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BASICS OF DIFFERENTIATED INSTRUCTION AND ITS ORGANIZATION FORMS¹

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Abstract: This paper focuses on adaptive teaching, which is characterised by the usage of differentiated instruction organised to fit individual differences among learners. Differentiation is therefore the basis of efficient learning and achieving common goals, as well as optimal development and self-realization.

When using differentiated instruction a teacher needs to know student's individual abilities and knowledge. As a result of differentiated approach, active learning in small groups occurs (individual work, pair work, group work, mosaics approach, and contradiction and discussion approach, group projects). In this kind of lesson organization, reciprocal learning quite often appears. Lately, Dalton-Plan (whose creator is Helen Parkhurst) is quite interesting, especially the way it has been used in Hungary (Hungaro-Dalton Association). There, differentiated organization of learning has a function of achieving good educational results. Dalton-Plan school - similar to Montessori, Freinet and Jena-plan schools – uses such procedures in class which lead to differentiation in teaching, individual growth of students, experience-based teaching, and active learning.

Innovative teachers today use learner-centred methods in teaching, adapted to different learning styles. Learning styles can be guidelines in integration of students with difficulties – creating equal opportunities on the one hand, and foundations for the development of gifted students on the other.

Keywords: Dalton-Plan, differentiated teaching, active learning, learning styles, individual differences.

Introduction

Lately, differentiated instruction, or learner development in closed teaching settings that respects individual differences, has been one of the prevailing tendencies in education strategies, didactics theories and practice. Examples of differentiated instruction may be found in the concept of open

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teaching or some of its elements, and in classrooms where a teacher is ready to lay foundations for self-conducted development which suits every learner's specific characteristics. Differentiation is the basis for efficient learning, both from the aspect of meeting common requirements, or the aspect of optimal development of individuals. The use of differentiated yet unique instruction, which takes into consideration individual differences, may be referred to as adaptive teaching (Nádasi, 2007).

Glaser (according to Báthory, 2000) distinguishes among five levels of adjustment. The first level of adjustment is characteristic for traditional learning organization, where there is basically no differentiation. At the second level a teacher tries to differ among students according to abilities and interests. At the third and fourth level, further differentiation occurs with regard to teaching techniques, organization (dividing students into groups) and contents (different teaching material). Finally, at the fifth level, as Glaser suggests, differentiation occurs with regard to requirements which had previously been same for everybody.

Curriculum designers and course book authors have a task to ensure a system of resources for differentiation. It is true that real differentiation environment will be created by a teacher, but this needs to be supported by teacher-independent resources as much as possible. Curricula and materials (and course book, among other) should be designed in a way that helps teachers apply differentiated instruction to a greater degree than it is possible at this moment by providing alternative content (Ivanović & Csapó, 2010). Many teachers are anxious about the truly complex task of providing differentiated instruction, because they lack the means and they have to come up with alternative curricula, tasks, methods and grading methods. Curricula and teaching materials could be useful for that.

The basis of differentiated instruction

To be able to perform differentiated instruction, a teacher needs to be acquainted with students' abilities and prior -knowledge, and must prepare every student's individual development strategy. He needs to be aware of students' cognitive and learning styles. A very useful method to help teachers understand their students is H. Gardner's Multiple Intelligences Theory (according to Kovács, 2011). He suggests that there are various aspects of intelligence, eight to be precise (linguistic, logical-mathematical, spatial, musical, bodily-kinaesthetic, interpersonal, intrapersonal, and naturalistic). Gardner's theory is helpful in creating varied methods and planned projects. Learners learn more efficiently and achieve results by mobilizing their

outstanding abilities. The more methods they are offered to learn by and present their products by, the more motivated most of them will probably be.

The most known cognitive style is probably field dependence/independence. Basically it means that some people are able to isolate themselves from the field that surrounds them and depend on their inner feelings, whereas other cannot resist their visual stronghold. Field dependence defines the totality of information processing: stimuli that are received prior to the intellectual reasoning period are organized in the so called subject fields. People who are field dependent assume this organization default, whereas people who are field independent are inclined towards re-organizing (Tóth, 2008).

Enwistle (according to Tóth, 2000) differentiates among three major learning styles (according to name of orientation): one which runs deep, one which reproduces and one which is organized. Characteristics of deep-learning type of learners are the following: being able to concentrate on deeper understanding of matters, rationality, rivalry, etc. Characteristics of learners oriented towards reproducing are the following: trying to avoid failure, lack of interest, expecting teachers to guide. Characteristics of learners who are oriented to organization are the following: concentrating on achieving expected results, permanent efforts based on individual values.

