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DEVELOPMENT OF LEARNING EFFECTIVENESS AND THE ROLE OF GROUP COUNSELLING IN THE PREVENTION OF SCHOOL SETBACKS

The need for creating effective learning methods in the schools has long been underlined. The realized need is however followed with delay in practice. Our national educational policy considers the preparation of students for independent learning an important task to be developed in future. Ildikó Mihály (2002) summarizes the tasks set by the ministers of education of countries wishing to join the EU at conferences between 1998 and 2002. These tasks concerned the necessity of improving the quality of education. She quotes that at the conference held in Uppsala the skills of students necessary for society were classified into two dimensions by the ministers. The personal dimension included the basic skills (reading and counting), the basic knowledge in mathematical and technical subjects, entrepreneurial ability, the knowledge and use of informatics and communicative skills. The cultural dimension included skills relating to methods of effective learning, social skills, knowledge of foreign languages and general cultural elements. The national educational policy relying on the results of the PISA investigations formulates the following main tasks: the children are to get usable knowledge while undertaking less burden. At the same time, the conditions for equal opportunities should be improved.

At Eszterházy Károly College, comprehensive research has been carried out since 1999 into the possibilities of development of learning effectiveness. In the framework of this research we collected the related professional works and worked out a training program to develop learning effectiveness, and at the same time we tested the efficiency of this training with college students. On the basis of these results we started to develop a computer programme with the aim of improving learning effectiveness. In the present study we summarize the results of that research project and provide information about the computer programme.

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Theoretical background – How to develop effective and independent individual learning?

From a cognitive perspective, the key of learning lies in the capacity of the individual for mental representations of the world and carry out mental operations on these representations and not in reality (Atkinson, 1994). Psychologists usually use the word *knowledge* only if information is mentally represented in a specific form and it is organized in some kind of a structure (Eysenck-Keane, 1997). This complex organized knowledge (cognitive scheme) gives a frame for the acquisition of new information; the new information is adopted to the scheme or it may even modify the scheme (see Piaget, 1997). Whenever we acquire new information, it is always adjusted to the frame of our former system of knowledge, which enables us to reorganize our knowledge.

Constructivists, contrary to the traditional theory of cognition, think that the whole knowledge, or in other words, the complete cognitive system, is a complex system in every moment, which is not enriched with new elements by its relations with the outside world and inner elaboration, but its own structure will be reorganized (Nahalka, 2002, p. 41). According to this constructivist viewpoint, new knowledge does not mean cumulative development as added to the pervious knowledge, but it is a restructuring of the whole knowledge.

According to cognitive psychology, it is not the quantity but the quality of knowledge that is determinative in mental achievement, and important factors of the quality of knowledge are availability and usability. Therefore, it is important in what form the knowledge is represented, what kind of connection exists between its elements and to what extent it is meaningful (Csapó, 1998). Characteristics of effective knowledge are availability and usability in many situations. Erikson and Smith (1991, cited in Csapó, 1998) use the expression *competence* to indicate usable and intelligent knowledge. The development of cognitive competence has become essential in pedagogical investigations (Csapó, 2001) and was the topic of the latest school surveys based on comprehensive competence measurements (Schütter–Vári, 2004).

If we want to help pupils to acquire intelligent, meaningful and usable knowledge, we have to take their previous experience into consideration, and we have to strive to provide intelligent knowledge, and the new knowledge should be acquired in many different situations (Csapó 1998).

Special attention should be paid to meta-cognitive knowledge, which aims at the effectiveness of learning that is characterized as a person's knowledge about his own mental activity and his ability to direct it (Kalmár

1997). Lappints (2000, p. 53) describes self-reflection and consciousness as the two most important characteristic features in meta-cognition. He emphasises that "due to self-reflection related to learning the individual recognises his own possibilities, inclinations and gifts. He can compare his own learning experiences with the demands of the environment and according to this he may modify his learning methods, habits and learning style. This is already a higher level of self-development…"

According to Fischer (2000, p. 53) "proper thinking and learning methods are characterized by meta-cognitive direction." He speaks about "meta-cognitive" pupils who are well aware of their mental processes and know themselves and their tasks very well, and who are capable of directing their thinking processes, their independent learning, and to direct their learning towards new areas if needed. He emphasises three meta-cognitive elements of meta-cognitive knowledge: planning of learning, monitoring the process and evaluation of the process.

He explicitly speaks about meta-cognitive or in other words intrapersonal intelligence, which, according to him, is the most important factor of human intelligence.

"This is the way to get to our thoughts and feelings in order to understand what we feel and think and to know the reasons of our actions" (Fisher, 2000, p. 22).

