil.

4.3 The function of a diagnostic portfolio

Within our diagnostic profiling, we mostly focus on the function of the diagnostic portfolio. The diagnostic portfolio fulfills important functions that we should be repeatedly reminded of: it is informative, motivational, communicational, self-regulating, and diagnostic (Kratochvílová, 2014):

- **Informative** - provides information on the child's development to their parents, teachers, and the child themselves.

- **Motivational** - motivates a child to attain better results, to complete a range of activities, and to create their own projects that they want to present in their portfolios.

- **Communicational**: the portfolio becomes a medium of establishing and developing communication between the teacher and children, among children themselves and between children and parents, or other professionals. It also serves as a medium for development of communication – for individual interviews, discussions with parents, employees of the counseling facilities. It also serves as a form of support when creating a child's individual educational plan.
• **Self-regulating or developmental** — in cooperation with the teacher and classmates, the child interprets their results, evaluates them (explicitly and implicitly), experiences their successes and failures and decides on further activities, which affect the child’s personality development.

• **Diagnostic** — the information gained on the child’s development serves their teachers as the basis for establishing suitable goals supporting the child’s development and the choice of corresponding suitable methods and forms of work.

In terms of time, the portfolio is relevant during opening, ongoing, and final diagnosing. The portfolio has a strong formative influence on the development of the child’s personality. At the same time, it summarizes the child's progress during a specific period (summative diagnosing) in relation to their previous development (individualized diagnostics) and in relation to their set objectives and criteria (criterion-based diagnosing). The portfolio documents the child’s progress. It contains all the materials that may be available to teachers, the child, and parents. It does not contain confidential information.

If the teacher chooses to use the portfolio when working with the child, they must also decide on its form. It can be stored in paper form (folders, boxes, files...) and/or electronically. In the context of developing technologies and increasing computer competencies of pupils, e-portfolios or webfolios are now emerging. (Kotsopoulos, Lee, Cordy, & Bruyns, 2015) or (Aktay & Gultekin, 2014). Alternatively, a combination of the two forms can be used.

The Education Act and the current requirements for inclusive education encourage us to approach pupils on an individual basis. Using the diagnostic method of the portfolio is considered a highly valuable source of information, although its application during teaching requires a lot of time.

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5 Dynamic Assessment

Key terms: structural cognitive modifiability, mediated learning experience, instrumental enrichment, cognitive function, cognitive map

5.1 Introducing the Author of the LPAD

Prof. Reuven Feuerstein (1921 – 2014) was a significant Israeli clinical, developmental and cognitive psychologist, known mostly for his theory on modifiable intelligence. He came from Romania, where he worked with children at assembly camps. After moving to Israel, he worked with children who had survived the Holocaust. After the war, he studied in Geneva with the major psychologists J. Piaget and A. Rey.

In the 1950s and 1960s, when working with Jewish children in Morocco, he found that there was a large discrepancy between their current performances in tests, which they worked on by themselves and their increased performance when working on a test together with someone else - a mediator. Combined with his previous experience, this became the basis of the LPAD - The Learning Propensity Assessment Device and FIE - Feuerstein’s Instrumental Enrichment.

In 1965, Prof. Feuerstein founded the Hadassa-WIZO-Canada Research Institute (HWCRI), whose goal was to process the knowledge resulting from Feuerstein’s research, develop didactic materials based on this, and to examine their effectiveness (Feuerstein’s Institute).

During the 1980s and 1990s, he started publishing books and journal articles in English and his work thus spread to other countries, particularly to the USA and the UK.

5.2 Theoretical background and basic concepts

Structural cognitive modifiability

The structural cognitive modifiability theory was created in the 1950s.

Cognitive means that the changes are related to thinking, intellectual abilities, discovering; modifiability means the disposition to change; the term structural is used to suggest that these changes are not random, but rather deep - the actual structure of thinking is changing.

The basic principle and belief of Prof. R. Feuerstein, gradually established by abundant research and practice as well as research in the field of neuroscience, is that the structure of human cognitive functions and forms of thinking are modifiable, changeable.