Pask (according to Tóth, 2008) defines two learning strategies and two learning styles to accompany them. He calls one of these strategies holistic; if it is used consequentially, it is accompanied by reasonable learning style. By “understanding”, learners approach the task globally, rely on analogies and illustrations, and tend to create an overall picture before paying attention to details.

“Serial” strategy is linked to operative learning style, and students who use that style have a linear approach to tasks; they attend to operative details and procedure sequence. Learners who can apply both strategies are called flexible (versatile) students by Pask.

Marton and Säljö (according to Tóth, 2008) differentiate among two types (styles) of learning orientation. In case of result-oriented approach, a learner tends to understand learning content deeply and thoroughly. Therefore, he tries to support the thesis with evidence and connect them to personal experience. A Description-oriented learner tries to memorize contents; he learns facts without trying to find connections among them.

The following also belong to cognitive styles: 1. cognitive complexity vs. cognitive simplicity (related to discrimination measure, differentiation measure, and hierarchic integration of cognitive units), 2. reflexivity – impulsivity (related to possible alternatives), 3. overall categorization - narrow categorization (related to whether category borders are narrow or wide), 4. equation – accentuation (related to whether the difference between stimuli is

increased or decreased), 5. convergent – divergent (related to whether reasoning is unidirectional or multidirectional), (Szitó, 2005).

Learning styles are easy (and low-cost) to establish using various methods, such as paper and pen method or observing methods, and these insights may be very useful for teachers. Learning style may be a guiding principle during a teaching-learning process. Teachers increase students' motivation and attention by using varied approaches to teaching which suit different learning styles, by using different ways of organization, and by using diversity in course presentation.

A system of individual tasks is planned in accord with levels of motivation, complexity, teaching content, processes, and results (products). The most appropriate approach is chosen according to the individual learning needs of students (Heacox, 2006).

Bloom's taxonomy might be helpful in designing tasks at different motivation levels. He describes six levels of reasoning: knowledge (recalling previously learned facts and information, classifications, criteria, naming), comprehension (interpretation, Abstract, description), application (applying rules, basic principles, methods or formulas in new situations), analysis (breaking information into parts, questioning them, finding relationships among elements; comparison, opposition, classification, critique, and categorization), evaluation (judging, confirmation, classification based on facts and analysis capability) and synthesis (integration of ideas and information, or presenting information differently, forming rules, setting hypothesis, etc).

Higher levels of reasoning, according to Bloom, re-teach or reinforce knowledge. Synthesis is the highest form of thinking and activity; it is most motivating (Balogh, 2006). When the individual tasks systems are built in relation to complexity, then the needs of learners-beginners are taken into account, and of those who are ready to accept knowledge which requires deeper, more Abstract and complex analysis. If we are looking for resources for different reading levels or more or less complex contents, then individual tasks are chosen (Heacox, 2006).

For learners we choose texts which are appropriate considering their reading skills. To 'tailor' teaching means to direct some learners towards particular written or technical resources, and others towards more sophisticated and more complicated information resources. In accord with their knowledge, they can be given various printed sources (newspapers, newsletters, professional journals or original materials such as diaries). On another occasion, in addition to students, we may provide a trainer or a specialist who is experienced in the given topic. We build on the basis of what our students know. We choose source materials according to the level of knowledge and reading skills (Bárdossy et al., 2002).

Individual tasks can be process-varied, so that our students learn for a similar purpose, but using different processes. Sometimes we can form groups according to learning preferences, using Gardner's multiple intelligences. Then the adapted tasks are given to achieve the desired result (Heacox, 2006).

Being aware of the similarities and differences in the levels of basic knowledge can be a basis for teaching practices in which we can reasonably create conditions for both common and differentiated teaching (Nádasi, 2007). On the one side there are students who have knowledge and operational capabilities, and on the other side there are those who have serious difficulties, those who are not able to achieve independency in work. The other groups lie between these two groups.

Diagnostic system for development testing (DIFER), created by J. Nagy and his associates, is recommended for determination of basic learners' skills. DIFER determines and measures those basic skills crucial for acquiring curriculum knowledge (ability to coordinate movements of writing, ability to listen to the spoken language, relational vocabulary, basic computing, assumptions based on experience, understanding of relationship on the basis of experience). The focus of DIFER tests systems are logical-mathematical, verbal-linguistic and spatial abilities. It may be concluded that the education is generally meant to enhance the development of these areas (Kovács, 2011).