Components of individual independent learning

The figure below shows components of the individual independent learning process (Panchara, 2000).
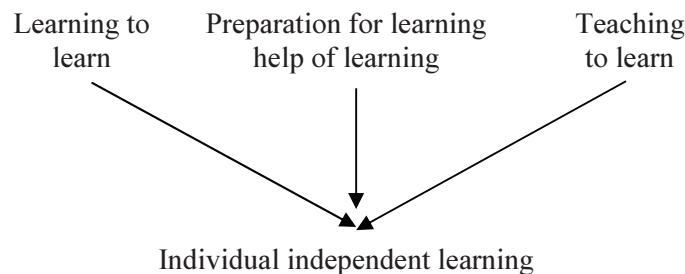
Figure1: *Model of individual independent learning*

This model shows how we categorize the related works, and the Learning Improvement Computer Programme is also based on this model.

The meaning of the factors of the model:
– Learning to learn means the student's activity. While the students learn the curricula, they learn to learn, too.
– Preparation for learning, help of learning mean the activity of parents and teachers, to create a suitable environment for children to learn, to develop their learning abilities.
– Teaching to learn means to use direct methods to develop students' learning skills.

Based on this model, we distinguish four methods for improvement of individual independent learning. These are as follows:

– **Methods applied in schools based on children's activity** (these include for example cooperative techniques and differentiated development)
– **Indirect development of learning methods** (creation of a suitable learning environment at home and at school, development of basic skills for learning)
– **Direct development of learning methods** (development of effective learning skills, teaching to structure the learning time and material, practicing learning techniques and strategies)
– **Learning counselling** (personal solutions of learning problems, development of meta-cognitive functions related to learning, development of direct learning methods for the learning problems)

Main tasks of direct development of learning techniques

As the teaching of learning can be realized primarily by means of direct development, in the following, we will detail the main tasks of direct development of learning techniques. We distinguish the following areas of direct development:

a) Development of effective learning habits

Habits are defined in the psychological literature as automated acts due to numerous repetitions. The individual runs habitual acts quickly and appropriately, without any particular psychic effort and control. This way habits can relieve conscious control and free a huge amount of energy. That is why it is important to build a system of habits in learning as well, so that the planning of learning should not require much energy from the student, because he will know exactly when, where, what and how to learn. In order

to develop habitual learning, regular practice is needed: in the beginning with the help of an adult, then it will be individualized.

We find the development of effective learning habits important in three fields:

- Creation of a suitable learning environment (tidy learning environment, proper light, proper use of learning equipment).
- Scheduling (daily and weekly schedule of learning time, planning of time required by different subjects)
- Development of learning habits (order of subjects in learning, optimization of time and frequency of repetitions).

b) Formation of learning attitude, development of learning motivation

This field of development focuses mainly on motivation for learning, which is an essential factor of effective learning. Its attributes:

- Optimization of learning atmosphere: The principles of Rogers should be considered when forming a learning atmosphere, where the students can speak, tell about their opinions, ask questions. Loving acceptance, trust, empathy and congruency characterize this atmosphere, providing optimal conditions for learning.
- Optimization of the teaching material according to the development of the child: A common problem in today's education is that because teachers must keep up with the curriculum, some students drop behind and lose interest in learning. The material should be optimized to the developmental level of the child. A task is optimal when it requires some effort, but, as being appropriate to the developmental level, is not impossible to solve. These tasks can provide success, this way increasing demand-level and the feeling of competence.
- Creating motivation, using methods supporting learning competency: If the student is an active participant in his teaching-learning process, if his natural curiosity is taken into consideration, if the material is based on real experiences and is practiced in many real situations, then learning will be more effective, and the desire for learning (or in other words, his motivation) may be developed.

c) Practice of effective learning methods and strategies

The main task of the school is to teach pupils to write and to read, which are basic code systems for individual learning. We think that other learning

techniques should be taught in the lessons in primary school according to the age specific characteristics of learning. This way, students would be prepared for individual learning at the same time as they are provided with the educational material. Unfortunately, this is rarely the case; students rather need to learn how to learn from books or on special trainings or developmental programs.

We categorize the tasks of development of learning techniques and strategies as follows:

- **Basic learning techniques** (loud or silent reading, recitation of the material, repetition, pre- or post checking of the material, paraphrasing, making questions, finding key words, etc.)
- **Complex learning techniques**: combination and joint using of basic methods (making notes, summaries, tables, drafts, mind maps)
- **Subject specific learning techniques** (e.g.: different methods for learning foreign words)
- **Learning strategies**: planning of learning tasks, structuring of learning techniques (e.g.: PQRST – method)
- **Development of meta-cognitive functions for learning**: as mentioned above, the knowledge about one's own mental functions and the ability to direct mental activities are important elements of effective learning.

