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THE TEACHER AS A FACILITATOR OF THE DIFFERENTIATED DEVELOPMENT IN HETEROGENEOUS GROUPS OF STUDENTS-COMPLEX INSTRUCTION PROGRAM (DFHT-KIP)

In order to achieve the goal of the National Reform Program introduced in Hungary in 2015 to reduce early school leaving rates, teaching and other educational professionals have launched several development projects in recent years. Various programs address early school leaving through prevention (preventing early school leaving), intervention (stopping early school leaving) and compensation (the return of early school leavers to education).

The development of the Complex Basic Program (hereinafter referred to as the KAP (Révész and K. Nagy, 2019) was also guided by this goal. However, the number and diversity of institutions involved in the project provide an opportunity to nurture talent and lay the groundworks for students' school activities in the full day system, development and support. The program entitled *Methodological renewal of public education in Hungary in order to reduce early school leaving rates* is a development program led by the Hungarian Károly Eszterházy University, implemented in a consortium, in the framework of a priority project. Its aim is to develop professional (methodological) solutions that implement equality, equity and disadvantage compensation in education by supporting individualized learning paths, and which also includes talent management (Révész 2018). The teaching and learning program of KAP, i.e. the focus of its teaching and learning strategy, is the procedure of Differentiated Development in Heterogeneous Groups of Students (DFHT).

The following is a summary of the expectations raised for teachers facilitating the successful introduction of DFHT-KIP as a strategy of KAP (K. Nagy and Révész, 2019). Since the success of innovation is built upon the activities of the professionals implementing it, we pay special attention to the teacher as a facilitator of implementing the program.

The role of the teacher in the process of successful knowledge acquisition

One of the prerequisites for the successful implementation of DFHT-KIP is a teacher with appropriate professional competence, who, in terms of personality characteristics, is characterized by rationality, practice-orientation, a need for results-oriented change in the environment and a high level of professional knowledge. We could also say that these traits are not very prominent person-

ality traits as a good teacher has these traits. However, what distinguishes *a good teacher from a teacher suitable for innovation* is that *the latter recognizes the opportunities in their daily activities that are suitable for developing new practices and can also realize them in their work* (Csermely, 2014). This requirement is essential for the successful introduction of DFHT-KIP. Such a teacher is a creative personality who recognizes opportunities, is full of ideas, is capable of realizing his/her ideas, but he/she can also be a person who excels at adapting, adopting and applying new results.

Not all good teachers are truly innovative. There are some great teachers who, while not enriching their subject with new ideas, can transfer the knowledge they have acquired excellently. Renewal, adoption of new didactic procedures is their weak point, but they can convey the curriculum and knowledge properly and well. The opposite is true: a great innovator can be a poor teacher, in whose lessons students acquire their knowledge mainly from the book – even if he/she has written the course book – because they have no well-considered didactic method to convey knowledge.

The following is a summary of the theories and research that contribute greatly to the development of teacher competences. We consider it important to take into account the professional demands teachers face, and then we point out that one of the keys to student success is the richness of teachers' methodological knowledge. Priority will be given to presenting works that underpin the teaching and learning process and highlight the importance of group work, with particular emphasis on the education and teaching of student groups that are heterogeneous in knowledge and socialization.

According to Goldhaber and Brewer (2000) and later to Beadle (2010) and Bennet (2011), student performance has a significant correlation with teacher competence and training. The teaching methods, techniques used in the classroom and, through these, efficiency are significantly influenced by the expertise and competence of teachers. As early as the 1960s, Perkes examined the impact that teachers' competence can have on students' achievement at school. He found that teachers who were given more opportunities to improve their practical knowledge during their training applied different teaching techniques more often and more easily at the start of their careers than those during the training of whom less attention was paid to it. It was shown that the latter group of teachers, leaving a higher education institution, prioritized the memorization of the curriculum in class.

Wenglinsky's (2002) studies show that those schools achieved better results at the National Assessment of Educational Progress (NAEP) in the USA where teachers were trained to work with heterogeneous groups of students and to design tasks requiring the use of multiple intelligences. He found that the teachers of students who were more confident, for example, in the chemistry lab had received more intensive practical training during their studies at higher education institutions. On the basis of his research, Wenglinsky concludes that teachers undergoing training that regards both theoretical and practical knowl-

edge as important, – such as DFHT-KIP–, achieve the best results in school work.

Of particular importance for our work is the research conducted by the National Research Council (2000), which shows that an effective teacher can create balance between students' abilities and interests, knowledge and skills, the ongoing assessment of student development, and the environment to which students belong, whether inside or outside the school. The study distinguishes between student-centred, learning-centred, assessment-centred and community-centred learning.

