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THE DEVELOPMENT OF LEARNING TO LEARN COMPETENCE FOR STUDENTS WITH LEARNING DIFFICULTIES. EDUCATIONAL INTERVENTION PROGRAM FOR 11TH GRADES

- PhD THESIS SUMMARY -

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The topic of this paper presents a complex and present-day issue, has an interdisciplinary character, that of developing the learning to learn competence for students with learning difficulties which can manifest under various ways. ,,Learning to learn" competence has been identified in many contexts as being fundamental for achieving success in a knowledge based society. (European Council, 2006) Education and training have to secure the learning environment in order for this competence to be developed for every citizen, including individuals that are part of a disadvantaged group (those with special needs, dropping out of school etc.) as well as through different learning contexts (formal, non-formal and informal). The idea of teaching the student how to learn, so that he/she will finally manage to depend less on the external control and become more capable of self-instruction, it generated in the literature concepts such as autonomous learning, cognitive strategies, metacognitive strategies, learning style etc. Learning to learn increases the student's responsibility to accept the role of the guide of his own learning process. Organizing a supportive pedagogical environment becomes an essential condition, which allows students to learn from mistakes, to gradually develop their capacity of self-guidance, of learning management and of reflection over their own learning process.

The present paper consists of two sections, each section containing several chapters. ***Part one*** represents an analysis of the theoretical and methodological aspects of the research regarding the competence of learning how to learn for students with learning difficulties. ***The second part*** consists of a three leveled research approach, specific to the stages of a pedagogical experiment: (1) **a pre-experimental stage**, having a diagnostic role, for identifying the frequency of the learning difficulties at the cognitive, metacognitive and non-cognitive levels concerning students studying Romanian language and literature; (2) **an experimental stage**, of formative intervention, based on a psycho-pedagogical program for the development of learning to learn competence for 11^{th} grade students with learning

difficulties; (3) **a post-experimental stage** which presents the analysis and interpretation of some case studies and the results of the research regarding the impact of the intervention program for the development of learning to learn competence upon diminishing the frequency of learning difficulties.

Part A. Theoretical principles regarding learning to learn competence

In **chapter I. <u>Learning – theoretical perspectives</u>** we have considered the necessity to emphasize the conceptual delimitations of learning, the forms and factors of these, as well as theories and contemporary approaches to learning, which support, in our view, the idea of learning to learn and that of learning autonomy.

Most of the learning theories have a common feature, namely ***the modification of the behavior as a consequence of past experience (educationally structured)***. The concept of learning has been and continues to be a permanent and central theme for psychology and educational sciences because of its complexity and importance of this process in the evolution of society. Learning, as a whole, is ***the process of achieving individual experience and behavior, the acquisition of new competences and of new behavior*** and it supposes either the achievement of new behaviors or the modification of those already existing, in order to better adapt to new and more complex situations that one encounters in a lifetime. (Cucoș, C., 1998; Leontiev apud Cosmovici, A., Iacob, L., 1999; Bocoș, M., 2002). According to this view, through learning one does not just gather information, but builds reason, emotions, will and the entire personality.

Learning is defined from the perspective of cognitive psychology of information as being *„a superior form of conscious reasoning of information through which the organism reproduces subjectively the objective structures proper to the surrounding environment".* (Claus, 1977 apud Cerghit, I., 2008) Such type of learning – through information processing – has always an active character, because it engages profound and complex internal processes, predominantly cognitive, as well as affective and motivational features. From the pedagogical point of view, learning represents a process of „cognitive acquisition, active assimilation of information, building of intellectual operations, motor skills and attitudes" (Ionescu, M., Radu, I., 2001). According to J. Piaget and R. Gagné the learning process can be defined as ***„modification (construction and re-construction) of several psychical (internal) structures, which express themselves into behaviors or relatively stable performance".*** (Chiș, V., 2005) For contemporary pedagogy „learning defines competence acquisition" (Chiș, V., 2005) in one or more activity fields. From the didactic point of view, school learning must be regarded as „an intellectual and physical activity, systematically displayed, both for acquisition of

information and for building the necessary abilities for the continuant development of the personality." (Ionescu, M., 2007)

The students build a more profound understanding of content when they are able to take control over their own learning, by defining their own aims, by monitoring their progress, evaluating and reflecting upon their thoughts, trusting their abilities and being able to persevere when confronted with difficulties. The knowledge is being acquired through reason, it is being clarified and understood, it is being processed, and learning is not superficial but gains consistency and profoundness. (Chiș, V., 2005) The students who are competent learners often make use of profound reasoning and of a high level of critical thinking, being more agile concerning the capacity of self-regulation in learning, when compared to less competent students.

The internal modifications specific to the learning process are in fact controlling psychical cognitive processes and/or psychical subsystems of personality. Their intervention in the complexity of the learning process has ways of manifestation controlled by various ***conditions and factors***. (Cocan, C., 1999 apud Trif, L., Voiculescu, E., 2013)

In the present research we focus our attention upon ***the behaviorist, the cognitive, socio-cognitive and constructivist theories*** that require the total engagement of the student in the process of learning, simultaneously with the diminishing of the teacher's informative and instructive role. These theories emphasize complementary features that argue the utility of knowledge in building learning situations according to the aims and competences expected, to the subject matter and the group of students. They bring valuable and practical contributions to the formation and development of disciplinary and transferable competences.

In chapter I, studying the literature, several ***contemporary approaches of learning*** were identified among which *learner centered learning* as an educational paradigm of great importance which places the learner at the center of educational process. Therefore numerous authors (Bocoș, M., 2002, Ionescu, M., 2003, Bocoș, M.-D., 2013 etc.) recognize the positive high valences of *active and interactive learning*, because the learner is placed in the center of attention, the active pedagogy adheres to the principle of adapting the school to learner's needs, it promotes a pedagogy of diversity, of differentiation, individualization and personalization. *Competence based leaning* is built upon a system of teaching and learning which constantly develops learners' autonomy and ability of learning how to learn. We say that *learning is strategic* when the learner is conscious about the process of learning and is controlling his/her efforts in using certain personal habits and strategies. *Reflexive learning* does not represent what happens with the learner, it represents what the learner does with

what happens to him. Reflection helps learners to link new learning experiences to previous ones, so that they can assimilate unknown, particular items, in a holistic and wide-range learning. (Jordi, R., 2011) Reflexive learning, in close connection with reflexive teaching, consists of a methodology or a set of teaching methods with a common purpose, that of making the learners conscious of the learning process, moreover that of promoting the independent and self-regulated learning, as well as an active engagement in the process of learning and the enrichment of personal and professional abilities.

In **chapter II - <u>The development of learning to learn competence – a requirement of knowledge society</u>** we emphasized the theoretical approaches related to the concept of competence in an intensive and extensive dimension as well as its defining features, its structure, the European and national dimensions of learning to learn competence for the purpose of understanding the necessity of developing this precise competence.

The concept of **„competence"** represents a reference term in the development of any formation, educational or professional program, in the evaluation of products and services, in explaining and appreciation of a wide register of social activities, including the appreciation of the educational system results. Analyzing its semantic dimensions it often created confusion and overlapping of sense and signification regarding the definition of competence. Each author has a personal vision upon competence, but they all agree with the fact that the term „competence" is polysemantic. Therefore, we can identify several aspects of „competence":

- *an instrument* of quality and performance in professional activity, in social activity (defining some standards or levels of performance which measure the previous effort of learning and formation);
- *an aim* of training programs;
- *a result* of learning (an output) which emphasizes what a person is able to perform, as an effect of a previous process of learning and training;
- *the potential* expressed or the measure of what a person is able to perform at a certain moment in time;
- *an activity,* therefore a context is required.

In the extensive dimension, Weinert (1999) distinguishes seven ways in which the term competence is used as: *general intelligence, performance oriented intelligence, motivation, a combination of cognitive abilities and motivation* which results in action, a set of *key-competences* or „generic" competences (Everwijn, 1996), a set of „*metacompetences*", *part of the total human resources*.

As intensive dimension, competences can be seen as more than a combination of knowledge, abilities and attitudes: namely their successful applying in practical situations. The schools have to facilitate learners the applying of knowledge in practice, of abilities and attitudes, through placing them in situations that will allow them interaction, thus producing noticeable results. A competence is not just a simple sum of knowledge, abilities and attitudes: *it is the proved capacity of their use in a context producing results*. Furthermore, the contextualized experiences that learners live become important in the sense that not just the context itself might influence the quality of the manifestation of a competence, but also the learners' subjective experiences that were determined by that particular context.

