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Desktop Editing Office: 51st B.P.Hasdeu Street, Cluj-Napoca, Romania, Phone + 40 264 405352

SUMAR - SOMMAIRE - CONTENTS - INHALT

RALUCA PETRUȚA (MARE), MARIA ANCA, Computer-Assisted Programs of Assessment and Stimulation of Verbal Comprehension for Students with Hearing Impairment	3
CAROLINA HAȚEGAN, Bilingualism-Its Implications in Structuring Morphological and Lexical Abilities in Romanian Language	13
UREA ROXANA, Some Features of Social Communication Process at Preadolescents with Mental Deficiencies.....	25
ADRIANA CÂNDEA, Clinical Neuropsychological Assessment by Using Test of Memory and Learning (Tomal) in the Case of Children with Brain Injuries	33
DANIEL MARA, ELENA-LUCIA MARA, Stimulate the Creativity of the Primary School Adhd Students through Activities of Composing.....	43
FLORENTINA MOGONEA, Experimental Data on the Role of Metacognition in Gaining Self-Assessment Competence of High School Students.....	57
NICOLETA LAURA POPA, Gender Differences in High Achievers' Attributional Style.....	71
IOANA ROMAN, Analysis and Solution of the Romanian Agricultural Education Issues.....	85
MARIA CLAUDIA CUC, L'influence négative que média a sur le comportement de l'enfant	99
IULIANA MARCHIȘ, Integration of the Mathematics Textbooks in the Teaching/Learning Process	109

ADRIENNE KOZAN NAUMESCU, MĂRIOARA GLODIAN, The Importance of Evaluation in Teaching Science; Applications in the Study Theme: Alkanes.....	117
ALINA PREDA, On Temporary Syntactic Ambiguity	129

IN MEMORIAM

IOAN MÂRZA, MIRON IONESCU, ION ȘERDEANU, In Memoriam. University Lecturer Ananie Fărcaș (1930-1990) – 80 Years from Birth.....	143
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COMPUTER-ASSISTED PROGRAMS OF ASSESSMENT AND STIMULATION OF VERBAL COMPREHENSION FOR STUDENTS WITH HEARING IMPAIRMENT

RALUCA PETRUTA (MARE)¹, MARIA ANCA²

ABSTRACT. The study investigates the effects of adapted computer program on training the verbal comprehension at students with hearing impairment. Participants: 10 students with different degrees of hearing impairment were pre-tested for verbal comprehension with an adapted vocabulary scale. The following 10 sessions of computer-assisted training offered an alternative method of learning. Final results revealed that further stimulating and developing of verbal comprehension for students with hearing impairment can be achieved by diversifying the topics approached in schools through alternative methods and materials.

Key words: verbal comprehension, auditory training, computer programs, informatic means

ABSTRAKT. Bewertungsmöglichkeiten durch Informatik und stimulierende Sprachverständnis bei den Schülern mit Schwerhörigkeiten Die vorliegende Studie untersucht die Auswirkungen der Verwendung von einem computerisierten Programms angepasst für das Training des Sprachverständnisses bei Schülern mit Schwerhörigkeit. Die Teilnehmer sind 10 Schülern mit unterschiedlichem Maße von Hörschwierigkeiten, die anfänglich durch eine angepasste Probe evaluiert wurden um ihr Sprachverständnis bewerten zu können. Es folgten 10 Trainingseinheiten durch Übungssammlungen auf dem Computer, die eine alternative Methode repräsentierten. Die endgültigen Ergebnisse zeigten, dass anregen und entwickeln des Sprachverständnisses bei Kindern mit Schwerhörigkeit, kann durch die Diversifizierung der Themen in der Schule

Stichwörter: Sprachverständnis, Hörtraining, Computerprogramme, elektronische Möglichkeiten.

INTRODUCTION

There are over four thousand spoken languages around the world – and all use words and sentences in organizing ideas and thoughts. The human being has the capacity to organize sounds in words and sentences with meaning. The

¹ Certificate Program in Human Resources Management, University of Washington, Seattle

² Senior Lecturer, PhD Faculty of Psychology and Education Sciences, Babeş-Bolyai University, Cluj-Napoca

interpretation of this is, actually, a form of comprehension (Carrow-Woolfolk and Lynch, 1985).

In the case of children with hearing impairment, they have difficulties in understanding language, expressing ideas, forming sentences because of the disfunctions of the auditory analyzer.

The ear uses the acoustic informations for a better accommodation of the human being to the existential problems (Plack, 2005 after Darwin, 1859). In the case of children with hearing impairment, they have difficulties in understanding language, expressing own ideas, forming words and everything that means development of language (Anca, 2001). The ability of decoding the verbal information received through oral or written modality has to be designed, trained to ensure an appropriate efficiency. In a research made by Miller (2002) it is highlighted the role of the context (oral communication/gestural communication) in which the hearing impaired child was educated by marking differences in recognition of verbal structures. Since 1985, Kretschmer and Kretschmer defined comprehension on two levels: the first one implies the recognition of the linguistic particularities and the second one, the understanding of the principles that the person can use in grammatical judgements. The understanding of the processes and factors involved in the comprehension of texts at children with hearing impairment is unprecise and fragmented and the comprehension of texts is dominated by the semantic and syntactic processing of the reader (Miller, 2000). Gormley and Frazen (Miller, 2000) sustain the fact that many hearing impaired readers have the tendency to recreate the final sense of the text by interpreting words through prior knowledge without giving attention to the syntactic structure. The comprehension difficulties, the low level of vocabulary can be observed in the reading tasks because of the fragmentary phonological knowledges (Miller, 2002). Another idea of this author is that the pattern of a concept reflect its properties. This way, the pattern is directly associated with the meaning of the word and can be quickly reactivated so that it can provide further easier processing. This way, the stimuli represented through pictures are processed faster than those represented in written form (Miller, 2004).

The educational computer programs, specialized on a domain can raise attention and interest of many students, also bringing a contribution to learning for students with different deficiencies, implicitly, students with hearing impairment. The alternation of the traditional system of assesment and intervention with computer programs has positive effects in the development of verbal auditory function.

The present paper is part of a larger project being involved students from Special Education and from the Speech Therapy and Educational Audiology master. With this project we propose by using computer-assisted programs to improve the functionality of language and hearing at children and adults with hearing impairment.

The study presented in this article consists in elaboration of a training program for students with hearing impairment with the aim of improving the comprehensive language.

Objectives:

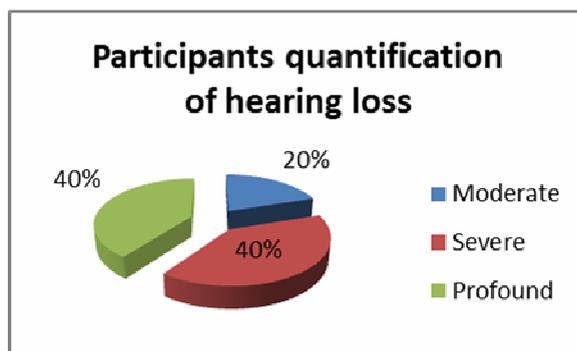
1. *Elaboration of computer-assisted program for improving the comprehension capacity at students with hearing impairment after the model of Ecosse program.*
2. *Improving the capacity of verbal comprehension at children with hearing impairment from the fourth and fifth class with the use of a computer-assisted program elaborated after the Ecosse model.*

Hypothesis:

The use of the computer program for stimulation and assessment of the verbal comprehension at students with hearing impairment will improve the capacity of verbal comprehension

Participants:

The participants of this study were 10 students with hearing impairment, with the age between 9-14, attending the “School for Deaf Children” Cluj-Napoca. According to their medical paper, they all had congenital sensorineural hearing loss with different levels of severity, from moderate to profound.



Picture 1. Participants quantification of hearing loss

Research

The research had four stages:

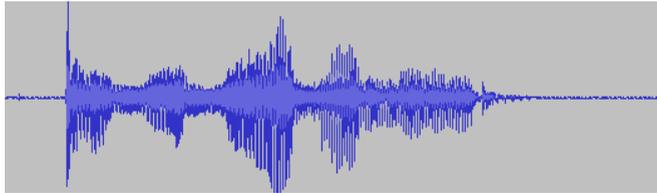
1. The initial stage- assessment of the development of the language at students with hearing impairment. There were investigated two major aspects of the development of the language:

Lexical development – through the oral and/or sign language in the explanation of words

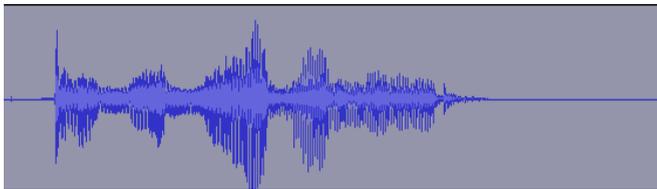
Semantic development – through the capacity of recognizing and defining words.

2. The elaboration of the adapted instrument for stimulating and assessing language comprehension (AISALC) at students with hearing impairment
AISALC has three sections: DATA, EDITOR and TEST.

The DATA section contains all the materials used in creating stimulation exercises and assessment of verbal comprehension at students with hearing impairment: pictures, audio records, exercises. It is important to mention that the audio recordings were made with a high quality microphone to avoid background noises.



Picture 2. Record of sound with background noise



Picture 3. Record of sound without background noise

In picture 2 it is represented the visualisation of audio record that contains background noise. It can be noticed at the end of the record that the line has distortion that means noise.

In picture 3 it is represented a sentence without background noises. It can be noticed that the final straight line is continuous comparing the first picture where the line is not straight because of the background noises.

The EDITOR section is addressed to the Special Education teacher who creates the set of training exercises. The content and number of the sentences for one set is selected taking into consideration the individual particularities of the participant. There can be three tasks:

- written sentence - the participant has the possibility to read the sentence and then select the appropriate picture response.
- audio sentence – the participant has the possibility to hear the sentence and then select the appropriate picture response.
- mixed sentence – the participant has the possibility to hear and read the sentence and then select the appropriate picture response.

The last section, TEST, represents the interface .

1. Deployment of the training

Before starting the test, there are introduced the initials and age of the participant. The instructions are given to the student verbally accompanied by sign language:

- For written sentences: "You will see a written sentence on the top of this page (I pointed the exact location). Please read it carefully and select the correct image"(I pointed to the four places where images will appear)
- For audio sentences: "You will hear a sentence in the headphones. Please listen to it carefully and select the correct image (I pointed to the four places where images will appear). If you want to hear it again press the Repeat button (I pointed to the repeat button to show its location on the screen)"
- For mixed sentences: "You will see a sentence on the screen and also hear it in the headphones. Please select the correct image (I pointed to the four places where images will appear). If you want to hear the sentence again, press the Repeat button (I pointed to the repeat button to show its location on the screen)"

The comprehension of these instructions was tested before starting the training.

Each correct answer was rewarded with a smiley face that appeared on the screen. For incorrect responses the feedback was a sad face. At the end of each set it appeared a princess with a magic stick flashed as a prize. Also, I gave them stickers for their good work.

I designed 10 training sets of 5 sentences based on the list of words designed for the assessment of the semantic aspect of the language at students with hearing impairment and grammatical structures after the Ecosse model, but taking into consideration the specific of the Romanian language. Each set was presented once a week to every participant in all three types – written, audio and mixed. Also, it was monitorized the progress of every participant.

2. Final evaluation

The final evaluation contained a set of 22 items following the grammatical structures of the Ecosse model, but taking into consideration the specific of the Romanian language. The instruction for the final evaluation was: "This is the final evaluation. There will be more sentences than usual. Some sentences will be written, some audio and some mixed. Please pay attention and select the correct picture. You can click on the Repeat button if you need to hear the sentence again. You can return and change only one answer." The final evaluation was applied to every participant in one session.

The sets were scored using the following scale (both the exercise sets and the final evaluation):

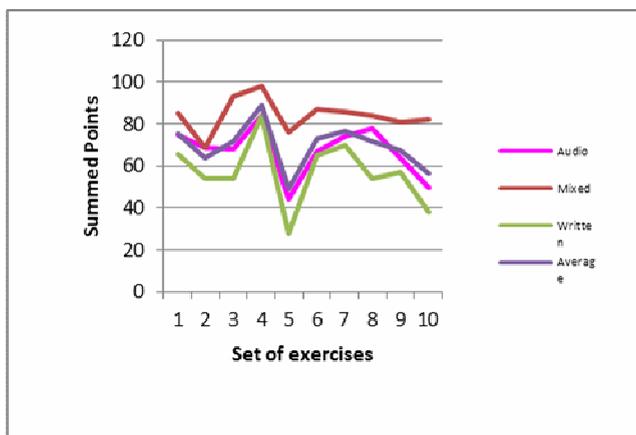
- Each correct answer was awarded 2 points.
- If the audio record was repeated, only 1 point was awarded.
- No points were given for incorrect answers or if the audio record was repeated more than once.

RESULTS

After the analysis of the results at the verbal comprehension task adapted for hearing impaired, it was found that 48% of the words were identified and defined by participants. The words correctly explained by all participants were “carrot”, “dress”, “truck”, “bed” and “morning”. These words are part of the participant’s active vocabulary. On the opposite pole, words that could not be recognized at all were: “patch”, “harvest”, “raw”, “precipice”, “fulfill”, “perform”, “victory”, “echo”.

The morphological characteristics generally identified by the participants were nouns, verbs, and then adjectives and adverbs. Prepositions and conjunctions are seldom present in their active vocabulary.

The sets of practice exercises had the purpose to stimulate and develop the language comprehension of hearing impaired children using AISALC. During the training process the mixed sentences scored the highest points. Sentences with pronouns recorded the greatest average while negative sentences or sentences with preposition scored the lowest average.



Picture 4. Participant’s result at the practice exercises

For the final test an average score of 67% was recorded. The top scores were registered for nominal sentences, simple sentences with prepositions, direct/indirect speech sentence, and relative clauses. The lowest average was recorded for negative sentences which were presented in the audio form.

Conclusions

Students with hearing impairment have difficulties in remembering studied words, especially when are not integrated in a context. They operate with predominantly concrete and not abstract words, this fact being noticed in their telegraphic speech. The sign language predominates in communication, which creates confusion, because they use the same sign for different morphologic categories.

The active vocabulary of children with hearing impairment contains nouns and verbs that are linked with daily activities (in class and/or at home). Another observation indicates that children with hearing impairment encounter difficulties in operating with the notion of gender. For example, the items that contained the word “carrot” had a better score than words like “vegetables”.

Using computer programs as a modality of stimulation and assessment, had a benefic effect on the development of the comprehensive side of language at students with hearing impairment. AISALC constituted a modality of training of verbal comprehension and a modality of developing the vocabulary of students with hearing impairment. All the participants manifested interest to collaborate, the program being seen by some of them as a game.

At the reading task, nine out of ten participants used the dactyl language as a source of self-control and self-appraise. When listening to audio exercises they faced difficulties: most of the incorrect answers were chosen by recognizing just one word from the entire sentence. Also, as a consequence of memorization, some of the wrong answers persisted to all next types of the sentence. The high number of audio repetitions proved to be necessary, because the participants' poor comprehension ability triggered by the hearing impairment. For the mixed sentences, the majority of the participants gave their answers based on the written part of the sentence.

In conclusion, it is imposed the development of the verbal comprehension at students with hearing impairment by diversification of the topics approached in schools and using alternative material and method, including informatic means.

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Appendix 1

AISALC Sentences- Stimulating Exercises for Hearing Impaired Children

No. set	Grammatical Structure	Sentences	Words from Crichton Vocabulary Scale
1	Nominal sentences Singular adjectives	Dan is joyous. The ring has a blue diamond. The apple is red. Nicu has a small garden. The dress has black dotted print.	joyous, diamond, garden, small, dress
2	Simple sentences Simple negative sentences	In winter I skate on the ice. Inside the house is not cold. Santa Claus brought me a dog. The Snow Man melts at heat. Christmas is getting closer.	house, dog, melt, closer
3	No, only, sometimes Simple sentences with prepositions	The disobedient child doesn't receive gifts. The candle has yellow flame. Santa Clause does not reveal the gift list. Santa's bag has a white patch. Santa's sleigh vanishes in night.	receive, flame, reveal, gift, patch, vanish
4	No, only sometimes Sentences with personal pronouns	When there is a storm, sometimes there are strikes. She stirs in the pot. He answers the phone. He gets scared easily. Sometimes haste makes waste.	storm, strike, stir, answer, haste
5	But, no, neither Sentences with prepositions (in front, behind, inside, outside)	No carrots grew in the garden. No ships arrived in the harbor. There is a burglar behind the house. There is a mouse underneath the bed. Dad is reading in front of the television.	garden, carrot, ship, house, burglar, bed, television
6	Sentences with prepositions (above, underneath) Relative pronouns (that)	The song that she performs is boring. A frog rests above the water. An airplane flies above the clouds. The dictionary that I'm looking for is in front of me. The cat rests underneath the table.	perform, boring, rest, airplane, dictionary

7	Comparatives and superlatives , Passives	Costel is the most stubborn boy. The perfume smells like roses. The seaside vacation was more fun than ever. The wall was built by a worker. The kite was flown without effort.	stubborn, perfume, fun, fly
8	Reduced to relative pronouns, Reduced to the relative "than", Ambiguous pronoun	That who claps will be punished. That who has the courage can go in expedition. Salute politely raising the hand to the hat. Argue without a reason. The door that I'm locking is made of metal.	clap, punish, courage, expedition, argue, lock, metal
9	Ordinal adjectives, Relative pronouns	The third strawberry is smaller. The second passenger from the motorcycles is frightened. The apple that I chose was from the ground. The shoes that I bought had the strings tied. The cat that I was talking about catches mice from the pantry.	small, fear, choose, tie, catch
10	Active sentences	The battle that I'm writing about was with the Turkish soldiers. The elders said that this year we will have a rich harvest. Mom praises his hard work. They say that you can hear better the echo in precipice. I was telling the dream that I had this morning.	battle, write, say, harvest, praise, work, echo, precipice, dream, morning

Appendix 2

AISALC Sentences- Assessing Test for Hearing Impaired Children

NO.	Sentence	Type
1	The chick is obedient.	written
2	The mouse drives a car.	mixed
3	The teddy bear paints a flower.	audio
4	Cannot catch him.	mixed
5	I sometimes listen to music.	audio

RALUCA PETRUTA (MARE), MARIA ANCA

6	Cristina is talking on the phone.	mixed
7	Mom said that the soup is hot.	mixed
8	She tries to catch the ball.	written
9	The cake that I told you about has two levels.	mixed
10	I do not like ice-cream but I will still eat one.	written
11	He looks tired.	audio
12	There are no swans on the lake.	audio
13	He is in front of the computer since morning.	mixed
14	Above the books there is a red apple.	audio
15	The ostrich is a bird that lays the largest eggs.	mixed
16	I like red lipstick best.	audio
17	The check was signed by me.	written
18	The one who will play the piano will be awarded.	mixed
19	The one who will try the red dress will look like a princess.	mixed
20	Gives injection to sick children.	audio
21	Twelve ants dance on a pie.	mixed
22	The table that I bought is oval.	written

BILINGUALISM-ITS IMPLICATIONS IN STRUCTURING MORPHOLOGICAL AND LEXICAL ABILITIES IN ROMANIAN LANGUAGE

CAROLINA HAȚEGAN¹

ABSTRACT. This research is divided on two different sections: a theoretical and an experimental one. The theoretical background underlines the extension of the concept of bilingualism and its subtypes. A short description of the main psycho-pedagogical tool (PRGCRL) used during the research is also offered in this part of the study. The experiment is focused in establishing differences in acquiring grammatical and lexical abilities in the case of two categories of participants: bilingual and non-bilingual, with ages in the range 8-11 years old. The results underline the fact that bilingual children proved inferior morphological and lexical abilities in comparison with the non-bilingual ones. The research also focused on the way in which bilingual children can improve their linguistic abilities at morphologic and lexical level through intervention programs focused on morphological competence subcomponents. This research section includes two case studies.

Keywords: bilingualism, coordinated bilingualism, sub-coordinated bilingualism, composed bilingualism, lexical abilities, morphologic competence.

ABSTRAKT. Zweisprachigkeit- Ihre Auswirkungen an Gliederung der morphologischen und lexikalischen Fähigkeiten in der Rumänischen Sprache-Diese Forschung ist in zwei verschiedene Abschnitte geteilt: ein Theoretischer- und ein Versuchsteil. Der theoretische Hintergrund betont das Konzept der Zweisprachigkeit und ihre Untergruppen. Es wird in diesem Teil auch eine kurze Beschreibung gegeben über den Haupt-psycho-pädagogischen Hilfsmitteln (PRGCRL), die während der Forschung in dieser Studie benutzt werden. Das Experiment ist versucht Gegensätze zu ermitteln bei dem Erwerb von grammatikalischen und lexikalischen Fähigkeiten im Falle von zwei Teilnehmerkategorien: zweisprachige-nicht zweisprachige Teilnehmer mit dem Alter zwischen 8-11 Jahren.

Die Ergebnisse betonen, dass zweisprachige Kinder erwiesen untergeordnete morphologische und lexikalische Fähigkeiten im Vergleich zu den nicht Zweisprachigen. Die Erforschung konzentrierte sich auch auf die Art und Weise in der, an einer lexikalischen und morphologischen Ebene durch Vermittlungsprogramme konzentriert auf morphologische Teilkomponente der Kompetenz, Kinder ihre sprachlichen Fähigkeiten verbessern können. Dieser Teil der Erforschung beinhaltet auch zwei Fallbeispiele

Stichwörter: die Zweisprachigkeit, geordnete Zweisprachigkeit, untergeordnete Zweisprachigkeit, zusammengesetzte Zweisprachigkeit, lexikalische Fähigkeit, morphologische Kompetenz.

¹ PhD. Junior Lecturer, Faculty of Psychology and Education Sciences, Babeș-Bolyai University, Cluj-Napoca

1. Bilingualism

1.1 Bilingualism-concept description

Bilingualism, for hearing persons, implies learning simultaneously two distinct linguistic codes, two distinct languages. This can be defined as two languages practice, definition from which derives the “bilingual acquisition” concept. This concept refers to child`s exposure to two distinct language, simultaneously and regular, after he was born and in his first year of life (De Houver, 1990, 1995; Lanza, 1997; Quay, 2000 apud Attariba; Heredia, 2008).

Bilingualism, for hearing impaired persons means the consequence of introducing sign language in children`s education (Anca, 2000; Virole, 2004). This method is very common in the case of the hearing impaired child, it referring to the presence of two significant persons for the child and for his communication abilities development, one person using constantly in communication only the oral code and the other, the sign language code.

1.2. Types of bilingualism

Weinreich (1968 apud Susanne; Deuchar, 2001) has described the following two distinct types of bilingualism: coordinated bilingualism and composed

In the context of the coordinated bilingualism the two linguistic codes are acquired in distinct communication contexts. Thus, linguistic labels for a certain object are separately, distinctively stored, each of them keeping their own meaning. In these circumstances, languages present themselves as independent entities.

In the case of composed bilingualism languages are interrelated, the bilingual person proving one set of significances to which two distinct linguistic codes are connected. Having into consideration this dichotomist perspective it can be underlined the necessity of the third distinct bilingual category, the category entitled sub-coordinated bilingualism. In this situation is put the bilingual person who transfer significance to a word from his first language, to a word from his second language. Thus, sub-coordinated bilingualism implies the presence of a single set of significances properly acquired within the first language to which another linguistic label in another language is attached.

The features of those three types of bilingualism are to be illustrated in the following table (the example emphasize an English-French bilingualism).

Tabel 1.

Types of bilingualism

Types of bilingualism/Manifestation level	Coordinated Bilingualism		Composed Bilingualism	Sub-coordinated Bilingualism
Conceptual level	book	livre	book=livre	book
Intermediate level	↓	↓	↙ ↘	/buk/
Lexical level	/buk/	/livr/	/buk/ /livr/	/livr/

2. Probe for assessing the receptive abilities of morphologic categories in Romanian language- construction principles (PRGCRL)

Through the curricular analyses performed in the previous stage, and through the theoretical approach of the issues pertaining to the language and communication from a psycho-pedagogic, psycholinguistic and linguistic perspective (Neamțu, 2008, 2009; Bishop, 2003; Bachman, 1990) we created a probe for assessing the receptive abilities of morphologic categories in the Romanian language this chapter describes the probe elaborated for the conducting of the research based on the following coordinates:

- the presentation form ;
- the structuring of the material;
- grammatical content;
- lexical content;
- the target group.

2.1 The presentation form

In order to evaluate the capacity of comprehension of linguistic structures which display a lexical and grammatical content, image representations corresponding to these structures have been used. The subject's task is to identify the image representation corresponding to the given linguistic structure. The subject's answer has to be selected out of four possible image variants.

2.2 Structuring the material

The probe is made up of 92 items, through which twenty morphological aspects are evaluated, which are relevant for the issue of morphologic competence in the Romanian language. The sentences on which the imagistic material is based represent the items of the probe. These were elaborated according to the following criteria :

- length;
- complexity degree;
- phonemic composition;
- syllabic composition of the words in the sentence;
- the usage frequency of the words;
- adaption of the lexical content used to the age and development peculiarities.

2.3. Grammatical content

The morphological aspects approached are grouped in twenty blocks of variables, which in their turn, are separated in two categories: flecional morphemes and derivational morphemes. The composition of the two categories is unbalanced due to the particularity of the Romanian language. Thus, the flecional morphemes category comprises the following morphologic aspects:

- article morphemes;
- number morphemes;

- gender;
- diathesis morphemes;
- time morphemes;
- mode;
- pronoun number/ gender morphemes;
- gender/ number morphemes with the adjective;
- comparison degree morphemes with the adjective;
- adverb/ adverbial phrases;
- comparison degree morphemes with the adverb;
- simple prepositions;
- compound prepositions;
- coordinating conjunctions;
- subordinating conjunctions /relative pronouns;
- cardinal numeral;
- ordinal numeral;
- suprasegmental phonemes;
- morphemes through which the animate/inanimate contents are rendered.