Teachers prioritising student-centeredness build upon students' existing knowledge putting emphasis on the questions of "Who, how learns what?" focusing on issues where the ability, knowledge, interest and need of individual students are important.

Learning-centred teachers prioritize the questions of "What and why do I teach?". In knowledge acquisition they treat it as a crucial point to understand what they want to teach, why the chosen knowledge is important, and how to organize and execute all this knowledge transfer. It is important to help students present their tasks they performed at the highest possible level, encouraging them to make it vivid and enrich it with their ideas to the greatest possible extent.

Not only does assessment-centeredness place emphasis on assessment but it also helps children to develop by meaningful analysis, highlighting what effective learning means. In contrast to summative assessment, teachers prioritize formative assessment, helping students to develop their skills in all directions.

Community-centred learning is influenced by norms and patterns within the group, where students use each other as a source of knowledge, and teachers attach great importance to existing knowledge within the group as a source of knowledge, i.e. they take into account the influences of the classroom, the school, and the environment on performance. If students know that they learn the knowledge they need, if this knowledge meets their interest, if the task challenges them, if they have feedback on their performance, if they feel they are members of an active learning community, it will have a motivating effect on their performance. The real challenge for teachers is how they are able to strike the right balance between the applications of the above knowledge acquisition methods to achieve these goals.

In Zumwalt's view (1989), it is essential for teachers to be aware of the primary purpose of their work, namely, what role they play as teachers in the process of knowledge acquisition. His starting point is the statement that it is easier to decide what students need to know, what achievement they need to show, than *how* to achieve their goals. The teacher should be competent in transferring knowledge, tailoring it to students' individual needs. Classroom work is well thought-out when the teacher has specific plans and conscious activities where he/she strives to increase students' knowledge step by step. The lesson should not be about whether the teacher was able to transfer what is contained in the textbook completely, or, in the worst-case scenario, to "teach"

it in the way mentioned before, but about students being actively engaged in the knowledge acquisition process, formulating innovative ideas.

According to researchers (Lotan, 2012; Cohen and Lotan, 2014; K. Nagy, 2007, 2015), while preparing for lessons, teachers need to be competent in how to create assignments that meet students' development needs. They know what is attractive to students in tasks and they are also able to draw their attention to the reasons why they are not actively involved in performing them. They keep in mind what encouraging effect tasks have on students' thinking, what are the new teaching strategies that facilitate successful knowledge acquisition, and what are the criteria that make them rethink their teaching strategy. Tasks should be built upon children' existing abilities, experiences and knowledge.

The teacher's knowledge and competence needed to successfully apply DFHT-KIP

In addition to the teacher's personality and commitment, a decisive factor for the success of his/her work is a high level of material knowledge and ability to impart it, knowledge of the patterns and regularities of the teaching process and students' knowledge, all of which help him/her find the most effective way of knowledge acquisition for children. The following is a summary of the knowledge and competencies needed to carry out effective school work, with particular emphasis on how to treat a group of students heterogeneous in knowledge and socialization successfully.

As early as 1902, Dewey, in his work entitled *The Child and the Curriculum* points out that it is the responsibility of teachers to bring the needs of children into line with the requirements of the curriculum. As he notes, if the curriculum cannot be brought in line with children's experience, we cannot expect them to be motivated in knowledge acquisition. There is another important point that Dewey makes (quoted by Sharan and Sharan, 1992): he thinks that school is the cradle of establishing a democratic society.

In Elmore's view (1995), work in schools does not or hardly meet the high professional requirements for teaching and learning, but he refrains from stating it clearly that teachers with higher professional knowledge perform their work in every respect more effectively in school. We add to this statement that better-educated, methodologically competent teachers and a better education system together can make a school successful, in which teachers play the crucial role.

It is difficult to clearly determine what makes a "good" teacher. Some are charismatic, purposeful, determined while others are reserved, quiet, and calm. They are very different in style, but their teaching strategies have many common features. Carter (2013) conducted a research among teachers trying to find an answer to the question of what they think characterizes a successful teacher.

However, the teachers need to focus attention on the causes of students' school failure, including lagging behind due to family background, under-socialization, lack of parental interest in the child's school performance, and frequent bad influences of friends and schoolmates that lead them in the wrong direction are also a common cause. Teacher's knowledge has a significant impact on students' successful school work, especially on those whose family background does not support it. Success is greatly influenced by teachers' general knowledge, verbal expression, intelligence, knowledge of their subject and practical experience. There are other qualities that contribute to the success of teaching, such as perseverance or flexibility, but also the intensity and quality of teacher collaboration. According to Palmer (1998), good teachers contribute to the success of students at school with their positive personality as well, and are able to focus their attention on students and the subject they teach to develop close cooperation between children. Positive and negative school experiences, in turn, fundamentally determine students' behaviour, and thus their social viability (Hunyady and M. Nádasi, 2011).