The objective of the theory is to work with the child in such a manner so that the child can use what is learned in new situations in a new way.

Phases of the structural change are as follows:

First, the same strategy is used in the same conditions; then the same strategy is used in different conditions. Then a new strategy is formed based on the original strategy.

The theory of structural cognitive modifiability is applied in:

- Mediated Learning Experience
- Dynamic Assessment of the LPAD (Learning Propensity Assessment Device)
- Instrumental Enrichment
5.3 Mediated Learning Experience (MLE)

The primary means is the mediated learning experience. Mediated learning (ML) is the opposite of direct learning – which stems from a direct reaction to a stimulus. It expresses an interactive process, in which parents, other important adults (teachers, assistants, psychologists...) or peers enter between the stimulus situation and the child and adjust the stimuli to the child’s developmental needs. The classic schema of initiative – organism – response is extended by the mediator:

![Figure 5.1: Mediated Learning Experience](image)

S – stimuli from the surroundings; O – organism processing the stimuli, H – human – mediator (a parent, educator, teacher), R – response of the organism

Three parameters are at play and influence each other: the stimulus; the person for whom it is mediated; the mediator who, for example, chooses the stimuli, changes their parameters and adjusts their own speech or behavior to highlight the stimuli. By doing so, the mediator affects the response of the person being mediated, which then influences the actions of the mediator.

Mediated learning experience is something that humans encounter from when they are born – most mothers mediate for their children quite naturally – they focus a child’s attention in the desired direction and interpret the surrounding world. Other mediators can be loved ones, and later educators, teachers, and also peers.

Quality interaction with the mediator plays an important role in the learning process. If this interaction is missing, cultural deprivation occurs which manifests itself as a state of limited cognitive modifiability in situations of direct exposure to stimuli, which for example, is an insufficient ability to utilize new information or experiences. However, this cultural handicap is not the same as a cultural difference. Children from culturally different backgrounds may demonstrate high modifiability due to direct contact with the stimuli from the surroundings. Hence, the cause of cultural deprivation does not lie in the socio-economic status of the family, etc., but rather in the quality of the interaction between the child and its mediators.
5.4 Criteria of MLE

The basic, most important, universal (inter-culturally shared) criteria for MLE:

a) focus and reciprocity (the interaction is affected by the mediator’s intention, and this intention is passed on to the child where reciprocity should be established as well as the need and desire to react),

b) transfer (leads an individual from a particular situation to transfer the solution to other situations) and

c) mediation of meaning (enriching stimuli with emotional, cultural, religious and social meaning, “why and for what reason”, drawing into the mediator’s intention, important for awakening the child’s inner motivation).

Other, additional, situational criteria, which as opposed to the previous ones, can be culturally conditioned, include:

- mediating the feeling of competence: the feeling of competence leads to developing a positive self-image and is created in situations where the child has the opportunity to be competent. When working with the pupil, it is essential to equip the child with everything it needs in order to be competent. It is important to create situations that the child can successfully handle then escalate the difficulty, to interpret individual steps with the emphasis on those that most influenced the successful resolution and pass it to the pupil, who due to these competencies can then handle other tasks,
- mediating regulation and control of behavior: represents repression or support of a particular kind of behavior. Prof. Feuerstein understands the impulsive behavior of children in the classroom as a response to the attitude of a teacher who appreciates only results and swiftness,
- mediating sharing behavior: represents guiding towards collaboration and sharing of feelings, impressions,
- mediating individual and psychological differences: supporting the individuation process, accepting different opinions,
- mediating behavior leading to seeking, identifying and reaching a goal,
- mediating challenges to seeking new and more complex tasks,
- mediating awareness of a human being as a changeable entity,
- mediating a journey towards optimistic alternatives,
- mediating a feeling of solidarity.
5.5 Degree of mediation

The degree of mediation means the intensity of the interaction; it expresses how active are both the mediator and the pupil. During the work, it is necessary to constantly reflect on which form of mediation is being used, at what intensity, and to what effect. It is important to provide only the support deemed necessary.