Since the introduction of the term and up to the present, there were numerous ways and angles of approaching *the concept of competence*. It may be that the most solid recent exploration of the concept was realized by OCDE within the program DeSeCo. Relying on this, the term competence was defined by Rychen and Salganik (2003) as being: ,,the ability to successfully satisfy complex requirements in a particular context, through the engagement of psychosocial prerequisites including cognitive and non-cognitive aspects" and as ,,internal mental structures, namely abilities, dispositions or resources incorporated in the individual when interacting with an assignment or a real life specific requirement." (Hoskins, B., Crick, R. D., 2008). The competent performance or the efficient action supposes the engagement of knowledge, of cognitive and practical abilities, as well as social and behavioral components, such as attitudes, emotions, values and motivations. A competence, as a holistic notion, could not be reduced to its cognitive dimension.

The competence implies complexities integrated by knowledge, abilities, capacities and attitudes; it is the capacity of efficient action facing a series of situations through the engagement of necessary knowledge, at the right moment of time, with the purpose of identifying and solving the problems. There is always knowledge coming under a competence, but the competence does not become reduced to it.

Studying the analysis regarding competence from a pedagogical point of view, we can notice a variety of interpretations, some of them being convergent towards common aspects, while others quite divergent. The authors mentioned in this thesis imply as impossible the existence of a consensus and of a unique definition of the competence. Thus, the definition of competence as a concept is done from a *constructivist* perspective, an approach for which not the definition is important, but whether the definition was proved to be reliable and adequate within the context in which it was used.

Even though the existence of a consensus might seem difficult to find, some specific features are emphasized by means of definitions proposed by various researchers. A competence is based on ***mobilizing***, integrating, on the creation of a network of ***various resources***: internal resources proper to the individual, knowledge, capacities, abilities, as well as external resources engaged in the environment (other individuals, documents, instruments, information etc.) This mobilizing of resources takes place in a particular ***situation***, with the purpose of ***performing***: the competence exists within a situation on condition that it is performed in different circumstances by means of adaptation and not just reproduction of mechanisms.

The link between competence and transfer ability becomes obvious. „The transfer is not just the final stage of learning process, but it occurs, at present, during the whole process of learning. In order to be able to learn, to become, the knowledge should be permanently transferred". (Meirieu, 1996) In the scientific literature we can identify various types of transfer, the combining of which ensures an increase in the capacity of the transferability of competences.

In the scientific works there are different approaches regarding the process of formation and development of competence: the learning of competence, the practice of competence (Voiculescu, F., 2010), the achievement, the formation and development of competence. The structure ***„the development of competence"*** is used when the competence becomes developed at a certain level, when the learner has the basic knowledge and abilities and reaches the following levels: medium, good, very good and superior. This is the development and the perfecting stage of the competence.

A competence does not evolve spontaneously, but gradually, in time, its development is a continuous process because the capacities that build it evolve gradually upon various situations; moreover, these capacities become operational. Recent studies show that these capacities would better develop at learners who had been confronted with specific situations, meaning that they had the chance to practice the competences. Their management on a long term passes on by means of learning the competences and it is necessary that the learner would have been confronted with a variety of situations. ***The competence is built by means of different dimensions of one learning situation.***

In the process of formation and development of a competence the focus is placed on the individual's development, the building of attitudes, behaviors, capacities, abilities, usage of knowledge, where several authors identify various levels or stages of development.

The more and more intense preoccupation for centering the education on competence formation is justified by means of increased expectations and requirements as well as diverse that school implies to society. In this context, **key-competence** is a major category of competences. The list elaborated by the European Committee mentions **the learning to learn competence** which has a transversal feature and can be built simultaneously with other competences.

According to the results of the analysis of European documents, „learning to learn" competence is approached as an ability of management and perseverance in learning process, in the sense that the learner is capable of self-management of the process, including personal time and organizing information, both in team work and individually. In this paper we approach the European Union definition, which emphasizes three structural dimensions of learning to learn competence: ***the cognitive dimension, the metacognitive dimension and the emotional, motivational dimension*** together with the socio-cultural learning environment.

Following the European recommendations a group of experts was summoned for projecting an evaluation framework of learning to learn competence (Expert Group set by the European Network of Policy Makers for the Evaluation of Education Systems, 2006). The framework is based on the supposition that „learning to learn" contains two dimensions: cognitive and affective.

In 2008, the Centre for Research on Lifelong Learning (CRELL) published ***a revised framework for measuring the learning to learn competence***, presently used (Hoskins, B., Fredriksson, U., 2008) and in which they added a new dimension, the metacognition.

Among all the basic competences, more or less possible to be built at the discipline level, the learning to learn competence requires the most complex approaches, varying according to the features of every European educational system.

The key-competence system has represented a reference element in the curriculum and therefore it was included in their fundamental basis, where it is being emphasized that curricular areas are compatible with those 8 domains of key-competences established at European level. The learning to learn competence is also present within many school programs, but school teachers and educational institutions need more support for including this competence in a systematic way in the actual teaching and learning process.

Being a transversal type of competence, learning to learn competence could not be attached strictly to just one discipline from the curriculum at the pre-university level. Thus, ***learning to learn competence could be developed either by a self-standing approach, based on learning the techniques, the methods and learning strategies, independent from the***

traditional disciplines, or by means of infusion in disciplinary or inter-disciplinary approaches, therefore contributing to the development of other key-competences and becoming a result of the latter.

While studying the Romanian language and literature one could not avoid this competence which engages transversal knowledge, abilities, attitudes, all of which this discipline implicitly requires.

Analyzing the diversity of definitions, as well as the interpretations of the structure ,,learning to learn" and taking into consideration the definition of competence suggested by X. Roegiers, we have established the following **definition of learning to learn competence:**

The learning to learn competence represents an integrated ensemble of knowledge, capacities, attitudes, all developed within a particular context by means of reflection and strategy which includes cognitive, metacognitive and non-cognitive resources, in order to be actively and interactively involved in learning situations and efficient task solving.

In the educational field the interest in ***learning strategies*** increased with the idea of competences, in fact, the strategies being interpreted as part of the resources that the learner must engage while practicing his competences. (Peters and Viola, 2003, Tardif, 2006) The learners having the necessary well developed abilities to manage their learning are also capable to establish the appropriate learning goals, to use their knowledge and abilities to direct their learning and select the appropriate task strategies.

The diversity of definitions regarding the learning strategies has led to different classifications oriented toward knowledge acquisition or the regulation of cognitive strategies as well as the emotional factors engaged in learning. There is a distinction between ***cognitive, metacognitive and emotional learning strategies***. These strategies imply the executive part in achieving knowledge and competences, the regulatory part which directs the practical learning activities, as well as emotional and motivational strategies with the purpose of self-management of emotions, the engagement and practice of one's own learning strategies. (Schwinger, Steinmayr and Spinath, 2009)

The concept of strategic teaching is mainly centered on the role of the teacher as a ,,model" (how to think in a certain task, how to apply the strategies, what can you do when you do not have any other option left) and as a ,,mediator" (anticipates the possible problems in the learning process, suggests some solutions in order to overcome the problems, guides the learners from the initial stages of learning to autonomous learning). The strategic teaching ,,shapes the learning strategies that learners adopt and the superior intrinsic motivation

strategies in order for them to gradually achieve a more complex knowledge". (Bocoș, M., Stan, C., Manea, A. D., 2008) What is ultimately more important is to admit that learners do not need to just gather information and knowledge using a number of strategies, they also need to become conscious of where, when and why such strategies could be used, as well as to experiment and evaluate the impact of these strategies upon their own individual styles.