Main tasks of learning improvement in different age groups:

For the planning of learning improvement we have to consider the age-specific characteristics of students, as in different age-groups we have to focus on different factors. In what follows, we will describe these age-specific factors.

a) Main tasks of learning improvement in primary school period

In school-age, learning becomes the main activity of children, and the emphasis is shifted from spontaneous learning to purposive learning. School-age children tend to mug the material if they are not taught about other techniques. They cannot analyze the material individually, they need to be taught to do so. At the age of 7-8, conscious memory strategies turn up, such as repeating and mental organizing.

Main tasks of the teacher in this period:
- Preparing pupils' skills for the basic learning techniques (reading, writing, repetition, preview, discussion with others about the learnt material)
- Preparing efficient learning habits at home and at school (organization of the place and time for learning, development of habits of the learning process e.g. order of subjects)
- Preparing pupils for individual work – using methods based on their activity
- Developing basic skills for learning, filling the gaps
- Giving advice to parents to support their children's individual learning at home

b./ Main tasks of learning improvement in adolescent age

This period has overall importance in the development of learning, which is mainly in connection with cognitive development. At the age of 9-10, the capacity of memory increases, verbal abstract memory has an important role, and all forms of memory become more effective, more intelligent and comprehensive. It is a high level of meaningful learning, though, at the same time, adolescents tend to learn only materials that interest them.

Main tasks of the teacher in this period:
- Emphasis on development of intelligent learning. Importance of highlighting the main topics, development of recognition of the context.
- Teaching complex learning methods (making notes, drafts and figures).
- Practice of subject-based learning techniques.
- Development of effective learning strategies by the end of secondary school (e.g. PQRST- method)
- Using individual or group counselling since the end of lower secondary school in learning problems.

c) Main tasks of youth's learning improvement

Main tasks in this period:
- In this life period, development of learning methodology is necessary for those who could not develop effective learning habits, techniques or strategies. It may cause difficulties in learning, they cannot adopt to changing learning situations (e.g. transformation from the secondary school system to higher education).

– The most effective learning improvement method is individual or group counselling.

Research background

The present research is based on the results of longitudinal empirical research conducted at Eszteházy Károly College between 1999 and 2002. Under natural conditions we developed and carried out a training programme aimed at the development of learning-efficiency with the participation of college students. Participation was voluntary to make the sample natural. We divided participants into an experimental and a control group. Those in the experimental group took part in a learning efficiency developing training of 30 hours in a semester. Members of the control group took part in the usual college education in the same way as those in the experimental group, without taking part in the training. Our paper presents the efficiency test of the efficiency-development training. The novelty of the research derives from its method: we used group counselling with the participation of college students for the development of learning skills. In the research the characteristics of learning counselling became even clearer.

In the learning-efficiency training we directed our students to develop their meta-cognitive direction of learning. The essence of learning counselling is that we try to find solutions for individual problems in group situations, where the group provides possibility for the individual to try to find different ways to solve his own problem and to find out and plan his own learning methods and changes if needed. The group situation makes it possible to share experiences, to make relationships, and the individual can test the new behavioural models without any risk in the protective atmosphere of the group. The advantage of all group methods is that the individual gets experiences and opinions about himself, and gets feedback about his relationships and behaviour. He acquires new knowledge that is based on experiences with special significance. This is the most important element of the change. We regard the counselling group as a social environment that provides appropriate conditions for development and change, where learning is influenced by the aim the group wants to achieve, and the changes needed are accomplished with the help of the special group-effects.

A counselling group is considerably different from other types of groups in its special aims. In group counselling, like in all types of counselling, the members of the group have some kind of problem and they hope that their participation in group work will help to solve their own problem.

In our learning efficiency developing training we tried to exploit the advantages of group counselling and group-work to achieve our aims and to solve the learning problems of students.

The aims of our research

Our aim was to reveal possible causes of learning problems in college education. We developed, tested and proved the efficiency of a new method for developing learning efficiency of young and adult students. Our further aim with the research was to work out a counselling method in order to reduce the un-success in higher education, which can significantly contribute to today's psychological practice.

Hypotheses

– We assumed that learning difficulties occurring in higher education are not primarily originated in intellectual deficits, rather in deficits of learning skills or the students` personality problems.
– We assumed that group counselling is an efficient assessment for making higher education learning more efficient and for the treatment of personality problems and deficits of learning skills.
– We assumed that members of the group attending learning skills improvement training will perform better in their higher education studies than do members of the control group.