The category of derivative morphemes is represented by a single block of variables, namely that of prefix- derived words.

2.4 Lexical content and target group

The probe aims at children aged between 6-11 years, both valid children and children with disabilities, the linguistic material and the morphologic sample being selected according to the development characteristics of children having the previously mentioned age (the most frequent are the concrete lexical contents expressed through nouns- 90, also, the verb category is well represented by approximately 50 verbs. There were also used approximately 30 adjectives, 15 adverbs, 10 numerals, 12 pronominal forms, 10 prepositions and 5 conjunctions). The most frequently used words are: “mother”, “father”, “girl”, “boy” and “to be”.

The probe can be also used with the help of a computerized interface, which simplifies the data recording procedure.

For the elaboration of this assessment tool, two instruments were considered, instruments which investigate the same dimension of the language, namely the morphologic dimension: the TROG test (**Test for Reception of Grammar**) (Bishop; Bright; James; Bishop; Van Der Lely, 2000; Bishop, 2003) and ECOSSE (**experimental program for the investigation of oral and written comprehension**) (Lecocq; Leuwens; Casalis; Watteau,1996).

3. Experimental design

3.1 Research objectives

1. Establishing the way bilingualism interfere with morphological language structuring in Romanian Language.

2. Establishing the way bilingualism interfere with lexical language structuring in Romanian Language.

3. Stimulating language development within the bilingual context by elaborating and implementing intervention programs regarding morphologic competence development in Romanian Language.

3.2 Research Hypothesis

1. learning to languages in the same time can negatively interfere with developing morphologic competence in Romanian language;

2. learning to languages in the same time can negatively interfere with developing lexical competence in Romanian language;

3. elaborating and implementing intervention programs for developing morphologic competence throughout its components (article- noun; gender/number-noun; person/number-verb; time-verb; mode-verb; diathesis-verb; homographs) can improve both morphologic and lexical abilities in Romanian language

3.3 Participants in the research

Within this research were included 63 bilingual participants and 141 non-bilingual participants. Hearing impaired children, these using sign language for communication were placed in the category of bilingual persons, based on the theory elaborated by a series of researchers in the field, among these we can mention: Tucker and Powell, (1993); Anca, (2000); Virole, (2001, 2004, 2006). In the case of the hearing impaired children the acquisition of the two linguistic codes could be put in evidence from early developmental stages, aspect that underlines the fact that these participants in the research are to be considered as part of the category of coordinating bilingual persons and not composed bilingual persons.

The distribution of the participants in the research according to their second language is illustrated in table no. 1.

Tabel 2.

Bilingualism- underlining the second language

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid participants using only Romanian Language	141	69.1	69.1	69.1
Roma Language	39	19.1	19.1	88.2
Spanish Language	3	1.5	1.5	89.7
Hungarian Language	13	6.4	6.4	96.1
French Language	1	.5	.5	96.6
Sign Language	7	3.4	3.4	100.0
Total	204	100.0	100.0	

3.4 Tools used during the research

During this research were used the following psycho-pedagogical tools:

- the probe for reception of grammatical categories in Romanian language (PRGCRL);
- a list of twenty words that the participants had to define.
- others tasks conventionally used during educational assessment, tools that will be described along the results presentation.

3.5 The research results

3.5.1 Morphological features in the context of bilingualism in Romanian Language

In order to test the first hypothesis of the research, in order to establish the differences, referring to the global construct of morphologic competence, among the bilingual and the non-bilingual participants in the research, it is used the normalized distribution of the scores obtained by applying the PRGRL probe.

Tabel 3.

Mean and standard deviation values in the bilingual and non-bilingual context

Non-bilingual/bilingual	Mean	N	Std. Deviation
Non- bilingual persons	70.0213	141	11.46141
bilingual persons	62.5556	63	13.70516
Total	67.7157	204	12.64590

In order to calculate the differences between the means t test was used.

Tabel 4.

Independent Sample Test report

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Scor total	Equal variances assumed	.521	.471	-4.173	199	.000	-.91933	.22030	-1.35376	-.48490
	Equal variances not assumed			-4.214	123.061	.000	-.91933	.21819	-1.35121	-.48745

The fact that the score in Levene`s Test (Levene's Test for Equality of Variances) is not significant from a statistical point of view proves that the two samples are homogenous, thus "Equal variances assumed" value of the t test is to be analyzed. According to this value the mean differences are highly significant from a statistical point of view, $p < .01$ ($t = -4.173$, Sig. 2 tailed = .000). This proves the fact that bilingual participants in the research score inferiorly comparing with non-bilingual participants, referring to receptive morphological abilities. The bilingual participants in the research have a lower mean of the scores, and the differences were calculated between their results and the results of the non-bilingual participants, thus the t value is a negative one.

The t test results indicate significant differences from a statistical point of view between the bilingual and non-bilingual participants in the research, regarding the way morphologic competence was structured.

This aspect demonstrates that the first research hypothesis is confirmed, this facilitating the inclusion of the bilingual participants in the category of subtractive bilingual persons. Subtractive bilingualism seems to be a delaying element in linguistic development, in our case at morphological Romanian language level.

The correct answers frequencies and the frequencies difference for the two categories of participants in the research; bilingual and non-bilingual participants were calculated at the level of every block of variables included in the probe for reception of morphologic categories in Romanian language, psycho-pedagogical tool used during the assessment. In this way there can be underlined the different acquisition features of the morphological abilities that are component parts of morphologic competence in Romanian language.

Our research starts from the assumption that identifying significant differences between the means of the two experimental groups scores, at the level of the global construct of morphologic competence; it will also be put in evidence significant differences in the component blocks of variables. In order to test this assumption chi square test was used for calculating the frequencies and the frequency differences.

Significant results were obtained at the level of the following blocks of variables: *article, gender, number, diathesis, time, mode, pronoun, comparison degrees of the adjective, compound prepositions, derivative morphemes, suprasegmental morphemes, animate/inanimate category*. This indicates that bilingualism prevents the acquisition of certain morphologic abilities. These abilities, however, represent fundamental elements of the morphologic competence in the Romanian language, according to the value of the t test.

This result indicated the fact that certain morphologic aspects are of a greater importance for influencing morphologic competence development in Romanian language, but also the fact that bilingualism variable can be understood as a hidden variable for these measurements. *Thus, a new research perspective depicts in order to control bilingualism variable, a paired sample based research.*

3.5.2 Lexical features in the context of bilingualism in Romanian Language

In order to test the second hypothesis formulated by this study: *learning to languages in the same time can negatively interfere with developing lexical competence in Romanian language*, were compared the results obtained by the two categories of participants: children who display bilingualism and children who do not display bilingualism, in the probe which required the defining of twenty words.

Table 5.

Distribution of the variable „number of defined words” for the entire lot of participants

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Number of defined words	204	.00	20.00	12.5245	4.63701	-.584	.170	-.306	.339
Valid N (listwise)	204								

It can be noted, from the above table, that the distribution of the variable „number of defined words” is normal (according to the skewness and kurtosis indicators), which allows the realization of the intended comparison.

Table 6.

Descriptive indicators of bilingual or non bilingual participants as per the number of defined words variable

Group Statistics

Non bilingual/bilingual		N	Mean	Std. Deviation	Std. Error Mean
Number of defined words	Non-bilingual	141	13.6809	4.20598	.35421
	Bilingual	63	9.9365	4.53969	.57195

The data in table 5 indicate a much smaller value of the average of correctly defined numbers, compared to the average values of non bilingual participants. In order to check whether the differences obtained are statistically validated, the t test was applied on independent samples. The test results can be found in table 6.

Table 7.

The report resulted from the application of “Independent Samples test” in the context of bilingualism and its absence according to the defined words variable

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Number of defined words	Equal variances assumed	.891	.346	5.731	202	.000	3.74434	.65332	2.45613	5.03255
	Equal variances not assumed			5.566	111.420	.000	3.74434	.67275	2.41131	5.07738

Considering that the results obtained upon applying the Levene`s test indicate that this is statistically insignificant (F=.891), it can be noticed that the distributions are homogenous. In the light of this result the first value of the t test „Equal variances assumed” is considered. Thus it can be noticed that the t test is statistically significant (t=5.731, p<.01). According to this value, it can be concluded that the differences between the two lots are significant, which means that the bilingual participants define fewer words than the non-bilingual participants

This result confirms the stated hypothesis, emphasizing the negative impact of bilingualism on the structuring of the lexical level of the language. These results are compliant with those that can be found in the specialized literature (Pearson; Fernandez; Oller, 1993).

3.5.3 Implementing programs for developing morphological and lexical abilities

The development of morphology based intervention programs results in an improvement of acquisition at the morphologic and semantic level of the language. Thus, the research also focuses on the analysis and the interpretation of the intervention programs results. The elaborated programs were implemented on bilingual children, their functional feature being emphasized with the help of two case studies.

The table below contains the concentrated results of the two participants, E.D.P and T.S.S., in the pre-test and the retest stage, at the probe for morphologic categories reception in the Romanian language. It was eliminated the variable taken for the familiarization of the participants with the probe as this was given, for the pre-test stage in September 2008, and for the retest stage in May 2009.

Table 8.

Concentration of results in the pretest and posttest stage of the probe for morphologic categories reception

	<i>E.D.P.</i>		<i>T.S.S.</i>	
	<i>No. of items with incorrect answers/percentages</i>			
Pretest	29	31,52%	20	21,73%
Retest	12	13,04%	10	10,86%
Differences	17	18,48%	10	10,86%

As it can be noticed from the above table, progresses were made in both cases after the intervention, at the level of the structuring of the receptive morphologic abilities. This aspect underlies the importance of structuring of intervention programs of this type, even when language troubles due to bilingualism are identified.

Regarding the two children on whom the intervention programs were applied, progresses were recorded in terms of lexical abilities as well.

In the following table, the situation at the two participants' lexical level is illustrated from a numeric perspective, during the two stages (pretest and retest) of the research, in order to bring forth the quantitative differences.

Table 9.

The number of correctly/ incorrectly defined words by the two participants, in the pretest and retest stage

	<i>E.D.P.-</i>		<i>T.S.S.-</i>	
	<i>no. of correctly defined items</i>	<i>no. of incorrectly/ partially defined items</i>	<i>no. of correctly defined items</i>	<i>no. of incorrectly/ partially defined items</i>
Pretest	8	12	13	7
Retest	15	5	17	3
differences	7	7	4	4

Conclusions:

Bilingualism in Romanian language influences, having into consideration the group of participants, included in this research, in a negative way morphological and lexical abilities. This aspect is important to be underlined (both at the assessment level and at the intervention one) as the social dynamics from our country forces teachers and speech language therapists to come across the bilingual phenomenon, in different combinations, in a greater degree nowadays.

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SOME FEATURES OF SOCIAL COMMUNICATION PROCESS AT PREADOLESCENTS WITH MENTAL DEFICIENCIES

UREA ROXANA¹

ABSTRACT. During his entire life, a person has a lot of social relationships, based on the social communication process. The social communication is a form of total communication process and has specific manifestations related to ages, gender, social experience, etc.

Therefore, I have made an investigation, on 40 Romanian preadolescents with mental deficiencies. Our investigation has had the following goal: to reveal some features of social communication process at preadolescents with mental deficiencies.

The psychodiagnosis instruments that have been used on this research are: The Social Conversation Questionnaire that has been created for Romanian mental deficiencies pupils by R. Urea in 2008, The Zazzo test of similarities, The verbal associations test.

The results that came through have revealed at people with mental deficiencies some features of, of social conversation level, of verbal functional activism, of flexibility of social communication.

Our conclusions allowed us to create an important set of psychological test that can be used in differential psychodiagnosis process.

Key words: mental deficiencies, social communication, social conversation.

ZUSAMMENFASSUNG. EINIGE MERKMALE DER SOZIALEN KOMMUNIKATION BEI PRETEENAGERS MIT GEISTIGE MÄNGEL. Während seines gesamten Lebens, haben die Menschen viel von sozialen Beziehungen, der sozialen Kommunikation basiert. Die soziale Kommunikation ist eine Form der gesamten Kommunikationsprozess und hat ihren spezifischen Ausprägungen im Zusammenhang mit Alter, Geschlecht, sozialer Erfahrung usw.

Daher habe ich eine Untersuchung gemacht, auf 40 rumänische preadolescents mit geistiger Mängel. einige Merkmale der sozialen Kommunikation bei preadolescents mit geistiger Mängel offenbaren: Unsere Untersuchung hat folgendes Ziel hatte.

Die psychodiagnosis Instrumente, die auf dieser Forschung verwendet wurden, sind: Die Online-Konversation Fragebogen, die für rumänische geistiger Mängel Schüler wurde von R. Urea erstellt im Jahr 2008, Die Zazzo Test von Ähnlichkeiten, die verbalen Assoziationen zu testen.

Die Ergebnisse, die durch bei Menschen mit geistiger Mängel gezeigt haben, kamen einige Features, sozialer Gespräch Ebene der verbalen funktionalen

¹ Lecturer Ph.D., Bucharest University, Faculty of Psychology and Educational Sciences, Special Education Department

Aktivismus, der Flexibilität der sozialen Kommunikation. Unsere Schlussfolgerungen konnten wir einen wichtigen Satz von psychologischen Tests, die Nutzung im differentiellen psychodiagnose Prozess sein können.

Schlüsselwörter: geistige Mängel, soziale Kommunikation, soziale Gespräch

1. Theoretical background

Human's communication is, first of all a social phenomenon. Communication between people defines social relationships, and the way how society is organised.

The social communication is the fundamental way of person's social interaction and is done through the social's symbols and significations and determines specific behaviours.

During the process of social communications there is some information's exchange. Social communication presumes emission, transmission and reception of information and sometime it can be assume as information's transmission. But, in reality, the process of information's transmission only when the message is understand by the receiver and it is follow by a proper response.

Social communication's features depend by the type of social interaction between people, by the people's personality types.

Because of the mental disabilities and the delay in biological normal development, the children have not the proper abilities to a proper response to social stimulus and will develop a social and school maladjustment. These not developed abilities are also in the social communication area and will increase the personal insecurity and in time, it can determine social isolation.

At children with mental disabilities the main goal is to be integrated in the society. For that goal it is necessary that the training process of these people to be focus various aspects, including social communications abilities. But it is important to know the features of social communication at children with mental disabilities

2. Investigation research

The theoretical aspects that we have just presented in a short manner were the reasons that determined us to investigate some of the social communication features because knowing those features we can create proper programs that will develop at pupils with mental handicap the social communication abilities that can facilitate social relationships and integration in society.

Our research had the goal *to investigate at preadolescents with mental handicap the features of social communication in formal group for elaborating the proper individual counselling programs that will facilitate the future labour integration.*

Our objectives were to investigate at preadolescents with mental handicap the following aspects: the social conversation's level, the verbal functional activism, the social communication's flexibility.

We made in our research the following assumption: we assumed that based on the specificity features of mental handicap's personality, we can see different ways of manifestation of social communication skills in formal group that will depend by I.Q and the social communication experience.

We did our research on 30 subjects, aged 10-18 years old, 17 boys and 13 girls from Special School nr.5 Bucharest with I.Q between 50- 75- medium level of mental handicap..

In our research we have used the following psychological instruments: the Social conversation questionnaire, which was created in 2008 by R. Urea for pupils with mental handicap; the Vocabulary Test; the Verbal Association Test. The last two instruments was adapted for romanian pupils with mental handicap and the coefficients of fidelity were: . 675, and . 744.

2.1. Investigation of social conversation level

All the collected data from the social conversation questionnaire were evaluated on three levels: low, medium, high. The data are presented in table nr.1.

Table 1.

The levels of social conversation at our investigated subjects

	Levels of evaluation		
	Low	Medium	High
Number of subjects (%)	55,7	42,2	1,1

The dynamic of social conversation at our investigated subjects is presented in figure nr.1

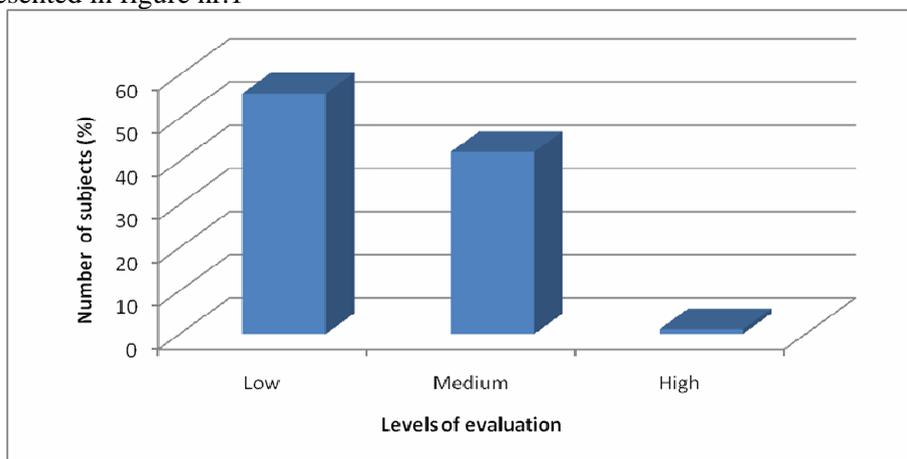


Figure 1. The dynamic of social conversation at our investigated subjects

As we can see, most of our subjects have a low level of social conversation and can explain by the fact that the social conversation strategies are not operative due to a limited social experience communication

The qualitative analyses of the subject's answers allowed us to see some nuances of the social conversation process: if the social conversation is done in school or if the social conversation's partners have the same status, the level of social conversation is medium because the type of messages that are between them is focus on daily activities; if the social conversation is done in large social groups where people have different social status, the level of social conversation is low.

The skeness coefficient (.397) revealed that the task was done by our subjects in an easy manner and the kurtosis coefficient (2.037) revealed that the features that we have found is relevant at our subjects as a group.

The correlation analyses revealed a direct correlation between the social conversation and the I.Q of our subjects ($r = .364$, $p = 0.05$)

2.2. Investigation of verbal functional activism

First of all, we have to define the verbal functional activism. This concept represents the level of performance that a person can reach during the social communication process as an expression of operability of functional vocabulary

The collected data from Zazzo's test of vocabulary were evaluated on there levels: low, medium, high and are presented in table nr.2

Table 2.

The verbal functional activism at our investigated subjects

	Levels of evaluation		
	Low	Medium	High
Nr. of subjects (%)	54,54	36,36	9,1

The dynamic of verbal functional activism at our investigated subjects is presented in figure nr.2

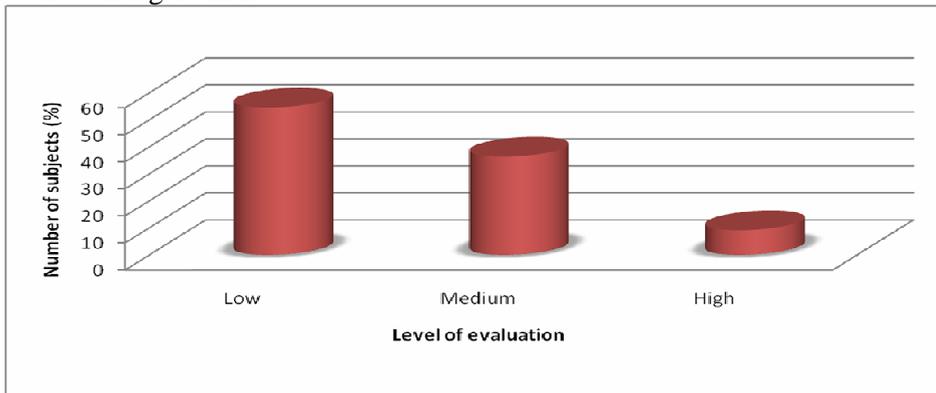


Figure 2. The dynamic of verbal functional activism at our investigated subjects

We can see that at our investigated subjects, the verbal functional activism is at low level and can be associated with the flight of intellectual effort and with the limited area of functional remaining potential. That means that our subjects will be used in social communication process a limited part of vocabulary, especially those words, those verbal structures that had been practiced long enough to guarantee some success in social area.

There are some subjects that have a high level of verbal functional activism. That should be meaning a high level of development in social conversation. But, in reality it is really about the process of tinting of verbal structure in the process of social relationships in a way that are more suitable to a new context which was not practiced. It also mean that those subjects have a larger social communication functional activism) and can avoid in better manner the social blaming

We also revealed the behavioural rigidity on verbal functional activism through the way how they repeated some sentences.

The skeness coefficient (.797) revealed that the task was done by our subjects in an easy manner and the kurtosis coefficient (.211) revealed that the features that we have found are relevant at our subjects as a group.

Based on statistical processing we have found a prediction coefficient which value was 14. That means that, at pur investigated subjects we will see some improvements on verbal functional activism after 14 weeks after we will start the therapeutical process.

The correlational analyses have revealed the following correlation: a direct correlation between the verbal functional activism and the social conversation ($r = .296, p = 0.05$); a direct correlation between the verbal functional activism and I.Q ($r = .376, p = 0.05$)

2. 3. Investigation of social communication flexibility

The collected data from verbal association test were evaluated on three levels: low, medium, high and are presented in table nr.3

Tabel 3.

The social communication flexibility at our investigated subjects

	Levels of evaluation		
	Low	Medium	High
Nr. of subjects (%)	50, 25	42,00	7,75

The dynamic of social communication flexibility at our investigated subjects is presented in figure nr.3

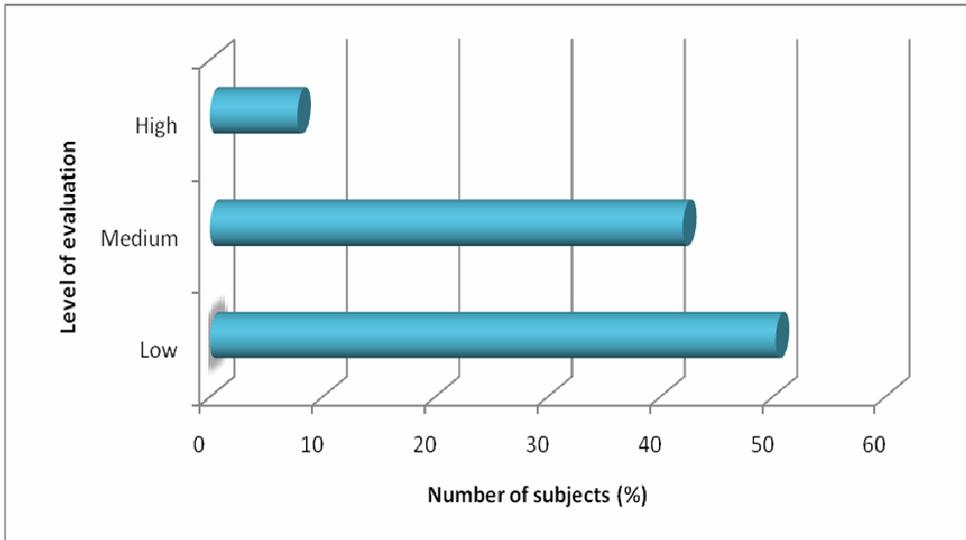


Figure 3. The dynamic of social communication flexibility at our investigated subjects

We can see that at of social communication flexibility is low level at most of our subjects and follow up with a little diference by the subjects that have had the social communication at medium level. This situation is a reflection of the impact of the educational process on the subjects with middle mental handicap and mean that is the expression of verbal behavioural lability.

But, there some subject that had a a high level of social communication flexibility and had a value of 75 at the I.Q. That mean that those subjects had operative inductive strategies and can anticipate the partnert's reactions and can have proper behaviours suitable to social communication context. In this process of social interaction, the mesagess will be understand by those subjects. But, even they will undersand the mesagess due to the features of mental deficiencies, they can't anticipate to play the corect role in social enviroment.

The skeness coefficient (.002) revealed that the task was done by our subjects in an easy manner and the kurtosis coefficient (.587) revealed that the features that we have found are relevant at our subjects as a group.

Based on statistical processing we have found a prediction coefficient which value was 10. That means that, at pur investigated subjects we will see some improvemts on social communication flexibility after 10 weeks after we will start the therapeutical process.

The correlational analyses revealed; a direct corelation between social communication flexibility and social conversation ($r = .147$, $p = 0,05$), a direct corelation between social communication flexibility and verbal functional activism ($r = .223$, $p = 0,05$)

3. Conclusions

Our research found, at our investigated subjects the following conclusions as features of social communication process:

1. The social conversation at subjects with middle level of mental handicap is a consequence of a genetic viscosity and his way of revealing is limited to social contexts that give to our subjects a self-security; in other social contexts the process of social conversation use strategies that are not suitable with current moment;
2. The verbal functional activism at subjects with middle level of mental handicap is the expression of insufficient operative structure related to the context's moment. The limited social experience determine poor strategies with limited operative objective criterias.
3. The social communication flexibility at our subjects is mark by the limited thinking process, by the limited operativity of lexico- grammatical structures and determine a limited social competence.

The psychological instruments that we have used in this research for revealing some features of social communication process at preadolescents with mental deficiencies, can also be used in differential diagnosis process of the levels of mental deficiency.

These conclusions confirm the assumption that we have made at the beginning of our research.

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CLINICAL NEUROPSYCHOLOGICAL ASSESSMENT BY USING TEST OF MEMORY AND LEARNING (TOMAL) IN THE CASE OF CHILDREN WITH BRAIN INJURIES

ADRIANA CÂNDEA¹

ABSTRACT. The aspects concerning memory from the point of view of clinical neuropsychology seem to be unclear. Almost every malfunction of the central nervous system (CNS) associated with problems in superior cognitive functions has also been associated with a type of memory impairment, this being a usual problem underlined by the patients (Reynolds, 2003; Fischer, 2004). In the cases of traumatic brain injury (TBI), memory impairments seem to be the most common among patients' problems (Mellick, 2004; Reynolds, 2005). This research emphasizes several aspects concerning the assessment of memory functionality in the case of children that suffer cerebral traumatic injuries, by using the assessment tool TOMAL – Test of Memory and Learning. It also underlines the way children's cognitive abilities change due to the traumatic injury.