In **chapter III <u>Learning difficulties – a multidisciplinary approach</u>** we have presented various definitions of learning difficulties phenomena, definitions elaborated from different perspectives. Because of their complexity, there is no single definition unanimously accepted, thus being established various meanings of the term: learning difficulties understood as obstacles, barriers, difficulties that learners encounter in school learning, learning difficulties understood as disabilities or specific learning difficulties. (Ungureanu, D., 1998, Vrășmaș, E., 2007, Kelemen, G., 2007, Mogonea, R., 2010 etc.) Various approaches of learning difficulties are suggested in the scientific literature there: *unilateral,* according to the aimed discipline (psychology, pedagogy, psycho-pedagogy, social education) and *interdisciplinary, non-categorical, integrative*. Each of these approaches focuses on certain features which emphasize the diversity of interpretations, as well as the necessity of a complex approach of learning difficulties. A synthesis of this approach offers the opportunity of a profound understanding of learning issues and search of an efficient solution. (Vrășmaş, E., 2007)

The covering area and the definition of this concept are still controversial aspects. The learning difficulties are presented as being part of the decisive individual factors of school failure. (Gherguț, A., 2005; Cocoradă, E., 2009). The scientific studies (Weinfeld, R., Barnes-Robinson, L., Jeweler, S., Roffman Shevitz, B., 2006; Winebrenner, S., 2006), as well as our didactic experience emphasize the existence of a particular group of adolescents quite difficult to identify. They seem to be ordinary learners, but the average level of performance that they have is a consequence of their reduced learning abilities, thus hiding their learning difficulties.

The students having learning difficulties tend to be included in one of the three possible subcategories: (Westwood, P., 2011)

1. students with general learning difficulties;
2. students with specific learning disabilities;
3. students with non-verbal learning disabilities.

The students with general learning difficulties represent the biggest group; there are a lot fewer students with specific learning difficulties and even less students with non-verbal learning difficulties. The learning features of these three subcategories are quite different, but

every one of them has the common need for systematic and direct teaching. (Rose, J., 2009; Wheldall, K., 2009 apud Westwood, P., 2011) The students facing school risk with underachievement are included, in the scientific literature, in the general learning difficulties category, in danger of not being noticed or even to be left outside the adequate environment which allows the display of certain improvement activities or proper intervention, thus enabling failure and drop out of school.

In this paper we relate our study to **the learning difficulties induced** that are caused or provoked, different from the mental deficiencies, characterizing the children within the „normality" sphere, a normality understood from the point of view of at least an average intelligence coefficient. The learning difficulties could be temporary and they are not related to learner's intelligence. They manifest themselves as delay or punctual imbalance while learning. Independent of age the students with learning difficulties often have low performances in school because of not using the efficient learning strategies as compared with those who manage to reach the performances required by the school institutions. The reason for which we related our study to this precise category of subjects is that the student with learning difficulties can be totally recovered following an appropriate psycho-pedagogical intervention, as opposed to typical mental deficiency, where the prognosis has a higher degree of relativity. It must be mentioned that learning difficulties are often accompanied by emotional and motivational difficulties.

We consider that one of the teacher's concerns in order to help the learners with difficulties should be the practice of several efficient learning strategies, allowing learners to make use of them even in other future learning contexts. The teachers can intervene on these aspects by means of creating opportunities of efficient learning, stimulating the reflective capacities of their students, making use of metacognitive strategies through explicit teaching in various particular contexts, as well as through supporting their application, internalizing and transfer by learners, thus considerably diminishing the negative effects of learning difficulties in the school field.

Literature in this field consists of a variety of more or less adequate classifications. This classification, based on our conception and suggested in this paper makes the difference between the following categories of learning difficulties, according to the affected dimension:

1. ***cognitive learning difficulties:*** (such as the existence of certain limits in thinking, reduced cognitive experience, weak verbal abilities, reduced cognitive reflexivity etc.);

2. ***metacognitive learning difficulties:*** (such as weak understanding of the aims and requirements of a task, of abilities, learning strategies, a reduced capacity of anticipation of steps to be taken, of monitoring the activity plan, undifferentiated distribution of resources, reduced capacity of metacognitive regulation of learning etc.);

3. ***non-cognitive learning difficulties:*** (such as low motivation, shyness, negativity, lack of perseverance, emotional instability etc.).

Another classification that we introduced, according to the duration in time of the problem/set of problems the learner encounters, differentiates:

a. ***temporary learning difficulties***, which can appear to every learner at a certain moment during the activity and regarding a particular problem-situation, task etc.;
b. ***persistent learning difficulties***, emphasizing a mismatch between the educational potential of the learner and the unsatisfying school results caused by individual, social or family factors, persistent in time and sometimes causing failure;
c. ***permanent learning difficulties***, proper to those learners having physical, sensorial, intellectual etc. deficiencies and who require not just special interventions in the learning process, but also the appropriate therapeutic and compensatory activities.

The practitioner teacher's effective educational activity which aims to support the steps taken by the student with learning difficulties to overcome and remove them is strictly planned depending on the features and characteristics of difficulties as well as on the pedagogical context in which they are displayed.

Anne-Marie Doly (2000, 2002 apud Mih, C., 2010) as well as other researchers mention that the inefficiency of the efforts made by the students with learning difficulties should be related to a metacognitive type of deficiency, rather than a cognitive one. They already possess formed knowledge and competences but they do not know how to make use of them, nor to make use of transfer, this inefficiency being related to the fact that these students are not conscious of what they do know. Learners' difficulties in understanding what they read can be attributed to different factors. Sometimes, the difficulties are caused by a lack of fluency in recognizing the key-terms. Moreover, many students face difficulties in understanding what they read, regardless of their oral fluency, simply because of their cognitive processing, including limitations of their work memory, deficit of lexical processing, inadequate inferences and understanding. Other reasons could be poor vocabulary, the difficulty in explaining text significance, in identifying the main ideas and the lack of connection between the new information and the previously experienced events.

The chronicity of learning difficulties constitutes the essential premises for the emergence of other difficulties, not only in the case of the same discipline (particular learning difficulties) but in the whole curricular area.

Learning strategies were included in various intervention programs such as „***The Model of Cognitive Strategy Instruction***", „***The Transactional Strategy Instruction***", developed by Pressley and his colleagues (1998), „***The Model of Strategic Content Learning***" (SCL) (Butler, 2005), „***Strategic Instruction Model***" (SIM) created by Donald Deschler and Jean Schumaker (1993) which contains three components: strategic curriculum, strategic instruction and the strategic environment, „***Cognitive Behavior Modification***" (CBM), „***Reciprocal Teaching***" (RT), „***The Self-Regulated Strategy Development***" (SRSD) intending to support the students with learning difficulties offering learning strategies and self-regulating abilities. (Olson et al., 2008)

The consequences of the programs centered upon metacognitive development, which we suggested for a brief analysis in this paper, are related to the process of learning several transfer abilities in different learning contexts, to autonomous learning, to making the learning more effective in the sense of reaching the targeted aims with minimum of effort.

The common feature of these programs is the concern for the development of learners' cognitive and metacognitive capacities, as well as motivational, emotional and social ones. Moreover, they offer learners the appropriate instruments for a better management of individual resources. They favor the autonomous learning by means of engaging the learning to learn competence. The role of the teacher thus becomes crucial in these different contexts, depending on the situation, the main aim being the improvement of learners' cognitive, metacognitive and non-cognitive functioning.

The second part of the present paper – **Part B. <u>The experimental research overview „Intervention program for the development of learning to learn competence to 11th grade students with learning difficulties in studying Romanian language and Literature</u>**" consists of a three leveled research approach according to the specific stages of the pedagogical experiment: a pre-experimental stage, a formative experiment and a post-experimental stage. The present research represents the investigation, argumentation and description of the importance and necessity of an educational intervention centered on the development of learning to learn competence to 11th grade students with learning difficulties.

Our paper is intended to be the result of a theoretical and methodological research effort whose premises would become the starting point of several guides in activity planning regarding the improvement of learning to students. The investigative approach that we have

chosen is proper to the direction promoting the combining of paradigms with quantitative and qualitative methods, emphasizing the mixt design of the methodology in each stage of the research.

In **chapter IV. <u>Conceptual and theoretical research framework</u>** we started our investigation from this **general research question**: *Is it possible to stimulate the learning to learn key-competence to 11th grade students with learning difficulties by implementing an intervention program in studying Romanian language and literature?*

The main **aim** of this research is to stimulate the development of learning to learn key-competence by means of implementing an intervention program to 11th grade students with learning difficulties in studying Romanian language and literature, so that the learner reaches the authentic, *reflexive and strategic*, efficient, autonomous/independent learning based on comprehension.

The secondary goals of this research thus become the following:

- developing a conceptual framework for learning to learn competence, efficiently reliable for promoting this competence within the Romanian curricular context;
- to validate this conceptual framework by means of an educational intervention program to 11th grade students with learning difficulties in studying Romanian language and literature.

As ***general aim*** of the research that we suggest we mention the elaboration and implementation of a formative intervention program centered on an operational model of development of learning to learn competence at cognitive, metacognitive and non-cognitive levels, for 11th grade students with learning difficulties in studying Romanian language and literature.