Grossman (2002) examined what pedagogical knowledge teachers must have in addition to their subject knowledge, arguing that this knowledge is just as important as subject knowledge. He sought to find an answer to the question of how much teachers need to identify with the expectation that they should know more the subject matter they teach. *Grossman* believes that it is essential for teachers to clarify issues such as *what is to be understood by the content of the curriculum, how to organise knowledge acquisition, tailoring it to a specific group of students, taking into account what the individual needs, how to distinguish between understanding and acquiring the curriculum, what methods to use to make knowledge acquisition more effective, and which are the most effective ways of assessing student performance.*

Although effective classroom work largely depends on how much teachers understand children's thinking mechanisms, it is even more important how they can prepare them to acquire and apply useful knowledge. The teacher's responsibility is to teach them how to take in, analyse new knowledge and to apply it in everyday life, which is an important step in enabling students to acquire new knowledge in their relationship. Many school failures are due to shortcomings in teaching (Bábosik, 2000; Csirmaz, 2003; K. Nagy, 2015). The school often fails to organize children's day-to-day work by taking into account their individual skills, by individualized, differentiated development. Research shows that the majority of teachers accepts, understands and knows the need for individualized, differentiated learning organization but they do not apply it in practice (Golnhofer, 2003). It is ignored that most children are characterized by lack of motivation and lack of interest in school work. Today's children are accustomed to the richness of stimuli, the rapid flow of information, and have difficulty tolerating slow work and sustained attention (Gyarmathy, 2010).

What are the competencies that teachers are expected to develop most? It is difficult to answer this question as it is not easy to determine what are the

desirable teaching abilities. According to Brunner (1976), the concept of teacher abilities refers to the attitudes, knowledge, personality traits and behaviours that a teacher uses in his/her indirect or direct interactions with students to develop them. As he states, teaching abilities include knowledge in specialised branches of science, methodology, subject and curriculum, planning of the pedagogical process and psychology. He also mentions teacher communication and professional collaboration, preparation for lifelong learning, IT skills, facilitating students' personality development, the development of student groups, communities, commitment to and taking responsibility for professional development. Teachers are not primarily required to transfer lexical knowledge, but also to be able to put their acquired knowledge into practice. The biggest challenge for them is to be able to teach children how to continuously improve their knowledge with the necessary knowledge constantly changing. They need to prepare them not only for how to perform tasks and how to deal with problems that arise, but also how to communicate and share their thoughts (Cohen and Lotan, 2014). As Falus (2012) points out, "it is apparent that the student will only be able to do so if the teacher is able to do so". Therefore, the teacher must be able to renew his/her knowledge independently and continuously, and also enable the children he/she takes care of to do so. The teacher's responsibility is to develop students' thinking, to teach them critical thinking and to develop their problem-solving skills. Teachers are expected to have sufficient methodological and pedagogical knowledge in addition to their theoretical knowledge, i.e. to be able to combine their practical experience with their theoretical knowledge and to integrate it into a uniform system.

The question is whether teachers are able to combine their theoretical knowledge with their practical knowledge. Higher education is characterized by the fact that it prepares primary school teachers mostly according to pragmatic aspects, while secondary-school teachers according to scientific aspects for the teaching profession, which needs to be reformed. It is essential to change it, all the more so, because due to the transformation of the Hungarian school system supporting segregation (for example, in eight-grade and six-grade secondary grammar schools), it is predominantly university-educated teachers who teach, and as a result, theory-centered education may affect younger and younger generations. Teacher training should aim to make prospective teachers familiar not only at theoretical level with the new education methods, but also to provide opportunities for them to develop their practical knowledge.

Requirements for teachers, the changing role of the teacher

“The primary goal of school education and teaching is to develop skills and competences, to shape students’ behaviour, to improve their knowledge and to prepare them for the labour market.” (K. Nagy and Pálfi, 2017)

For DFHT-KIP to be properly implemented, teachers must have the required eight pedagogical competencies (Falus, 2006, 2013; Kotschy, 2014). Of the expectations related to the eight competence areas of the teacher’s career model – for the successful education and teaching of groups heterogeneous in knowledge and socialization – we confirm the following.