Keywords: memory, traumatic brain injury, TOMAL, memory performance

ABSTRAKT. Klinische neuropsychologische bewertung durch gedächtnis- und lernentest (TOMAL) bei kinder mit traumatischen kopfverletzungen. Die Gedächtnisprobleme scheinen allgegenwärtig in der klinischen Praxis der Neuropsychologie. Fast allen Unordnungen des zentralen Nervensystems (SNC) assoziiert mit Störungen der höheren kognitiven Funktionen wird eine Form der Gedächtnisstörung assoziiert, registriert als ein übliches Problem bei den Patienten. (Reynolds, 2003; Fischer 2004;). In den Fällen von Schädel-Hirn-Verletzungen (LTC), die Gedächtnisstörungen sind die häufigsten von alle Problemen der Patienten. (Mellick, 2004; Reynolds 2005).Die vorliegende Studie versucht einige Aspekten der Bewertung der Abruf-Funktionalität bei Kindern, die Schädel-Hirn-Verletzungen erlitten haben, durch Benutzung der TOMAL – Test of Memory and Learning (Test für Gedächtnis und Lernen)-Testbatterie um die Veränderungen der kognitiven Leistungsfähigkeit von diesen Kindern nach der Verletzung zu markieren.

Stichworte: Gedächtnis, Schädel-Hirn-Verletzung, TOMAL, Abruf-Leistung.

Memory is almost always an important aspect for cognitive rehabilitation or retraining (Skeel and Edwards, 2001). However, to re-establish memory functions after a traumatic cerebral injury has taken place is less predictable than

¹ PhD Student, Faculty of Psychology and Education Sciences, Babeş-Bolyai University, Cluj-Napoca

the way others, more general, cognitive functions can be rehabilitated, this probably being because of the attention deficits that are characteristic for cerebral injuries. Memory deficits are the most persistent impairments in TCI (Skeel and Edwards, 2001). While certain memory functions (for instance, immediate recall) are annulled both in the context of functional and organic impairments, other memory aspects (e.g. delayed recall or memory loss) can establish a clear difference between psychiatric impairments such as depression and TBI and other CNS injuries. Most of the TBI cases can be grouped in three distinct categories from the point of view of age-the first group refers to the age range between birth and 5 years of age; the second group, 15–24 years old; and the third, over 75 year old; males numerically exceed in females, 2 to 1. A car crash is the most common cause for TBI, while other accidents and violence, respectively, come second and third (Langlois, Rutland-Brown and Thomas, 2006).

Taking into account the importance of memory in daily tasks, especially during schooling period, as well as its importance while assessing brain functional and physiological integrity, it does not surprise us that memory assessment in children and adolescents is an extensively-studied aspect.

To a certain degree, assessing memory in children and adolescents must have been considered as being important beginning with the first modern test for intelligence (Binet, 1907) and continuing with a more important test for assessing intelligence, the Wechsler Scales. These tests, within their different variants for children, included at least one or two short assessment tasks for short-term memory. All in all, major texts about child neuropsychology written during the 1970s and 1980s (for instance Bakker, Fisk and Strang, 1985; Hynd and Obrzut, 1981) do not discuss about memory assessment, although it was pointed out that 80% of a representative group of clinicians who use memory assessments emphasized the fact that memory is an important aspect of the cognitive and intellectual functions assessment (Snyderman and Rothman, 1987). In 1995, only important textbooks took into account memory function assessment in children (for instance Rourke, Bakker, Fisk and Strang, 1983), as well as its relationship with different medical malfunctioning (Baron et al., 1995), or even neuropsychiatric ones (Gillberg, 1995) is commonly included in major papers about child neuropsychology.

Brain injuries (BI) and their effects represent a major problem for public health, they being the cause for approximately two thirds from the post-traumatic deaths and the most frequent generator of permanent disability condition post-traumatically. Recent statistics from USA and Germany counted 200-300 cases of BI reported for 100,000, the incidence peak corresponding to the 15–24-years-old people. The ratio between the CCI in males and females is 2–4/1.

In the case of the patients with multiple injuries, 50% are Central Nervous System injuries, while brain injuries are present in the case of 75% of those who died in car crashes. In Romania, the data revealed by a preliminary investigation developed by *NeuroTrauma Group* of SRN in 1997 emphasized that brain injuries

can be found in a proportion of 25-95% in the specialized department, with a mortality average of 60-90% in the cases of severe brain injuries, while the ratio corresponding to the same indicator in the European Community in 1996 was 31%.

Ever since the times of Hippocrates it was known that brain injuries in children are different from those in adults not only from the point of view of their frequency, of their producing mechanism or of their traumatic types, but also from the point of view of the brain reaction or the nature of the late traumatic consequences. These differences were better investigated during the last decades, especially in complex papers belonging to Matson (1969); Meally (1968); Jennett (1970); Arseni, Horvath, Ciurea (1980); Millan (1999); Zumann, (2001); Kirsch, (2006).

Memory neurobiology

Attention leaves traces or indicators in the brain, this becoming memory. Memory, in the most common perception, is the ability to recall an event or a piece of information of various types and forms. From a biological point of view, memory functions on two major levels, one of the individual cell, and the other of the system. Once memories appear, they imprint changes within the individual cells (Cohen, 1993; Diamond, 1990; Scheibel, 1990), inclusively within the level of the cell membranes and within synaptic physiology.

The median temporal lobe, especially the hippocampus and its connecting fibers within the limbic and para-limbic structures, is of great importance in developing associative memory. The limbic system (mostly the posterior regions of the hippocampus) also mediates the development of conditioned responses. Thus, certain patients with posterior lesions located in hippocampus do not respond to the operating paradigms when the bi-directional programs for consolidation are missing. The medial injury at the level of the temporal lobe and of its connecting fibers or at the level of median diencephalic structures causes difficulties in building new memories (retrograde amnesia), but these can also unlock recent memories, ones appeared before the time of the lesion (retrograde amnesia). Different regions within limbic and para-limbic structures play an important role in building certain types of memories and simply conditioned memories may appear at sub-cortical level. All the interactions taking place at the level of the above mentioned systems are to be controlled by the attention connected mechanism situated especially at the level of the brain stem and frontal lobes, this leading to directly and indirectly facilitating memory development. Memory is a complex function resulting from the interaction of different cerebral systems (with unequal contribution). If one of this system is injured may negatively influence the capacity of developing new memories.

In the case of right-handed persons, verbal and sequential memories may be affected to a greater extent as a result of the injury from the level of the left temporal lobe and its connected regions. Injuries in the right hemisphere interfere in a negative way, especially with visual and spatial memory.

Research objective:

Assessing the functionality peculiarities of the memory in the case of two brain injured patients by using TOMAL (Test of Memory and learning) probe.

Hypothesis:

Traumatic brain injuries highly interfere with memory performance in the case of children afflicted by this type of trauma.

Participants:

Two participants were included in this research, using the following criteria:

- a. participant diagnosed with acute isolated cerebral injury or with a brain injury part of an associated trauma, case in which the brain injury is responsible for the patient's serious health problem;
- b. neurologic status situated between 12-9 ranges, it being assessed by using GCS (Glasgow Coma Scale);
- c. neurologic status situated below or on the 9 range, it being assessed by using GCS (Glasgow Coma Scale) during the primary assessment, patient who required intubation.

Tools used during the research

a. Glasgow Coma Scale (GCS)

This scale assesses three distinct components of the conscience estate: the patient's ability to open his eyes, verbal, and motor response. The scores obtained on those three levels are added being obtained a total score between 3 and 15 points. The GCS score has a diagnosis and prognosis value. It is easy to be calculated by adding the score obtain for ocular reaction (OR), verbal (V) and motor (M) – the normal score is 15 points. Coma is corresponding to a score <8 points, going till lack of reaction, it being noted as GCS=O1V1M1=3 points.

b. TOMAL-Test of Memory and Learning

TOMAL is a complex battery of probes, composed of 14 memory and learning tasks (eight main sub-tests and six supplementary sub-tests), standardized for people with ages within 5 years 0 months 0 days and 59 years 11 months 30 days. Its eight main tests are divided into verbal and non-verbal memory content areas. These areas can be mixed, thus making up a composing test.

Specialized literature identifies two main researches that investigated the relationship between gender, ethnic variables and the performances scored in TOMAL test. Mayfield and Reynolds (1997) compared white and black children's performances with those obtained by the normative sample used for standardizing TOMAL. The results obtained proved that white and black children scored similar performances with those of the normative sample, by taking into account the main factors of the probe, Reynolds and Bigler (1996) suggesting that “the task is

perceived similarly by two testing groups” (p. 120). Furthermore, the researchers investigated all those 14 sub-tests as a whole set, they showing global significance.

Mayfield, Lowe and Reynolds (1998) investigated in another research the performances obtained by males and females. The results proved that female participants obtained higher scores in verbal tasks, while male participants had higher scores in spatial tasks. Authors mentioned among their conclusions that the results obtained correspond to similar tasks used for assessing intelligence, these showing that despite the identified results “there is a common base both for male and female participants”.

The standard TOMAL scores per age are made up of four main indexes and five supplementary indexes. The main ten sub-tests are divided into Verbal Memory Index (VMI) and Nonverbal Memory Index (NMI). The Composite Memory Index (CMI) is derived from the ten main sub-tests. The Delayed Response Index (DRI) is made up of the responses to the four sub-tests in the first 30 minutes after testing.

The supplementary indexes include Verbal Delayed Recall Index (VDRI), Attention/Concentration Index (ACI), Sequential Memory Index (SMI), Free Recall Index (FRI), Associative Recall Index (ARI) and Learning Index (LI).

The Verbal Memory Index (VMI) includes five sub-tests: Memory for Stories, Word Selective Reminding, Object Recall, Paired Recall, and Digits Forward. The optional sub-tests such as Letters Forward, Digits Backwards, and Digits Forward are considered to be verbal measurement instruments, but they are not included in the Verbal Memory Index as part of the Composite Memory Index. Each of these sub-tests is presented verbally and prompts for a verbal answer from the examiner. These sub-tests vary in terms of semantic complexity and/or need for language understanding. This allows the examiner to establish whether the language or the meaningful context improves or deteriorates the child’s ability to recall the information he or she was presented.

The TOMAL sub-tests

The 8 core sub-tests, the 6 supplementary sub-tests, and the delayed recall trials take approximately 45 minutes for an experienced examiner to administer. The sub-tests were chosen in order to provide a broad evaluation of the memory functions and, when all are used, to provide the most comprehensive memory evaluation available.

The presentation and the responses format in the administration of the TOMAL sub-tests vary systematically in such a way as to sample the verbal, visual and motor modalities and the combinations among them in the format of the presentation and of the response. Several tests are provided for a criterion made up of several sub-tests, including selective recall, in such a way as to determine learning or acquisition curves. Multiple tests are provided (at least five are necessary according to Kaplan, 1996) in the selective recall sub-tests for an

analysis of the processing depth. In the format of selective reminding (in which the examinees are reminded only the "omitted" or un-recalled stimuli, when the articles which have been recalled once will not be recalled in the subsequent tests, problems are revealed in the transferring of the stimuli from the working memory and the immediate memory to long-term storage. The insertion of cues is also allowed at the end of Delayed Word Selective Reminding. The reason for this is to increase the examiner's ability to test the depth of the processing.

The established memory functions (for instance the memory for stories), which are related to academic learning, are included, along with tasks that are more common in experimental neuropsychology and which have a high (Facial Memory) or low (Selective Visual Reminding) ecologic relevance. Some sub-tests use very meaningful material (Memory for Stories), while others use very abstract stimuli (Abstract Visual Memory).

Apart from the review of the memory function, the purpose for including such a factorial series of tasks on multiple levels is to allow for a thorough and detailed analysis of the memory function and of potential memory deficits which could be discovered. The neurophysiologist's task is to administer sub-tests which are very specific and variable in terms of presentation and response format and which sample from all the relevant brain functions in order to solve the complex puzzle of brain-behavior disorders. Kaufman (1979) was the first to present a detailed model for the analysis of test data in a comprehensive format (elaborated later, Kaufman, 1994), which make the clinician's task similar to that of a detective. The detail, breadth and variety of the TOMAL sub-tests, together with their excellent psychometric properties, make TOMAL ideal for usage in a model for "intelligent testing", especially in the analysis of brain-behavior relations associated to the memory function.

Case Studies

Case study no.1: Tiberiu

At the age of 14, Tiberiu suffered an acute carbon monoxide poisoning. The gas installation in the closed garage where Tiberiu was playing was not working properly, releasing carbon monoxide in the area. His mother found him unconscious, in cardiopulmonary arrest. An NMR revealed a basal ganglion lesion, which is a classic sign of carbon dioxide poisoning.

Before the accident, Tiberiu was in good health. He was a bright student, with grades averaging 9.8. Tiberiu is now in the 7th grade and he has difficulties in Mathematics and poor eye-to-hand coordination. It is believed that his current condition indicates a decline compared to the previous performance.

Figure 1 represents a summary of Tiberiu's TOMAL scores 15 months after the accident. The format was obtained from score software designed by Szasz, Reynolds, & Voress, 2007. The first section of the summary presents the scaled score, the percentage hierarchy and a quality descriptor ranging from Very Deficient to Very

Superior for each sub-test. The details of the index scores are provided in the second section. This includes trust intervals for the index scores and comparisons of the various index scores. Tiberiu's DVRI (83) is below average and is considerably below the performance of immediate recall, as it is reflected on the VMI (107). This clearly indicates a significant deviation from his abilities before the accident and a common sign of an organic memory deficit associated with carbon monoxide poisoning. The Attention/Concentration Index is also low compared to other scores. Therefore memory indicates a general decline from the levels before the accident.

His WISC-III scores were VIQ = 109, PIQ = 82, and FSIQ = 95. The WRAT-3 indicated reading at 110, spelling at 107 and Mathematics at 95. Fluency was slightly below the expectations for his age. The TOMAL-2 learning curves showed an obvious inconsistency during the test, indicating a considerable variability in the attention processes. The learning curves are presented in the third section of Figure 1.

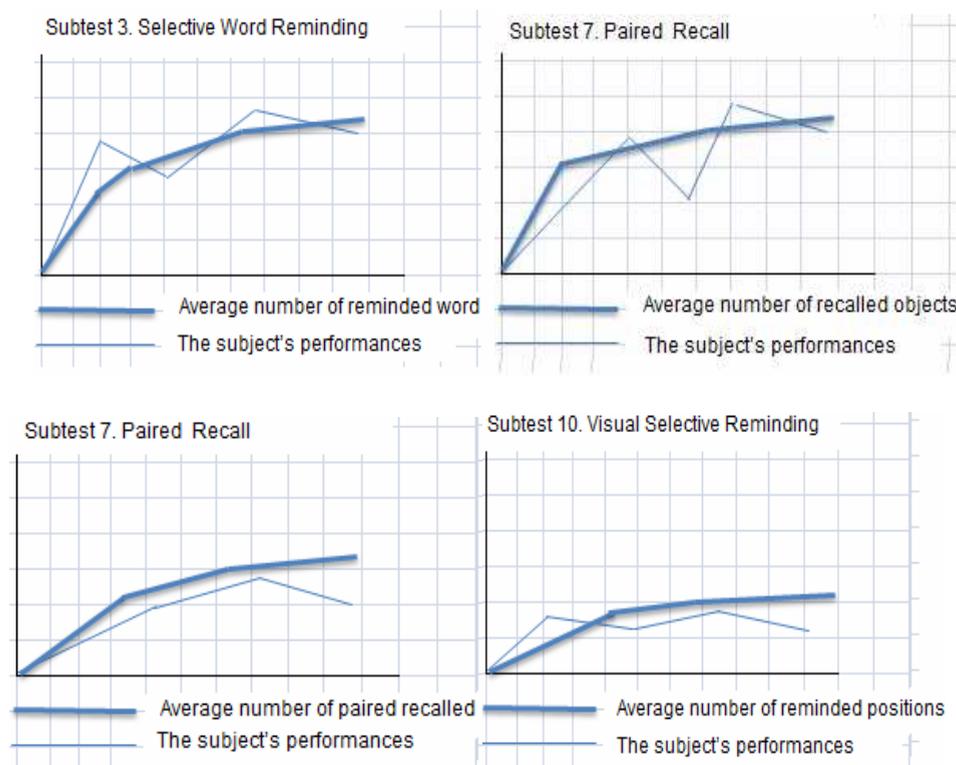


Figure 1. Subject Tiberiu's performances on the TOMAL Battery-Test of Memory and Learning

Case study no. 2 – Maria

At the age of 5, Maria was the victim of a car crash and suffered an acute closed head trauma. She was unconscious after the accident and she was in hospital

for several weeks. The EEG testing indicated physiological abnormalities in the area of right temporal lobe. Before the accident, Maria went to kindergarten, and no difficulties related to school performance or behavioral attitudes were noted. Mary is now 7 years old; she is in first grade. Her teacher has indicated that Maria has difficulties related to visual processing and memory.

No intellectual assessment was performed before the accident, but considering the history of Maria's development, it was assumed that she had at least an average intellectual level before the accident. The recent WISC-III scores were VIQ = 95, PIQ = 112, and FSIQ = 102. Figure 2 shows Maria's scores on TOMAL-2. Maria's 88 VMI is below the average, against a 71 NMI, which is clearly in the below the average area of memory performance. The total CMI of 77 is situated in the deficient area of memory performance. The comparisons of the global scores indicate that the VMI differs significantly from the NMI. It is obvious that Maria's non-verbal test results are generally poorer than the verbal test results. The learning Index was lower than expected, considering Maria's educational history. The learning curves are presented in the third section of Figure 2. The low level of the Learning Index confirms the teacher's observation that Maria has difficulties in retaining new information.

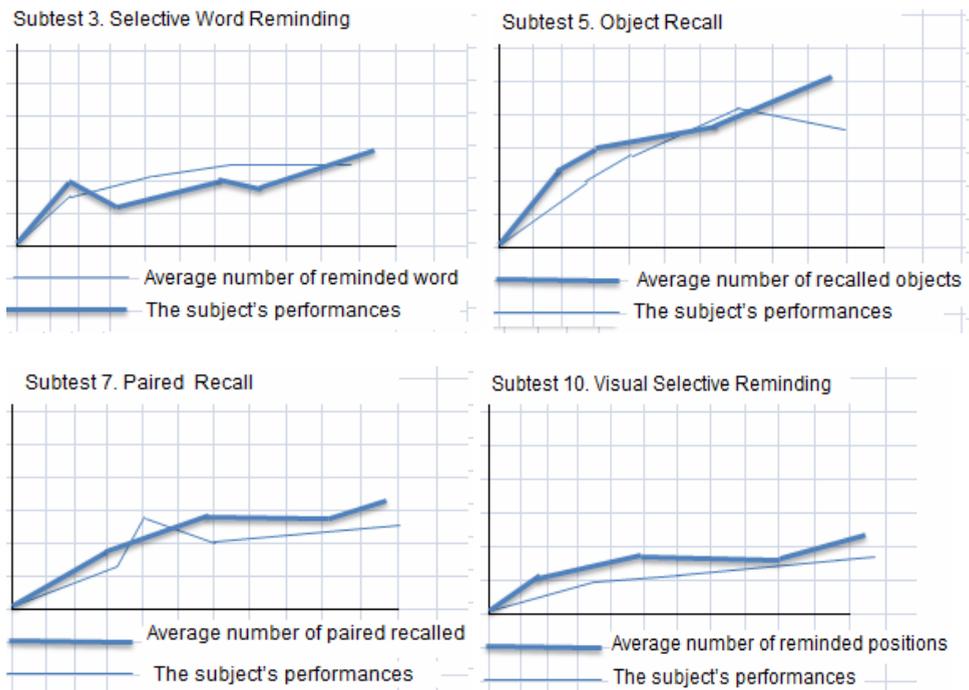


Figure 2. Subject Maria's performances on the TOMAL Battery- Test of Memory and Learning

Summary of findings

Memory evaluation has a lot to offer to the clinician who investigates the neuropsychological processing in children and adolescents, especially in those with CNS system. TOMAL is the most detailed and comprehensive test which allows also an attentive evaluation of the way in which children process and memorize information.

There are many things to be learned about children's memory and especially about the use of delayed recall indices, which have proved so valuable in the case of adults as well. The current efforts are focused on determining the diagnosis and the implications of the test results in the treatment, all with promising results. The crucial role of the clinical memory evaluation in the tasks of the neuropsychologist is determined by the nature of memory in everyday life and the problems related to memory in CNS disorders.

In the specialist literature, researchers claim that memory is not just a singular function, or an entity, but rather that the term "memory" encompasses a complex system of cognitive processes, including acquiring, keeping, memorizing and updating the information (Gross & McIlveen, 1999). Reynolds and Bigler (1994) claim that there is no uniform terminology used to describe the functionality of the memory. Up to now, specific memory elements have been identified based on the theoretical approach of the researchers. Some of these elements include the working memory, recognition versus updating, verbal versus nonverbal, abstract versus figurative. Irrespective of the definition taken into consideration, memory is clearly essential for the cognitive processes. Learning in particular displays a direct connection to memory. This is why it is considered "a relative, permanent change in behavior, as a result of experience" (Gross and McIlveen, 1999), and without a memorization of these experiences, learning could not take place.

On the systemic level there is a division between memory formation and memory storage. A large amount of evidence suggests that associative memory is stored distributively throughout the cortex, allowing for manifestation in a statistic function (Cohen, 1993). At the same time, there is evidence indicating a more localized storage of certain memories and the existence of localized centers for the formation of memory, both in the classical and the operating conditioning.

The entire brain takes part in the functioning of the memory through the distributive storage of the memory. The recall of strong memories tends to be one of the most robust neuronal functions, whereas the formation of new memories, prolonged attention, and concentration, tend to be among the most fragile neuronal functions. Most types of neurological disorders are associated with an abnormal decrease of memory performance along with dislocations of attention and concentration. This has more important consequences when temporal-limbic involvement appears, of the cerebral trunk or of the frontal lobe. However, different psychiatric disorders, particularly depression, can suppress the fragile anterograde memory systems. An attentive analysis of memory, forgetfulness,

affective states and a comprehensive neuropsychological testing may be necessary before concluding that the memory related disorders are of organic origin.

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STIMULATE THE CREATIVITY OF THE PRIMARY SCHOOL ADHD STUDENTS THROUGH ACTIVITIES OF COMPOSING

DANIEL MARA¹, ELENA-LUCIA MARA²

ABSTRACT. In this article there are presented the experiences valorized after a study on stimulating the creativity of the primary school students with ADHD through activities of composing. In the last decade there have become visible the Romanian school efforts for adaptation in order to ensure the respect of the right to education for all children and to equalize their chances of success. The integration of the students with ADHD syndrome can be realized successfully if it is adopted by a complex committee made up of special psycho-pedagogues, pedagogues/teachers, doctors, kinetotherapists, who should work in close relation with the family. Hyperactivity and attention deficit are two different characteristics of the syndrome, which are often found simultaneously at the same subject, but can also exist one without the other.

Key-words: stimulation, creativity, students with ADHD, primary school, composition, integration.

RÉSUMÉ. Dans cet article, sont présentées des expériences valorifiées à partir d'une étude sur la stimulation de la créativité des élèves atteints de TDAH du cycle primaire par des activités à composer. Au cours de la dernière décennie, sont devenus visibles les efforts de l'école roumaine d'adaptation pour assurer le respect du droit à l'éducation pour tous les enfants et pour égaliser leurs chances de succès. L'intégration des élèves atteints du syndrome TDAH peut être réalisée avec succès si il est adopté par un comité complexe composé des psycho - pédagogues, pédagogues/enseignants, médecins, kineto-therapists qui doivent travailler en collaboration étroite avec la famille. L'hyperactivité et le déficit d'attention sont deux caractéristiques du syndrome, qui se trouvent le plus souvent simultanément au même sujet, mais ils peuvent aussi exister un sans l'autre.

Mots-clés: stimulation, créativité, enfants atteints par/du TDAH, cycle primaire, composition, l'intégration.

1. Integration of students with ADHD in main stream school

In the last decade there have become visible the Romanian school efforts of adaptation in order to ensure the respect of the right to education for all children and to equalize their chances of success. It has been emphasized more and more the need to change the vision on students with special educational requirements and the

¹ Assoc. Prof. Ph.D. University „Lucian Blaga” Sibiu

² Assist. Prof. Ph.D. University „Lucian Blaga” Sibiu

attempt to offer them a normal life by transforming the social representation and renouncing to social tagging and stigmatization. The study concerning the development particularities of children with ESC, undertaken in order to determine the educational strategies adapted to their needs, has become one of the priorities of preparing specialists in the field of special psycho-pedagogy. Special education requirements refer to the necessary support given to children in order to overcome the difficulties they face; these difficulties represent obstacles in the process of social adaptation. The specialist should know the problems faced by those in difficulty, find and determine concrete ways of solving them, promote alternative methods of overcoming the obstacles. The integration of students with ADHD syndrome can successfully be achieved if it is approached by a committee made up of special psycho-pedagogues, teachers, doctors, kinetotherapists, who should act in close relation with their family.