5.6 Examples of mediation:

- Regulation of behavior
- Gathering information – the order of gradual systematic collection, describing the work method
- The rule – to identify, formulate, describe, use
- Focusing attention – the smallest degree of mediation – ("Look once again, watch carefully, think about it.")
- Motoric mediation – pointing a finger at where to start, what to focus on, ...
- Verbal mediation – describing, explaining, naming

5.7 Dynamic Assessment

This is a system of assessment that provides an alternative to assessments commonly used when diagnosing in counseling centers and psychologists’ offices. Its applications are particularly appropriate in cases where the results of regular evaluation do not match the child’s usual performance and often in cases where the child comes from a different (linguistic, cultural or social) environment. It is suitable for a child who faces deficits in the learning process, in acquiring new knowledge and using it to solve problems.

Significant cornerstones for dynamic assessment are the above-mentioned theories and principles as well as the zone of proximal development by L. S. Vygotsky (teacher, diagnostician, who has the opportunity to observe how far the pupil can go under adequate guidance) and the division of mental operations by J. Piaget.

More than in the current performance (as in static assessment), dynamic assessment is interested in the process of learning, the child’s potential, the ability to utilize the mediator’s guidance when working on a task, the change in abilities, and the skills that can be brought to the child.

Static standardized assessment that detects the current level of cognitive abilities and compares managing a given task with standards – with the results of the majority population of the same age; while dynamic assessment does not have standards, nor exactly given formulations of tasks; instead, a thorough knowledge of the principles of work is essential.

Already in the course of the examination, the pupil learns so we, therefore, have the opportunity to observe how the pupil proceeds in similar tasks if the solving strategy has changed. As we proceed from the fact that the process of cognition is changeable, then during the assessment we are already interested in these changes – how they occurred and what type of support proved to be efficient. As mentioned above, we are interested in the process, how the pupil arrived at the solution (this is more important than the actual result); why the pupil thinks this answer is correct. Throughout the whole examination, we contemplate which mental operations are functional and which are deficient. In dynamic assessment, each child is approached individually, as already mentioned above; there is no list of questions and instructions for task giving. Rather, we should observe how the child is learning
and at the same time we should try to prevent a sense of failure and not managing a task – on the contrary, we enable the child to experience the feeling of success by providing the appropriate tools and methods to successfully complete the task.

The classic course of task giving in dynamic testing is to give a pre-test (diagnostic material or any task that meets the parameters). We can observe how the pupil deals with the task and how far they can get. Once the pupil stops progressing, the teaching phase (intervention) follows. During this phase, the basic terms connected to the task are explained to the pupil, working methods are developed, and various strategies are presented – all with the use of principles of mediated learning with the active participation of the pupil. Afterward, a post-test is presented, which is similar to the pre-test and should show how the pupil can use what was learned in the previous phase.

The tools used in dynamic examination must provide the opportunity to verify how the diagnosed child can take advantage of the learning stage (in which the methods, principles of work and important terms are discussed). In essence, any assignment that meets the required parameters can be used. In contrast to this, the diagnostic tools used in static assessment are standardized and are always used in the same way according to the manual and the results are compared with the standards.

When evaluating the results, we are interested in how the student arrived at the solution – whether correct or incorrect, which form, and level of mediation had what kind of effect, which type of task and form of assigning suited the pupil more and which one suited the pupil less.

The goal of the examination is to determine what form of mediation and support proved successful and led to a change in the thought processes and which methods and principles are necessary for the change; the report includes recommendations for the pupil as well as for teachers and parents. When presenting the results of the assessment to teachers and parents, it is important to focus on the strengths of the pupil, to pass on the information, under what conditions the change is possible for the pupil, and how this situation is repeatable.

Undeniably, dynamic assessment is highly time-demanding.

5.8 **Instrumental Enrichment**

During the decades after diagnostics emerged, workbooks were created that were used to develop deficit cognitive functions. Instrumental enrichment is aimed at changing the level of the intellect structure.