Specific aims with observational and evaluative value in research as well as with formative valences for the researcher:

O1. Identifying the teachers' opinion regarding the frequency of the learning difficulties at the cognitive, metacognitive and non-cognitive levels in studying Romanian language and literature;

O2. The offering of a personal operational model of development of learning to learn competence for specialists in learning management and for practitioners (teachers of various disciplines, counseling teachers etc.);

O3. Creating and validating various evaluation instruments (questionnaires, reflexive journals, interview guide) in order to test the initial level of preparation, as well as periodic and final evaluations;

O4. Elaborating, experimenting and validating a coherent and internally articulated intervention program in order to value entirely the critical reflection, the metacognitive reflection and the process of making decisions regarding the learning strategies in a individualized and personalized manner;

O5. Emphasizing of possible differences in the experimental group subjects in the initial phase of the intervention program and at the end of the intervention, as well as from the perspective of the decision to use learning strategies, of the level capacity for critical reflection and reflection on learning strategies;

O6. Selecting the cases for the collection of studied cases within the research.

The emphasis of the frequency of learning difficulties, of the importance of awareness regarding the cognitive, metacognitive and non-cognitive strategies, the knowing of the strategic ways learners can use in order to identify, practice and transfer them in new contexts, the development of reflexivity, the access to metacognition in learning, the developing of trust and motivation in their own learning capability represent features that shaped our research approach.

The learning to learn competence is often presented as being synonymous with concepts such as metacognition, self-regulated learning, problem solving and critical thinking. Even though a more detailed study of these concepts would emphasize significant theoretical and empirical differences, for the purpose of our research it becomes important to distinguish learning to learn competence with separate identity, as it is defined in the European key competence framework for lifelong learning. (European Committee, 2005) To be more precise, the notion of holism and a lifelong perspective are in our opinion in this research, essential features in defining the learning to learn competence.

Starting from the identified problems in the analysis of the school results of 11^{th} grade students, of their learning difficulties, we have elaborated the following **general hypothesis of the research**:

- ***The implementation of an educational intervention program to 11^{th} grade students in order to value entirely, in personalized manner and in a socio-constructivist framework the critical reflection, the metacognitive reflection and the strategic decisions making, will diminish the frequency of learning difficulties in studying Romanian language and literature.***

Taking into consideration the general hypothesis, the following **specific hypothesis** have been resulted:

- If the learning situations are organized and displayed according to our personal model of learning to learn competence development, then the students with learning difficulties will improve their critical reflection, their originality and cognitive flexibility;
- If the learning situations are organized and displayed according to our personal model of learning to learn competence development, then the students with learning difficulties will intensify the degree of metacognitive awareness and regulation of learning;
- If the learning situations are organized and displayed according to our personal model of learning to learn competence development, then the students with learning difficulties will optimize the practice of learning strategies related to problem solving in reading texts.

According to the general hypothesis, we deduce **the independent variable (I.V.)** in our research as being the following:

I.V.: *The implementation to 11th grades of the educational intervention program which values entirely, in personalized manner and in socio-constructivist framework*:

- critical reflection;
- metacognitive reflection;
- strategic decisions making.

The dependent variable (D.V.) meaning effects, expectations, school results regards *the frequency of manifestation of learning difficulties in studying Romanian language and literature to 11th grade students*, a variable represented by:

D.V.1. the level of the process of critical reflection operationalized by means of behaviors frequency using critical thinking skills in Romanian language and literature discipline;

D.V.2. the degree of awareness and the incidence of behaviors' metacognitive regulation in learning;

D.V.3. the level of practice of learning strategies related to problem solving in reading texts.

Chapter V. <u>The pre-experimental stage</u> – has had ***the purpose*** to investigate the educational reality at the school level, namely the general opinion among teachers of Romanian language and literature regarding the manifestation frequencies of learning difficulties. The investigation concerns the opinions of the teachers and students from technical high schools and colleges regarding the use of learning strategies by 11th grade students, as well as the possibilities to improve them by means of self-regulated learning.

During the planning of our investigative and observational research as well as of work research instruments, we operated with the following ***general aims of the observational stage***:

1. Identifying the opinions of Romanian language and literature teachers regarding the manifestation frequencies of learning difficulties and regarding an appropriate educational intervention concerning the development of learning to learn competence;
2. Identifying among teachers and 11th grade students from technical high schools and colleges the degree of awareness and regulation of learning strategies.

The first category of subjects included 81 teachers of Romanian language and literature from Cluj district. ***The second category of subjects*** included within the observational research a number of 186 teachers and 560 students from 8 technical high schools and colleges from Cluj-Napoca. ***The sample content of the observational investigation*** consisted of both the set of learning behaviors at the cognitive, metacognitive and non-cognitive levels and ways of overcoming the learning difficulties, as well as the use of learning strategies by students (anticipation, performance control, reflection) and their teaching modality.

The methodology of the observational approach

The investigation with observational purpose from this preliminary stage of our formative experiments was realized and structured by means of ***questionnaire inquiry***. There were three types of questionnaires destined to each main category of subjects: teachers and learners.

The questionnaire for teachers of Romanian language and literature was created for online answering on the website www.isondaje.ro with the purpose of noticing the following essential aspects: the types of learning difficulties that students encounter, the frequency of learning behavior at the cognitive, metacognitive and non-cognitive levels, the identification of frequent learning difficulty to 11th grade students and ways of overcoming it, the opportunity of displaying some intervention programs for developing the learning to learn competence.

Teaching and Learning Strategy Questionnaire (TLSQ) according to Abrami, P. C., Aslan, O. and Nicolaidou, I., 2007 was translated and adapted by us for teachers for technical high schools and colleges, receiving the authors' approval. This instrument was developed on the basis of Zimmerman's research (2000) and of the recent scientific literature analysis regarding the self-regulated learning process. From this questionnaire we have selected the

scale of students' learning strategies and the scale of approach to teaching, in which the teachers would have to express their approval regarding the affirmations on a Likert scale rated from 1 to 5 (1 - strongly against, 5 - strongly approving).

Students were offered a second questionnaire ***The Student Learning Strategy Questionnaire (SLSQ)*** according to Abrami, P.C. and Aslan, O., 2007, as well translated and adapted by us. The items were reformulated in order to match the ones from the students' learning strategy scale in the teachers' questionnaire.

Because of the fact that these two instruments used in this research are for the first time adapted to a Romanian population, we initially realized a pilot study for a population of 100 students registered in the 11^{th} grade and 35 high school teachers, whose favorable results allowed us to carry on with our research.

Following the fidelity analysis of the Teaching and Learning Strategy Questionnaire (TLSQ) we have obtained for the whole questionnaire a coefficient of Cronbach alpha internal consistency with the value of 0.91, indicating a good fidelity of the questionnaire. For the learning strategy scale we have obtained a coefficient of Cronbach alpha internal consistency of $\alpha = 0.93$ and for the approach to teaching scale a coefficient of $\alpha = 0.85$, meaning a very good fidelity. For the whole The Student Learning Strategy Questionnaire (SLSQ) we have obtained a coefficient of Cronbach alpha internal consistency of $\alpha = 0.82$, again meaning a very good fidelity.

The focus-group interview was used for the 11^{th} grade students within the pre-experimental stage in order to collect a series of data, information extracted directly from the source, namely the students themselves. This method was based on the coherence of the learning pattern that we suggested in the investigation, the utility of reflective teaching and learning, the learning strategies that students use, as well as the whole perception upon subjects regarding their acquisitions and their personal development in school performance. In order to complete the table of learning difficulties and of ways of overcoming them, as well as for noticing various profound educational aspects, we used the **semi-structured interview** – as an intensive research method. The focus-group has been used as helping method, with the participation of a relatively homogenous group of 7 students. We have intended to obtain relevant results in order to carry on with our experiment.