If the possibilities of activation can be predicted, one can apply activities which take into account common and/or individual abilities. This results in students being prepared to act together in the process of joint learning (in knowledge conditions). However, if one knows how sensitive an individual is, the choice of adaptive learning style will be easier to decide on (Nádasi, 2007).

Individual work conditions are the following: task comprehension skills, task solving abilities, dexterity in using resources, behaving in problematic situations, tendency to preserve the suggested work process, individual pace. If the educator is informed about the level of children's individual work and how motivated they are by this learning situation, he might easier decide on the ways of making individual learning purposeful. On the other hand, that piece of information is a basis for assuming which child would be a good "work force" in potential situations which rely on students' cooperation (Balogh, 2006).

It is important to know what social skills a learner has developed and where that learner is in the sociometric structure of his class. In accord with that, forms and materials for differentiation should be chosen. Knowing the social status of learners is usually necessary, because it enables a teacher to reach the decision on whether a situation which requires cooperation with other students or one not directly linked to them can be applied.. Simultaneously, it is necessary to decide which variants of learning under teacher's guidance or

differentiated learning need to be replaced by situations which require cooperation among children (Nádasi, 2007).

Organization forms of differentiated teaching

When introducing work in small groups in order to activate students, it is good to follow certain chronology. After individual work, we begin with pair work, which is quite structured, easy to regulate and control. After students have gained enough experience in pair work, we can move on to form groups of students. Then mosaic method may follow, and contradiction and discussion. At the end students will have enough experience to integrate acquired knowledge in group project tasks (which require high level initiative). During the development process, the level of responsibility and learners' social skills will increase (Roeders & Gefferth, 2007).

When working individually, some children are asked to do tasks independently on their own. Individual work may have a function of acquiring new knowledge, its application, reinforcement, revision and grading. There are a few types of individual work: independent work, layered work, individually tailored work, partly individually tailored work. Concerning development, an important aspect of individual work is how many individual work resources are used. A teacher can guide directly or indirectly, and if necessary he provides grading, whose function is to form and help. When some students are not easily activated while working individually, or they constantly need help, organization method which relies on cooperation with teacher or other students may be more appropriate (Petriné, 2003a).

Pair-work is a basic cooperative type of work and students' self-guidance, which is extremely simple to use, and very transparent. While two learners cooperate in order to perform a task, there is possibility of role switching. A learner plays a role of a "tutor" (teacher) for a while and then changes pairs and becomes a "tutee" (learner). Educational games are very good for pair work in homogenous pairs, such as crosswords or puzzles. Heterogeneous pairs are useful when the goal of activity is not primarily students' development in problem solving, but the exchange of knowledge and information (Nádasi, 2007).

Group work preconditions are: students' experience with cooperation, independent work in small groups, articulation of ideas, planning skills, task division, joint analysis, data and information integration, and presentation of results.

Here are the main post-planning practical steps which should be taken when preparing group work: 1. Teacher-fronted preparation of group work organization, contents and working atmosphere; 2. choosing group tasks,

enabling groups to choose tasks, or presentation of tasks chosen by groups; 3. setting time limits of group work; 4. teacher-assisted group activity initiated by group specified system effect or cross-group consulting; finalization of group work; 5. frontal group presentations, additions, debates – defining which part of the contents is required for all learners (teacher-assisted if necessary); 6. textual and oral grading for some groups (grade the content, solution and level, as well as cooperation), (Nádasi, 2003).

It has always been an issue whether a learner profits more from a heterogeneous or a homogenous group. Research has shown that homogenous groups are less suitable for knowledge sharing. While one or a few learners actively cooperate, others simply wait or work individually until it is their turn to present. It is easier to achieve good results with a more homogenous group, if the task's goal is to discover new relations, to understand something, to actively use creative abilities. Heterogeneous groups give students opportunity to gain experience, be a source of information during cooperation, and develop cognitive effects. Also, during heterogeneous group forming, the level of homogeneity is important. If the differences among group members are large, it might decrease the results. Weaker learners would need to reach levels they are not ready for, and more advanced learners would be frustrated that they cannot achieve the results that they wish, due to weaker students. It is therefore resourceful to group students according to their knowledge with a level or maximally two of difference. Mixed group, however (as far as their abilities are concerned), are good surroundings for various interests and abilities. Therefore, a heterogeneous group is said to be a school of democracy (Ollé & Szivák, 2006).

Elastic organization of learner groups is a core of differentiation. Elastically formed groups are suited to learners' needs and their activities are specific and meaningful (Heacox, 2006).