Hyperactivity and attention deficit are two different characteristics of the syndrome, which can often be found simultaneously at the same subject, but can also exist one without the other (Cîrneai, 2000).

a. Attention disorder represents the central element of the syndrome, considered as being the physio-pathological basis of dysfunction. It is illustrated by a difficulty to concentrate and a quasi-constant distractibility with the inability to grasp the relevant information when there are factors of diverting the attention (background noise, conversations, television). Children indispose their parents and teacher by their inability to maintain their attention over time. It seems that they don't pay attention to their teacher, start activities (various tasks or games) which they don't finish and do not fulfill their school duties. The inattentive child does not follow the instructions that are given to him/her, neglects the details, tends to lose the items necessary to perform a task and is easily distracted by events that do not disturb the others. Sometimes, although he/she may be involved in an activity he/she likes, he/she doesn't hear what it is said any more. The attention deficit disturbs especially his/her learning ability.

b. Hyperactivity disorder manifests in different ways depending on age – that is why it is often difficult to determine whether the incriminated behavior is inappropriate for their age. The child is always in motion, unable to remain seated (in the classroom, during family meals, etc). They have a disorganized, non-constructive and less coordinated activity. Like the little babies who learn to walk, they occupy the space environment, because they like to discover. They run and jump, fidget constantly, and are unable to remain seated at the table or get some rest. Restless, they can not play alone and ceaselessly solicit the adult to whom they spend all the time. In general, they receive many remarks from school related concerning their behaviour, call the emergency services for minor but repeated injury. They can not stop talking and have a tendency to make noise during calm activities, disturbing the others. If they are scolded, they apologize, promise it won't happen again, but they resume. They fidget all the time and are not able to

keep still at the blackboard. If their teacher asks them to stop balancing or moving in their desk and try to fulfill their task, the child will devote all his energy to stop balancing, being thus unable to do his homework anymore. For this child hyperactivity is a risk to physical health (Cîrneai, 2000).

c. Impulsivity is a dimension that is found at the motor, cognitive and social level. This disorder is especially found in the attention deficits, as well as in the provocative oppositionism and conduct disorder. Both cognitive and behavioral impulsivity stand out. Cognitive impulsivity is characterized by a rapid and incorrect manner of answering to a task, without waiting the end of the advice or being able to follow the successive stages in an orderly manner. Behavioral impulsivity corresponds to the inability to correct or inhibit the inadaptable verbal or physical behavior. Impulsivity is translated by a difficulty to obey, a search of immediate pleasure, an impatience which becomes problematic: to wait for their turn. There are known the following types of impulsivity: impulsive behavior without precise purpose (the child stands up without any reason), inadequate behavior with precise purpose (they sharpen their pencil amiss) and impulsive behavior with positive attention seeking (they answer without waiting for their turn). Therefore, there is a non-intentional impulsive behavior (which touch the property, the subject himself or another person), and deliberately offensive behavior (aggression, opposition, conduct disorder). Impulsivity should not be confused with qualities such as spontaneity and flexibility. It is related to entertainment. Most often associated with hyperactivity, impulsivity is responsible for the fact that the child is rejected by his/her circle of friends. It disturbs his/her driving functioning (impatience, rudeness) and cognitive development (the difficulty to anticipate the consequences of their acts). Impulsive child is unable to wait for his/her turn (when he/she plays, or in different situations and school activities, including sports), answers forgetting to raise his/her hand and often hurries to answer without being asked, breaks off the conversation of adults and interferes with their discussions. He/she abandons an activity before finishing it. His/her great difficulty to comply with the orders is immediately interpreted as rejecting the rules and indications. Intolerant to constraints and aggressive when frustrated, he/she seems insensitive to rewards and punishments. Impulsivity has consequences on the emotional level, producing rapid and frequent changes of mental status. He/she has no strategy. It is hard for him/her to organize his/her work, he/she needs a list of priorities and plans of action. Impulsivity embarrasses him/her especially on the social level.

These behavioral problems end up in school learning disorders, family disruptions, secondary psychological disorders at child (loss of self-confidence) and may also be the source of various accidents.

There are cases when, although the child seems a priori to present the ADHD symptoms, such a diagnosis will not be established. It is about situations in which another psychiatric diagnosis would explain the symptoms better. Also, in

the case of associated disorders (bipolar disorder, anxiety, specific learning disorder) each diagnosis must be established separately. In the case of mental retardation, diagnosis ADHD is not established unless the behavior is inadequate to the mental age of the child. This diagnosis will be established independently of the psychiatric diagnosis. That is why the differential diagnosis and associated disorders are particularly important.

Depending on the field of expertise and to some various extents, the physician or psychologist assessment must allow the removal of health, social or psychological problems which can:

- Simulate an ADHD (for example: physical or sexual abuse, diabetes, thyroid problems, learning disorder, deafness, etc.),
- Involve/entail an ADHD (for example: perinatal asphyxia, meningitis, cranial trauma, fetal-alcohol syndrome, fragile X syndrome, etc.),
- Coexist with an ADHD (for example: oppositional disorder, conduct disorder, learning disorder, language disorder, anxious disorder, depressive disorder, etc.).

2. Composition - The way of stimulating students' creativity in primary school

The analysis of the primary school education curriculum highlights the main objectives pursued in this stage of schooling. This training aims at the following competences:

- transversal competences - concerning the attitude of children, the construction of fundamental concepts of space and time and of methodological acquisitions (initiation in the techniques of intellectual work and learning activities);
- competences in the field of the disciplines concerning the acquisition of some knowledge, abilities, skills and methods specific to each large field;
- competences in the field of learning the Romanian language (tongues) and modern language (oral expression, reading, writing, literary composition).
- the teaching staff aim to ensure the instrumental, informative and formative character of their activities by achieving the following objectives:
- to ensure a harmonious development (physical, intellectual, moral-volitional and aesthetic) by stimulating the artistic and creative valences of students taking into account firstly the level of culture of each one;
- to inure students to understand the phenomena of the material and cultural environment, and to initiate them in the learning techniques, by stimulating positive attitudes in the activity of learning;
- to give students the opportunity to form their own attitudes, to imprint them the respect for the opinions of others, to develop the spirit of tolerance and solidarity, the feelings of belonging to the communities in which they live.

The study of the Romanian literature and mathematics occupy together 66% of all the educational activities during the four years of primary education. The students' creativity can be stimulated during all educational activities, but especially during the courses of Romanian literature, because their importance is greatest (Magheru, 2003).

Education is the result of the complex contribution of all educational factors and disciplines. Stimulating the creative ability is an objective to be pursued in all disciplines of study. The art of educating creativity supposes on the part of the teacher the existence and intuition of a balance to equilibrate the support necessary for writing the composition and the freedom that must be given to the student in order to express his/her own impressions, ideas, feelings, in a style as close as possible to his way of being. Neither the free compositions stipulated in the 4th class curriculum, can be absolutely free. It is necessary the intervention of the educator even if it is reduced.

Written or oral compositions are also used during 2nd-4th classes, oral activity preceding the written one. This is the most suitable way of carrying on an activity, especially during the 2nd and 3rd classes. Time and curriculum permitting, it is ideal to reserve two hours to write a composition. In the first hour, there will be done a series of preparatory exercises. For example, new words and artistic expressions will be selected from texts and introduced in new sentences and contexts. There will also be created texts which may be used in the next composition or in the plan of the next work. By making oral compositions, students have the chance to apply the aforementioned and organize their ideas in a story as credible as possible. In doing so, during the second hour, there will be given more time for thinking and evaluating while writing the composition. Students can find out what they did well and wrong, what they could have made to elaborate a better and more beautiful composition. Thus, in the future, they will be able to elaborate their next composition in better conditions. Gradually, they will acquire the capacity of self-analysis and self-evaluation of their own works.

In accordance with the written expression level of students, there are elaborated the following types of compositions in the primary school:

1. depending on the material support, they are divided into: compositions based on illustrations, pictures or slides; compositions on students' observations, impressions and imagination; compositions based on a known literary text; compositions based on some proverbs, sayings and riddles; compositions by analogy, compositions with already given beginning; composition with already given ending; compositions with support sentences and words;
2. after giving the students the working techniques and elaborating the written composition, it is time to make free compositions;
3. in the 4th class, there can be elaborated compositions-correspondence and official composition;

4. although they are especially elaborated during grammar classes, the grammatical compositions contribute substantially to the development of students' written expression.

Another classification of compositions is the following:

- a) depending on their agent or on the participation level of students: collective compositions (when the plan and the elaboration of the composition are realized with the contribution of all the students in the class); semi - collective compositions (when the plan is realized collectively and the elaboration is made individually), individual compositions (when both the plan and the elaboration of the composition are made individually)
- b) depending on the content or on the material upon which the composition is based: free compositions, compositions based on literary texts, compositions with special destination.

3. Scope, objectives and research hypotheses

Scope of Research:

Become aware of the importance and efficiency of stimulating the creativity of the students with ADHD, of educating in the creative spirit of students through composing lessons.

Objectives of research:

- know and apply the rules concerning the content and the form of composition;
- express correctly, orally and in written, from the point of view of the linguistic structures;
- elaborate compositions - description and characterization;
- realize original and creative compositions by respecting the techniques of elaborating a composition: documentation, drawing up the plan of ideas, elaboration, composition analysis.

Specific objectives:

- identify the level of knowledge, skills and abilities from the very beginning of the experimental period;
- optimize the process of creativity /stimulate children's creativity through methods, means, strategies of improving the ADHD students' process of integration;
- highlight the school progress of the students with ADHD.

Research hypotheses:

- the elaboration of composition is an effective way to capitalize the life experience of the students with physical disabilities, to give free rein to their imagination and their creative fantasy;

- the stimulation of developing the creativity of students with physical disabilities by elaborating compositions, emphasizes the value of their creative potential.

4. Research methodology

4.1. Groups of subjects

The experimental group consists of 20 students of which 7 have certified ESC, issued by the County Child Protection. The group is homogeneous in terms of age and all children speak Romanian.

The group of control is also composed of 20 students. It includes two students with ESC and 18 students with good and very good results at school. The children have approximately the same age and all speak Romanian.

The research was conducted during the first semester of 2007-2008 school year in the School with the classes I-VIII No. 25, Sibiu. The activities were planned and established by the class teachers and the support teacher who carried on their activity in that school. The creative activities were alternated with ludic-therapy activities and activities of psycho-pedagogical counseling for children and their families.

4.2. Instruments (methods) of Investigation

The students' creative potential was highlighted by using several related methods: the method of analysing the students' activity products, the biographical method, the observation method, the study of personal documents, the anamnesis, the free and directed conversation, the creativity tests, case study.

4.3. Experimental design

Stages of research

The psycho-pedagogical investigation was conducted in three stages:

A. The observation stage (the investigation stage). This stage was conducted over four weeks and aimed at knowing the groups of children, at making individual observations concerning the personalizing of children, their physical development, deficiencies, condition of health. It was also aimed to apply a test both on the experimental and control group in order to find out the students' creativity level (originality, innovation, beauty of expression). There were used exercises and compositions based on some support materials (Bocoş, 2003).

B. The experimental stage (the formative stage). The main method applied in the research was the experimental method. The dependent variable consists in the subjects' responses, which represented the object of the observation. The independent variable was represented by the methods of stimulating the creative abilities of students with ADHD through compositions. The experiment was conducted over three months, aiming to stimulate the creativity of students with ADHD through compositions. The experiment was based on developing a

wide range of compositions which ensured the children's active participation and increased their interest in creation.

C. The final stage (the evaluative stage), held at the end of the first semester, consists in applying an evaluating test on both the experimental and control group.

5. Analysis and processing of data

5.1. Presentation and analysis of data

Initially there was used the method of observation in order to know the students and their behavior towards the children with ESC. There were also studied the products of students' activity. Additional data were obtained from teachers and other members of the team work: doctor, special psycho-pedagogue, parents, support teachers. The psycho-pedagogical evaluation of the students with ESC was realized by means of the tests of intelligence. After having determined the experimental and control group, it was applied a test to evaluate the students' creativity level before starting the activity of stimulating the creative abilities.

The program for stimulating the students' creativity included four psycho-pedagogical counseling sessions conducted by the teachers and support teacher. The activity of stimulating the creative abilities included the following topics: the beginnings of composing activity, the relation between composing and reading, the improvement of speech and grammar as methods of stimulating the creativity by means of lessons of composing: compositions based on support materials, free compositions, others activities which are carried on during the composing class (description, characterization), grammatical compositions, correspondence compositions. The students' creativity was also stimulated by carrying on extracurricular activities such as trips, visiting the art museum, listening to music during the drawing classes, walking in the park (Molan, Peneş, 2004).

After having implemented this program, it was highlighted a real progress in the students' capacity for creation. It was also pointed out the distinct value of the works of some students educated for this purpose. After having compared the results of the two groups, there could be noticed a substantial increase of some cognitive capacities, such as: the use of some artistic expressions, correct and clear wording of sentences, correct writing of punctuation marks, respect of paragraphs and compliance with the writing requirements (nice and neat), and creative skills: logical sequence of ideas and logical combining, descriptions, the creative use of the known figures of speech (Stoica, 1983).

5.2. Interpretation of results

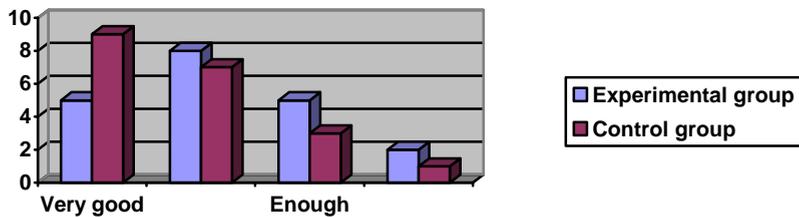
The first stage began by gathering the results obtained from tests applied on children which, after being calculated and transformed into percentages, led to a better processing of them. Taking into account the fact that the experiment consisted in solving a test, in the first conclusion there were compared the results of the two groups

obtained after applying the test during the observation stage of the experiment. The results of the initial test pointed out the level of the children at that moment.

The results of the investigation in the observation stage (initial test):

Class	Qualification			
	Very good	Good	Enough	Insufficient
Experimental group	5	8	5	2
Percentage	25%	40%	25%	10%
Control group	9	7	3	1
Percentage	45%	35%	15%	5%

The chart with the students' results obtained at the initial test:

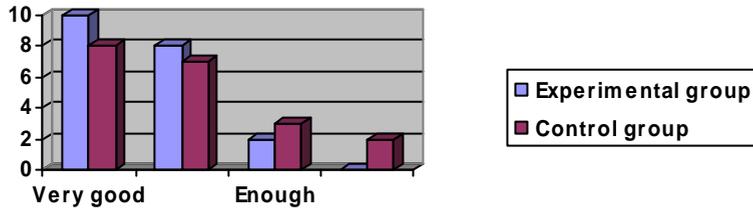


It can be noticed the fact that more students in the control group got "very good" qualifications. A number of 8 students in the experimental group got "good" qualifications. Also, the number of students who got "sufficient" and "insufficient" qualifications is greater in the experimental group compared with the control group. After multiple ways to stimulate creative capacities, it can be seen the value of formative activities; that is why the students in the experimental group obtained better results than students in the control group.

The results of the investigation in the final test are:

Class	Qualification			
	Very good	Good	Enough	Insufficient
Experimental group	10	8	2	0
Percentage	50%	40%	10%	%
Control group	8	7	3	2
Percentage	40%	35%	15%	10%

The chart with the results of the students from the two groups obtained in the final test:



In the final tests, several students from the experimental group got "very good" and "good" qualifications. No student in the experimental group got "sufficient" qualifications. It underlines the importance of stimulating the creative capabilities through composition. For a better observation of the qualitative leap registered by the students of the two groups at the initial tests and at the final test, we will present graphically and tabularly the qualifications in percentages obtained by the students.

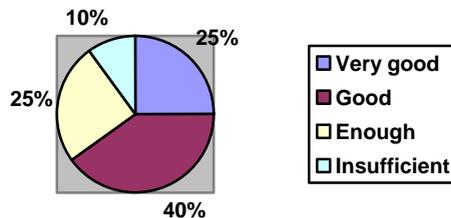
The results obtained in the initial test (in percentages):

Experimental group	Qualification			
	Very good	Good	Enough	Insufficient
Percentage	25%	40%	25%	10%
Control group	Very good	Good	Enough	Insufficient
Percentage	45%	35%	15%	5%

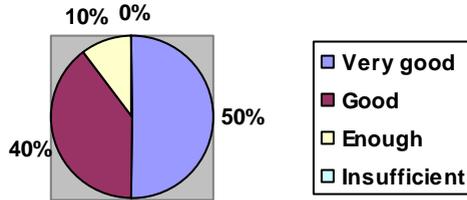
The results obtained in the final test (in percentages):

Experimental group	Qualification			
	Very good	Good	Enough	Insufficient
Percentage	50%	40%	10%	%
Control group	Very good	Good	Enough	Insufficient
Percentage	40%	35%	15%	10%

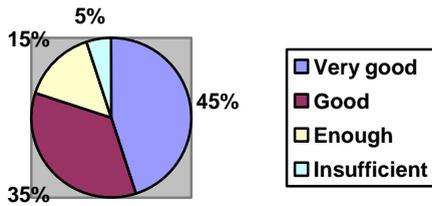
Initial experimental group chart



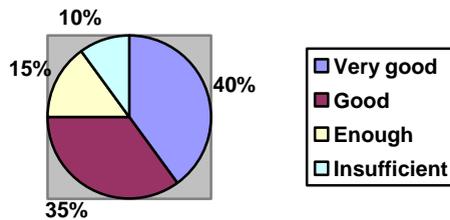
Final experimental group chart



Initial control group Chart



Final control group chart



By making a comparative analysis between the results of the initial test and the results of the final test, it is noticed an increase in the results of the experimental group who got "very good" marks, in a rate of 50%. At the same time, it is noticed a decrease of the number of students who got sufficient and insufficient marks. The results of the Research outline the importance of stimulating creativity.

6. The necessity of treating students differently

The necessity of treating students differently in terms of mass education is supported by three basic aspects:

- from psychological point of view - in a group of students, the intellectual abilities and skills, the possibility to intercept differently some disciplines, the speed of learning, the motivations and attitudes towards learning, differ from one individual to another.
- from social point of view - the influence of the environment in which the child is born and lives, causes different reactions in adapting him/her to the activity of the group;
- from pedagogical point of view- the efficiency of education reaches the maximum level provided that the training and education stimulate at maximum the possibilities of each student.

These conditions make necessary the organization of the curriculum according to the particularities of students. The differentiated activity ensures the active participation of students and the acquisition of an own and individual speed of working. It stimulates their interest in learning and creates a positive attitude towards working. The main features which define the organization, conduct and content of the differentiated activity are the following:

- it is conducted according to the organization of the teaching-learning process (classes and lessons);
- it covers the entire group of students (those who encounter difficulties as well as those who have great possibilities);
- it is characterized by a unitary and common content materialized in unique school programs/curricula;
- it is carried on by adapting the teaching technologies to the individual particularities;
- the educational objectives and tasks are mainly realized through the activities carried on during the lesson;
- the frontal activity is combined and alternated with the individual activity and with the activity on groups of students.

The tools that proved to be effective in knowing the students' training level and which were within each teacher's reach, were the following: the oral expression verification, written work analysis, comparison of students' knowledge with the curricula requirements, typical mistakes record, study of the causes of these mistakes.

The differentiated treatment must be realized from the very beginning of the activity of composition. Those who aren't able to write correctly are not involved in elaborating the composition. They may be asked to develop an oral composition. For those who have a poor vocabulary, there are used specific exercises for improving their expression. For example, some phrases may be selected from literary texts and use them in other structures. Those students may also be asked to develop simple sentences or make sentences with certain words. Not all students can acquire the technique of writing a composition at the same time because their level of training, their speed of working is different. In this case, students are divided into groups. Depending on the level of assimilating the knowledge, some students may receive the content and the ending, others are offered the introduction or the plan of ideas. To have these materials within their reach, the teachers shall keep different models of compositions from the previous series. Aiming at acquiring a correct expression and technique in making a composition, the same topic can be realized in a number of variations equal to the number of students in class.

7. Conclusions

Regardless of the type to which it belongs, the composition should be verified and noted by the teacher. The verification, correction and assessment of the composition are very important in forming the students' habits of expression. Recurrent correction removes and prevents mistakes, creating a positive attitude towards work. Due to it, a permanent guidance is ensured and the students' skills for assessing their work are formed in time. At the first forms of the primary school, there is usually made a first verification of the composition during the respective lesson. After reading one or two of the students' compositions, the teacher and the class make observations concerning the content and the form of those compositions.

When teaching Romanian, teacher must take into account the fact that the lessons of composing represent activities adequate to form skills and abilities of independent work. In the case of an organized activity, the students with ESC may elaborate imaginative and sensitive compositions. The study highlights the role that the lessons of composing have in improving the students' language and way of thinking, their spirit of initiative, independence in work and creation, which are absolutely necessary for forming their personality.

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EXPERIMENTAL DATA ON THE ROLE OF METACOGNITION IN GAINING SELF-ASSESSMENT COMPETENCE OF HIGH SCHOOL STUDENTS

FLORENTINA MOGONEA¹

ABSTRACT. Within a learning sequence, for solving a task given by the teacher himself or assumed by the student himself, this verifies at the same time, knowledge, capacities or general abilities necessary to solve a task, but also, metacognitive knowledge, capacities and abilities, which allow him to control monitor and regulate an activity performed, achieving at the same time actions which allow him to self appreciate, self evaluate.

In this study, we are analyzing the implications which the development of the metacognition has in forming the self evaluation competence of the high school student. We are presenting the results of an experimental research, within which we intended to demonstrate the dependency relationship between metacognition and evaluation.

Keywords: metacognition, competence assessment, self control, self regulation, self monitoring.

AUSZUG. Innerhalb einer Lernphase werden bei der Lösung einer Aufgabe, die vom Lehrer beauftragt- oder von dem Schüler selbst erstellt wurde, die allgemeinen Kenntnisse, Fähigkeiten und die Fertigkeiten sowie die metakognitiven Kenntnisse, Fähigkeiten und Fertigkeiten von dem Lernenden gleichermaßen verwendet, die für die Lösung einer Aufgabe notwendig sind. Diese ermöglichen ihm eine Selbstkontrolle, eine Überwachung, eine Anpassung der vorgenommenen Aktivitäten zu realisieren und gleichzeitig Handlungen durchzuführen, die eine Selbsteinschätzung, Selbstbewertung ermöglichen. In dieser Studie analysieren wir die Auswirkungen, die durch die Entwicklung der Metakognition auf die Kompetenzentwicklung der Selbstbewertung bei den Gymnasiasten auftreten. Wir präsentieren Ihnen die Ergebnisse einer experimentellen Forschung, in denen wir die Abhängigkeitsbeziehung zwischen Metakognition und Selbstbewertung zu demonstrieren verfolgen.

Schlüsselwörter: Metakognition, Selbstbewertungskompetenz, Selbstkontrolle, Selbstanpassung, Selbstüberwachung

1. Metacognition issues. Importance and timeliness

The efficiency of any activity undertaken by the individual is provided largely by the possibility of stimulation and turning to account the metacognitive

¹ Senior Lecturer Florentina Mogonea, PhD TSTD, University of Craiova Auszug

capacities. Most times, success is determined by the possibility of monitoring, controlling, regulation of own activities. Representing knowledge of knowledge, a knowledge of the act of knowledge, metacognition accompanying learning activities, giving the learner the opportunity to reflect on it and collect information useful for a specific work, activity for other future ones. Metacognition involves not only knowledge but that we collect in connection with the student's own cognitive activity, but requires the use of control and regulation mechanisms. Metacognition involves making the learner conscious of his own mental activity.

Given the role that metacognition plays in student work through training process monitoring, control, regulation, we considered necessary and useful to take into discussion the relationship which is established between metacognition and self-evaluation, this in turns assuming self-analysis, self control, self regulation. Thus we infer that an important direction in trying to develop opportunities for self-assessment is made by involving, stimulating metacognitive capacities. In the classroom, the teacher has the opportunity to use the many situations to develop students' metacognitive capabilities, they, like many other types of capacity could be formed and developed with practice by placing students repeated stimulating situations.

The exploitation of metacognition in the work done by students is obvious and has immediate implications in achieving self-assessment as:

- favor analysis and awareness of their cognitive approach taken, of their actions, operations;
- allows identifying and defining the steps taken in solving a given task, awareness of the sequence, order and chaining them to identify the characteristics of each stage separately;
- ensures the identification of their inaccuracies, errors, failures and the causes which have generated, creating the possibility the student to avoid their repetition in future cases;
- provides the identification of their successes, successes and formulate generalizations of lessons conclusions about how to operate in future similar situations;
- allows comparison of the approaches made to various disciplines, establishment of similarities, differences, the setting of the efficient constant action, procedural, methodological, transdisciplinary, successful;
- creates opportunity for selection of the most efficient learning techniques, from a specific learning situation;
- favor drawing conclusions on the most efficient strategies used in solving a task, to make a decision;
- favor the transfer of knowledge (intradisciplinary and interdisciplinary), their use in other contexts than those in which they were acquired (Doly, 2002), through a better knowledge and their construction;

- allows the anticipation of obstacles, some difficulties, but also the design of efficient steps to eliminate them;
- allows comparisons between the personal work and achievements and those of the colleagues, thereby enhancing self-knowledge, knowledge of his/her own limits, his/her place in the community;
- contributes to the improvement of the learning process, especially for students in difficulty (Grangeat, 1999; Doly, 2000);
- allows the development of autonomy, the independence of the learner, due to the possibility of acquiring their own strategies for verification, control, this being an important condition for success in the learning process;
- facilitate training and development of the appropriate motivation for learning and the development of self-consciousness.

2. The purpose and the objectives of the research

This pedagogical improvement research aims to develop meta-cognitive capabilities, in order to achieve a self control, a self regulation, a self monitoring, a more objectively self-evaluation made by high school students. Research objectives can be shown on each stage of it: *The certifying stage*:

- Identifying the opinion of students and teachers from high school education towards the role of metacognition in shaping the power of self-assessment for high school students;
- Knowledge of methods used by teachers to train students for self-assessment, to stimulate self evaluative opportunities available to students, their previous experience on this issue;
- Identify ways used by teachers to stimulate and train students metacognitive capacities;
- Recording the results achieved by the students, at the school subject "Romanian language and literature".