Experimental settings

Pre-test: Members of both the experimental and the control group were tested by means of ability and personality tests (see below) before beginning the training to measure starting characteristics.

Learning efficiency training: Those in the research group took part in a 30 hour learning efficiency improvement training.

Efficiency test: We repeated the tests of the pre-test to measure the effects of the training, and followed the students' grades between 1999 and 2004 (henceforth referred to as GPA – grade point average).

Statistical analysis: Research results were nalyzed with statistical tests mentioned below.

Research sample

Experimental group: N=138
    Sex: 77.8% female, 22.2% male
    Age: 19-23 years
    Year: first year: 70%, second year: 30%
    Studies: 2 majors: 63%, 1 major: 37%
    Learning problems indicated: at secondary school: 30%, at the college: 51.85%

Control group: N=114
    Sex: 83.3% female, 16.7% male
    Age: 19-23 years
    Year: first year: 70.2%, second year 27.2% third year: 2.6%
    Studies: 2 majors: 72.8%, 1 major: 27.2%
    Learning problems indicated: at secondary school: 23.7%, at the college: 35.09%

Methods:

We used three measurement methods in the research:

Questionnaire about higher education learning: For the analysis of learning habits we used a questionnaire of the following fields: causes of learning problems, attendance at lectures, learning habits when studying for an exam, feelings in exam situation and feelings at the college.

Intelligence–test: For the analysis of cognitive abilities we used Amthauer's Intelligence Structure Test (IST) version "A", which measures verbal abilities, mathematical thinking, spatial orientation and memory.

Personality test: we used the Californian Personality Inventory (CPI), which measures emotional stability – emotionality, interpersonal adequacy, efficiency, conventionality and autonomy – originality.

Statistical analysis: Results were analysed by means of statistical analyses (paired and independent sample t-tests, intercorrelation coefficients, factor-analysis). We compared the results of those taking part in the experimental group and members of the control group before the training and 6 months after the training.

Research Results

The statistical analysis of the results of the pre-test before and the efficiency test after the learning skills improvement training proved our hypotheses.

The results of the pre-test

According to the results of our study, we can conclude that scholastic records in higher education are determined primarily by the personality of students.

Correlation calculations of GPA and IST scores do not show interactions between intellectual abilities and scholastic records. Correlation coefficients show total independence considering both experimental and control groups. Results of factor analysis, too, show that intelligence alone does not go hand in hand with learning efficiency and cannot allow of increasing learning achievement.

Analysis of inter-correlation relations of variables points to the fact that in higher education grade point average is primarily in connection with autonomous, independent personality, use of effective learning techniques and the ability to make social contacts. Autonomy of personality shows strong significant correlation with emotional stability and level of interpersonal adequacy. Thus, in order to have a good achievement in higher education, emotional evenness and social conformity are fundamental. Results coincide with data of Bagdy et al., who, based on an analysis of relationship between MMPI and GPA, quoted that "duds are less sociable, impulsive and anxious".

According to our results social presence of students with learning difficulties is less determined. They are less self-confident, emotionally more unstable, uneven, and tend to be more anxious than their fellows without learning difficulties. Their intellectual efficiency is weaker, their psychological sense is less mature, and thus they can hardly harmonize with the emotional state of their interaction partners, and are less empathic. Their level of responsibility-taking and reliability is lower, which inhibits their learning in the process of preparing and planning.

Students with learning difficulties did not develop appropriate learning skills that make self-sufficient learning possible, they are worse in setting out relevant matters, they are less likely to make summaries or drafts, to test their knowledge before exams, they are more anxious when taking exams and this anxiety works for inhibiting performance. They do not show worse

results in intellectual achievement than do students without learning difficulties.

According to our goals, we worked out and tried out a learning skills improvement training conducted with the method of group counselling.

Results off the efficiency test:

Efficiency tests prove the effectiveness of our training.

In the efficiency test significant changes of CPI scales indicate improvement of emotional stability and interpersonal effectiveness. As to learning skills, setting out relevant matters improved significantly, and additionally students' exam-anxiety decreased, too. The efficiency test showed a significant change only in the experimental group, not with the control group. Except for the intelligence-test, where – especially in verbal tasks – members of the control group showed significant improvement, too. Therefore, education itself has a positive influence on verbal intelligence, but does not assist either spontaneous personality development of students, or practical problem-solving skills improvement, or development of effective learning habits and techniques. The rate of students having a GPA improvement of 0.4 or higher is more than 10% larger among students in the experimental group. According to these results, we find the efficiency of our training to be proved.