During group work, cooperation will depend on the cooperative development of group members and conflict potential. According to that, there are the following types of groups: 1. non-conflict, adaptable; 2. conflict, adaptable; 3. conflict, partly adaptable; 4. conflict, non-adaptable; and 5. non-conflict, non-adaptable (Horváthné, 2004).

It is advisable for teachers to observe group work and, if there is a conflict, to strengthen the position of those group members who are more developed in the area of cooperation. For the learners who do not participate in group work (to the necessary extent), a different more learning-inspiring situation must be created, by e.g. changing the task, joining the work, reorganizing the group, or giving individual or pair work to learners who are not ready for group work. Group work is not simply a game or a technique; it is a way to develop specific values through learning.

Cooperative (collaborative) learning method is based on activities in small groups (four to six students). Apart from developing abilities and knowledge, cooperative learning is important for the development of social skills and cooperation capability. A truly cooperative group work is achieved when group members do tasks together. Its basic characteristics are regulated, meaningful and purposeful relations, which is a prerequisite for cooperation (Kagan, 2010).

Cooperative learning is efficient because group can act as a motivating base (learning stimulating atmosphere) and a “multilevel filter” by multiple reciprocity and control. So the “social strength” of cooperative work increases intellectual activity and education results, and its didactic, socially-psychological and educational aspects are equally important.

The following models of cooperative learning are known: joint learning, individual development consideration, group research work, Working Craft Corner, Co-op Co-op, and model A-CM-R (attunement – create meaning – reflection), (Orbán, 2009).

During cooperative learning, in order to develop abilities efficiently, differentiation is enabled through task structure. It ‘pushes’ every group member to participate in the task; without everyone’s cooperation it is not possible to perform any tasks. Mutual interdependency is useful if we see task solving or learning in general as a collective norm (Balogh, 2006).

Grading system simultaneously increases an individual’s responsibility and efficient cooperation. Individual success has been the focus of task solving, especially because individual success of all group members results in the group success. What is crucial is that groups are not graded for the success of teaching tasks only, but for the role in the task and the level of social skills (Kagan, 2010).

In the case of group mosaics we divide the class into small groups (three to six students) and in such “subgroups” students learn and do tasks. Teacher distributes teaching contents according to the size of the group. Within groups every member does his/her own tasks and becomes responsible for a certain topic. After their task has been done, they present it to the others and they put the pieces of the mosaics together. Contents distribution can be done according to students’ interests and needs, and it gives a teacher an opportunity for differentiation. Mosaics method is useful for the presentation of such contents, which gives a lot of information in written form (Orbán, 2009).

In contradiction and debate method, learners will learn that conflicts can be performed, and that conflicts need to be seen as a possibility for further development. Students are divided in even-number groups. In groups they read individually about a subject (e.g. whale hunting) and then have a debate about it in the group. Half of the group receives a text in which this topic is handled from a certain aspect (e.g. economic), and the other half reads the text which

advocates a completely opposite view (e.g. environment protection). Afterwards, there is an argumentative debate between groups, they represent opposite views and consider the topic from all aspects. The debate is guided by the teacher (Roeders & Gefferth, 2007).

Group project teaching is the most open and the most complex form of cooperative learning. A teacher prepares topics and learners choose the ones they find the most interesting; then they form groups which focus on certain tasks. They specify goals for every group, procedures they need to follow and tasks they need to perform; all of that is done in agreement with the teacher (Gyarmathy, 2007). Students carry out their plan independently, using information available at school or outside. Afterwards they assess and integrate information, and then report the results. Their work is presented to other groups. Among other matters they simultaneously assess: how independent the activity conduct was, how freely individual opinion was expressed, their ideas, self-esteem, accepting critics, domination, readiness for discussion, arguments opinion formation and persistence (Roeders & Gefferth, 2007).

To sum it up, we might say that in differentiated instruction methods of active learning and small group learning appear (individual work, pair work, group work, mosaics method, contradiction and debate method, and group projects). Reciprocity teaching method is quite often used within them. It enhances skills of reading with comprehension, skimming and reasoning, because students need to read the text, report on its contents, and ask questions about the text. The increase of abilities occurs naturally in learning as a part of the content-based teaching-learning structure (Steklács, 2008).

In school practice, besides selection of organization methods, the most efficient may be a simultaneous, parallel use of organization methods. It is however necessary to remember that teacher-lead work assumes teacher's guidance, whereas other types of organization are direct, although very often guidance is needed (in assisting). It is therefore not recommended to plan lessons during which (simultaneously) continuous guidance will be needed, in addition to occasional direct guidance. Simultaneous use of different indirect guidance is much more appropriate, and it does not result in an overload for the teacher (Nádasi, 2003).