For the experimental stage, (the formative intervention):

- The development of a formative intervention program, in collaboration with teachers in experimental classes, its implementation;
- Tracking the progress of students from experimental classes compared with those of students of control classes, by repeating the set of assessment tools;
- The establishment of efficiency of the training tools used in the stage of formative activities (tests, rubrics, handouts, self-assessment questionnaires, the exploitation of metacognitive capacity, etc.), for the development of the metacognitive and self-evaluation capacities;
- The registration of difficulties, obstacles aroused in the process and identification of some ways to overcome them;
- The formulation of new hypotheses, ways of action, strands, depending on conducting research.

For post- and re-test stages

- Recording the results of two sample subjects (experimental and control) and making comparisons between them, at the same stage of research, but also in the same sample (either experimental or control), at different times of the research (pretest, experimental stage, posttest, re-test);
- Identifying the implications of developing metacognitive capacities of students on gaining self-assessment competence.

3. Basic assumption of the research

The conducted research was guided by the following general hypothesis, which we planed to test in the educational practice.

The frequent use, in the act of teaching, of some methods and tools for training the metacognitive capacities of students is able to determine the formation of self-assessment competence and to increase the efficiency of their activity, improving the educational realization.

4. Independent and dependent variables

In the present research, the independent variables refers to all procedures proposed and presumed to be efficient for high school students in their development metacognitive capacity (scales, questionnaires, personal diaries). It is clear that these variables were introduced only to classes in the experimental group and not in control group.

By reporting to the independent variables, the dependent ones clearly represent "the impact and results recorded by the introduction of independent variable, namely to produce the change" (Bocoş, 2003, p. 66). In other words, these variables are the results obtained by means of the introduced change, their value having to aim to confirm or not the working hypothesis established.

The dependent variables, from the present research, are the results of the tests, grids, schedules, instruments applied to the students, and their results at the school subject "Romanian language and literature".

5. The place and time of the research

The research was conducted in a few high schools from Dolj, Mehedinți and Teleorman, being selected the students from ninth and tenth grade of these schools. The experimental approach itself, of improvement type in this case, based on a solid theoretical approach, consists in following these stages:

- The pre-certifying stage;
- The certifying stage / pre-experimental stage / Pretest;
- The experimental stage;
- The post-experimental stage / fast;
- The re-test stage.

The present research was conducted during three years of school, namely 2004-2005, 2005-2006 and 2006-2007. The staggering stages throughout this time span, and the important objectives pursued in each stage are listed below:

6. The sample of subjects

It was composed of students of IX and X grade and teachers from 6 high schools from Mehedinti, Dolj and Teleorman. Subjects were selected by randomization at several stages. The representativeness was achieved by the large number of subjects, by the selection of classes from different profiles, taking into account the insurance of equivalence in terms of profile, for both types of samples: experimental and control, so each of the two types of samples should include classes of the same profile. This was also a condition to ensure sample homogeneity, along with the ones that have considered the intellectual level and the academic performance of students at the school subject "Romanian language and literature". In this regard, it has been applied an initial test to all these classes and also there were recorded the entrance grades of the students at the same school subject (only for students of ninth grade) and the averages obtained at this school subject in the previous year (only for tenth grade students). Also as a landmark, to ensure the homogeneity of the two types of samples, there were taken into account marks obtained by students up to that point.

7. Sample content

Generally speaking, the sample content refers to the scientific content which will be exploited in the research. It must be related with the chosen theme, with the present field, with the objectives and the hypothesis of the research. It must also be related to the curriculum framework and with the reference objectives of the school subject which is the subject of experimental activities, and to be updated with the new amendments specified in official curricular documents. Choosing this content also depends on the personality and experience of the researcher, the psychological characteristics of the subjects involved the psychosocial characteristics of the environment in which they work, and also on the material, financial, ergonomic resources available.

The scientific contents used were in accordance with the curriculum for "Romanian language and literature", IX and X grades, the themes chosen were both language and literature themes.

We specify that in addition to the content used in the classroom, there were also used scientific content on the issues of self assessment tools, to help students to self-verify, self-note, self-control themselves in order to monitor and adjust their cognitive steps taken in learning activities.

8. Research Methodology

In our research, we used the following research methods: observation, self observation, investigation based on questionnaire, investigation of curricular

documents and other official school documents, the analysis of students work products, pedagogical knowledge tests (these methods have been used in all stages of research), psycho-pedagogical experiment (only used in the experimental stage), statistical methods for processing and interpreting the research results.

Among these methods, we insist on psycho-educational experiment, giving, in short, learning activities undertaken by students. The psycho-pedagogical experiment consisted of activities in which students were trained to build meta-cognitive skills. There have been used different models, methods, tools to stimulate the meta-cognition presented below. Thus, during the course of the experiment, we sought:

- The use of specific training programs in explicit awareness of learning strategies;
- The training of self monitoring and self-evaluation for self-regulation;
- The education of self motivation;
- The initial assessment and the explicit formulation of tasks and criteria for implementation and completion;
- The periodic self-assessment;
- The explicit tracking progress and the method to overcome difficulties;
- The own checking of the methodology in order to obtain performance;
- The use of a learning journal;
- The involvement in discussions with the subject teacher or peers;
- The appeal to a continuous feedback;
- The practice of self-assessment level of understanding;
- The self appreciation of outfit to scientific problems and others. (apud Joița, 2006, p. 190).

The teachers of the experimental classes have created different and multiple situations in which students should be able to capitalize on metacognition. These situations either preceded the learning activity, or they were simultaneous with it, or post learning. Here are a few examples from the first type:

- the assessment of the level and quality of students previous knowledge and capacities, skills, needed competences to solve new tasks;
- the assessment of difficulties, of obstacles they have already encountered in similar learning activities and the ways of overcoming, removing them;
- anticipation of the degree of difficulty of the task that students are to solve;
- the appreciation of success degree through determination of the expectations, aspirations level and opportunities of their own, between the objectives given by the teacher and the potential each student has;
- the inventory of strategies, practical ways of approaching and solving the task proposed, based on previous experience;
- time anticipation for solving the required proposed task;
- appreciation of attitude, motivational levels on the new workload / activity to be trained;

- establishment of a learning activity goal to be undertaken by the students themselves;
- appreciation of a theoretical contribution and / or praxiologic task / activity the students are to solve / undertake and others.

During the learning activity, metacognitive skills were involved in situations such as:

- Students comparison of the response given by the students using the textbook or other support material or those of colleagues;
- Reporting the response to the criteria given by the teacher;
- Identifying their own mistakes or those of a colleague, from a given response;
- Summarizing a text or a document;
- Identify key words from a text;
- The wording in their own language, of ideas, thesis, theories;
- The explanation, the argumentation, the analysis of a colleague's response;
- Construction during the course work, of a scheme which would give synthetically the taken steps;
- Awareness and recording of the progress made during the activity with reference to criteria imposed on colleagues achievements, in its own work, considered from different temporal perspectives;
- Proper management of time allocated for solving the proposed task;
- Explanation, argumentation of ideas, theories, etc.

At the end of the learning activity, students were able to capitalize on metacognition in situations such as:

- Assessing the difficulty level of the task performed;
- Identifying difficult moments, and those that have been easily overcome in solving the task;
- Assessing the knowledge acquired from completed learning experiences;
- Establishing clearly the blur incurred in acquiring new knowledge;
- Identifying issues or elements to be incorporated in future learning activities, to ensure proper and full acquisition;
- Identifying the usefulness of knowledge acquired;
- Appreciation of the efficiency of strategies used in solving the task;
- Identifying the opportunities to integrate new acquisitions into already existing notional systems;
- Drawing conclusions on the learning style efficiency of the student and others.

In the specialty literature, there have been outlined recently, numerous models of training aimed at training and developing students' metacognitive skills explicitly or implicitly. Of these, we can remind (apud Joița, 2006) several models which have been used in formative activities conducted by students:

- **The E-R-R** (Evocation-Making sense-Reflection) - each of the initials that name this model represents one step in the process of building the knowledge by the student. Therefore, the **E**vocation corresponds to the time of updating and valorising the previous experience or knowledge, **U**dating -the meaning corresponds to the learning sequence itself, represented by the actions of research, exploration, investigation, analysis, restructuring, combining, commissioning correlation, reasoning, evaluation. Last sequence, the one for the **R**eflection, is assumed to appeal to metacognitive capacities for awareness of their cognitive approach undertaken for identifying the errors, difficulties, obstacles, as well as the solutions adopted to overcome them, in order to draw conclusions, make assessment.
- **Model of the 5 E** - is one of typical training patterns revealing constructivist idea that learning is not a linear process but a complex one, structured in several stages, each involving deepening, nuance, extrapolation, returns. Such learning, realized progressively involves both, the simple thinking but also of the complex, superior ones as well as the metacognitive. Each of the 5 E is illustrative for the capabilities they entail, being also considered stages of learning: **E**ngage (employment), **E**xplorer (direct exploration), **E**xplain (explanation, argumentation), **E**laborate (drafting, generalization) **E**valuated (evaluation). Each of these steps involve actions of the students, from those regarding the theme or problem orientation, problem identification, to the exploration, research, investigation, then analysing, comparing, generalizing, and, finally, the assessment, evaluation of progress achieved in the last step in particular, students then could practice their metacognition;
- **The ETER** (Experience, Theory, Experimentation, Reflection) - the last step in particular, provides opportunities to stimulate metacognitive capacities, through reflection;
- **The CETP / SIS** - like the 5 E model, this model also proposes implementation of a constructivist learning on 6 separate stages, each stage involving the production of specific actions such as updating knowledge on that topic or issue, identifying and analysing the necessary information (first stage), identification of errors, misunderstandings, prejudices on the issue called into question, making them the starting point of the problem- situations, the formulation of hypotheses (for the second stage), implementation of new knowledge, concepts and “anchoring” of their predecessors (the third stage), making associations, correlations, allowing a better fixation of new knowledge (fourth stage), making personal reflections about the undertaken approach, the actions undertaken, completed (The Fifth Stage); realizing some opening to other situations to allow the continuation of what was done (last stage).

Those models contribute indirectly to stimulate metacognition students, especially through training personal reflection. There are also models that aim explicitly at stimulating the student metacognition with a view of developing it.

Such a model is the metacognitive facilitation formulating questions (White and Frederiksen, apud Joița, 2006) and contributing to the formation of the scientific thinking in the constructivist style, of knowledge through research. As tools intended to be used there are three categories of questions to take into account: questions about how to build, design of the knowledge activity (their role is to facilitate the students learning of steps, methods, conditions in which the scientific knowledge takes place), questions about control, assessment based on reflection (regarding their own learning activity, quality, efficiency, steps taken, difficulties encountered, the organization and management of the actions, methods and tools used in learning) questions on general aspects of knowledge and reflection on it (they are used especially for repetitive situations, students are now able to formulate their own questions).

To stimulate highschool students' metacognitive skills and capacities of, has been used a variety of instruments: criteria analysis records, books of records and reflections, thematic papers prepared in the self-critical spirit, self-portraits, reviews of resolving situations, comparative analysis on issues of metacognition evolution, own evaluation guide, evaluation annotation on the learning of manual or from other sources, self-assessment scales on metacognition issues, comparing the auto-evaluation with the standardized evaluation, comparative and dynamic, mistakes and causal analysis, the self evidence of the successes and the helpful factors, analysis of the sociometric techniques applied to the group (Joița, 2006, pp 242-243). These instruments are available especially for older students as high school students, which manifest better the possibilities of self control, self monitoring, self-organization, self-regulation, self stimulation learning activity.

An efficient and easy to use instrument is the *diary* in which students can record various relevant aspects of their activity (eg "What are the steps taken to solve the task X "?, "What are the obstacles for solving the difficulties encountered during the task?", " How were these difficulties overcome?", "Which are the successes of this approach taken?", "How can they be recovered in other activities?" etc...). Students used to bring forward relevant aspects of their learning, to bring forward the importance of substantial analysis, reflections on it, which will allow an effective control.

All these models, methods, tools have been used successfully in the work with the, adolescents, given that all variables of the training situation are observed. Used to enhance metacognition explicitly, they can contribute, by default, and to stimulate self-discovery, self-esteem, self-evaluation of students.

9. Presentation and interpretation of results

Starting from the premise that students' metacognitive capacity building can lead to a more objective self-assessment of the students, students have been given a knowledge test, asking them to self-assess themselves before and after solving tasks. The results are presented, comparatively, on the three main stages of

research (pre-test, post-test, re-test) and two categories of groups (control and experimental), below:

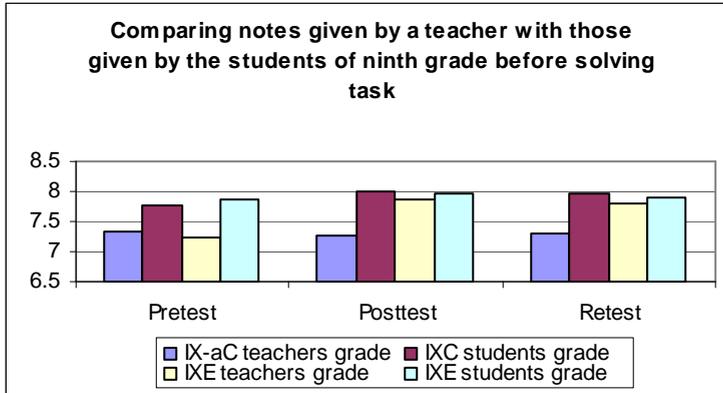


Chart. 1. Comparing notes given by a teacher with those given by the students of ninth grade before solving task

Note: IXC = control sample consists of classes IX
 IXE = experimental sample consists of classes IX
 XC = control sample consisting of classes X
 XE = experimental sample consists of classes X

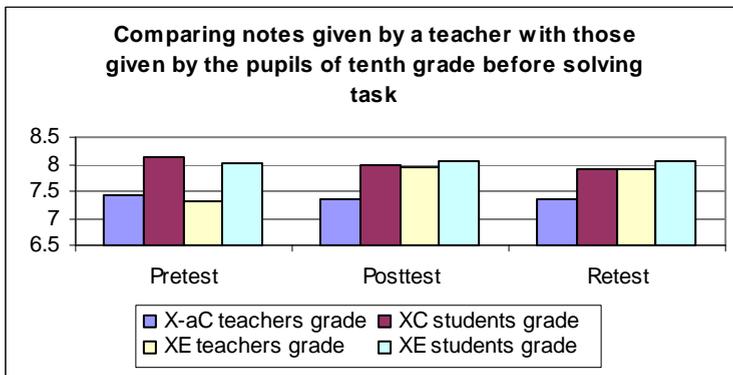


Chart. 2. Comparing notes given by a teacher with those given by the pupils of tenth grade before solving task

As it can be seen from the data presented, the difference between the marks given by the teacher and the students themselves, obviously reduced at the experimental classes in the posttest and retest stages compared with the pretest, while the control classes the difference remained between the same limits in the

three stages of research. We can also notice that, in case of the experimental classes, the small difference recorded between the teacher and the student's marks indicate, however, an over - appreciation of the students when it precedes the confrontation with the school task proposed.

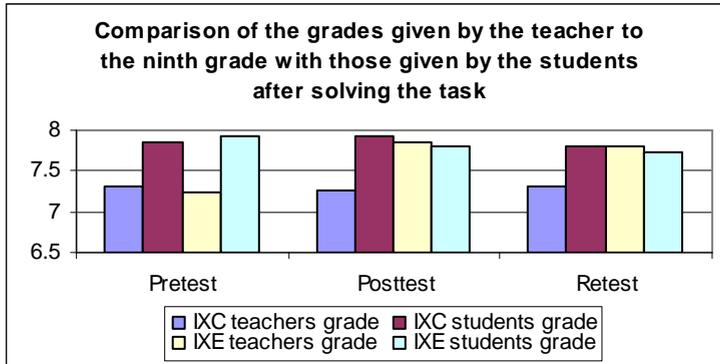


Chart. 3. Comparing notes given by a professor with those given by the pupils of ninth grade before solving task

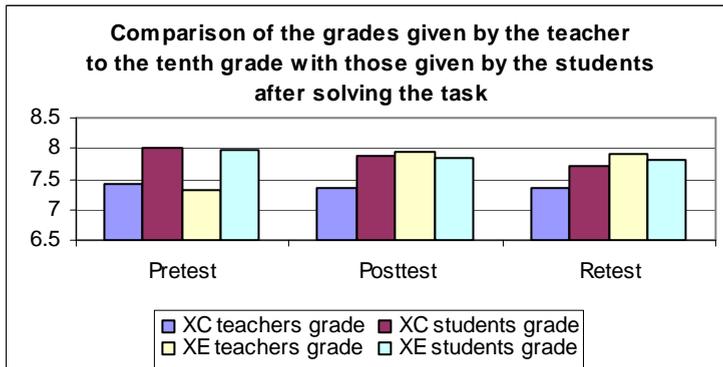


Chart. 4. Comparing notes given by a teacher with those given by the students of tenth grade, after solving the task

The data presented in graphs 3 and 4 show that, as is the case of even self-evaluation of performance, experimental students have made tangible progress, while for the control classes, the students self evaluative opportunities did not undergo great changes. The progress reported in the experimental group is due to the formative interference performed on this training, whose lines of action were presented in the previous chapter. Development of self-assessment (Stan, 2000, 2001) of the students performance in experimental classes is a consequence of improvements in self-discovery, and meta-cognitive capacities, which allow self monitoring and cognitive self-regulation of the route taken.

The formation of self-assessment of students' competence was reflected in obtaining better results in the subject "Romanian language and Literature, a point highlighted by the average recorded in this subject.

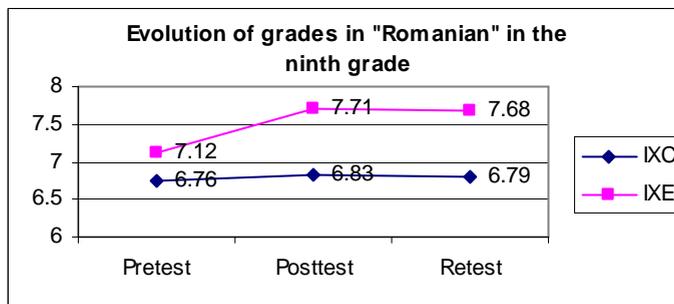


Chart. 5. The average change in "Romanian", in the ninth grade

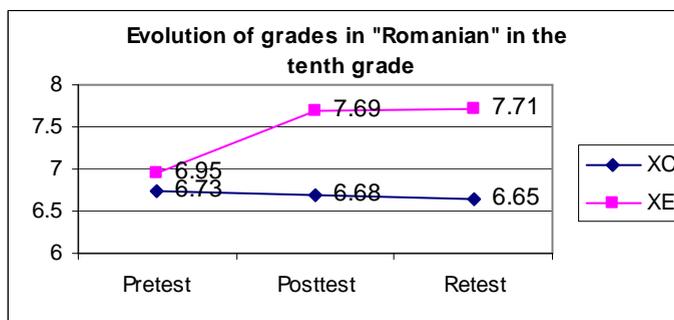


Chart. 6. The average change in "Romanian", in the tenth grade

The progress of the students belonging to the experimental classes can be better emphasized by means of statistics calculating formulae. In order to do this we used test Z for large groups based on the following:

$$z = \frac{|x_1 + x_2|}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

With the ninth graders in the pretest stage the value of Z was 1.45 meaning that, in this case, the difference between the two groups was irrelevant statistically speaking. The next thing we have to do is to calculate the values of Z for the other two stages (post-test and re-test) in order to check if the results confirm the effectiveness of the experiment applied to the group of the ninth graders. The value obtained is $Z=5.27$ which is statistically relevant by an accepted level of significance of 0.01.

The following procedure is to draw a comparison between the two groups of ninth graders (the experimental and the control group) based on the results from the re-test stage in order to see the stability and validity of the acquisitions and check the progress from the post-test stage. The value we obtained for Z is 4.36 which is statistically relevant by the same accepted level of significance.

With the tenth graders in the pre-test stage the situation is similar: the difference between the experimental and the control group is statistically irrelevant ($Z=0.71$). The value of Z obtained as the result of comparing the experimental group with the control group in the post-test was 3.64 which is statistically relevant.

The same calculating method was used for the results obtained in the re-test stage. The value of Z was 3.64 which is statistically relevant by the same accepted level of significance 0.01.

The data presented by this research confirm the general assumption of our work. Taking into account the biunivocal relation between metacognition and self-assessment which we tried to demonstrate, we consider that a very effective method to use is the development of the students' metacognitive abilities if we want to achieve an objective self-assessment of the student, an assessment which can reflect the relation between the expectations and the students' achievements and the relation between the information the student has about his achievements and the information the teacher offers him. Due to this metacognitive abilities the students possess they can become aware of the cognitive processes they resort to as well as the measures they take in order to solve the task within the teaching-learning stage. They can also identify the errors very easily but they are also able to notice the good aspects of their work and, thus they can improve their learning using all the information and learning more efficiently. In order to do this, all the teachers must be constantly interested in creating a favourable educational frame system.

10. Conclusions

The development of the self-assessment/self-evaluation competence constitutes an essential purpose of the educational system nowadays if we take into account the importance it bears for the students' activity in school and for the success of their activity. The metacognitive abilities play an essential role in the process of forming this competence. This process is very complex and therefore, it requires the involvement of all the teachers who must take care of creating a good motivation for the students and make them act or react in properly designed situations. Thus the main courses of action used in our experiment and proven effective can be largely applied to other subjects of the educational syllabus. We feel we should put an emphasis on the necessity of collaboration: all the teachers of a class and the form-master must work together in order to know their students better and to concentrate their efforts on making them know themselves better so that they can perform better in class.

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GENDER DIFFERENCES IN HIGH ACHIEVERS' ATTRIBUTIONAL STYLE

NICOLETA LAURA POPA¹

ABSTRACT. The present study focuses on variations in attributional style among high achieving adolescents, in relation with gender and level of achievement. The sample included 113 Romanian high school students, who completed an adapted version of Attributional Style Questionnaire (*ASQ*). Results suggest that gifted girls tend to display an internal, stable and global attributional style, which leads to a self-effacing attributional pattern. High achieving boys show similar attribution patterns, with a more positive tendency. Although differences among the four subgroups are inconsistent, the findings suggest a disadvantaging attributional style in both high achieving boys and high achieving girls.

Keywords: giftedness, high achievement, gender, attributional style

Inhaltsangabe. Die vorliegende Studie konzentriert sich auf die Variationen des attributionalen Stils unter Jugendlichen mit hohen Leistungen, im Verhältnis mit dem Geschlecht und das Niveau der Leistung. Die Auswahl schloss 113 rumänische Schüler vom Gymnasium ein, die eine adaptierte Version des Formulars über Attributionalen Stil (*ASQ*) ausgefüllt haben. Die Ergebnisse haben angezeigt, dass begabte Schülerinnen die Tendenz haben, stabiler und globaler attributionaler Stil ab zu bilden, was zu übertriebenem bescheidenem attributionalem Muster führt. Schüler mit hohen Leistungen zeigen ähnliche attributionalen Muster, mit einer positiven Tendenz. Obwohl die Unterschiedlichkeiten unter der vier Untergruppe inkonsistent sind, zeigen die Ergebnisse einen attributionalen Benachteiligungsstil sowohl bei Schüler mit hohen Leistungen als auch bei Schülerinnen mit hohen Leistungen.

Stichwörter: Begabung, hohe Leistung, Geschlecht, attributionaler Stil

Introduction

Although this study aims to partially uncover effects of gender and achievement level on students' attributional style, the theoretical background of the research is larger in scope for several reasons: firstly, giftedness issues tend to be very specific, and identification problems persists despite researchers' efforts to explain processes, methods and to develop valid and reliable instruments; secondly, gifted/high achieving girls have a distinct personality profile, mainly due

¹ PhD, Lecturer, Alexandru Ioan Cuza University Iași, Romania

to socialization influences, which affects their educational track and career expectations; and thirdly, there is a need to review studies on gifted students' attributional style, and associated characteristics. Approaching these matters is relevant especially in the context of the growing interest for gifted students, and appropriate counseling and educational provisions. On the other hand, attributional style, as isolated personality variable or combined with other characteristics as self-efficacy, self-concept, self-esteem, decision-making style etc. may have important effects on academic achievement in both average and high achievers.

There is a rather large body of research on high school students' attributional style, but less work has been done to document attribution patterns among high achieving boys and girls. Therefore, the present study addresses the research problem of gender and achievement level as influencing factors for students' attributional style. Gender-related assumptions in the field lack the support of sufficient empirical data and our research attempts to answer this specific need, searching for particularities in high achievers' attribution patterns. We explored the issue through a rather simple research design, and due to study's limitations (mainly the size and the composition of the sample, the lack of longitudinal information on participants) findings may be generalized with caution. Additional information is also needed for doubtlessly concluding on effects of gender and achievement level on attributions' internality, stability and globality.

Our approach of the research problem includes an extensive literature review, concentrated on three issues: explaining the overlaps of the terms giftedness and high achievement, summarizing available research outcomes on gender and giftedness, discussing present scientific knowledge on gender differences among gifted students, in terms of attribution patterns and related personality features. Previous studies reviewed in this article support our research choices: the samples of high achievers and average achievers have been established based on cumulative information gathered through intelligence tests, academic records, and results in various academic competitions; and attributional style has been explored with an adapted version of *Attributional Style Questionnaire (ASQ)*, Peterson et al., 1982). Results are discussed against the literature reviewed as theoretical background, and final conclusions are provided.