Knowledge

The teacher

- should have knowledge of students’ prior knowledge, interests, status and interpersonal relationships;
- should have knowledge of strategies, methods and tools for the successful education and training of groups of students heterogeneous in knowledge;
- should have knowledge of the possibilities of using multiple skills, their impact on student status treatment and facilitating learning success.

Skills

The teacher

- should be able to choose and implement methods and forms of organization that facilitate motivation, differentiation for well-considered strategies appropriate for various goals, the development of students’ thinking, problem solving, collaboration skills ensuring learner activity;
- should be able to effectively and professionally use tools and digital learning materials built upon traditional and information and communication technologies;
- should focus on complex pedagogical activities in their work and be able to design and implement pedagogical processes that support individual and group learning by this;
- should give a more prominent role to problem-based education in his/her lessons in contrast to knowledge conveying education;

- should move from a leading, guiding role to the role of an organiser in certain parts of the lessons in order to build students' knowledge;
- should create a balance between student-centred, learning-centred, assessment-centred and community-centred knowledge acquisition in the lesson.

Attitudes

The teacher

- should consider it important to create equity within the classroom;
- should consider it important to acquire the knowledge and skills needed to support self-regulated learning;
- should consider it important to develop students' innovative skills;
- should consider it important to support student autonomy;
- should consider it important to develop social behaviour in addition to cognitive skills.

The changing role of the teacher

During group work, students ask questions that trigger innovative ideas, "debate", argue, and make decisions while managing conflicts. Students come to classes heterogeneous in knowledge and expression with different levels of knowledge, different intellectual strengths and skills, and different problem-solving strategies. They can profit from the fact that they serve as a source of knowledge for each other. Students become each other's source of information in the learning process when a task is complex and open-ended.

While performing a task, they help each other, interpreting the task together, explaining concepts to each other, proposing solutions, experimenting, playing role-playing games, and creating a shared product. Since the goal of interaction is learning, the teacher has to move from a leadership role into that of an organiser delegating the decision-making power to students. When students work in groups, the teacher no longer plays the central role, and he/she is not the only source of information and knowledge who continuously controls and directly guides students' behaviour and learning. It is the students themselves who become responsible for their own progress and that of their peers.

If the teacher does not transfer leadership and does not teach students how to collaborate in small groups, open-ended tasks will have an unfavourable effect as confronted with multiple solutions, the student becomes frustrated and wants the teacher to help him/her to perform the task. If the teacher yields to the request, he/she hinders students' creative problem-solving activity and prevents them from learning how to work together. Many teachers struggle

with how to transfer their leadership role and are afraid of losing control. They are worried that due to the lack of their direct and constant supervision, the lesson is not going to run according to their will; they are afraid that students do not know what to do, may make too many mistakes, do not complete their assignments, and there will be some who won't even be engaged in work. The system of group norms, rules related to students helps the teacher to transfer his/her leadership role and instead of this, he/she appears in the role of an organiser and supports the changed role of the teacher and students in small group interactions. Similarly to the teacher, students also need to learn how to adapt to the authorities they receive. The new ways of interaction with peers require new standards of behaviour and a new way of communication.

In classes heterogeneous in knowledge and socialization, it is particularly important to teach students how to avoid undesirable negative behaviours in small group work. The work invested in group building, raising awareness of desirable group processes, and the fact that the teacher assesses collaborative behaviour in a meaningful way can result in more productive group work (Swing and Peterson, 1982; Lew et al. 1986; Johnson et al. 1990; Cohen and Lotan, 2014; K. Nag, 2015). For effective work, the learnt behavioural norms of collaboration need not only to be specific but also relevant with regards to the expectations associated with a certain task, so it is not just about a general attitude towards interpersonal relationships that emphasises the development of sensitivity, receptivity, openness and reciprocity (Miller and Harrington, 1990; Johnson et al. 1990). Johnson et al. highlighted a number of behaviours that are particularly relevant to a collaborative group: following the performance of all group members and encouraging the active participation of group members is particularly important in this context.

Cohen and Lotan (2014) and K. Nagy (2015) recommend that teachers use tasks for skills development that teach students specific norms of collaborative behaviours that facilitate delegating authorities. For example, students should provide assistance to each other or take responsibility for each other's knowledge progress. Students learn that they have the right to ask for help, but they also have a duty to provide help when they are asked for it. They learn how to argue and explain the possible course of a solution without performing the task instead of the person who asked for help.

Also, in order to assist the teacher in transferring his/her leadership role, students play various roles. By playing these roles, students take control of both their group and themselves while also taking on the traditional teacher role. The "leader/student teacher" makes sure that all members of the group understand and follow the instructions for the task, and he/she communicates between the teacher and the group. When a member of the group presents the result of their joint work, the product created by the group, the group leader evaluates the joint work and tells how the group worked together. As the goal of peer-to-peer interaction is to facilitate knowledge acquisition, a balance has to be struck between division of labour and interdependence.