Students with disabilities and gifted students

Efficient education should equally contribute to the recognition and development of gifted students and the compensation and correction in the development of children with behavioural and learning difficulties. Differentiation is the best solution for students with learning difficulties.

Furthermore, adaptive teaching to a great extent enables the skill development of gifted children (Tóth, 2006).

Some children need a special education approach, which needs to be individual and different from that of the majority. There are four groups of such students, according to their dependency: 1. students with special educational needs (students with learning difficulties, mentally handicapped, students with speaking impairments, visual and hearing impairments, motor impairments, behavioural and work disorders, autistic students); 2. students with learning difficulties; 3. students with behavioural disorders; and 4. students with above-average abilities, gifted students (Fodor, 2010).

In many European countries integration is more and more commonly implemented, as well as joint education of students with special needs with other students who have no such requirements. Integrated approach may be realized through: 1. local integration, 2. social integration, 3. functional integration: a) partial integration, b) complete integration, 4. reverse integration, 5. spontaneous integration. In schools that accepted inclusion, teachers of special education advise regular teachers, they plan together and conduct special, individual and group developmental activities for children with special needs in a cooperative system or co-teaching system (Petriné, 2003b).

Students with hearing impairment often encounter difficulties when faced with analysis and interpretation of orally presented information. Visual impairment causes interference in the perception of visual information. They are offered partial or modified activities at visual-spatial and to some extent verbal-linguistic area. If a student with learning difficulties, for example, is far behind other students when it comes to reading, then for him a differentiated instruction provides reading materials of certain level and such support that would help him read and understand texts.

To motivate students with behavioural difficulties it is advisable to plan such differentiated activities that would suit their specific educational needs, strengths and interests. Special attention should be paid to their personality in these activities; e.g. we might give them a highly structured activity and provide them with a list of steps they need to take. The cooperation of autistic children with others will be successful if we use visual material, e.g. pictures, pictograms. They should be given an opportunity, same as other students, to work individually on the activities which suit their preferences and interests (Heacox, 2006).

A few typical characteristics of gifted students (and the basis for their motivation) are: 1. high level of knowledge retention, 2. fast learning pace, 3. quick and deep understanding, 4. various interests and curiosity, 5. rich vocabulary, 6. elastic reasoning: varied task approach, 7. original ideas and

solutions, 8. abstract reasoning and consideration of consequences, 9. reflective and critical thinking, 10. constant goal-oriented behaviour (Heacox, 2006).

The most important techniques in educational development of gifted children are: acceleration, enrichment, deepening, and segregation. In case of a single talent the efficient educational strategy would be a focused, intensive, and vertical development, which enables intensive deepening and acceleration in the related area. Multiple talents should be given more development opportunities: provide them with horizontally- principled education, alternately accelerating and enriching the programme, i.e. raise the demanding education needs into higher spheres (Gordon Győri, 2004).

The term enrichment is mostly used to describe a form of differentiated instruction for the gifted youth, but it also sometimes refers to the so called supplemental curriculum. It may be contrasted to terms acceleration, individual treatment and segregation. The goal of enrichment is not the growth of knowledge, but the development of skills such as creative thinking and problem solving, critical or scientific thinking. Tannenbaum (according to Tóth, 2006) suggests the use of the so called enrichment matrix in the design of a curriculum for the gifted. The five main areas of the matrix are: expansion of basic skills, learning important content in less time, expansion of basic knowledge, learning of content that is relevant to professional knowledge of teachers, and directing learners towards learning in out-of-school settings. Matrix takes into consideration the ability to reason on a higher level, as well as social-affective changes.

Some of the important ways to enrich someone's gift are: differentiation, open tasks, different work pace, individual development, starting with basics and doing extra tasks, different grouping (within a class/a year).

Summarizing is an important element of differentiated instruction of gifted students, since they have much more content knowledge and more developed skills than other students. They also have a wish to work on higher level projects of in accord with their interests. If we sum up their curriculum, we should examine an area and decide which content elements may be summed up or forwarded (Heacox, 2006).

In the process of enrichment, children take part in the usual school activities, however, a part of them is replaced by special development activities in a special school or an institution for the gifted. As a part of such programmes they are taught to solve real future-oriented problems. These programmes are quite different from regular school subjects (e.g. archaeology, hieroglyphics, brain biology, geometry, art, humour, journalism, solving social problems, philosophy, rhetoric, etc.).