Gender and giftedness: the scope of research interests

Giftedness / High Achievement. Although avoided in the title, *giftedness* is one of the central concepts in the present study. It may be considered a quite confusing term, due to the variety of accepted definitions. Several theoretical models of giftedness are currently used as foundation of giftedness' identification and education processes (Gagné, 1999; Gardner, 1999; Mönks, 1992; Renzulli, 1998, 2000; Sternberg, 1990). Most of the concurrent definitions accept that high achievement in one or multiple academic domains may be interpreted as giftedness.

One of the most influential definitions within the field offered by Marland (1972, p. ix) indicates high performance as part of manifested giftedness: "Gifted and talented children are those identified by professionally qualified persons who, by virtue of outstanding abilities, are capable of high performance". In the attempt of defining giftedness from a developmental perspective, researchers identify a theoretical category – the so called achievement-oriented models of giftedness (Mönks & Mason, 2000), which support the idea that *achievement* is the observable output of giftedness. The most influential achievement-oriented model of giftedness is the "three-ring conception" of J. S. Renzulli (1998, 2000), which emphasizes that high achievement is based on outstanding level of ability, task commitment and creativity. The model has been improved by F. J. Mönks (1992), who placed the three rings in the context of environmental influences on gifted adolescents' development (school, family and peers are named to be most influential environmental factors at this age).

The achievement-oriented approach in defining giftedness and authors' distinction between potential and realized capacities may be questioned, but it has several advantages: it serves both high achievers and underachievers, provides opportunity for educational interventions and equally orients theorists and practitioners' attention on human potential and processes associated to its full achievement and recognition (Mönks & Mason, 2000).

Based on contributions discussed above, the term "high achievers" is preferred, and identification of participants has been conducted by considering both intelligence tests results and students' level of academic achievement.

Gender and giftedness/ high achievement. Gender differences among gifted individuals have been subject of numerous studies, most of them searching for explanations for gifted girls' and women' problems in fulfilling their potential.

Early and recent studies underline that giftedness is evident in the girls at an earlier age than boys because gifted girls are more likely to show developmental advancement in a variety of areas: gifted girls are likely to speak earlier, to read earlier, and to write earlier than gifted boys (Silverman, 1986). Gifted girls outperform gifted boys in classroom achievement throughout the school years, maintaining higher grades in all subjects (Gallagher, 1985), but the age of adolescence seems to bring changes in gifted girls' aspirations, expectations and achievement (Kerr, 1997).

However, gifted girls may have career interests more similar to those of gifted boys (Silverman, 1986) and tend to be less rigid in their sex role identification than average girls (Hay & Bakken, 1991; Kerr, 1997). Although the number of gifted females interested in math and natural sciences is increasing, they continue to avoid the physical sciences, computer science, and engineering (Campbell & Clewell, 1999).

A study of adolescents' attitudes toward their own giftedness notices that gifted girls were evidently concerned about the impact of their giftedness on others' attitudes (Kerr, Colangelo & Gaeth, 1988). Although most of them believed

that there were some social advantages to being gifted, females saw more disadvantages than their male peers. There was a deep ambivalence about the label *gifted* as well as concern about negative images others might hold of that label. There is also evidence that gifted girls are also vulnerable to loss of self-esteem (Lea-Wood & Clunies-Ross, 1995) and to risky behaviors that can jeopardize their goals and dreams (Kerr & Robinson-Kurpius, 1999).

Researchers agree upon the idea that social stereotypes affect dramatically the lives of gifted girls and women: they have been excluded to a large degree for their contributions and accomplishments because societal rules restrict women's opportunities and achievements within society's structure. Personal goals are often compromised for the sake of family and other responsibilities, and lost opportunities become the norm as women fail to pursue original goals. Hollinger and Fleming (1992) studied career choices made by gifted young women. Their examination revealed that at age 29, young women "have yet to achieve the educational, career, and lifestyle aspirations they identified in adolescence" (p. 207). Arnold (1987) noted similar results from her study: by their final year in college, women have already compromised their original career goals, and have changed to fit in with their perceptions of the multiple roles they would have as wives and mothers. Conditions such as these can limit women's realization of their potential, and, if recognition does occur, it may come late in life (Heilbrun, 1979; Rubin, 1994).

Barriers in social affirmation of women's giftedness can be discussed either as internal factors or external determinants, both categories being extensively analyzed in previous research. This study will focus on attributional style, as one of the internal factors which can make the difference between gifted males and females.

Gender and attribution style in high achievers. Although numerous studies have been conducted on students' attributional style, less effort has focused on gifted students' attribution patterns.

Gifted girls and females are considered underserved in the present educational systems, especially in the programs oriented toward sciences, and attributional style, as an important type of self-cognition, has been suggested as one of the underachievement factors.

Factors associated with gifted girls' underachievement during school years and adulthood are multiple, either internal (personality factors) and external (mainly explicit and implicit influences of parents and teachers). One of the most influential works on gifted females and their struggle to fulfill their potential, written by B. Kerr (1997), reveals some of these barriers in gifted girls' development: sex-role stereotypes which determine children by the age of eleven to lose their assurance in themselves and their abilities, difficult psychological adjustment of gifted girls and women to society's expectations.

According to S. M. Reis (2002), the factors may include dilemmas about abilities and talents, personal choices about family, choices about duty and caring

and nurturing the talents in oneself as opposed to putting the needs of others first, religious and social issues which consistently affect women across their life-spans, poor planning, hiding abilities and differences, perfectionism, *attributing success to luck rather to ability*, poor choice of partners, and confusing messages from home about politeness.

Although the causes for gender differences are still disputed in the literature, the focus of research has shifted during the last few years towards explanations based on differing self-related cognitions and more socialization oriented approaches. Noteworthy among the latest explanatory theories (for an overview see Ziegler & Heller, 1997; Beerman et al., 1992) is the amount of importance attached to various differing socialization experiences attributed to gender which can, to a certain extent, be effective even before formal instruction has started.

According to Broom et al (1998) these socialization experiences can be subdivided into two components: self-related cognitions, particularly attribution style, self-concept or implicit theories of abilities, and previous experiences. Research shows that boys prove themselves to be significantly more adept at both of these components (Ziegler, Heller & Broome, 1996 cited by Broom et al, 1998). The results of their study on physics achievement show that shutting the gender gap in physics by compensating for the deficits in prior knowledge among the girls is illusionary. As depicted by the regression analysis conducted within the mentioned study, neither prior knowledge nor talent level can explain the gender differences evident in physics course grades. These findings strongly support that gender differences in physics/science achievement are more influenced by the second component of physics-related socialization experience: self-related cognitions, such as domain specific self-concept or attribution style connected with achievement results. Based on this conclusion, authors recommend intervention treatments aiming changes in self-related cognitions of the girls, particularly an improvement of dysfunctional attribution styles.

Similar findings are also reviewed by S. L. Hanson (1996): personality characteristics that vary by gender and have an impact on achievement especially in sciences include confidence and self-esteem, sex-role attitudes, educational/occupational expectations and locus of control. These personal resources persist in their importance through the school years, and influence achievement even after the high school years. Notably, one's perceptions of one's ability in sciences and attribution of success to ability have been reported to be important predictors of participation and performance in science during college. Authors suggest that men have the advantage on last dimensions discussed.

Social stereotypes encourage girls to adopt self-conceptions and values that demote science interest and achievement. These self-conceptions lead to a pattern of learned helplessness with respect to science and mathematics, with success attributed to luck and failure to lack of ability. In girls, this pattern of attribution of

success and failure with respect to science and mathematics increases from elementary to high school (Hamilton & Tindall, 2004).

Reviewing the literature available at the time, DeMoss, Milich & DeMers, S. (1993) support this body of research suggesting that gender differences in attributional styles are linked to social learning factors such as sex-role stereotypes and differential evaluation feedback from parents and teachers. Generally, females tend to attribute negative events to internal, stable, and global causes, while males tend to attribute negative events to external, unstable, and specific causes. Their empirical study proved no difference between attribution scores for both positive and negative events among high achieving boys and girls. Beyond these results, attributional style was shown to correlate significantly with creativity and depression in gifted students.

Several studies on gifted psychology and education emphasize that gifted girls' achievement and processes associated with career orientation and development in adulthood are linked with some syndromes, which may be also identified in non-gifted population, but are constantly reported for gifted girls and females. One of the syndromes studied in relation with gifted girls and women – the “*fear of success*” (first introduced by Horner in 1970) – illustrates their beliefs according to which their success and achievement would eventually lead to rejection by their peers and families (Rakow, 2005).

Two relevant studies are to be mentioned in relation with fear of success syndrome: Arnold's (1995) work on high school students and Ludwig's (1996) research on Olympic contenders. Arnold reported high school girls losing confidence in their ability after few years of college, and lowering assessment of their intelligence. The author suggests this phenomenon to be a cause for changing college plans, goals for graduate study, choice of career or of a partner. Ludwig (1995) found fear of both success and failure in participants, but fear of success has been proved to be primarily a female issue: “Fear of success for women seems to initiate from a cognitive belief system that sometimes becomes an insurmountable obstacle to success” (p. 31).

A related issue well documented in the literature is the *imposter syndrome* (Clance & Imes, 1978; Clance, 1985), which describes the low sense of self-esteem that occurs when gifted females attribute their success to external factors and judge their achievement as accidental or undeserved. The difficulty experienced by many gifted women in understanding the complex relationship between effort and ability is related to the imposter syndrome (Johnsen & Kendrick, 2005).

The two phenomena previously described are directly linked to high achieving girls' attributional style, and this line of reasoning emphasizes the importance of the feature in studying the psychological and behavioral profile of gifted females.

The present study

Based on the literature review, we tested the general hypothesis that girls (with average and high level of achievement) tend to make more internal, stable

and specific attributions than boys, especially in the case of negative events (higher scores for locus of control, stability, and global attribution, and lower scores for differential locus of control and differential stability).

Specific research hypotheses derived from the one mentioned above have been tested, using descriptive and inferential statistics.

Method

Participants. The sample included 113 Romanian high school students, 60 males and 53 females, 58 with average achievement / intellectual ability and 55 identified as high achievers / above average intellectual ability. The level of intellectual ability was estimated based on intelligence test results (under and above the score of 120), as reported by the school counselors. In addition, school achievement and participation in various academic contests has been considered in including students in one of the two groups (See also Table 1 below).

Table 1.

Crosstabulation: Gender * Achievement level

		High/Average Achievement		Total
		Average	Above average	
Gender	Male	32	28	60
	Female	26	27	53
Total		58	55	113

Instrument. *Attributional Style Questionnaire (ASQ)*, Peterson et al., 1982) with positive and negative events adapted to participants' age was applied for measuring the dependent variable. The instrument was previously adapted and piloted; computed reliability (Cronbach's Alpha) for the resulted version is 0.77. Attributional style involves two aspects of an event: the valence (where the outcome is experienced as positive or negative) and whether the event involves individual achievement or affiliation (relationship to others). The perceived cause of the event is a function of a) the extent to which the individual believes that the causes of the event are internal or external and b) whether the causes are seen as stable or variable. There are four attributional patterns: a) *self-effacing* - external attributions for good events and internal attributions for negative events; b) *external* - external attributions for good events and bad events; c) *self-enhancing* - external attributions for negative events and internal attributions for positive events; d) *internal* - internal attributions for good and bad events.

The questionnaire asks respondents to make causal interpretations for twelve hypothetical situations that might happen to a student. There are six affiliation events involving relationships with other people (example: "I had an

argument with my best friend in the class”) and six achievement events (example: “I got a bad grade in one subject”). Half of each subset is positive in outcome (example for positive affiliation situation: “I meet a friend, who compliments me on my look”; example for positive achievement situation: “I finished an important project, and it was appreciated”) and half is negative (example for negative affiliation situation: “A friend needs my help, but I don’t offer any support”; example for negative achievement situation: “I cannot finish all school tasks assigned to me”). Individual respondents are asked to imagine the outcome if it were to happen to them. They indicate their perception of the major cause for the event on 7-point scales representing locus (from 1=totally due to other people or circumstances to 7=totally due to me), stability (from 1=will never again be present to 7=will always be present), and perceived globality of the cause (1= influences only this area of my life to 7= influences also other areas of my life).

Locus for events (the overall tendency to attribute events to internal or external causes) is computed by averaging the internality ratings for all twelve events. Differential locus (the tendency to perceive the causes of positive events as more internal than the causes of negative events) is computed by subtracting mean locus ratings for negative events from those for positive events. Positive scores indicate a self-enhancing pattern; a negative score indicates a self-effacing pattern. Stability of causes is computed in a similar fashion. A positive score on differential stability indicates that good events are attributed to more stable causes than bad events (optimism). A negative score indicates that good events are attributed to more variable causes than bad events (pessimism). Perceived globality of events’ causes is computed by averaging all correspondent scores for the twelve situations.

Procedure. Participants have been included in the sample and assigned to one of the subgroups according to the intelligence test score, reported by the school counselors (participants with scores under 120 in the group of students with average level of intellectual ability and participants with scores above 120 in the group of students with a high level of intellectual ability). School achievement and other academic performances have been also considered.

All participants completed the ASQ form in one application session, and scores have been computed respecting the computation procedure described in the previous section.

Results

Scores for *locus of attributional style for positive and negative events* have little variation among the four subgroups of the sample; however, highest mean ($M= 4,84$; $SD= 0,73$; respectively, $M= 5,05$; $SD= 0,97$) for these dimensions has been computed for high achieving girls (they tend to attribute causes for both positive and negative events more to themselves, and less to external circumstances). Scores for *stability of attributions for positive and negative events*

can be described as more diverse, means ranging from $M= 3,73$ ($SD= 0,93$) for high achieving boys/positive events, to $M= 4,95$ ($SD= 2,14$) for high achieving girls/positive events, and from $M= 3,94$ ($SD= 0,67$) for boys with average level of achievement/negative events to $M= 4,50$ ($SD= 0,69$) for high achieving girls/negative events.

Scores for the global/specific dimension of attributional style indicate a certain variation according to participants' gender and level of achievement, indicating girls' tendency to more global attributions. Scores for high achieving girls ($M= 4,72$; $SD= 1,21$), and average achieving girls ($M= 4,95$; $SD= 0,21$) are higher than scores obtained by high achieving boys ($M= 4,01$; $SD= 0,76$) and average achieving boys ($M= 3,95$; $SD= 0,41$).

Mean levels for differential locus of attributional style (See also Figure 1) indicate a self-enhancing pattern for boys with average level of achievement ($M= 0,16$; $SD= 0,76$), and self-effacing attributional pattern for high achieving boys ($M= -0,26$; $SD= 0,87$), high achieving girls ($M= -0,12$; $SD= 0,93$) and girls with average level of achievement ($M= -0,26$; $SD= 0,73$).

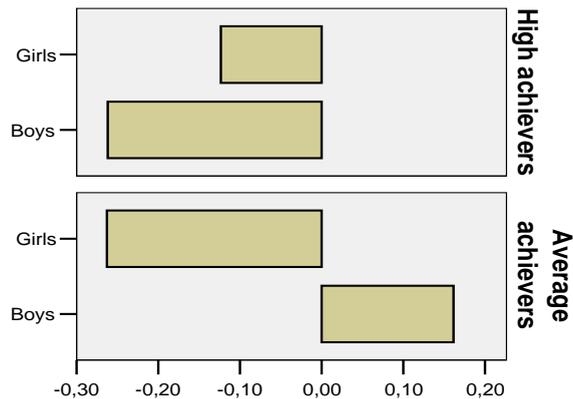


Figure 1. Mean /Differential locus of control

Scores for stability of attributional style (See also figure 2) indicate optimist patterns for both girls with average and high level of achievement ($M= 0,01$; $SD= 1,11$; respectively, $M= 0,46$; $SD= 1,98$), and boys with average level of achievement ($M= 0,01$; $SD= 0,60$). High achieving boys manifest a pessimist attributional style ($M= -0,77$; $SD= 1,08$).

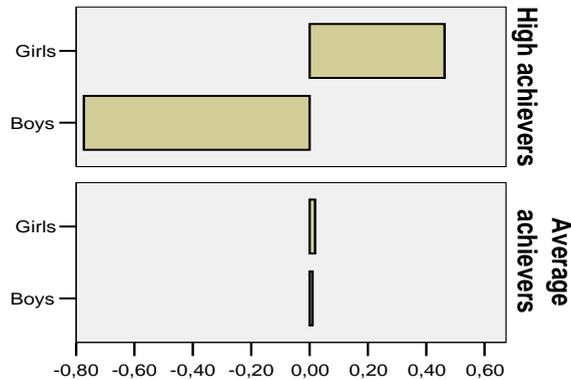


Figure 2. Mean/Differential stability

The investigation of the significance of differences among participants through an univariate analysis of variance revealed the following: there are not main or interaction effects of gender and achievement level on locus and differential locus of attributional style; there is a main effect of gender on stability of attributional style [$F(3)= 10,98$; $p= 0,001$], but no interaction effect of gender and achievement; there is a main effect of gender on differential stability of attributional style [$F(3)= 6,52$; $p= 0,012$] and an interaction effect of gender and achievement level [$F(3)= 6,34$; $p= 0,013$]; there is a main effect of gender on global attribution [$F(3)= 10,98$; $p= 0,001$], but no interaction effect of the two variables considered.

Further statistical analysis reveals that girls tend to make significantly more stable attributions [$t(111)= -3,33$; $p= 0,001$] and to display more optimism [$t(111)= -2,41$; $p= 0,017$]. Gifted boys are significantly more pessimist than those with average level of achievement [$t(58)= 2,75$; $p= 0,008$] and manifest a more self-effacing pattern [$t(58)=2,01$; $p= 0,049$]. There is no significant difference between high and average achieving girls in terms of attributions' locus and stability. However, data suggest that gender influences gifted adolescents' attributional style: high achieving girls express more stable and optimist attributions [$t(53)= 2,38$; $p= 0,021$; respectively, $t(53)= 2,60$; $p= 0,012$].

Generally, girls produce more global attributions than boys [$t(111)= -3,33$; $p= 0,001$], but no significant difference have been computed for either high or average achieving participants, or the four sample's subgroups considered in the study.

Discussion

The findings of our study support to some extent previous research outcomes on gifted students' attributional style: high achieving girls attribute failure mainly to internal factors (their own ability), and relate their success to external factors, which leads to a self-effacing attributional pattern. Similar results

have been reported in early and recent studies using attributional style as variable. Thus, the pioneering study of Seligman et al. (1984) reported that gifted students rated themselves as having more negative attributional styles; there is also some evidence that bright females develop maladaptive patterns over time if they continue to attribute failure to ability, rather than effort (Dweck, 1986), generally in areas where males traditionally perform better than females such as the sciences and mathematics. A study conducted by Assouline et al. (2006) noted that boys were much more attuned to ability as a basis for their success while higher percentages of girls focused on working hard.

However, our findings are to some extent inconsistent, giving the fact that differences among the four subgroups are not significant for some dimensions; gender rather than achievement level seem to determine significant effects. Similar contrasting findings can be also identified in other research (Assouline et al., 2006). One may speculate that this outcome may due to poor educational support for girls nowadays in family and school environments. Our results would stand against this way of reasoning, as high achieving boys are found to be significantly self-effacing and pessimistic in their attributions. Do boys face new challenges in today's social and educational environments, due to preoccupations within general public for girls' achievement and intellectual potential fulfillment? Or is this a feature of adolescent boys, either gifted or non-gifted? This type of questions may arise in interpreting research results, and giving appropriate and well-founded answers remains a point of reflection for future empirical inquiries.

As high achieving students (mainly girls) included in our sample display, to some extent, disadvantaging attributional style, we may suggest some educational implications of these findings. The literature includes several recommendations for specific intervention strategies to be conducted by both teachers and counselors: promotion of incremental ability of students, and attributional retraining techniques (Heller & Ziegler, 1996, 2001). The first intervention assumes that teachers can encourage students' beliefs in their abilities, which can determine the move from internal and stable locus control to an uncontrolled and flexible. Attributional retraining techniques cover the previously described intervention, but add some more structured approaches: teachers and counselor may chose modeling or commenting techniques. Modeling techniques are based on a role model, acting for the person whose attributional style has to be changed, who verbalizes the desired attributions or informs the person of a desirable attributional style. The other attribution technique is using clear written feedback on homework, projects and tests, giving precise information, positive but truthful.

Attributional retraining has been proven to be effective in the case of gifted children. A study on attributional retraining in the area of physics (Heller & Ziegler, 2001) examined the attributions of gifted girls whose intelligence was at least one standard deviation above the average of all high school students. These gifted young women attributed success in physics to luck (or other external factors)

and attributed failure to ability (internal factor). Boys responded with an opposite attributional style; success was attributed to ability (internal factor), and failure to bad luck (external factor) or insufficient effort (internal factor; Heller & Ziegler, 2001). Attributional retraining produced significant positive effects, and authors supports this approach, based on the premise of the potential negative impact on self-efficacy if attributions of success are made to luck or attributions of failure made to ability (Heller & Ziegler, 1996).

Although attributional retraining may be important, it aims only to provide individuals with an accurate image of their own competencies and abilities, and therefore the technique should be combined with other interventions which aim at improving knowledge (Heller & Ziegler, 1996).

Finally, some comments are to be made on limitations and cautions in interpreting our research results. The sampling procedure has been based on counselors' reports on results of intelligence tests, and also on school achievement analysis. Both counselors and teachers may be influenced in their decision by their own beliefs and conceptions; therefore more caution would be advisable in future research on high achieving students, and more information sources should be used for including participants in the gifted/non-gifted groups. Findings should be generalized with caution, not only because of sampling weaknesses, but given the specificity of the Romanian educational settings, and the emerging status of the issues of giftedness and gender in Romanian psychological and pedagogical research.

Conclusions

Our study aimed to focus on the problem of gender and achievement level as influencing factors for students' attributional style. Although the study findings are consistent with previous research outcomes, differences among the four subgroups (high and average achieving boys, high and average achieving girls) in terms of attribution patterns are not significant for some dimensions of the attributional style (internal/external locus, stable/ unstable attributions, global/specific attributions). Based on these results we can report that gender rather than achievement level seems to determine significant effects. No significant interaction effects of gender and achievement level on attributions' locus and stability have been found, while the two variables influence significantly the global dimension of attribution. Both high and average achieving girls tend to make more stable attributions, and are more optimistic than boys. They also make more global attributions, generalizing causes of an isolated event for all potential similar events. High achieving boys are more pessimistic than average achieving boys and all girls included in the sample, regardless their achievement level.

The outcomes partially cover our initial general assumption, stating that high achieving girls would show internal, stable and global attribution patterns, while boys would attribute events to external, unstable and specific causes. However, no specific attribution pattern has resulted for average and high

achieving individuals, and gender effect is significant only for some attributional dimensions. Unexpected findings also resulted from the study, namely the pessimistic attribution pattern in high achieving boys. Although the data collected offer some empirical support for explaining effects of gender and achievement level on attributional styles, a more complex research design is needed for clarifying the present results. Having as rationale previously mentioned research limitations and some confusing results, we may conclude that further research is needed in order to confirm and sustain the present findings.

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ANALYSIS AND SOLUTION OF THE ROMANIAN AGRICULTURAL EDUCATION ISSUES

IOANA ROMAN¹

ABSTRACT. Romanian Agricultural education in the general social context and as against the requirements of the economic development at European- and world level is regarded as an important link in the consolidation and organization of the agricultural industry, as well as the superior valorization of human- and material resources. The activities referring to education in agriculture are meant to signal the necessity to grant an adequate status to this basic economic sector which at this time is suffering image degradation with the tendency to aggravate. In order to identify where to act to solve the problems felt in the system of the agricultural education, the Ishikawa and arbor diagrams have been used. The problems submitted to analysis were: adjustment of agricultural education to the present demands of agriculture; enhance the efficacy of the practical part on the field of agricultural education; human- and material resources of the agricultural school groups and universities; to put into practice the knowledge acquired in the process of agricultural education.

Key words: development, priorities, qualification, instruction, perfecting

ZUSAMMENFASSUNG. Analyse der Probleme im rumänischen Agrarunterrichtswesen und Lösungsansätze. Das rumänische Agrarunterrichtswesen wird sowohl im allgemeinen sozialen Umfeld als auch in Bezug auf die europäischen und weltweiten Anforderungen der Wirtschaftsentwicklung als ein bedeutender Bestandteil betrachtet, für die Konsolidierung und Organisation des Agrarbereichs ebenso wie für die hochwertige Verwertung von menschlichem und materiellen Potential. Tätigkeiten die sich auf die landwirtschaftliche Ausbildung beziehen haben die Aufgabe eine dringende Notwendigkeit zu signalisieren, und zwar dass dieser grundlegende Wirtschaftsbereich einen entsprechend hohen Status zu geniessen hat, angesichts der Tatsache dass zur Zeit ein sich mehr und mehr ausprägender Imageverlust zu vermerken ist. Um die Handlungsrichtungen für die Lösung der im landwirtschaftlichen Unterrichtswesen erörterten Probleme festzulegen, wurden Ishikawa- und Baumdiagramme verwendet. Folgende Probleme wurden in der Analyse berücksichtigt: Anpassung der landwirtschaftlichen Ausbildung an die heutigen Anforderungen der Landwirtschaft, eine höhere Effizienz der praktischen Ausbildung innerhalb des Agronomischen Unterrichtswesens, die menschlichen und materiellen Ressourcen über welche die landwirtschaftlichen Berufsschulen und Universitäten verfügen, die Umsetzung in die Praxis der im Rahmen der agronomischen Ausbildung angeeigneten Kenntnisse.

Stichworte: Entwicklung, Prioritäten, Qualifikation, Training, Verbesserung

¹ PhD, Lecturer, USAMV Cluj-Napoca, DPPD

Introduction

Agricultural education in the general social context and as against the requirements of the economic development at European - and world level, is regarded as an important link in the consolidation and organization of the agricultural industry, as well as the superior valorization of Romania's human- and material resources. The activities referring to education in agriculture are meant to signal the necessity to grant an adequate status to this basic economic sector which at this time is suffering a degradation image with the tendency to aggravate.