Transferring the leadership role does not mean that the teacher withdraws from the work of the class and does not participate in the activities. This means that he/she is no longer at the centre of the class, moving from a leadership role to an organizing role. His/her responsibility is to watch students as they work on group assignments. He/she takes notes of the behaviour of certain students, which he/she shares with the students at a given moment or at the end of the lesson. If a group gets stuck and asks for help through the group leader, he/she gives it to them.

The rules that students have to adhere to will relieve the teacher of the task of managing the class and make students responsible for their own work by giving them autonomy. While students work in small groups, the teacher engages them through tasks in discussing issues, tasks, makes them think about them, gives feedback to individuals and the group, and treats problems arising from unequal participation. The more the teacher is able to transfer his/her leadership to students, the greater the proportion of students working together and talking (Cohen and Lotan, 2014; K. Nagy, 2007, 2015).

Transferring teacher's guidance is not easy. Both teachers and students need time, practice and constant attention to learn this behaviour and feel comfortable in their new roles.

Teachers' competence in managing heterogeneous student groups

The greatest challenge for teachers today is how to prepare for the education and teaching of heterogeneous student groups. Heterogeneity has many meanings. In keeping with our theme, we regard heterogeneity due to knowledge and social and cultural background as a factor having a significant impact on students' performance from the aspect of the teacher.

Classroom heterogeneity is a factor influencing cognitive acquisition as status ranking established among children also determines access to curriculum (Cohen, 1997; Cohen and Lotan, 2014; K. Nagy 2007, 2015). The teacher must organize the lesson in such a way as to ensure that children from different social groups acquire knowledge and make progress at an appropriate pace. The challenge is to organize the lesson in such a way that children work together and perform tasks, leaving aside their cultural differences (Gay, 2000). According to Foster (2001), teachers also need to improve their understanding of cultural diversity in order to be able to treat the social heterogeneity of the class, and increase the efficiency of their work. In fact, schools are hardly able to compensate for the disadvantages due to the social background, and they do little to prevent social inequalities. In addition to this, teachers' education and the geographical location of schools have a strong influence, just as much as the students' socio-economic background.

Teachers should keep in mind that children who fail at school, later when leaving school, will increase the group of the under-qualified and unemployed,

thereby preventing them from belonging to the majority society and becoming its active members. The underlying idea is that there is and will be a strong correlation between education and income, school success and employment, employability (source: National Centre 2000).

Summary

The DFHT-KIP is an educational process that assumes a heterogeneous student composition that can be effectively used to underpin the success of every student at school. It is characterized by the fact that during its use it attaches equal importance to the cognitive, moral, and affective components of education and teaching, i.e. it does not prioritise any of the goals aimed at the scientific- intellectual, societal-civic and personal development. The complexity of the teaching and learning strategy means the combined application of activities necessary for the development of students' personality.

DFHT-KIP is a complex learning organization that takes into account all the interaction possibilities and communication channels of the classroom to achieve educational and teaching goals, without narrowing it down to the one-sided use of a particular form of work. Teaching and learning methods that are tailored to suit students' abilities, interests and strengths help achieve this goal, which is supported by classroom organization, teacher flexibility, and the wide variety of educational tools used.

On the one hand, the use of DFHT-KIP helps students from disadvantages background, lagging behind in learning to catch up, and on the other hand, using a special instruction procedure during group work in heterogeneous classes, the teacher has an opportunity to prepare students to use collaborative rules, and to develop talent through the use of diverse teaching materials that mobilise multiple skills. The tasks give students the opportunity to contribute to performing a task successfully using their different abilities or different problem-solving strategies, which develops students' strengths while they also acquire new ones. The complexity of tasks gives every student the opportunity to access the tasks and demonstrate his/her intellectual competence through which children with different social backgrounds and knowledge have the opportunity to successfully complete tasks and accomplish group work.

The extent of the results produced by DFHT-KIP largely depends on teachers' understanding the point of DFHT-KIP and the need to apply it. The aim of applying the teaching and learning strategy is to help all students to succeed, one of the tools of which is to promote students' active participation in the lesson. As it is the teacher's responsibility to apply the teaching and learning strategy in a professional manner, determine the structure and the course of the lesson and the mode of assessment, he/she is also responsible for turning theory into practice.

Careful preparation, effective communication and bringing those concerned round are essential for achieving goals. Organizational-level adaptation, interventions and implementation of development require detailed considerations of processes, which takes time.

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