Content and form of programme enrichment may be quite different. In his three-way model Renzulli (according to Gyarmathy, 2006) connects three

directions of development. Any of these three programmes provides useful help for the gifted, and their junction makes the process of development complete. Development goal is to discover three areas which lead to an outstanding work - those of direction, resources and products.

I. type of enrichment that is being carried out through an exploration programme; offers a great number of sciences and arts, or activity fields whose goal is to connect students to their possible areas of interest

II. type of enrichment with a goal to develop abilities and skills necessary for the use of information. The development is directed towards more efficient mental abilities, reasoning areas (noticing, categorization, analysis and grading), creativity (fluency, flexibility, originality) and social skills (orientation, leadership, competition, cooperation). This type of enrichment serves as a way to learn some useful techniques which are important in some branches of science or arts.

III. type of enrichment is based on students starting to deal with real problems. The three constituents of this activity are: unsorted information, raw material, and other experts' results and certain processes. There are no routine methods, nor safe ways to find solutions and deal with the problems. "They do not process the knowledge that someone else has already processed; they come up with new knowledge, creatively, using the knowledge of others.", (Gyarmathy, 2007).

Dalton-plan

Dalton-Plan School – just like *Montessori*, *Freinet* and *Jena-Plan* schools – apply educational processes which enable differentiated instruction, individual growth, experience-based learning and active learning. During their independent Dalton-Plan learning, learners work alone following the instructions without teacher's direct supervision for a certain period of time (no teacher-fronted teaching). Therefore, at the beginning, in the process of introduction it is important for them to learn basic learning strategies and to become aware of them. In education practice anything from teacher-fronted teaching to periods of independent learning can be natural; the concept does not prescribe obligatory organization forms (Gömöryné, 2008).

In instruction practices of *Hungaro-Dalton Association* from Győr in Hungary, the self-controlled process of learning encompasses the following:

1. Work instructions or education contract with learning goals and reasons for learning are distributed. These are the means for active and self-regulatory learning which is adapted to individual pace and abilities. Good instructions offer differentiated tasks on three quality levels (required tasks, additional tasks and complex optional tasks) in accord with knowledge

differences, students' interests and pace. It provides the overview of a list of tasks whose parts are built on one another, so the self-development control is possible. Task plan is a sort of signpost, it directs students to use certain teaching materials, encompasses questions which raise interests and motivating elements. It gives students an idea about the most important ideas within some topic, providing them with orientation points or the backbone. It emphasises those tasks for which a short guidance or consultation with teacher is needed. It serves as a control of the minimum of knowledge required for a continuous work process. In the end, it provides students with the content and a way to perform self-control. The whole content is divided logically and clearly, so understanding and learning become a multilateral, complex and motivated processes guided by students themselves (Falus, 2003).

2. Students comprehend work instructions, plan individual activities. After independent comprehension, they can talk to other chosen students about the topic they have read, they can plan together, and then they set time limits and write them on the planning board.

3. While learning, they discover things, everything is activity-oriented, so students individually or in cooperation with other students analyse the task, and then look for ways and strategies to solve the problem. Meanwhile, they need to recognize relevant/suitable data and facts. While searching for information they need to be able to work on the text, reorganize contents in a new way, rearrange the contents, integrate new into the existing knowledge, make conclusions, and reflect (Gömöryné, 2011).

4. Reflective comparison is a phase in which feedback is received and experiences are exchanged. At this phase children discuss learning strategies and basically learn from each other how to learn. Questions about how to find solutions are useful in enhancing strategies, metacognitive abilities, and learning techniques.

5. After the comparison and analysis, a self-grading or self-reflection follow. Students reach final conclusions: what strategies they have used during the process, which competences have been developed (Gömöryné, 2008).

Zs. Gömöryné Mészey says that self-regulatory learning transforms into self-guiding learning, during which a student defines his goals and is capable of finding his own strategy by using the most suitable learning strategy. Dalton-education puts emphasis on gaining knowledge instead of knowledge transfer. It redirects importance and learning guidance from teacher to student. Therefore, inner motivation becomes an initiator, while understanding- and comprehension-based learning has a major role in the learning process (Gömöryné Mészey, 2011).

The advantage of Dalton-Plan is the fact that it is an open model, so it can elastically adjust to local circumstances. It may be introduced to every

school, on every level, because it is easily adjusted to local curricula, and it may be successfully used in the education of the gifted as well as during inclusion.