We reached our research goals, our hypotheses have been proved. Learning counselling meets an aim in today's psychological practice, and according to our results it is an effective form of training in higher education. We find it necessary that learning effectiveness training with the method of group counselling should be an elective subject in higher education.

Characteristics of the Learning Improvement Computer Programme

Relying on related theoretical work and the above mentioned research results we started to develop a Learning Improvement Computer Programme, which is not yet complete. The programme exists in two languages, in Hungarian and in English. The latest version can be seen and used on the following website: www.ektf.hu/tanulasfejlesztes.

The programme is planned for adolescents and adult people to help them to solve their learning problems caused by inappropriate learning methods. The essence of the computer programme is to develop students' ability to recognize their learning problems. The programme will also provide the user

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with efficient learning methods and personal strategies, and help them to acquire and practice all these methods. Therefore, the programme consists of two parts:

The first part contains a self-report questionnaire about the student's learning. The questionnaire is a Likert-type scale, and consists of items about learning habits and psychological factors related to learning. Respondents have to decide how appropriate they find the sentences to themselves. With the help of the questionnaire the students will be able to recognize their own deficiencies in learning. The results of the questionnaire will provide the basis for the individual development of learning-efficiency.

The second part contains a learning effectiveness development programme. After filling in the questionnaire, the computer makes a learning profile and on the basis of this, students can choose from the improvement programmes offered, which teach them efficient learning techniques and contain exercises to practice them.

Figure 2 shows the starting site.

Figure 2: The starting site of the Learning Improvement Computer Programme

Now let us see how the program works. On this website students can register themselves. Then they have to fill in the questionnaire about their learning first. After filling in the questionnaire, the computer analyzes the results, and displays a rank-list of abilities for the students. From the list the users will get to know their good abilities (those listed in the beginning of the list), which they can rely on when learning, and at the same time the list will show their deficiencies (those listed at the end of the list) which need to be improved (see Figure 3.).
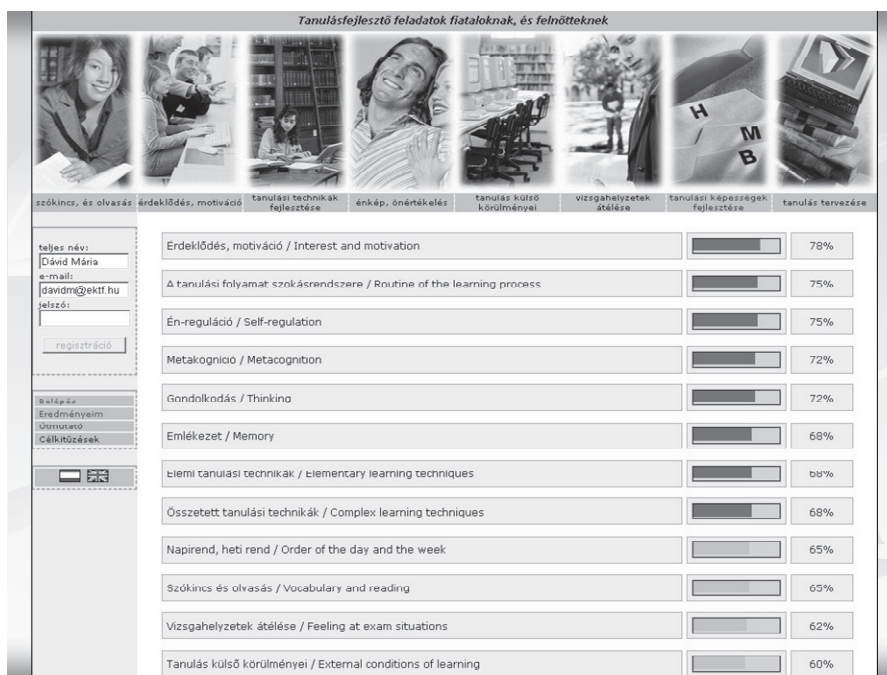

Figure 3: Results of the Learning Improvement Computer Programme

Accordingly, the user of the programme can click on the pictures shown in Figure 3 at the top of the page. Every picture is an icon of a developmental field, for example memory, thinking, learning environment, motivation, etc. By clicking on the pictures, the user will be guided to a set of exercises, where he/she can practice those abilities that showed a lower result. The exercises will be organized in a way that they are getting more and more difficult.

This computer programme can be used in secondary schools and higher educational institutions for improvement of individual learning, and it is also recommended for those taking part in distance learning and e-learning, as the

role of individual learning is especially important in these forms of education.

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