The quantitative and qualitative analysis of the observational experimental data

The observational research has been preceded by a *pre-observational stage* with the purpose of identifying the real present situation of the 11^{th} grade students at the ***simulation of the Baccalaureate exam***. The purpose of organizing this simulation by M.E.N., both for 11^{th}

grade and for 12th grade, was on one had to familiarize the students with the rigors of this type of exam, and on the other hand to help students be aware of their preparation level, before the Baccalaureate, therefore to take the necessary measures for improving the final result. Based on the rate of success of items, it becomes possible to have a vision upon the level of acquisition at a certain moment of time of learners' competences as well as of identifying their needs in order to improve them during the school year, their learning difficulties for the specific discipline and the general learning difficulties specific to other disciplines. Besides this pedagogical and investigative perspective, the results of the evaluation emphasize objective indicators of students' success. Thus, the evaluation data proves that the learning results understood as knowledge, behavior, abilities, capabilities, competences etc. are situated under the average of 50% graduation rate in most of the districts from Romania, this aspect being reflected also in Romanian language and literature as major exam in Baccalaureate session. Cluj County registered a 46,64% graduation rate.

Starting from this data, the descriptive analysis of the results after applying the instruments emphasize that Romanian language and literature teachers investigated report back an increased frequency of learning difficulties, mainly at the metacognitive and non-cognitive levels. The teachers admit that students do not have the tendency to be aware of their learning and self-regulated learning, to use metacognitive planning strategies, self-monitoring or self-evaluating their learning. The classification made by the Romanian language and literature teachers of the frequent learning difficulties to 11th grade students denotes the followings: the students possess low awareness about the learning process; they prove reduced abilities of reflexivity, argumentation or text comprehension; most of the times they are less competent in self-regulated learning and metacognitive aspects; they approach superficial learning and they do not use the profound, reflexive and creative analysis of information; they have reduced abilities of expressing oral and written messages, of organizing the information; they do not have intrinsic motivation. Identifying some interactive work methods and creating some different learning situations are among the ways of overcoming these learning difficulties.

According to teachers and 11th grade students from the technical high schools and colleges we have observed that students emphasize reduced abilities of self-regulated learning, they have difficulties in establishing their own learning aims, in identifying, modifying and adapting the learning strategies, in monitoring their progress, they have limited reflective capabilities, all of which generate learning difficulties in one or more disciplines.

The results of the observational stage represented the premises of the display of the psycho-pedagogical experiment destined to diminish the frequency of the learning difficulties to 11th grade students by means of reflexive and strategic learning. These arguments signal the need for involving learners in the learning process by means of coherent psycho-pedagogical interventions while experiencing various learning situations, as well as in gathering cognitive, metacognitive and non-cognitive experiences, thus allowing them to transfer the information in new learning contexts.

In the pre-experimental stage we have organized **a pre-testing stage**, created with the purpose of identifying, within the experimental group of subjects, the initial level regarding the critical reflection abilities, the metacognitive reflection and the capacity to strategic decisions making.

From the amount of evaluation modalities in the scientific literature we have chosen the following instruments:

- ***Motivational Strategy Learning Questionnaire (MSLQ)*** developed by Pintrich, Smith, Garcia and McKeachie, 1991 (critical thinking subscale) for measuring the behaviors frequency of using the abilities of critical thinking when studying the Romanian language and literature;
- ***Metacognitive Awareness Inventory (MAI)*** developed by G.Schraw and R.S. Dennison, 1994 for measuring the degree of awareness and the incidence of behaviors' metacognitive regulation in learning;
- ***Metacognitive Awareness of Reading Strategies Inventory (MARSI)*** created by Mokhtari and Reichard, 2002 (problem-solving strategy subscale) for measuring the degree of practicing the problem-solving strategies in reading texts.

In the unique experimental group 106 students from 11th grade were included from three technical high schools and colleges from Cluj-Napoca city presenting learning difficulties in studying Romanian language and literature (the final grade of the 1st semester being between 4 and 6, school year 2013-2014). Thus, the sample of subjects gathers students whose limits are situated mainly *in the direction of efficiently managing the cognitive, metacognitive, emotional and motivational resources.* The results of the pre-testing stage led us to the conclusion that the sample of subjects contains a large and impressive number of students who do not possess strategic and reflexive abilities when learning or who demonstrate them only at a poor level. The descriptive statistical analysis emphasizes that there is a predominance of low scores in the metacognitive reflection variable before the starting of the experiment (mean 3.02). Moreover, the students have demonstrated a relatively

low standard of abilities to make decisions regarding the learning strategies when reading (mean 3.10), of critical analysis of information, as well as of the reduced capability of reflecting upon the text content and shape (mean 4.12). This aspect means that students' cognitive approaches are more valued in educational practice than those metacognitive focusing on observation of the learning process.

The conclusions regarding the initial level of the variables from the experimental group were emphasized by the calculation of Paired-Samples T Test, in this case the signification point being higher than 0,001. In this of pre-testing stage we were interested in analyzing in what way these three variables correlate. According to Pearson's coefficient correlation analysis we note that there is a statistically significant correlation between the degree of development of critical reflection abilities and the degree of metacognitive reflection abilities established at $r = 0,424$. Moreover, there is a positive correlation between the critical reflection abilities and the ability of strategic decisions making ($r = 0,510$). Between the degree of metacognitive reflection capacities and that of decisions making there is no strong correlation ($r = 0,499$).

In this way we can argue that there are significant but not strong correlations ($p < 0,001$) between the three processes that contribute to the development of learning to learn competence, expecting that within the post-testing stage to analyze comparatively the results obtained during the experimental approach.

Conclusions regarding the observational stage

One of the first conclusions drawn from the analysis elaborated among teachers of Romanian language and literature is that in this case we can confirm that most frequent learning difficulties to 11^{th} grade students are primarily concentrated within the metacognitive area, the planning and monitoring strategy or metacognitive evaluation, and that a possible intervention should ultimately be based on the three interdependent dimensions. The data obtained from the Romanian language and literature teachers reveal the fact that the cognitive dimension of learning behavior is the best represented quantitatively and having the highest frequency of manifestation, as proof of the student who knows how to learn, while the metacognitive dimension, as well as the non-cognitive (motivational, social and emotional) one are weakly being aware of. In order to develop the learning to learn competence, the Romanian language and literature teachers have argued the necessity of educational intervention be means of formative learning opportunities, of practicing the strategic and reflective capacities, of self-regulated learning, of discovering and understanding of learning strategies as well as of decisions making regarding their use and applicability.

The analysis of the answers regarding the learning strategies offered by teachers from technical high schools and colleges from Cluj-Napoca city reveals that the students possess reduced abilities of self-regulated learning. With an appropriate instruction on these dimensions, every student can improve the degree of learning control and performance, thus a variety of difficulties encountered to students with learning difficulties can be eliminated. Students with learning difficulties are overestimating the use of learning strategies as a protective factor for diminishing the effects of the previous school years when they have experienced school failure.

The teachers' concern for improving the learning difficulties by means of stimulating metacognition, practicing the critical and reflective abilities or choosing the most efficient strategies requires the necessity of planning certain intervention programs to develop students' responsibility for their own learning, to determine the student to adopt an active role in the learning process, to stimulate the profound processing of information and the self-reflective capacities, as well as the ability to make the right decisions regarding the improvement of learning strategies.

The diagnostic research had the purpose to create a clear image about the frequency of learning difficulties and about the degree of awareness and use of learning strategies, representing the starting point in the building of a pedagogical approach for improvement. This is why we decided to develop the learning to learn competence within the actual classroom environment by means of a psycho-pedagogical intervention program destined for 11^{th} grade students with learning difficulties in studying Romanian language and literature.

Chapter VI. <u>The formative experiment stage – The applying of program on the experimental sample</u>

Problems such as school failure, lack of adjustment to school requirements, weak results and low performance are regarded from different perspectives and having various causes, not just as consequences of student's failure to handle learning and discipline, his lack of motivation or interest. Being aware of this reality and based on the data interpretation that we gathered within the observational stage of the research, we can introduce the following premises of the research:

- In the school context the main learning difficulties identified within the context of studying Romanian language and literature are the ones regarding metacognition, which need to be analyzed together with the cognitive and non-cognitive difficulties, without diminishing their value.

The main ***aim*** of the formative experiment relies in the elaboration and applying a formative intervention program centered on an operational model of development of learning to learn competence at the metacognitive, cognitive and non-cognitive level to 11th grade students with learning difficulties in studying Romanian language and literature.

After securing the students' names, interpreting the results of the pre-testing stage and of the analysis of school results in the discipline of Romanian language and literature, we have included in ***the sample of subjects*** a number of 106 students from 11th grade with learning difficulties. Thus, the sample of subjects contains students whose main limits are situated mainly *in the direction of efficiently managing the cognitive, metacognitive and emotional resources*. The students are from three technical high schools and colleges from Cluj-Napoca city and they are studying at a technical profile.