Some authors note that further didactic development of Dalton-plan have still not been used, and they provide evidence that certain modifications of Dalton-plan have been used more frequently than its original. In that context, an interesting experiment that can be observed is the new programme in technology education in Hungary which has been created by leadership and coordination of the work group *New Laboratory for Teaching and Learning, NLTL* and it is called *Dalton Technology Plan (DTP)*. Both titles suggest a natural and developing relation between traditional programme and education philosophy, or learning environment which is based on the new technique. The goal of DTP is to supplement the best elements of traditional education with the efficient system of new technology (Törteli Telek, 2011).

Concluding thoughts

A good teacher will use teaching instruction that suits his/her individual education philosophy, so different competitive, individual or cooperative methods will be applied in his/her lessons. The three different techniques will teach students how to work together, or how to compete joyfully, or how to work individually. Adaptive teaching might imply differentiated instruction. The choice of organization form depends on: the educational goals we are trying to reach in a certain situation; type of educational content; students' characteristics and how well we know them; time that we have; instruction circumstances; professional, didactic and psychological skills; materials that are available or that need to be prepared; present teacher-student relationship; and physical and spiritual state of all the participants.

In a differentiated way, a teacher is a facilitator (stimulator) or a friend associate. Facilitator of differentiation ensures the differentiated instruction setting. He/she organizes optimally functioning student groups, changes modalities of student movement and group forming. Depending on tasks, students can work individually, in pairs, or in groups. Within a group they can work together, divide work, or change group members. Also, the whole class can work together. We define which form is the most suitable for learning a curriculum topic, taking into consideration students' needs. Differentiated instruction gives us the opportunity to use time of individual students differently. For the ones who need more explanation, revision or practice we take more time; the ones who are very advanced in using knowledge or skills do not have to revise or practice, but will be taught further at a higher level.

That way the amount and the elasticity of time are in accord with students' learning needs.

Modern society expects teachers to play alternative and various roles. Alternative pedagogy requires creative teachers; spontaneity is the essence, which again requires emphasised rationality of individuals. This point of view has imposed a need for a versatile educator with a holistic world view. Former learned professors are being substituted by teachers-creators, who also need to be educated in different sciences.

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Temelji diferenciranje nastave i njezini organizacijski oblici

Sažetak: Preferencije učenika vrlo se razlikuju među učenicima, stoga je diferencijacija preduvjet učinkovita učenja, ali i postizanja zajedničkih zahtjeva, kao i optimalnoga razvoja i samoostvarenja. Primjena diferencijacije u jedinstvenoj zajedničkoj nastavi, organiziranoj uz uvažavanje individualnih karakteristika učenika, zajedničkom se terminologijom može nazvati adaptivnom nastavom. Upravo je to predmet istraživanja ove studije.

Kod primjene diferenciranog rada nastavnik mora biti upoznat s individualnim sposobnostima učenika, razinom njihova predznanja te mora raspolagati individualnim razvojnim strategijama, kako bi za svakog učenika posebice mogao planirati sustave zadataka uz odgovarajuću motivacijsku razinu, kompleksnost nastavnih sadržaja, procesa i rezultata. Temelji su diferencijacije sljedeći: imati potrebna predznanja za obradu i primjenu novih znanja, imati određenu razinu

operativnih sposobnosti, motivacije za učenje; postojanje preduvjeta za samostalni rad učenika; razvijenost u području suradnje, društvene karakteristike učenika itd.

Prigodom primjene diferenciranoga rada pojavljuju se metode aktivnoga učenja u malim skupinama (individualni rad, rad u parovima, skupni rad, mozaik metoda, metoda proturječja i rasprave te skupni projekti). U navedenim oblicima rada često primjenjujemo metodu recipročnoga učenja. U posljednje vrijeme posebnu pozornost zaslužuje Dalton-plan (reformski pravac obilježen imenom Helen Parkhurst), odnosno njegova primjena u Hungaro-Daltonovoj udruzi (u Mađarskoj), u kojoj se diferencirano organiziranje učenja stavlja u funkciju postizanja dobrih rezultata obrazovnoga i odgojnog rada. Dalton-plan škola – slično Montessori, Freinet i Jena-plan školi – primjenjuje u nastavi takve postupke koji omogućuju diferencijaciju na nastavnom satu, individualni razvoj, nastavu utemeljenu na iskustvu i aktivnom učenju. Istodobno, možemo pozdraviti kao zanimljiv eksperiment novi nastavno-tehnički program, koji je izrađen pod vođenjem i koordiniranjem radne skupine „Novi laboratorij” (New Laboratory for Teaching and Learning – NLTL), a koji je nazvan „Dalton Technology Plan (DTP)”. Oba naziva upućuju na prirodnu i razvojnu vezu između škole tradicionalnoga programa i filozofije, a i nastavnoga okruženja utemeljenoga na novim tehnikama i tehnologijama.