The basic series of this program consists of 14 workbooks that focus on the development of different cognitive functions and are called instruments. These are paper-and-pencil type of exercises and each of the instruments has a range of approximately 15 sheets. The basic series of instrumental enrichment is used for children from the age of 8. The program can be used for a group (ideally, a group of approximately 8 children; it is possible to also work with the entire class), or individually.

The program was originally designed to aid the integration of children from different cultural environments who arrived in Israel after World War II. It started gradually and began to be used for children with mental disabilities (e.g. Down’s syndrome), for children with learning disabilities, for people after brain injuries, and was eventually included in the school curricula. The method is also currently used with adult and senior populations.
The instrumental enrichment training usually takes two weeks, and the participants receive both the theoretical foundation and the practical experience of working with the instruments. It can be found under the acronym FIE or FIO in authorized training centers.

5.9 Summary for practice:

- Each pupil is modifiable – the belief in the possibility of change
- Importance of asking questions focused on the process (how did you get to this...)
- Discussion on the right and wrong answers (working with mistakes)
- Guidance towards planning, developing strategies – preventing solutions by the trial-and-error method
- Linking the new with what the child already knows
- Transferring the newly learned to other areas
- Changing modalities (visual, verbal...)
- Guidance for creating practical aid tools – e.g. glossaries of terms

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6 Model of 5 Practices in a process of formative assessment of a pupil

Evaluation in teaching is a teacher's message addressed to pupils to inform them about their success in educational process (Průcha, Walterová, Mareš, 2003). The evaluation permeates instruction permanently, not only in situations that are deliberately organized as a process of evaluation (such as written work, regular testing), but also in situations in which participants do not even realize they are being evaluated. The systemicity of the assessment means that a teacher is preparing, organizing, and performing it on a regular basis. It also provides information how successful the lesson is and what are its results. A teacher can use different types of assessment, knowing that no type of assessment is good or bad in itself, it always depends on the way and the context of its pedagogical use (Kolář, Šikulová, 2009). However, if the teacher aims not to compare pupils with each other, but to focus on achieving their individual learning objectives, allowing each child to experience success and satisfaction in the work performed and to gain confidence in their abilities, the formative assessment is offered as a practice leading to effective pupil education in heterogeneous classes.

6.1 Model of 5 Practices

To support formative assessment when discussing solutions of cognitively challenging tasks, a teacher can systematically use a model that is referred to as Five Practices. The model of 5 Practices is often used in mathematics classes, but it is also applicable to other subjects. It is a principle in which pupils' thinking is the driving engine of learning, enabling them to participate in creating solutions, and helping teachers to make effective use of their responses in meeting their learning goals. At the same time, it is an effective tool for teachers to move the whole-class brainstorming from the improvisation level to the level of a well-planned discussion. This can be realized using the following five steps:

a) Anticipating. At this stage, a teacher attempts to predict possible thinking of pupils related to learning objectives and prepares for the use of their suggestions. The teacher estimates the probable answers of pupils on cognitively challenging tasks. Instead of simply determining whether pupils deal with the task correctly or incorrectly, this principle involves anticipating how they will deal with a specific task, and how their thinking, whether conceived correctly or incorrectly, relates to a procedure, strategy or solution the teacher wants pupils to learn.

b) Monitoring. A teacher observes and listens to pupils, tries to map set of emerging student ideas to solve the task and find meaning in them. Since the teacher communicates with pupils at this stage, he/she should pay close attention to the thinking related to an assigned task, and to write down how pupils think about the problem. The correctness or inaccuracy of the solution is irrelevant at this stage.

c) Selecting. A teacher selects pupils' ideas and solutions to be used for classroom sharing. As the teacher anticipated some thinking procedures related to the problem solving in the anticipating phase he/she can also predict what practices and solutions he / she will share with pupils in the discussion. In other words, anticipating the potential of thinking allows the teacher to plan the discussion in advance. Then by observing student thinking during monitoring phase, a teacher can search for students who represent expected thinking - both correct or incorrect - and choose them for sharing during the discussion. Of course, monitoring can also reveal unexpected thinking that can also be shared.
d) **Sequencing.** At this stage, the teacher decides how pupil ideas should be shared. Deliberate choice of order in which the student solution will be presented can shift the whole class thinking forward by deliberate shift from a specific, less complex thinking to more abstract and complex one.

e) **Connecting.** Teacher helps pupils to create relationships between shared practices. At this stage, the teacher implements a number of deliberate steps that encourage students to connect ideas and practices that are shared in the classroom. Instead of discussion consisting of individual presentations on a principle "show and describe", pupils are encouraged to interconnect their solutions, which promotes deep thinking among all participants in the discussion.