In formal educational contexts, namely in psycho-pedagogical counseling, ***the sample content*** included scientific contents according to the compulsory curriculum for 11th grade students, through the intervention program displayed within the formal activities of counseling and orientation. ***One of the first directions of sample content formation*** was the identification of the themes and contents that were to be included in the experimental approach. The contents were chosen according to the specific program from the curricular area Counseling and Orientation for 11th grade. ***A second direction of sample content formation*** was the decision regarding the strategic and reflexive processes and behavior that were to be practiced during the intervention.

The formative experiment was based on ***a methodological system*** containing the following methods: *case study, the study of the activity products, the analysis of school documents and the observation.*

During the formative experiment there have been used ***instruments of investigation***. We consider as necessary in this section to focus our attention upon the ways of elaborating the monitoring grid, the reflection journals and the competence assessment sheet (evaluating the abilities, the metacognitive and cognitive capabilities and the behavior). These instruments are flexible and useful for ensuring the quality of the teaching and learning process.

The formative intervention program was implemented into three technical high schools and colleges from Cluj-Napoca city. The themes that we proposed in our intervention program were studied during the second semester of the school year 2013-2014, during a 10 weeks period of time within the activities of counseling and orientation, in accordance with the five thematic modules mentioned in the specific program for the curricular area: Counseling and Orientation for 9th to 12th grade, 2006.

The activities were displayed in an interactive atmosphere, by means of team work, open talk and each student having access to the informational support necessary for the activity. The methods used in the formative experiment stage were primarily active and interactive. Thus, we mention several methods and procedures used in this stage, also mentioned in the suggested intervention program: methods and techniques of developing the critical attitude (the mosaic method, techniques such as: „I know - I want to know - I have learnt", „Think - Pairs – Share", „Anticipate, Survey, Think" etc.); methods and techniques of individual activities (SINELG method, the active learning, techniques: „Question and Answer", „Post-it notes" - Memorizing etc.); methods and techniques of reflection (personal reflection, techniques: „Talking to yourself" - Thinking out loud, „I know - I think, I learn - I am thinking" - Before and After, „Writing what you are thinking about" - Reflection journal etc.); methods and techniques based on problem-solving (case studies, techniques: „Difficult and Easy Questions" - Superior Questions, „I anticipate - I survey - I am thinking", „The Transfer of Discussion" -The Bridge etc.); methods and techniques of graphically collecting and organizing information (techniques: mind mapping, SWOT Analysis, POWW, Thinking Hats etc.). We mention that these active and interactive methods and techniques have been adapted in application based on circumstances, objectives, specific educational situation. It appealed to different combinations between these methods and other traditional active and interactive methods.

The variety of theoretical contributions within the scientific literature dedicated to the learning to learn competence has led us to try to structure a development model of this competence in an integrative and original manner, which should reflect our understanding of the theme.

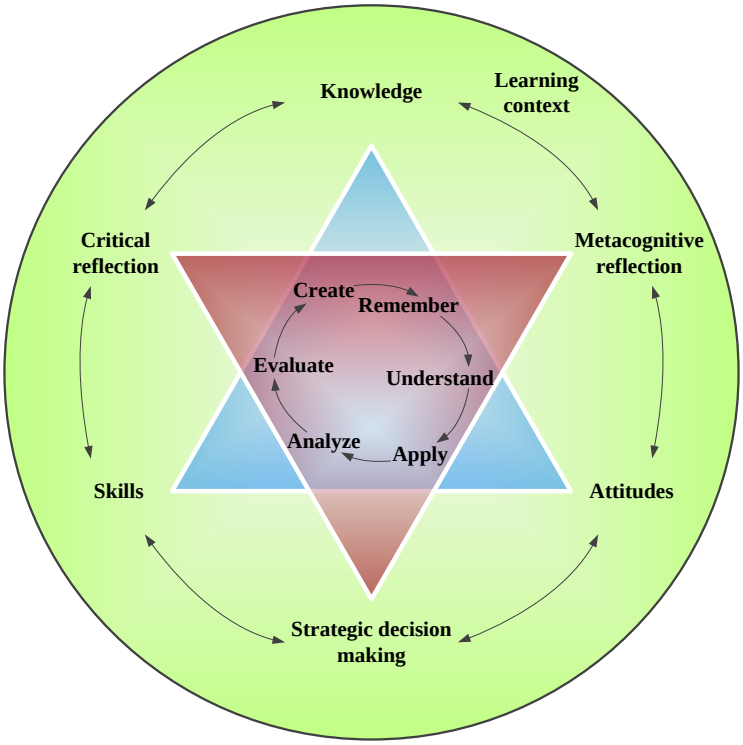

Figure no.1. The theoretical development model of learning to learn competence (original model)

The theoretical model that we suggest articulates systemically the combination of knowledge, abilities and attitudes necessary for the development of learning to learn competence according to the levels of learning taxonomies; it values entirely the processes of critical reflection, of metacognitive reflection and strategic decision making within a socio-constructivist context. Between these internal structural components there is an inter-dependency relation thus one emphasizes the other reciprocally.

For an instructive strategy to be efficient, for students with learning difficulties, it is necessary to focus on the cognitive, metacognitive and non-cognitive (motivational, emotional and contextual) processes, following a coherent model of action. Many of these approaches are oriented toward some of the above mentioned aspects, but not toward all of them. The challenge that we introduce is to apply a model as complete as possible.

We have intended that our theoretical-applicative model to be characterized by:

- *structural relevance*, ensured, on the one hand, by the introduction within the model of the cognitive, metacognitive and non-cognitive dimensions, which are intrinsic and complementary in every learning process, and, on the other hand, by the introduction of the main components of the competence (knowledge, abilities, attitudes), considered as fundamental in the scientific literature;

- *functional relevance*, through the identification of the conditions and practical approaches so that to support the development of learning to learn competence.

The more recent Bloom's revised taxonomy (Anderson and al., 2001) regards both what students know (types of knowledge) and what they think about what they know (cognitive processes). Because of the well-known importance recognized in learning process, metacognitive knowledge was added as the forth category in the Bloom's revised taxonomy 2001 (Krathwohl, 2002). In Anderson's taxonomy we find the levels of learning proper to three stages of the development of competence. Thus, the first two levels in Anderson's taxonomy (to remember and to understand) are *the initial/emergence stage* of the competence, being in process of development, the next two levels, *the development stage* (to apply and to analyze), and the last two levels (to evaluate and to create) having the equivalent in *the consolidation and validation stage* of the competence. The model of competence could be integrated in the taxonomy model for explaining how the competence evolves.

The critical reflection, a variable within our model, demands students to think about the text content, about the exploitation of knowledge or previous knowledge as well as to think of text structure and shape. It seems that there is a lack of consensus regarding the definition of critical reflection, being difficult to define depending on the text and ideology. Reflection supposes students' meditation to what they have learnt by means of relating the new contents to previous knowledge, thus reconstructing their cognitive schemata for integrating the new acquisitions, students developing them and their knowledge.

Reflection on thinking and processes implies students thinking about thinking (metacognition), about actions and processes, as well as transfer of knowledge in new contexts and creating alternatives or opening new possibilities. According to Candy, Harri-Augstein and Thomas (1985), ***metacognitive reflection*** *is „a specific approach which allows students to analyze their own learning process in a systematic manner and to discover their personal hypothesis and constructions of what they are producing as a way for students to identify and question their own strategies."*

Metacognitive reflection implies the evaluation, monitoring and control of personal cognition or mental functioning. (Flavell, 1979; Jost, Kruglanski and Nelson, 1998; Metcalfe and Shimamura, 1994; Nelson, 1992; Wells, 1995) C. Cornoldi (1998) question the issue of metacognitive reflection and its components. Metacognitive reflection represents the personal demands and interpretations of individuals upon their own cognitive activity. It is being characterized by two main aspects: metacognitive knowledge and the metacognitive conceptualization of task.

In the learning context the ability of decisions making is crucial. Reflection offers students the context in which they use their ***ability to make decisions*** when analyzing their own performance, as well as their colleagues' performance, questioning what they have learnt and making decisions regarding the possible alternatives of the problem in question. The stimulation of the decisions making process develops students' responsibility for their work, for analyzing options and evaluating alternatives, consequences, as well as finalizing the task in a coherent, organized and systematic way.