Inovativni se nastavnici danas služe metodama prilagođenima stilovima učenja učenika. Naime, stilovi učenja mogu biti niti vodilje i kod integracije učenika s poteškoćama – stvarajući time jednakost mogućnosti – ali istodobno omogućuju u velikoj mjeri i razvoj sposobnosti darovitih učenika.

Ključne riječi: Dalton-plan, daroviti učenici, diferencijalna nastava, grupni rad, stilovi učenja, učenici s teškoćama.

Grundlagen des differenziellen Unterrichts und seine Organisationsformen²

Zusammenfassung: Die Lernpräferenz variiert stark unter den Schülern, deshalb ist die Differenzierung eine Voraussetzung für effizientes Lernen, aber auch um gemeinsame Anforderungen zu erreichen, sowie für die optimale Entwicklung und Selbstverwirklichung. Die Anwendung der Differenzierung in einem einheitlichen gemeinsamen Unterricht, der hinsichtlich der individuellen Eigenschaften der Schüler organisiert wird, kann mit Hilfe der einheitlichen Terminologie als adaptiver Unterricht bezeichnet werden. Dies ist genau der Gegenstand der vorliegenden Studie.

Bei der Anwendung der differenzierten Tätigkeit muss der Lehrer mit den individuellen Fähigkeiten der Schüler und dem Niveau ihrer Vorkenntnisse vertraut sein, sowie über individuelle Entwicklungsstrategien verfügen, um für jeden einzelnen Schüler Aufgabensysteme mit entsprechenden Motivationsniveau, der Komplexität der Unterrichtsinhalte, Prozesse und Ergebnisse planen zu können. Die

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Grundlagen der Differenzierung sind folgende: die erforderlichen Vorkenntnisse für die Bearbeitung und Anwendung von neuem Wissen besitzen, ein gewisses Maß an operativen Fähigkeiten, Lernmotivation haben; das Vorliegen der Voraussetzungen für die selbstständige Schülerarbeit, entwickelter Bereich der Zusammenarbeit, die sozialen Merkmale der Schüler, etc.

Bei der Anwendung von differenzierter Tätigkeit treten Methoden des aktiven Lernens in kleinen Gruppen auf (Einzelarbeit, Partnerarbeit, Gruppenarbeit, Mosaik-Methode, Methode der Kontroverse und Diskussion und gemeinsame Projekte). Bei diesen Arbeitsformen wird oft die Methode des reziproken Lernens angewendet. In letzter Zeit gebührt besondere Beachtung dem Daltonplan (Reformkurs, bekannt durch Helen Parkhurst), bzw. seine Anwendung im Hungaro-Dalton Verein (in Ungarn), wo die differenzierte Lernorganisation dazu dient, gute Bildungs- und Erziehungsergebnisse zu erzielen. Die Daltonplan-Schule – ähnlich wie Montessori, Freinet und Jenaplan-Schule – wendet im Unterricht solche Verfahren an, die eine Differenzierung in der Unterrichtsstunde, individuelle Entwicklung, erfahrungsorientierter Unterricht und aktives Lernen ermöglichen. Gleichzeitig können wir als ein interessantes Experiment das neue unterrichts-technische Programm begrüßen, das unter der Leitung und Koordination der Arbeitsgruppe „Neues Laboratorium“ (New Laboratory for Teaching and Learning – NLTL) ausgearbeitet wurde und „Dalton Technology Plan (DTP)“ genannt wird. Die beiden Bezeichnungen weisen auf die natürliche Beziehung und Entwicklung zwischen der Schule mit traditionellem Programm und der Philosophie, sowie der Lehrumgebung, die auf neuen Techniken und Technologien basiert.

Innovative Lehrer verwenden heute Methoden, die an die Lernstile der Schüler angepasst sind. Die Lernstile können nämlich auch das Leitmotiv bei der Integration von Kindern mit Schwierigkeiten sein - wodurch eine Chancengleichheit entsteht - aber sie ermöglichen gleichzeitig auch weitgehend die Entwicklungsmöglichkeiten von begabten Kindern.

Schlüsselbegriffe: Daltonplan, begabte Schüler, differenzieller Unterricht, Gruppenarbeit, Lernstile, Schüler mit Schwierigkeiten.