6.2 **Model of 5 Practices in reality**

**Goal:** Students will make connections between geometric features of the diagram and counting strategies to reason about equivalent expressions with variables.

**Task:** Figure out, without talking, without writing, without counting one by one, how many shaded tiles there are in this 10x10 grid.
Procedure:

**Anticipating**: The teacher anticipates the ways a group of students might count the tiles.

**Monitoring**: The teacher monitors the class, observes and listens to pupils, maps the set of emerging ideas when solving the task. Each idea is noted down together with names pupils who have come with the solution.

**Selecting**: The teacher selects individual solutions and pupils who will present the procedure. He sensitively approaches pupils' choice, respecting the individuality of pupils. If, for example, during monitoring phase he encountered the correct answer of a weaker pupil, he will enable him/her to experience success and present his/her solution before the class.

**Sequencing**: The teacher encourages selected pupils to describe and formulate their solutions. Pupils write them on the board, the teacher then assigns the name of the pupil to each assignment, granting him/her the ownership of presented procedure. Then he turns to class and asks other pupils to put hands up if they came with the same result. The presentation of the ideas takes place in a pre-selected order so that the teacher can build on the next stages of the Interconnection and point out the common features of individual thoughts.

<table>
<thead>
<tr>
<th>Way of Visualizing the Border</th>
<th>Algebraic Expressions (e.g.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two, parallel full-length rows of 10 plus two, parallel columns of 8</td>
<td>10 + 10 + 8 + 8</td>
</tr>
<tr>
<td>One full-length row of 10, two, parallel columns of 9, and one row of 8</td>
<td>10 + 9 + 9 + 8</td>
</tr>
<tr>
<td>Four rows/columns of 10, minus the four corners that have been each counted twice</td>
<td>10 x 4 – 4</td>
</tr>
<tr>
<td>Four rows/columns of 8, plus four corners</td>
<td>8 x 4 + 4</td>
</tr>
<tr>
<td>10 x 10 square, minus an 8 x 8 square inside it, leaving the border</td>
<td>10 x 10 – 8 x 8</td>
</tr>
<tr>
<td>Four, “interlocked” rows of 9, each including exactly one corner</td>
<td>9 x 4</td>
</tr>
<tr>
<td>Cutting the image in half: Two rows of 5, plus one column of 8, times two</td>
<td>2(5 + 5 + 8)</td>
</tr>
<tr>
<td>two pairs of rows/columns of 8, plus four corners</td>
<td>2(8+8) + 4</td>
</tr>
</tbody>
</table>
**Connecting**: Visual presentations of individual pupils' solutions are important in order to be conceptually compared in the last step. The teacher asks the pupils to clarify thoughts to their classmates and help them to understand presented solutions. Afterwards they are asked to describe how the procedures are similar, how they differ, or how they are interconnected.

After the teacher concludes the topic of the 10x10 grid, the pupils are asked how they would calculate the tiles for the 20x20 grid, e.g. using Mark's procedure, Anezka's procedure, etc. After he gets answers, he introduces a question how pupils would calculate the NxN grid.

In addition, in the Pedagogical Diagnostics seminar, students were also asked to think how the Five Practices model could be applied to the teaching of their field.

**Conclusions**

By using the Five Practices model described in this text, the discussion over a cognitively challenging task can be much more manageable for teachers. Providing teachers with a guide for preparation and discussion planning, this model can help teachers to discuss tasks more efficiently and respond to both the student suggestions and the subject matter being discussed. At the same time, it enables pupils to participate in the construction of their knowledge and the whole learning process, with the continuous support of formative assessment from a teacher and classmates, which undoubtedly leads to satisfaction of well-done work on both sides.