Analyzed from the structural perspective, our educational intervention program refers to the following relevant components: program curriculum; the contents used; the human resources (teachers, counselors, teachers of Romanian language and literature, class teachers); material resources (equipment, instruments); time resources; procedural resources (official and unofficial curricular documents).

From the functional operational and pragmatic perspective, our educational intervention program values the theoretical model of development of learning to learn competence. This model emphasizes the following components, relevant from educational perspective and especially from the psycho-pedagogical perspective that we have investigated:

- ***Critical reflection (cognitive dimension)*** – referring to activation of knowledge and existent cognitive ability and their practice in new situations, the analysis, evaluation, opinion formulation and conflictual interpretation;
- ***Metacognitive reflection (metacognitive dimension)*** – emphasizing the awareness and regulation of their own thinking processes;
- ***Strategic decision making (non-cognitive dimension)*** – regarding the management of behavior in alternative problem-solving situations, the selecting, adaptation, practice etc. of learning strategies, students making a decision or a succession of decisions about the optimal or at least convenient option.

The diversity and complexity of variables encountered imply the use of the concept „process" in relation to the development of learning to learn competence for diminishing the 11^{th} grade students' difficulties. In the context of our research, the development of this competence reveals a specific process, being structured into three main stages, timely organized:

1. ***The initial stage*** – the teacher, in this case the researcher, planes and anticipates the teaching and learning sequences, the didactic and counseling situations as well as the intervention strategies;

2. ***The development stage*** – the researcher places the students in meaningful contexts regarding the learning object, stimulates the reflective behavior regarding the content as well as the metacognitive processes;
3. ***The consolidation stage*** – the researcher analyzes the effects of the intervention upon the student and himself.

The analysis and interpretation of the formative experiment data

Reflection on learning in which students were engaged in every stage of the experiment, as well as the ability of making decisions regarding learning strategies by means of *open reflection journals*, allowed us to discover the beliefs and opinions of those who study upon their own learning process. The repeated analysis of the data obtained by means of this instrument offered us a dynamic picture of the evolution of these beliefs and the degree of their integration in new contexts. Because of the fact that during the formative experiment we have found the necessity of synthetizing the open reflections noted by students in their reflection journals, into sets of synthesis ideas, we have created and applied at the beginning and at the end of the intervention a *competence assessment sheet*. This sheet included indicators regarding the dynamics of critical reflection, metacognitive reflection ability and decisions making capacities.

The open reflection journal was created in a semi-structural manner, the subjects receiving four sets of questions proper to metacognitive awareness and metacognitive regulation (planning, monitoring and regulation of learning). These questions had the purpose to guide the subjects toward an open reflection upon their learning. In an initial stage, the students' answers tend not to contain profound reflective elements and nor do they reflect their learning experience as future high school graduates. During the experiment, students have showed an awareness of misbalances in the learning process, as well as the necessity to face the cognitive conflicts they have encountered when dealing with this problem. This situation becomes essential in the learning process, as well as the identification of gaps within their own learning process is a start in taking measures. Moreover, they are determined to examine their own strategies for a better understanding of themselves, of self-knowledge.

Chapter VII. The post-experimental stage – analyses four case studies of students with learning difficulties, as well as the results obtained at the end of the intervention, their analysis and interpretation.

One of the main goals of this experimental approach was to describe the learning profile of four students with learning difficulties and to understand how the mediation tries to change this profile during the experimental intervention. We have used a diversity of

instruments regarding the four students who have completed the same experimental program. The quantitative and qualitative analysis of the four cases was made through a series of methods and instruments such as: the monitoring grid of student's behavior during the activities, the analysis of students' activity products, the analysis of school documents, worksheets. From the collection of cases in the investigation, we have emphasized four cases in this paper, the students being randomly selected from the three high schools and colleges chosen for the experimental research. The case studies had the structure that follows:

- ***case summary*** – information about the students' case, presented in a succinct manner;
- ***the context or general information about the student***, student's motivation to participate within the intervention program, the educational history, the description of his behavior in school and formal context;
- ***the initial situation or stage*** – the results of the initial evaluation, specific learning difficulties;
- ***students' evolution during the program's activities or the development stage*** – a description regarding the progress results, relevant aspects revealed during the activities;
- ***the final situation or consolidation stage*** - final evaluation results compared with those of the initial assessment;
- ***conclusions and recommendations*** – what has the case study revealed from the perspective of the intervention program, personal reflections, recommendations.

The post-testing stage had the purpose to evaluate the impact of the development of learning to learn competence program, based on stimulating the critical reflection, metacognitive reflection and strategic decisions making on learning difficulties of 11^{th} grade students and at the intragroup level design. Thus, at the end of the formative stage we have applied the post-test to students from the unique experimental group. We have monitored comparatively the results of the three processes, the critical reflection, the metacognitive reflection and the process of strategic decisions making, at the beginning and at the end of the formative experiment. The purpose of this action was to evaluate the impact of ***the model of development of learning to learn competence*** to 11^{th} grade students with learning difficulties. The post-testing stage also intended a comparative analysis between the three processes at the beginning and at the end of the experiment within the unique group of subjects.

In the post-testing stage there were used the same results as in the pre-testing stage in order to identify the students' progress. For determining the existence of certain differences between the three variables within the experimental group, we have used Paired-Samples T Test in order to compare the means.

The average level of the critical reflection development during the post-experimental stage (*M* = 5,02, *AS* = 0,73) is significantly higher (*t* = -18,52, *df* = 105, *p* bidirectional < 0,005) as opposed to the average level of the critical reflection development during the pre-experimental stage (*M* = 4,12, *AS* = 0,67).

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
RC_pretest & RC_posttest	-0,90000	,50010	,04857	-0,99631	-0,80369	-18,529	105	,000

Table no.1. The results of test *t* for the experimental group regarding the critical reflection during the pre-testing and post-testing stages

Test *t* data shows that there is a significant difference between the average scores obtained by the subjects during the pre-testing and post-testing stages. In order to identify the degree of impact of this difference we have calculated Cohen's coefficient *d* based on test *t* value for pair samples (having dependent scores). After calculating *d* Cohen[1] (*d* Cohen = 5,79, r = 0,94), we can conclude that there is a strong effect of our intervention regarding the development of critical reflection during the post-experimental stage as opposed to the pre-experimental stage.

The results obtained after the analysis of the intra-subjects design allow us to confirm that **the specific hypothesis no. 1 of the experiment*:*** ,,If the learning situations are organized and displayed according to our model of development of learning to learn competence, then the students with learning difficulties will improve their critical reflection, their originality

[1] For calculation the effect size based on Cohen's coefficient d, it used the website:http://www.polyu.edu.hk/mm/effectsizefaqs/calculator/calculator.html
r= aprox. 0,2 – weak correlation
r = aprox. 0,5 – medium correlation
r = aprox. 0,8 – strong correlation

and cognitive flexibility" **is being confirmed.** Thus, the intervention program proved its efficiency regarding the improvement degree of critical reflection.

The average level of the metacognitive reflection development during the post-experimental stage (*M* = 4,05, *AS* = 0,44) is significantly higher (*t* = -51,21, *df* = 105, *p* bidirectional < 0,005) as opposed to the average level of metacognitive reflection development during the pre-experimental stage (*M* = 3,02, *AS* = 0,45).

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
RM_pretest & RM_posttest	-1,02094	,20523	,01993	-1,06047	-,98142	-51,217	105	,000

Table no. 2. The results of test *t* for the experimental group regarding the metacognitive reflection during the pre-testing and post-testing stages

In what concerns the increase of the effect size regarding metacognitive reflection, Cohen's coefficient *d* = 7,03**,** meaning for a r = 0.96 represents a powerful effect of our intervention.

The specific hypothesis no. 2: *„If the learning situations are organized and displayed according to our model of development of learning to learn competence, then the students with learning difficulties will intensify the awareness and metacognitive regulation processes in learning"* **is being confirmed**, all the subjects appreciating as positive the relation between the formative program that we have suggested and the increase of the efficiency in learning.

The average level of the strategic decisions making process development during the post-experimental stage (*M* = 4,21, *AS* = 0,48) is significantly higher (*t* = -37,95, *df* = 105, *p* bidirectional < 0,005) as opposed to the average level of the strategic decisions making process development during the pre-experimental stage (*M* = 3,10, *AS* = 0,56).