Education represents the most important social sector of Romania. Besides, approximately 20% of its population actively participate in the development of this sector and the future of the country is prepared there. The compulsory Romanian education of today is a true "industry" of knowledge, forging for the next generations; thus, 12% of this country's population are in grades I to VIII sheltered by 13,000 schooling units, being implied well over 165,000 teaching cadres (Vlăsceanu, 2001). No other social sector includes a population or a number of institutions comparable to those in the compulsory education system. On taking into account the social responsibility that goes with it, the image obtained is one demanding quite special attention regarding the elaborated policies applied nowadays and their future impact (Ivan S., 2008).

Materials and methods

According to a 2010 opinion poll carried out on 64 fresh- and sophomore students at the University of Agricultural Science and Veterinary Medicine in Cluj-Napoca, as well as on 126 high-school students and 85 grown-ups the defaults in the organization and functioning of the system were highlighted by these. The interviewed ones have pointed so many failures in the Romanian education that we wouldn't have ever expected. The problems—in broad lines—are the same as the society's meaning that the two areas mirror back each other.

In order to identify where to act to solve the problems felt in the system of the agricultural education, the Ishikawa diagrams have been used. These instruments are allowing for relieving and grading the causes- either real or just potential- of a given effect. The effect may be an either positive or negative characteristic, such as: the engaging degree of fresh graduates from the agricultural high schools/universities or, school desertion within the same territory. Ishikawa is also an communication method that allow the transmission of a structured message; cognition of a general problem waiting for a solution; visualization of a situation, enabling the differentiation of key problems to be treated with priority. By means of the Ishikawa diagrams, there have been obtained an explicit- and rational correlation of the main-, secondary-, and minor causal elements as the Romanian agricultural education is regarded. A number of three to five causes have been selected to be acted upon with priority for finding positive solutions.

The arbor diagram has been utilized to indicate the relations between one subject and its component elements. This diagram applies to the systematic decomposition of a subject in its components to reveal the logical- and sequential links.

Results and discussion

Analyzing problems of the agricultural education system by Ishikawa and arbor diagrams

The problems submitted to analysis by means of Ishikawa- and arbor diagrams were: adjustment of agricultural education to the present demands of agriculture; enhance the efficacy of the practical part on the field of agricultural education; human- and material resources of the agricultural school groups and universities and to put into practice the knowledge acquired in the process of agricultural education.

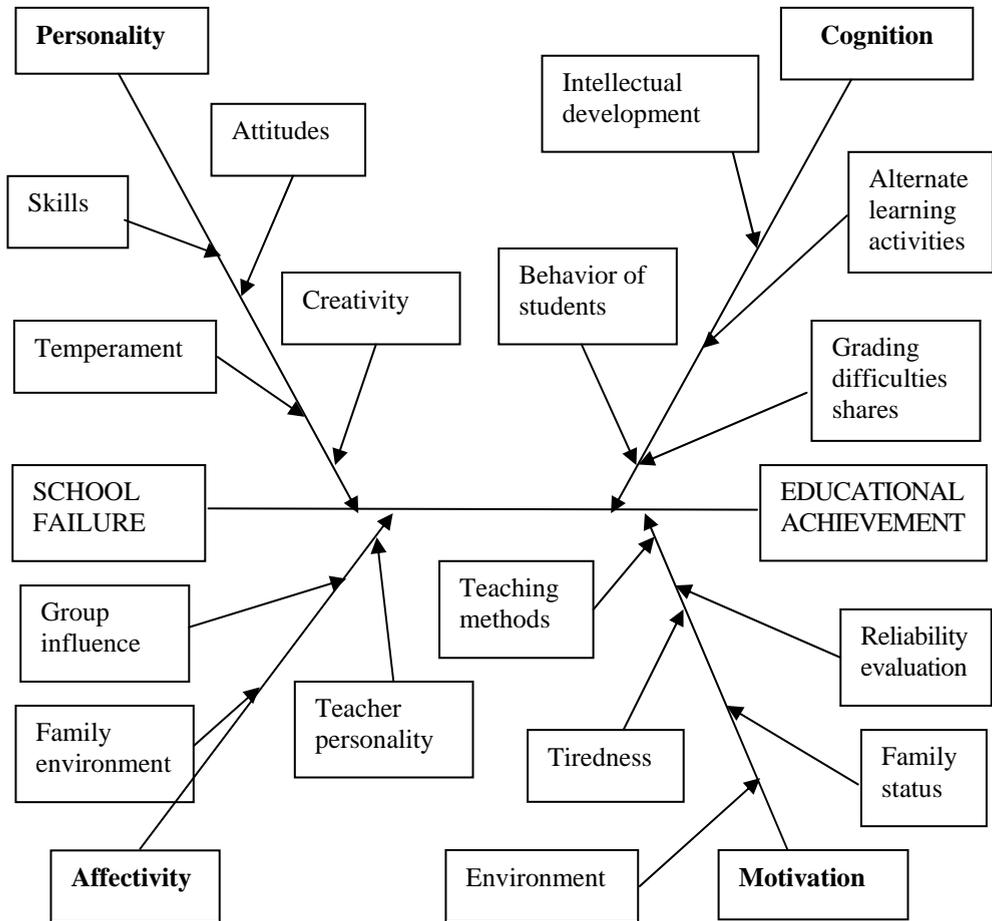


Fig.1. How can be eliminated the school failure?

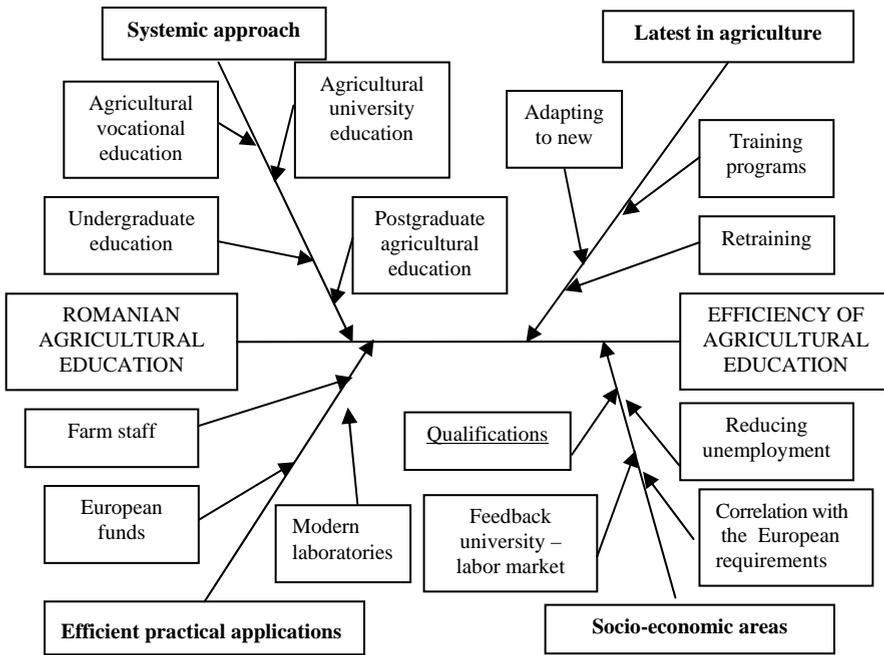


Fig.2. Efficiency of Romanian agricultural education

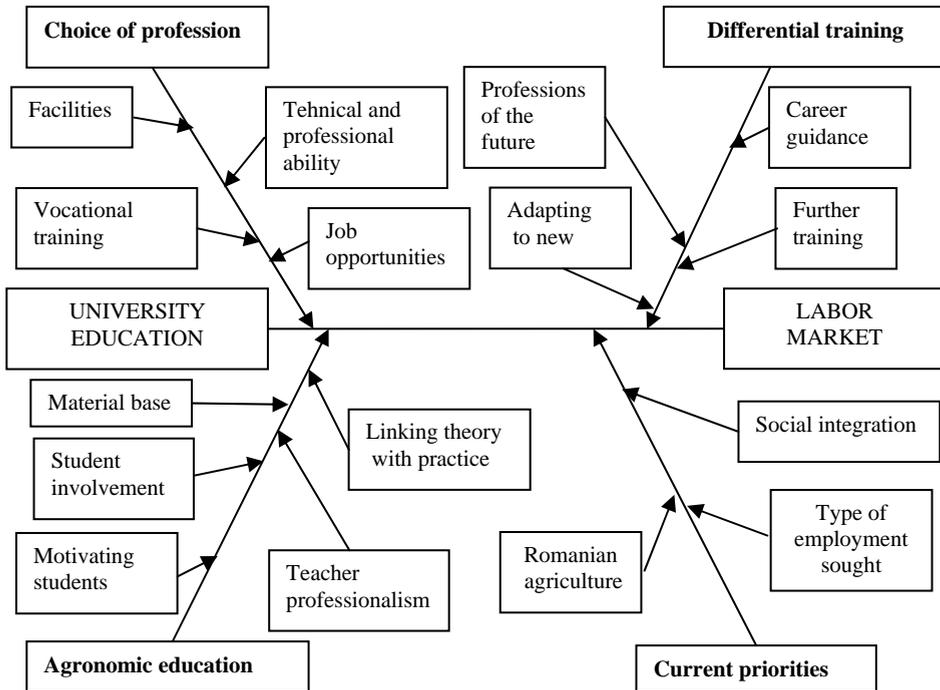


Fig.3. Correlation between university education and labor market

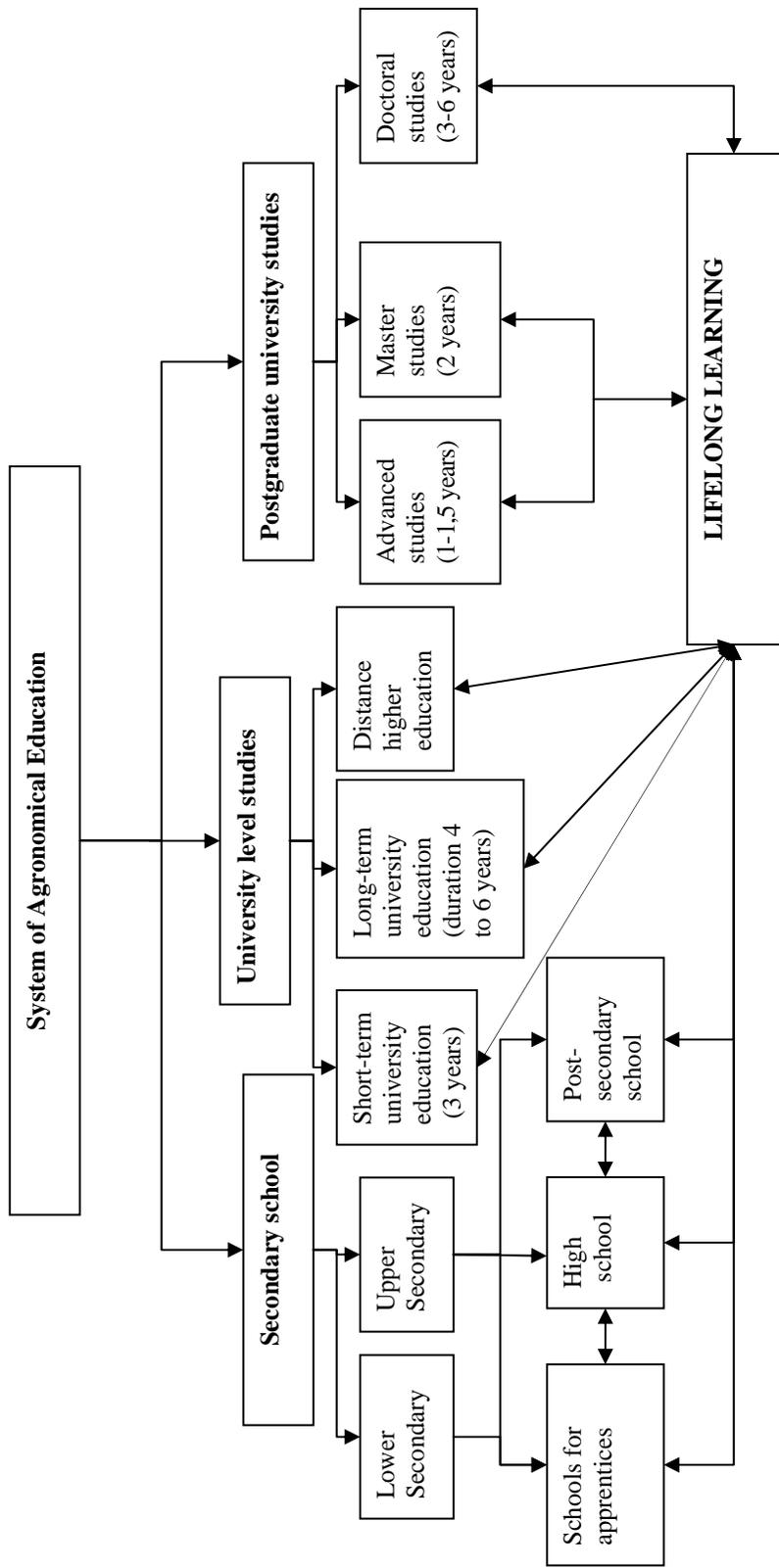


Fig. 4. The structure of agricultural education system in Romania

In order to adapt the agricultural education to the present requirements for agriculture, there should be created –first of all- centers of differentiated preparation and orientation in vocation meant to correlate the university preparation with the present demands on the workforce market and expectation in Romanian. Also, there should be re-oriented the formative programs in the agricultural universities based of the feed-back acquired from the rural socio-economic surrounding, in order to establish some continuous and lasting relays between universities and economic operators in Romania. Improving the national system of qualification in the vocational and technical education is also important, as well as the university education, by correlating it with the European frame of qualifications. Thus it is being imposed the identification of solutions regarding the development of the agricultural high-school and professional education in view of creating a technical personnel with medium-level studies able to competitively respond to the present priorities.

To enhance the practical part in this industry the didactic farms should be re-activated (by using European funds); also, to implement the programs meant to form agricultural professionals (according to EU standards, adapted to the specific of the Romanian agriculture), and treat this as a task of priority in the professional formation (qualification, instruction, perfecting.)

The structure of agricultural education system in Romania

University level studies

Short-term university education (3 years) is organized separately or for the first two years as an integral part of the long-term university education. Short-term university education leads to the Graduation Diploma. According to Law no. 288/2004, the last cohort of students enrolling in a short-term program was 2004/2005. Long-term university education (duration 4 to 6 years) is provided by universities and equivalent institutions. Long-term university education leads to a License Diploma, an Engineer Diploma.

The duration of the long-term studies varies according to the field:

- 6 semesters (3 years) for biology
- 8 semesters (4 years) for horticulture, agriculture and forestry.
- 12 semesters (6 years) for veterinary medicine

Postgraduate university studies

Postgraduate education offers specialization or an extension of the education provided in universities. Postgraduate study programs include:

- Advanced studies (1-1, 5 years) for university graduates;
- Master studies (2 years) for university graduates;
- Doctoral studies (3-6 years) offered by universities and research institutes

accredited, the doctoral courses are settle as day courses or night courses. The scientific title of doctor granted by the institution is validated by the National Council for the Attestation of Academic Titles, University Diplomas and Certificates.

Distance higher education - a National Centre for Open and Distance Education has been created, with centre in 8 universities and has the full support of 12 universities within the PHARE Program for Multi-Country Cooperation for Distance Education.

Lifelong learning - national authorities, commercial companies or other legal entities, jointly with education units or separately, run adult training and refresher programs to improve qualifications of their present or future employees or re-train them. These training courses grant certificates of professional competence recognized on the work market.

What the agricultural education system needs?

In what follows there will be introduced some of these needs as felt by the interviewed:

- There is too much theory implied meant to indoctrinate (so to speak) the students and only too few practical applications as more attention is dedicated to quantity, i.e., to quality's disadvantage;

- Perfunctoriness proven by students, their main interest is that of getting a diploma instead of knowledge; lack of one clear horizon as to the future of the young generation;

- The too often alterations in the system and lack of discipline within the education units;

- Lack of conception, incompatibility of planning and syllabus/curriculum with the demands of work-force market; flimsy theoretic- and practical instruction of the graduates;

- Teaching methods are leaning against exposition which ultimately leads to lack of communication between instructors and those being instructed;

- The handing over of obsolete information; at least the dynamic domains require ceaseless pursuit of specialization and information; the informative trait is much more important than the formative one;

- Lack of flexibility and of instructor cadres who, beyond shaping specialized persons, have to shape characters;

- The system fails to prepare human beings for life; neither are there real projects; students conceive projects that will seldom be implemented;

- The extremely low level of instruction—for both high-school—and university students—is decided by some of the instructors' lack of interest;

- There is no continuity in making homogenous decisions; however, the incoherence is present as we are trying to ape other systems without having a real basis for them whatever;

- The teaching staff being underpaid prompts it to focus on negative motivation (stress, threat, and disregard);

- The Romanian style/specific of knowing a little bit of everything mostly "specialization in general" and the futile row material forced upon students to assimilate knowingly, will lead to no end;

- Tack of team work and cooperation lead to worsen individualism;
- Lack of sustainable strategy, trying to turn children into geniuses overnight, overlooking their talent;
- Absence of professionalism with some members of teaching staff; presence of substitute instructors or even of those lacking qualification for this side of the industry (the proportion of unqualified personnel mostly in rural areas is unsettling). Numbers in teaching staff are fluctuating with every year regardless the students' count.
- We are confronted with too many alterations of the system, i.e., with each year curricula and syllabi change, the method of checking students' progresses are modified and so the teaching methods, too; many rules vanish, others utterly futile come back. An eleventh- grade student can never be sure that he will be able to have the school-leaving examination (approx. *A level*) from the same syllabus in the previous three years as these can be suspected of being altered in the following year. Owing to so many alterations in the law and ministries (departments) of education it is almost impossible to create a solid foundation for the education system and, the lack of a reliable foundation can lead to its hindrance;
- Many of the syllabuses taught are one way or other futile from the student's point-of-view. With high schools, music and religion are studied in a less or more useful manner at least so for the all-round education. Logically, such a situation leads to turning the teaching program even bulkier than it is. This is so as not all students have a knack for music or belong to a certain religious cult; moreover, there would probably be a lack of qualified personnel for the purpose;
- Financial funding allocated by the state for education is much lower than in other countries. Therefore, most of schools do not detain proper endowments needed for higher training of students. Sometimes, the furniture and equipment extant within classrooms date back to the 70' and 80'. During these last years updating of schools has been started but its speed of implementation is rather low as funding is too short as well. Beside low budgetary allocations there is also the lack of effective stimulants capable of attracting non-budgetary funds (Roman, 2008).

Let's hope for the best that in the future the Romanian system of education will be less deficient than now.

Many of us have been born and bred into this system of education. Even from the beginning of the general school up to the first university year we have navigated on a sea of generally futile items of information entirely so—in most of the cases - all along, till graduation.

Most of the students prove superficiality due to incapacity of following an overburdened program. When a syllabus starts to lack the reason of it being taught as well as the feed-back, they'll also give up studying it or, the ambitious ones will start learning it mechanically as only results matter disregarding the utility for future purpose (Bocoş, 2007).

More often than not, students will forget absolutely all what they have learned in the twelve years once they passed the baccalaureate examination. All the information left with a student after graduating from high school is the average mark and not the knowledge.

An excessive burdening of the Romanian high-school student with a 38-40 hours program/week and a too-much developed theoretical basis, as well as the absence of a practical side will ultimately lead to the birth of a generation excelling in the numbers of acquired diplomas and not in the components necessary for an active development of society and economy. Such a subject is being treated everywhere nowadays, under the roof of each assembly hall within the Ministry of Education but halas, not too many things will ever change!

Grave accusations have been brought and still are being brought forward vis-à-vis the shortcomings in the ways the entire education system is conducted, beginning in the grammar school up in the university; bills of indictment are being brought forward not only by some critics but also by most outstanding educators at home - in touch one way or other with the Romanian teaching - and abroad.

The educational method which should prevail is the one of investigative character, as well as analytic-and critic, allowing for the instructor to lead the research and guide the student towards acquiring new knowledge. Such subject matters would be:

- Biology which can be studied both outdoors and indoors (classroom, laboratory). However, some students graduate from high-schools of biological profile without having ever seen one of the tens of plants studied over the four years of study.

- Chemistry. The laboratory offers the student materials for analysis and research *via* substances. In the chemistry high-schools students study subjects which are taught to American sophomore students; however, an American high-school student is capable of mixing two substances in order to get the desired combination, whereas a Romanian one is finding the solution to the chemical equation at the black board. A Romanian high-school student is at home with almost all of the acid-, base- and salt formulas as to the American one who knows how to use them.

- History: on studying this subject the student will doubt the confessions which have never been contested before and search for old books and documents in the school libraries. The study of history provided him with data, events, a mental historic map; maybe it also offered him the strength of the scholar to tell truth from fake, history from myth in the old legends. However, not many were offered the understanding of the significance of events, a new comprehension or light regarding the true reason of man's life on Earth. History might also be studied by means of documentaries so as the student get a global image of the way one event or other took place.

- Literature: the poem the student read only for joy or digest will now be submitted to investigation as whether it is really of value, why it is beautiful, how to class its rhyme; the manner its characters were construed. It is interesting to

know whether at graduation he spent more weeks on researching the syntax and grammar of the language rather than acquire and evaluate the thought and spirit of classical authors.

Counting might go on for every subject matter which students will get over with.

For instance, in theoretical high schools- that prevail in Cluj-Napoca—only on rare occasions a subject matter shows up which develop/verify the practical competence of a student and when it happens to be a class of physical development or an optional one practiced after the regular classes, when a student after 6 or seven classes of theory prefers to walk home and relax. In such cases one can notice the low degree of importance granted to practical applications. Even classes belonging to the curricular area of Technology, on many occasions, these are not being developed within appropriate spaces (workshop, lab, etc.) but in the good old classroom where students take down notes about what should have been performed in a practical manner.

One can compare the allocations in the frame-programme in Romania based on mean hours calculated for The European Union. However, we underline that such mean figures should be treated with necessary precaution as the education system in each of the Union's countries presupposes—as a rule—much local adaptation and flexibility. Outlining of the conclusions will follow.

The duration of school year expressed in number of days of activity, is one of the smallest in Europe. This finding—correlated with the mean average number of all classes leads to the conclusion that, at the level of grades VII and VIII, the Romanian high-school student is overloaded. Table 1 introduces the numeric evolution of the mean total-hours *per annum* depending on the student's age.

Table 1.

The numeric evolution of mean total-classes (Vlăsceanu, 2001)

	7 years	10 years	13 years
Romania	646	748	1003
EU	773	887	922

At the level of school subject matters, one can find significant differences:

Table 2.

The numeric evolution of classes of study with various subjects in Romania and EU (Vlăsceanu, 2001)

Subject matter		7 years	10 year	13 years
Mother tongue	in Romania	255	204	136
	in EU	200	180	130
Mathematics	in Romania	119	119	136
	in EU	110	117	105
Natural- and humane Studies	in Romania	34	93,5	204
	in EU	84,5	132,5	110
Curriculum by School Decision (CDS)	in Romania	85	85	51
	in EU	298	259	570

The evolution of numbers of classes centering the study of mother tongue is presented in Table 2.

- The evolution of numbers of classes centering the study of mathematics reaches 136 in Romania as to 119 in EU.

At the level of grammar-school education, the European mean expresses a more judicious balancing between the two subjects, whereas with the high-school education the difference may reach 31 classes *per annum* of mathematical instruction to the Romanian high-school student.

Natural- and humane studies (reference is common with EU) show an significant difference coming - for Romania - from a very small weight of the socio-humane subject matters in elementary school and very high weight of Natural sciences in the terminal years of the gymnasium.

The variation in the number of classes allocated to Arts and Sport manifest contrary tendencies with us to the variation of European mean. The highest difference is shown in the CDS.

Of the data introduced above one can notice that high-school students in Romania are surcharged and congested; in spite of this, they are less prepared in so far as the practical side is concerned.

However, it is true that from the view point of the theoretical preparation high-school students in Romania are always in the front ranks with home- and abroad competitions and Olympiads but we do not possess the information linked to the evolution ulterior to these.

Due to the too high quantities of information students are not able to assimilate everything lingering behind studies with dissipated fragments of an entity, thus knowing *just a bit of everything*, nothing tangible.

The American education systems lay stress upon one single subject matter, the one selected by the student. With gymnasias the diversity of syllabi help the students to take to the road they think is the most suitable to them.

In the Romanian system diversity does not disappear with the high school not allowing for focusing on what is desired. They even say that high school is the one destined to confer the students all-round education. Thus, by superficially learning a lot of syllabi motivation goes down, meaning that the degree of preparation goes down, too.

As we are talking about education, we should to focus upon the one being the “donor” of information, then the shape-provider and moderator, i.e., the teacher who can be not only a member of a teaching staff but an example, too. Students are inclined to follow their teachers, mentors so to speak. Those who want to illustrate an example worthy of being followed should have not only a penetrating mind but also a wide spirit and large heart, all meant to characterize his integrity, honesty, abnegation, vitality enthusiasm, dignity, tact and patience. Thus, instructors will understand students’ needs by directing their steps towards progress and the class will turn into a large family where all its members exert substantial effort to

acquire sound knowledge both theoretic- and practical ones. Quality will be more important to them than quantity. Collaboration will be the spirit of the class-room, also, its law of life whereas attention will also be individually distributed by insisting on the importance of the personal element.