**Works cited:**


7 Support measures in five degrees

A system of support measures has been established to support children with special educational needs, with learning, behavioral difficulties, and other difficulties or, conversely, for gifted children. This system is to support such children to enable them to participate in regular school attendance. The purpose is to help them cope with their specific difficulties, overcome learning obstacles, and at the same time, develop their strengths.

7.1 Handling personal data

Students’ personal data are processed when working with the school’s support measures. Therefore, the laws regulating this area must be adhered to. The authority to obtain information on a student is provided for in Education Act No. 561/2004 Sb. The Education Act specifies the following rights and obligations:

- Basic rights and obligations of the school, legal representatives, and the student—the obligation to inform
- Taking into account the needs of an individual (individualization)
- Compliance with methods and procedures de lege artis—the widest possible application of effective modern pedagogical approaches and methods
- Evaluation of the student’s results—with regard to achieving educational objectives

Personal data and such processing under Act No. 101/2000 Sb., on the protection of personal data and on the amendment to some acts, Article 4(a) and (e):

- “Any information relating to an identified or identifiable data subject. A data subject shall be considered identified or identifiable if it is possible to identify the data subject directly or indirectly, in particular, on the basis of a number, code or one or more factors specific to his/her physical, physiological, psychical, economic, cultural or social identity”
- Personal data processing: any operation or set of operations that is systematically performed by a controller (school) or a processor (teacher) on personal data by automatic or other means.
- Obligation to maintain confidentiality about personal data.
- For example, a school register, other student documentation, questionnaire or worksheet with personal data, regular recording of information about a student based on intentional observation or interview, information about the progress and results of the education of a student, disciplinary measures, attendance information.

7.2 Support measures

A system of support measures helping children with special educational needs is established in the Czech Republic. Such children are entitled to be provided, free of charge, with support measures by their school and school facility. This includes counseling assistance of the school and the school counseling facility (pedagogic-psychological counseling center, special pedagogical center). A child, pupil or student with special educational needs means a person who needs support measures to realize their educational potential or to exercise or enjoy their rights on a par with others.

Support measures include:

- Adjusting the organization, contents, evaluation and forms and methods of education and educational services.
- Securing teaching of special pedagogical care subjects and prolonging the length of secondary or higher professional education by up to two years.
• Adjusting the conditions of admission to education and graduation.
• Adjusting the expected outcomes of education in a defined group of students; adjusting the contents of the education
• Construction or technical adaptation of the premises where learning takes place
• Introducing compensatory aids, special aids, and textbooks (communication system for deaf and deafblind persons, Braille, etc.).
• Providing extra staff
• Teacher’s assistant (or a personal assistant)
• Other teaching staff (teacher, special education expert)
• Czech sign language interpreter, transcriber and other persons (usually staff at the special pedagogical center who help with special pedagogical subjects).

Support measures in five degrees

Support measures are divided into five degrees based on the organizational, pedagogical, and financial requirements. The first degree of support is ensured by the school. If common classroom measures to support a student do not work, a pedagogical support plan (PSP) is drawn up by the school. A pedagogical support plan is a document annexed to Decree No. 27/2016 Sb., on the education of students with special needs and gifted students. The second to fifth degrees are ensured by the pedagogical-psychological center (PPC). The center has the school fill in a School’s Questionnaire to obtain information about the student. Subsequently, it carries out a diagnostic procedure and determines how to proceed. The school then prepares an individual educational plan (IEP) based on the PPC’s recommendations.

A first-degree PSP is created for students at risk of developing special educational needs (SEN) and for students with mild and temporary difficulties, which can be controlled by minor adjustments to teaching and preparation for classes. The design, implementation, and evaluation of a PSP are fully within the competence of the school. The PSP is prepared by the class teacher or the teacher for the respective subject. Parents are familiarized with the support plan, which they sign. The functionality of the PSP is evaluated after three months. If the PSP proves satisfactory, it is further adhered to. If the PSP does not help, support through expert counseling services comes into play.