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
LDS_pretest & LDS_posttest	-1,10877	,30074	,02921	-1,16669	-1,05085	-37,958	105	,000

Table no. 3. The results of test *t* for the experimental group regarding the variable of strategic decisions making during the pre-testing and post-testing stages

We also mention that in the case of the strategic decisions making development, our intervention had a strongly significant effect (*d* Cohen = 5,10, r = 0,93).

The results obtained allow us to sustain that **hypothesis no.** 3: ,,*If the learning situations are organized and displayed according to our model of development of learning to learn competence, then the students with learning difficulties will optimize the practice level of learning strategies related to problem solving in reading texts"* **is being confirmed**. The intervention program has had a positive effect upon the quality of learning strategies, facilitating the development of several attitudes of strategic decisions making in problem-solving situations regarding reading texts.

Intending to identify the degree of correlation between the three variables regarding the development of learning to learn competence during the post-testing period, we have used Pearson's correlation coefficients. Thus, after the data analysis we can notice that between the three processes contributing to the development of learning to learn competence, there are significant positive correlations ($p < 0,001$). Therefore, the level of development of critical reflection positively correlates with the level of metacognitive reflection at a $r = 0.78$ and with that of strategic decisions making at a $r = 0.80$. Also, the level of the development of metacognitive reflection positively correlates with the level of strategic decisions making at a $r = 0.76$.

In conclusion, we can mention the following arguments regarding the three processes intended by us through implementing *the model of development of learning to learn competence:*

- students with a high level of critical reflection have also a high level of metacognitive reflection;

- students with a high level of critical reflection have also a high level of strategic decisions making;
- students with a high level of strategic decisions making have also a high level of metacognitive reflection.

We mention that although the correlation coefficients do not have an equal value with 1, although they do not indicate a perfect correlation between the variables, these correlations are significant. Moreover, the development of a competence and its structural components happens in time therefore we expected an unequal correlation between critical reflection, metacognitive reflection and the process of strategic decisions making. Thus, the existence of certain significant correlations between these components, although not perfect, intends to complete the rest of the statistical data and emphasizes the efficiency and functionality of our model of development of learning to learn competence.

After finalizing the experiment, evaluating the level of learning to learn competence, the situation becomes impressive. The results obtained with the help of the competence assessment sheet prove that 25,5% from the total of the experimental lot present a modest development of the competence; 47,2% have reached an average level of manifestation of learning to learn behavior, while 27,3% show a very good level of development of this competence.

Another aim of our investigation during the post-testing stage of the research was the shaping of a comprehensive image about the manner in which the subjects have understood the utility and the opportunity of the complex learning approach in which they have been involved, as well as the difficulties they have encountered during the experiment. The research method that we have used was the satisfaction questionnaire, by means of building our own evaluation instrument. After the frequency analysis of the results obtained, we have noticed that 25,3% of students have encountered difficulties in the stage of planning and respecting the working plan; 19,7% of students placed first the difficulties encountered while selecting and adapting the learning strategies (cognitive, metacognitive and motivational); 15% of students have declared that they have not encountered any difficulty in using the working strategies, while 97,5% of students consider this program as useful, the themes suggested within the program being appropriate for their needs. The statistically significant differences between the results obtained from the practice activities during the pre-testing and post-testing stages along with the evolutions emphasized during the formative intervention by

means of qualitative and quantitative tools, allow us to appreciate the hypothesis that stood at the basis of this experiment as being validated.

Chapter VIII. <u>Conclusions and educational implications</u> – emphasizes the fact that the qualitative and quantitative analyses conducted in this experimental research allow us to confirm that according to the investigations pursued, the hypothesis was validated. Through implementing The educational intervention program for the development of learning to learn competence for 11^{th} grade students with learning difficulties, there have been ensured the premises of diminishing the learning difficulties and we have contributed to significantly improve the learning behavior at the cognitive, metacognitive and non-cognitive dimensions.

The theoretical model suggested articulates systemically the ensemble of knowledge, abilities and attitudes necessary for the development of learning to learn competence. Taking into consideration the taxonomy levels of learning, this competence values entirely the critical and metacognitive reflection, as well as the capacity of strategic decisions making within a socio-constructivist context. We were also concerned with our theoretic and applicative model that we have structured and experimented during the formative intervention to be characterized by *structural relevance* by means of integrating the dimensions of learning to learn competence and inclusion of the main components of competence and by *functional relevance* given by identification of the conditions and practical approaches which support the development of learning to learn competence.

The progress the students showed in developing their ability to make decisions, their critical reflection as well as in developing the ability of awareness and metacognitive regulation, have emphasized the fact that the intervention program trains students in participating actively in the construction of their own learning activity, as well as in participating as students responsible for their personal and social development. Students participating in the program and whose case studies were presented have appreciated that they have learnt numerous and diverse things during this intervention program.

Also, chapter VIII argues conclusions regarding theoretical contributions showing that the development of learning to learn competence is based on complex pedagogical theories and researches, scientifically fundamental. Starting from the emphasis of the pedagogical aspect of competence, in general, and of learning to learn competence, in particular, from the intention to introduce **a definition of learning to learn competence**, the emphasis of learning difficulties by means of suggesting **two original classifications of learning difficulties**, within applied research approaches we have explained our research intention, we have elaborated in a systemic manner and experienced in a practice manner **The intervention**

program for development of learning to learn competence for 11th grade students with learning difficulties in studying Romanian language and literature, thus creating **an original model of development of learning to learn competence**. This model articulates systemically and coherently the ensemble of knowledge, abilities and attitudes necessary for the development of this competence and according to the taxonomy levels for learning, values entirely the processes of critical and metacognitive reflection, of strategic decisions making within a socio-constructivist context. The practical value of the experimental research is given by **a system of indicators** used in order to evaluate the level of formation and development of learning to learn competence at the cognitive, metacognitive and non-cognitive dimensions. Within the experimental approach we have **constructed and used a variety of evaluation instruments** (questionnaires, interviews of metacognitive awareness, reflection journals, interview guides, monitoring grid etc.) which we have conceived, translated and adapted according to the research stage in order to test the initial level of preparation, as well as the progress and final evaluations.

According to the results obtained within the research, we suggest the following **general recommendations**:

1. *The awareness* of educational institutions, of decision makers in education, of teachers as well as public opinion in order to use and implement both the formative valences of the model of development of learning to learn competence for 11th grade students with learning difficulties and the educational program within the context of influencing the students' learning behavior, as well as in the context of supporting the process of training and shaping the personality of the new, modern individual, integrated in a knowledge based society;
2. The re-elaboration and restructuration of *written curriculum*, especially of school programs for all schooling stages (the writing in terms of procedures, techniques, learning strategies of specific competences for helping students to develop their learning to learn competence, facilitating the planning per learning units by means of including some relevant learning activities, methods and instruments regarding the capacities proper to the learning to learn competence) and „the emphasis" of the curricular area „Counseling and Orientation", both at the theoretical and practical-applicative levels;
3. The planning and implementing of educational interventions, at *the school-based curriculum*, following the model of our intervention program in this research. The aim of these programs is that of developing students' learning to learn competence and to

possess learning autonomy. We recommend that the optional suggested to be realized at the level of a curricular area or at the level of more curricular areas, in order to transfer the learning strategies in different formative contexts.

4. The including within *the curriculum of initial and continuous training* of Romanian teachers of several major and optional disciplines having the purpose of planning, implementing and evaluating the educational approaches with emphasis on results such as cognitive, metacognitive and non-cognitive processes, in order to facilitate, within the learning situations suggested, a real education centered on learning to learn key-competence;
5. The development of *an efficient curricular management* for each discipline by means of emphasizing the modern pedagogical approaches;
   - student-centered methods, as subject of the teaching activity, including the formation and development of his competences;
   - the development of some efficient didactic strategies regarding the necessity of ensuring the continuity and progress from one class to another, from one curricular cycle to another, from one ontogenetic development stage to another when forming and developing the learning to learn competence.
6. Organizing *training courses* for teachers in the pre-university system having the purpose to instruct teachers in forming and developing the learning to learn competence to students, assuming the role of facilitator, counselor and resource for students' learning process.

The psycho-pedagogical program, suggested and evaluated within this paper, allows the structuring of coherent manner of action, in order to improve the results of 11^{th} grade students. This is the reason why we emphasize the necessity within the Romanian educational system, to promote a nuanced and coherent ensemble of educational practices to determine the existence of formative learning experiences to students, by means of actively and interactively engaging them in studying the school disciplines, as well as supporting them to become capable of learning to learn.

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