What a PSP is for

Measures for home preparation should not be omitted in the PSP. The parents sign the PSP, thereby undertaking to adhere to it. When a parent does not cooperate and obligations arising from the PSP are not complied with, this should be recorded in the PSP evaluation (or the school’s questionnaire for counseling centers). Parents can also propose measures to be included in the PSP (greater motivation). Teachers use the PSP to realize past steps and procedures, to consider further steps, to set up specific measures, and to evaluate the success of the pedagogical work with the student.

Means of first-degree support:

• Individualized assistance of the class teacher and other teachers.
• Consultations with fellow teachers (from parallel classes, more experienced colleagues, deputy headmaster, teachers with experience of teaching the same).
• School counseling centers:
• These can first conduct observations in classes, provide the teacher with feedback, and help to set measures.
• Guidance counselor, prevention methodology specialist
• Special education expert or school psychologist
• Consultations with colleagues from other schools (supervision meetings, case study seminars, Balint groups).

7.3 Second-to fifth-degree support

Where the PSP has not proven satisfactory or the student has a greater need for support (e.g., students with IEPs, integrated students, students with disabilities), an individual educational plan is drawn up. The school fills in the school’s questionnaire, which is subsequently delivered to a school counseling facility. The student is then examined in the counseling center, which provides recommendations for further education. The parents sign a consent form for the creation of an IEP and later the actual IEP. The IEP applies to one school year (the school specifies support measures based on the counseling center’s recommendations). The IEP is approved by the headmaster on the basis of section 16 of the Education Act and section 3 of Decree No. 27/2016 Sb., on the education of students with special needs and gifted students. The school provides a written evaluation of the IEP three months before the end of the school year, and the counseling center, based on this document and further examination, decides whether the plan is to be kept, amended or canceled.

The following persons are involved in the determination of the degree of support measures:

• Teaching and counseling staff in schools
• The school fills in the school’s questionnaire
• Teachers, guidance counselor, prevention methodology specialist, psychologist, special education expert
• Counseling staff at school counseling centers (PPC, SPC).

Basic recommendations for the application of all degrees of support measures

Teamwork at the school, the school counseling office (SCO) and the school counseling facility (SCF) are required in order for the system to function correctly. It is recommended to move from simpler types of intervention to more complex ones (easy and less resource-intensive intervention) and to build on the “here and now” principle (in the school premises, in the shortest time possible). The functionality is also influenced by the involvement of the student’s parents (independent implementation of measures and feedback from the parents); the needs and limits of the family should also be taken into account. The entire process needs to be reflected on at all times (the degree of measures, the process, the time, priorities, etc.).

Bases for setting up support

• observing the student in class,
• an interview (with the student or the student’s legal representative),
• oral examination of knowledge and skills,
• written examinations,
• analysis of processes, performance, and results of activities (with the emphasis on qualitative analysis),
• didactic tests,
• portfolio of the student’s work,
• reflection on the analysis of the results of the student’s work and evaluation,
• analysis of the student’s home preparation and the pedagogical approach to the student so far.
7.4 Cooperation with the student’s parents

Cooperation with the parents is required for the full development of the student, and it is necessary to start from the first degree of support. The school (or specifically, the teachers) should seek to involve parents in the cooperation (they should anticipate both motivated and unmotivated parents). Parents can be viewed in two ways in the context of the support measures applied. On the one hand, they may be seen as helpers in the implementation of the proposed measures. Or, conversely, they may be seen as recipients of support from the school. The school must take into account that the parents themselves often need support to be able to provide their children with effective support. An important aspect that helps establish cooperation with parents consists of emphasizing the positive aspects (what goes well, what the child has mastered, friendly communication).

7.5 The role of school management in ensuring conditions for setting up support measures

It is important to create a space for the consultation of teachers with each other as well as between teachers and parents or teachers and students (joint meetings between teacher – school management – parents, and where applicable, the student, to identify needs and find agreement on how to proceed). The school should have mechanisms in place for communication within the school about students’ problems in the classroom and related difficulties. Generally speaking, the school should be consistent in its basic philosophy in its approach to students in general, including towards students at risk of SEN. The school management supports the teachers’ competencies in the application of support measures. Material support is also necessary. Depending on the school, teachers may purchase, for example, worksheets or simple aids. Projects, grants, voluntary contributions, etc., can be used for the purchase of aids. For students with second-to fifth-degree support, the PPC may allocate an amount for the purchase of aids for specific students.

Works cited:

http://katalogpo.upol.cz/

http://www.nuv.cz/t/podpurna-opatreni
Appendix 1: Pedagogical support plan

SCHOOL INFORMATION

Pedagogical support plan (PSP)

<table>
<thead>
<tr>
<th>Name and surname of the child, pupil or student (“student”)</th>
<th>Name and surname</th>
</tr>
</thead>
<tbody>
<tr>
<td>School</td>
<td>School, city, street</td>
</tr>
<tr>
<td>Form</td>
<td>Form</td>
</tr>
<tr>
<td>Reasons for creating the PSP</td>
<td>Provide the main reasons that led you to create a PSP for the student.</td>
</tr>
<tr>
<td>Date of preparation</td>
<td>Date of preparation</td>
</tr>
<tr>
<td>PSP evaluation scheduled for</td>
<td>Date of planned evaluation</td>
</tr>
</tbody>
</table>

I. Characteristics of the student and their difficulties

(strengths, weaknesses; description of difficulties; where applicable, special-pedagogy diagnostics with the aim of determining adjustments in education; current health condition; other factors influencing setting up support)

List the student’s difficulties that have led you to create the PSP. See the bracket above for more details.

II. Setting the objectives of the PSP

(objectives of the student’s development)

Based on the information above, state the objectives you want to achieve for the student.
III. Support measures at school

(Provide specific procedures in the categories of the support measures you use.)

(a) Teaching methods

(specification of adjustments to the methods of working with the student)

State the methods you plan to apply in the context of support for the student to achieve the set objectives.

(b) Organization of education

(adjustments to the organization of education in the classroom or, where applicable, outside the classroom)

State how you plan to use the adjustments to the organization of the student’s education to achieve the set objectives.

(c) Evaluation of the student

(definition of the adjustments to evaluation; how the evaluation is carried out; what is the aim of the adjustments to the evaluation; criteria)

State how you plan to adjust the evaluation of progress to support and help achieve the objectives set by this PSP.

(d) Aids

(textbooks, worksheets, ICT technology, etc.)

State the aids you plan to use to achieve the objectives.

(e) Requirements for the organization of the teachers’ work

State the requirements you have for the other teachers who teach the student to achieve the set objectives.
### IV. Support measures for home preparation

(Description of adjustments to home preparation, form, and frequency of communication with the family)

State how the student’s home preparation will be and how communication with the family will take place to ensure the implementation of the support measures synergistically in home preparation.

### V. Other support measures

(to respect the health condition, stress the situation in the family or at school—relationship problems, status in the class; in what activities, in what way)

State any other support measures.

### VI. Evaluation of the effectiveness of the PSP on:

(Fulfilment of the objectives of the PSP)

State how you succeeded in using the set criteria to achieve the set objectives; provide the date of evaluation.

<table>
<thead>
<tr>
<th>Recommendation for an expert examination:</th>
<th>☐ Yes ☐ No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☐ PPC ☐ SPC ☐ SEN ☐ Other: Other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Title</th>
<th>Name and surname</th>
<th>Signature and date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role</td>
<td>Information</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Class teacher</td>
<td>Name and surname of the class teacher</td>
<td></td>
</tr>
<tr>
<td>Teacher(s) of subject(s)</td>
<td>Name and surname of the teacher(s)</td>
<td></td>
</tr>
<tr>
<td>SCC employee</td>
<td>Name and surname of the school counseling center employee</td>
<td></td>
</tr>
<tr>
<td>Legal representative</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>