The teachers activities are evaluate every year by external evaluation of quality education. The Romanian Agency of Quality Assurance in Higher Education, hereinafter RAQAHE, (in Romanian: ARACIS), and the Romanian Agency of Quality Assurance in Pre-University Education (in Romanian: ARACIP), are established to carry out the external evaluation of the quality of education. RAQAHE represent an independent public institution with competencies in accreditation, academic evaluation and quality assurance and its Board is composed by academic representatives nominated by the Ministry and The National Rector's Conference. As regards quality assurance and evaluation, the Agency establishes and revises periodically the national standards and performance indicators for higher education. It collaborates with other institutions to develop and promote policies and strategies for quality education, provides transparently its own procedures and mechanisms for external quality evaluation, has the right to use international experts and provides its own register of evaluators.

Conclusion

The agricultural education prior to university has in view the formation and development of the students' personality; promote education for values; stimulation of youth's creativity and of the entrepreneurial spirit by securing a solid preparation based on all-around education and on forming professional components which allow the graduated students to practice a profession, putting up his own business, continuation of higher education studies.

By means of the human- and material resources of the school groups and of the agricultural universities, these are meeting the demands to satisfy the needs of the personal development of the young and adults in the respective occupational area, ensuring standard-level training and ability to adapt to the present social conditions.

The knowledge acquired in the educational process on agricultural field, as well as the drawn work sheets won't easily fit into practice due to the small numbers of practicing agricultural specialists and scarcity of financial sustenance of agricultural research and propaganda; the reticence of agricultural producers in experimenting new methods and means of cultivating plants and raising animals.

To end with, the Romanian educational system should evolve so as to position itself to the same level as the western systems do. As for now, we are confronting a harsh bureaucratic system swarming with red-tape rules and regulations. Such an intricate organization leads to a poor level of student preparation fact that might have a severe long-term impact upon the evolution of our society.

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L'INFLUENCE NÉGATIVE QUE MÉDIA A SUR LE COMPORTEMENT DE L'ENFANT

MARIA CLAUDIA CUC¹

ABSTRAKT. Die Medien wurden aus einem Zensor der sozialen Missbrauchs in einem Mittel zur Manipulation der Bevölkerung, weil sie die Aggressivität so behandeln, in dem sie die Gewalt unter den Kindern ermutigen. Die Forschungen bewiesen, dass die Medien die Entwicklung des Verhaltens, der mentalen Prozessen und der Interaktionen beeinflussen, die das Kind in seinem privaten Umfeld entwickelt. Es ist notwendig die Verbesserung dem Studium gewidmeten Maßnahmen und Methoden, die die Medien entwickeln, um die harmonische Entwicklung der Kinder zu sichern.

Die vielen experimentellen Untersuchungen haben eine Korrelation zwischen das aggressive Verhalten der Kinder und die gewalttätige Inhalte, die von den Medien gesendet werden, unterstützt.

Angesichts der selektiven Belichtungs - Hypothese, Kinder mit psychologischen und biologischen Veranlagung für aggressives Verhalten werden von Fernsehsendungen mit gewalttätigen Inhalten angezogen.

Stichwörter: die Medien, das Verhalten, die Gewalt, der Verbraucher, sozio-kognitiver Entwicklung

ABSTRAIT. La Média s'est transformé du censeur des abus sociaux dans un moyen de manipulation de la population. La média présente l'agressivité dans un mode qui encourage la violence au milieu des enfants. Les recherches entre reprisés ont démontré que la média influence le développement des attitudes des processus psychique et des interactions que l'enfant développe dans son milieu privé. Il est nécessaire d'améliorer les mesurés et les méthodes dédiées à l'étude de l'effet que le média a sur le développement des enfants. De nombreuses études expérimentales ont soutenu un corrélation entre le comportement agressif de l'enfant et le contenu violent diffusé par le média. Tenant compte de l'hypothèse de l'exposition sélective les enfants avec une prédisposition psychologique et biologique vers un comportement agressif sont attirés par le programme Télé à un contenu chargé de violence.

Mots clefs: média, comportement, violence consommateur, développement sociocognitif.

¹ Assistent universitaire docteur, Faculté de Psychologie et des Sciences de l' Education, UBB, Cluj-Napoca.

1. La Média et des ainsi-dits messages

L'homme se trouve dans un combat continu avec ses semblables, mais aussi avec soi-même; Les discordes, les disputes, les rivalités, les altercations, les mots de chaque jour, illustre une dimension du contenu de violence avec lesquels la société se confronte. Le cœur de la société humaine est ébranlé de ces altercations de la violence, qui se distinguent aux différents paliers sociétales. La palette de l'influence de la violence se distingue de la dimension des conflits qui se contournent entre les juridictions, des conflits d'attribution des compétences en des obligations, des conflits au sein, des familles, des couples; des conflits sociaux.

La Média et en spécial la Télé s'est transformée dans les dernières décennies du censeur des abus sociaux, culturels et politique, dans un moyen de manipulation de la population étant un analgésique pour endormir la conscience humaine et pour la déstabilisation mentale et spirituelle de l'homme. Cette décennie a abusé des droits de l'homme, ainsi la liberté d'expression garantie au citoyen est enchaînée et naturellement contrôlée, tant que elle ne fait que développer la méfiance et produire une désorientation, attitude qui maîtrise plusieurs Roumains. La fausse diversité des messages diffusés, la variété avec laquelle les trusts média bombardent le spectateur, est en réalité fausse, et le produit offert est en essence peu et élémentaire, les espaces d'émission abondent par l'illusion du grand nombre des opinions exprimées, opinions qui sont canalisées dans un flux unique de pensée, destinée à former de fausses messages et gestionnaire d'autres conceptions et des valeurs humaines. La Roumanie est envahie par cette illusion de l'abondance des opinions, qui a le but d'être l'exponent de tous les couches sociaux en obtenant l'effet sconte de diversité et représentativité. On pose la question si la média présente l'agressivité dans un mode qui encourage la violence dans la société et en spécial au milieu des enfants et des jeunes, par les images réelles agressives présentes à la Télé, journaux ou des revues. Des spécialistes condamnent les effets négatifs des violences présentées aux Actualités, dans les heures de maxime audience. La violence dans la média fait sentie sa présence sons différents aspects: crimes, attentats, des rapt, des agressions sexuelles, des séquestrations de personnes etc.

Les images pleines d'une puissante violence sont présentes plusieurs fois par la Télévision ou la presse par des cadres prises de prés. On pose des signes d'interrogation: Quelle est l'empreinte que ces images violentes laissent sur le comportement des enfants? Comment est influencée la personnalité de l'enfant?

Le thème des images chargées de violence est varié. Les heures de pointe sont inondées des images avec des victimes mutilés, des gens écrases, tués dans des conditions diverses; tout cela représente le contenu primordial des Télé. Les statistiques montrent qu'en Roumanie les écrans présentent des images sanglantes chaque jour dans une proportion de plus de 70%. En même temps sont présentées plus largement que jusque là les pertes humaines des guerres civiles et des calamités et les événements du monde paraissent plus graves qu'auparavant, la

famine du pays ou des pays étrangers ne signifie pas tant que maintenant, quand elle est présentée dans les images. N'importe quelle accusation adressée à la Télé pour la présentation des violences dans la vie réelle se diminue devant le postulat qu'elle agit comme une force pour l'humanité, étant le moyen moderne de communication, par lequel le spectateur prend contact avec la vie réelle, connaît et peut contribuer à se redresser. Mais quel est le risque que nous nous assumons, avec quel effort et avec quelles pertes.

2. L'enfant – catégorie importante de consommateur média

Les enfants de votre société ressentent la violence dès l'âge fragile, et les influences de la violence se ressentent des structures politique, économiques et normatives déficitaires, par le maintien et l'accentuation des discrédits sociaux et économiques, par l'intensification des craintes et ethniques. La violence n'est pas un nouveau phénomène, mais son évolution dans ce nouveau millénium est soutenue et parfois encouragée par intermédiaire de la média. Des pédagogues, des psychologues, des sociologues ont étudié le phénomène, en essayant d'expliquer si la violence transmise par la média peut induire, construire, et développer un type de comportement agressif parmi les enfants. On a fait des rapports, des communications et des études de spécialité concernant l'impact de la violence de la média sur l'enfant comme consommateur média. Les conclusions sont claires. Il y a une puissante liaison et corrélation entre la violence diffusée par la média et le comportement agressif de l'enfant. La structure socio-économique que la Roumanie traverse trouve l'écho dans la manière ou réalise l'éducation et l'instruction du petit écolier. L'apparition de cette " sous-culture du désespoir ", la centre moralise de la société, les formes de l'inadaptation que l'écolier ressent de plus-en-plus sont identifiées et mentionnées suite aux analyses de ces cas proclamés, identifiées par les conseillers scolaires. Dans cette conjoncture, le concept de l'effet surprend les influences au niveau psycho-social que le consommateur média a dédié aux enfants. La média influence le comportement des enfants? La réponse est positive. Elle influence et modifie le comportement plus en comparaison avec d'autres catégories d'âge. La média occupe une place centrale dans la vie des enfants et ce groupe culturel a construit des "patterns" distincts de consommation média. Les études de marketing réalisés dans l'industrie de consommation ont démontré le grand potentiel de consommation que les enfants ont. À cause de cela les trusts média ont diversifié et agrandi leur offre pour le nouveau groupe-cible identifié sur le marché de consommation. On a intensifié parallèlement l'intérêt des pédagogues, des psychologues, des sociologues regardant l'impact que la média a sur ce groupe-cible. L'intensité du consommateur est variable, n'étant pas cohérente car les enfants sont vulnérables aux influences. De Louche explique cette vulnérabilité grâce au processus de développement bio-psycho-sociale, que l'enfant parcourt, en montrant les risques auxquels est exposé du point de vue du développement:

- a) l'interférence avec étude sur la réalité: l'enfant devient confus dans la perception de la réalité, et le message transmis par la media est confondu et assimilé a la réalité qui l'entoure.
- b) l'interférence avec l'acquisition des habitudes nécessaires au développement: le temps prévu à la consommation media croit, en réduisant substantiellement le temps que l'enfant a pour le contour des habilités motrices, dans l'apprentissage est par découverte, par la manœuvre des objets et a l'aide des jeux.
- c) La privation des interactions sociales le temps dédié à des activités et actions sociales, culturelles décroît en comparaison avec celui ancré dans la consommation de la media.

Susan McHale, suite aux recherches a démontré que la média influence le développement des altitudes, des processus psychiques et des interactions que l'enfant développe dans son milieu privé. Le petit consommateur se confronte avec une avalanche d'images, une diversité d'informations, étant obligé de maîtriser un code de normes, valeurs morales et éthiques bien définies, connaître des techniques et des stratégies qu'il doit appliquer dans le chemin de développement éducationnel. Le média est pour l'enfant un monde fascinant par le son, couleur, mouvement, celui-ci l'attire, le conduit vers les frontières difficilement délimitées entre le réel et le fantastique. Lemish D., Moon H., soutiennent que la média est une source centrale dans l'inspiration des enfants, et ceux-ci en ploient la média comme source centrale dans l'inspiration des enfants, et ceux-ci en ploient la média comme source de création, en créant des variantes complexes, diversifiées, face à leur source d'inspiration. La média comme soutient "L'encyclopédie des enfants, adolescents et la média", devient un facteur important dans la formation de l'identité de genre, en offrant à l'enfant et aux jeune des informations concrètes sur l'idée de ce qui signifie être flamme ou homme. Ainsi la média a une rôle essentiel dans la formation de l'identité sexuelle, en lui offrant des informations sur les changements physiques, sur sa propre sexualité et sur les comportements sexuels adéquats. La média est le sorcier d'oz, qui les alphabétise avec de nouvelles notions pas des programmes spécialisées, en soutenant par les émissions réalisées pour ce secteur d'âge, la créativité, la communication, la compétition et en réalisant en même temps une éducation intellectuelle morale et esthétique. Dans ce monde de la diversité l'enfant cherche son identité et ca se retrouve aussi sous l'aspect ethnique. La média est la source des informations sur l'ethnique dans les conditions ou l'enfant n'a pas pris le contact avec ses origines. Il est nécessaire d'améliorer les mesures et les méthodes dédiées à l'étude de l'effet que la média a sur le développement du comportement des enfants, Il ne faut pas perdre de vue le mécanisme par lequel les différents facteurs de la média les influencent: le contenu, le contexte social, les relations qui entourent les enfants, l'influence des formes média et l'expérience que l'enfant vit en contact avec les différents types de média.

3. Les effets négatifs de' a média dans le développement du comportement de l'enfant

Les recherches entreprises ont concentré leur attention sur les effets que le contenu violent que la média a sur le comportement de l'enfant en général, et aussi en particulier. Mais de nombreux études expérimentaux, corrélationnels et des méta-analyses ont soutenu une corrélation entre le comportement agressif de l'enfant et le contenu violent diffusé par la média. Le chercheur Moeller T., soutient la relation entre le comportement agressif de l'enfant et le contenu violent de la média, mais on ne peut pas affirmer que les émissions Télé avec un contenu violent déterminent l'enfant d'être agressif. De plus extensifs études regardant la violence de la média appartiennent à Gerbner, qui montre que le fait de visionner fréquemment des films et des programmes Télé de type drame est saturé de violence en proportion de 80%, celles-ci sensibilisent les processus cognitifs, étant responsables des actions des enfants qui prennent les actes de violence visionnés en les transposant dans le milieu familial, social et scolaire. Chargées de contenu informationnel violent la pensée et la mémoire de l'enfant sont orientées dans ce sens, par leur présence vont mobiliser la cognitive. Les enfants consommateurs de programmes violence sentiront l'insécurité autour d'eux et ils vont avoir besoin de plus de sécurité et de protection de la part de la famille, de l'école, et de la société. Robert Hodge et David Tripp a montre que la réaction des enfants face aux grilles de programmes Télé implique aussi l'interprétation de ce qu'ils regardent et de ce qu'ils sentent pas seulement le stockage des informations. La consommation média n'est pas une activité intellectuelle, de niveau inférieur, on réalise des interférences logiques entre les informations stagnées du milieu quotidien et le message transmis par les programmes Télé.

La télé est le moyen média qui transmet le message le plus puissant en offrant à l'enfant la diversité. Tenant compte de l'hypothèse de l'exposition sélective nous observerons que les enfants avec une prédisposition psychologique et biologique vers un comportement agressif sont attirés par le programme Télé avec un contenu chargé de violence. On a observé la croissance de l'agressivité seulement aux enfants qui sont agressifs à la suite du visionnement des émissions à contenu violent en devenant immunes les enfants perdent l'habileté de sentir des soucis et de la compassion, le comportement se change, en devenant plus lents à demander de l'aide et d'intervenir à la défense d'un ami qui est soumis à un traitement violent. La vue systématique des images violentes ou le producteur accentue la souffrance de l'homme, on insiste sur les détails physiologiques l'enfant se confronte avec un sensibilisante émotionnelle en réduisant l'altitude empathique de pitié vers ceux qui sont agressés le degré de tolérance à l'agressivité croit et violence est accepté comme un mode naturel de vie.

Quand on discute sur ces modifications du comportement il faut prendre au calcul le IQ statut socio-économique et l'influence des parents. Il ne faut pas confondre l'influence venue de la part, des parents, du groupe des amis, avec l'

influence de la média dans le développement et la perpétuité du comportement violent chez les enfants. Les enfants qui préfèrent ce type d'émission, ont une vie désorganisée, privée de discipline, privée de l'intimité émotionnelle, tout cela conduisant vers les indicateurs de développement d'un enfant hyperactif les effets peuvent être annihilés par un comportement positif de la part des parents et par une médiation de la consommation du média. En ce qui concerne le statut socio-économique les chercheurs ont démontré que les enfants qui appartiennent à des milieux socio-économique sous-développés sont plus grands consommateurs de média à contenu violent, en approuvant la violence, un autre moyen de distraction. Moeller T. a réalisé un différenciation de l'influence de la média: les formes de violence exposées dans les revues pour enfants ils croissent dans le cas les garçons les manifestations modérées et extrêmes de comportement violent pendant que les journaux à contenu violent développent des formes faibles de violence. L'internet est associé à l'isolement social en attirant l'attention sur le degré de liberté pour obtenir des informations violentes.

Les études de spécialité soutiennent que les effets négatifs sur le développement psychique et social de l'enfant est du aux trusts de Télé, qui transmettent l'information au niveau auditif et visuel. Ces effets laissent leur empreinte sur les habiletés d'apprentissage, d'optimisation de l'activité cognitive, de socialisation, mais aussi avec des implications au niveau neuronal, l'inhibition de l'activité de l'hémisphère gauche du cerveau, qui fait que l'hémisphère droite, accomplisse toutes les activités cognitives, à conséquences graves sur la santé et sur le développement du cerveau humain. En se basant sur les données obtenues dans le proses de d'investigation du psychique enfantin on a observé que l'hémisphère gauche du sujet n'était pas opérationnelle, et 90% des sujets testés rarement ils dé codifient correctement le message transmis par la Télé. Dans ce désir de connaissance psychopédagogique de l'enfant on a signalé que la média en spécial la consommation de Télé affecte le processus d'apprentissage, à effets négatifs au niveau de développement psychophysique. Un changement apparait dans le potentiel comportement de l'enfant la suit de l'interaction avec ce ru ilien et de la manque d'expérience.

Les causes sont la diminution de la durée de concentration de l'attention, un déclin de l'écriture, de la lecture, de la capacité de communication orale, mais aussi avec des répercussions sur la capacité de lecture sur l'habileté nécessaire pour la compréhension du texte. La dépendance de télé va conduire aussi a la diminution du temps que le sujet va employer a trouver des réponses concrètes aux demandes et aux problèmes scolaires. Le visionnement excessif des programmes Télé peut conduire à l'apparition des problèmes de mémoire, à effets à long terme sur le processus d'acquisition mnésique, d'assimilation active de l'information, la formation des opérations intellectuelles, attitudes et habitudes. Les enfants arrivent à retenir seulement les sensations, pas aussi l'information, fait qui empêchera l'apprentissage des stratégies actives et efficaces de mémorisation.

Dans ce contexte l'apprentissage n'est plus un exercice complexe, mental, affectif ou motrice, de réflexion profonde, à accents multiplicatifs engagés face à la connaissance humaine. Par cette dysfonction de comportement l'enfant ne s'implique plus dans le processus de traduction des nouvelles connaissances, habiletés dans des comportements cognitifs, émotionnels affectifs, socio-moraux caractéristiques. Les stratégies par lesquelles l'enfant est mis à adhérer à cette matrice de traitement, perfectionnement de tâches d'apprentissage ne seront plus mises en application.

La consommation excessive de la média est condamnée par les spécialistes aussi pour la pauvre expérience que l'on offre à l'enfant. La nourriture du cerveau est représentée par des stimulus de milieu, qui déterminent l'enfant à faire face à de nouveaux défis. Les stimulus auditifs et visuels transmis par la Télé sont rapides, agressifs, en mettant dans l'impossibilité la capacité du cerveau de contrôler ce qui conduit l'inhibition des processus mentaux.

La partie expérimentale

L'objectif principal est l'analyse des critères à la base desquels les élèves font la sélection des programmes Télé visionés, en observant si la violence est le facteur décisif, les méthodes employées pour l'identification des effets que l'influence négative de la média a sur la modification comportementale de l'élève du cycle primaire, l'implémentation du processus d'intervention, prévention et de l'assistance psychopédagogique.

L'intervention éducative-instructive est opportune dans la mesure où elle contribue au développement du potentiel intellectuel-créatif et de quelques capacités d'autocontrôle cognitif et affectif, de quelques capacités de contrôle cognitif réciproque et contribuant à l'amélioration significative des comportements d'apprentissage, affectifs-attitudinales et sociales des élèves.

L'angrénage de tous les facteurs responsables: instituteur, professeur, conseiller et psychologue, mais aussi d'autres partenaires éducationnels, contribuent à l'annihilation des effets négatifs de la média.

Objectifs spécifiques

- La détermination des effets produits par les programmes à contenu négatif sur les élèves du cycle primaire.
- L'identification de la relation existante entre l'intelligence émotionnelle et l'une des dimensions de l'hostilité.
- L'identification des principaux types de difficultés que les élèves rencontrent comme suite au visionnement excessif des programmes à contenu violent et l'appui de ceux-ci dans l'assimilation des éléments de curriculum obligatoire.

- L'élaboration d'un plan d'intervention au but de la prévention des troubles comportementaux.

Hypothèse générale

L'identification des causes dépendentes des moyens de la média qui sont à la base des troubles comportementaux peut déterminer l'élaboration d'un programme de prévention ou intervention précoce.

On a émis quelques hypothèses spécifiques

- Puisqu'il y a une corrélation directe entre la fréquence des scènes de violence insérées dans les programmes média, le niveau de créativité et le coefficient d'intelligence, ce fait nous détermine à avoir en vue les valeurs des trois indicateurs qui vont constituer comme base de contour des modifications comportementaux des élèves.

- L'élaboration d'un plan d'intervention cohérent adapté aux enfants à problèmes comportementaux, déterminera la connaissance et l'amélioration en temps des comportements affectifs-attitudinales, sociales et d'apprentissage des élèves.

Les méthodes de recherche

On a employé la méthode de l'observation et le questionnaire, comme instruments spécifiques construits ayant à la base des considérants logiques et psycho-pédagogiques. On a appliqué deux questionnaires formées chacun de dix questions formulées ouvertement.

L'échantillon sur lequel on a réalisé des sondages statistiques est composé de trois classes du cycle primaire (une deuxième, une troisième, une quatrième). Il a été construit après le critère de l'âge, étant un échantillon-classe.

Dans l'étape preteste on a appliqué le questionnaire une, dont le but était d'obtenir des informations regardant le nombre des heures accordé au visionnement des programmes Télé, des programmes et des personnages préférés, la détermination des caractéristiques, des motifs pour lesquels s'identifient avec ces personnages.

On a constaté que:

- 76,66% représente le pourcentage des mineurs qui à la suite du visionnement ont développé un dialogue agressif, ont utilisé des invectives, langage obscène, dégradant.

- 13,33% représente le pourcentage des mineurs qui commettent des actes agressifs, deviants (des comportements indésirables).

- 6,66% représente le pourcentage des mineurs qui commettent des actes à potentiel délictogène et 3,33% commettent des actes délinquents.

L'intervention psychopédagogique s'est déroulée dans l'intervalle de deux mois.

À la suite de la recherche on a formulé des propositions effectives d'intervention qui aidera les enfants à construire le système de valeurs et de développer une autre perspective:

- On a suivi le développement des habiletés parentales d'éducation, surveillance et implication dans la vie des enfants;
- Communication et relationnement adéquate et efficiente;
- L'école a un rôle éducatif et socialisateur; son intervention est nécessaire dans les activités de stimulation du potentiel intellectuel et créatif de l'enfant pour lui induire des états positifs;
- Activités sportives et culturelles-éducatives pour réduire le temps accordé au visionnement des émissions nocives-éducatives et pour la sublimation de l'agressivité;
- L'existence des centres diurnes et des programmes spéciales pour les enfants des familles à statut socio-culturel diminué dont les parents n'ont pas la possibilité financière de supporter les coûts pour les programmes éducatifs;
- Activités de méditation, groupes de socialisation et développement personnel.

Dans l'étape postteste on a appliqué un nouveau questionnaire qui a élucidé le fait que la combinaison des influences de plusieurs facteurs ont mené à une influence positive sur le comportement des élèves, en diminuant le degré de violence manifestée par les enfants. Dans cette étape on a observé qu'un pourcentage de 80% a amélioré les habiletés de communication, a disparu le sentiment de retirement et d'isolation sociale que la Télé induit, en même temps le potentiel délictogène a diminué. Par la concrétisation des mesures de prévention et d'intervention effective, la famille et l'école restent les instances sociales de base.

Conclusions

La Média est une présence constante dans la vie publique et privée et par l'abondance informationnelle et des messages sous-entendus, offrent de profondes restructurations et des transformations au niveau du comportement humain. Le Mode dans le quel est présentée la réalité, le mode dans le quel est se on conture et on analyse de différentes problèmes dans les émissions Télé influencent le mode pensée de l'enfant. L'enfant est vu comme un individu passif, et télé par ces messages contribue à sa modulation, à ses idées sur la vie et sur le monde, en construisant cette illusion-ci, que les idées et la vision sur le univers qui l'entoure lui appartient. Pourtant ces explications ne peuvent pas soutenir la relation causale entre la consommation des programmes Télé à contenu violent et le déclin que les spécialistes en éducation et développement cognitif ont observé à de nouvelles générations d'élèves. Si dans le cas des effets de la violence on a pris au calcul les caractéristiques personnels de l'enfant, les facteurs de milieu dans le cas

de ces recherches qui surprennent la liaison entre la faction du cerveau le développement psycho-sociale de l'enfant on ne prend pas en calcul des particularités, qui influenceraient les résultats obtenus, motifs pour lesquels apparait un scepticisme regardant ces dates. Mais on ne doit pas oublier que le développement harmonieux des enfants est en grande mesure dépendante du domaine de développement du contexte de la médiation de l'adulte des expériences de connaissance et des structures cognitives individuelles.

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INTEGRATION OF THE MATHEMATICS TEXTBOOKS IN THE TEACHING/LEARNING PROCESS

IULIANA MARCHIȘ¹

ABSTRACT. Research shows, that textbooks are important in teaching and learning Mathematics. The goal of the article is to study how teachers and their pupils use the mathematics textbook. The research tool is a questionnaire; the sample is made of 60 mathematics teachers. The results show that teachers mostly use the textbook to prepare their lessons and to assign homework for their pupils. Students mostly use the textbook to solve the given problems. There is a correlation between the teacher guidance on textbook use and how pupils use their textbooks.

Keywords: mathematics textbook, self-regulated learning

ZUSAMMENFASSUNG. Die Forschung zeigt, dass wichtige Lehrbücher in Lehre und Lernen Mathematik sind. Das Ziel des Artikels ist zu untersuchen, wie Lehrer und Schüler die Mathematik Lehrbücher verwenden. Das Recherche-Tool ist ein Fragebogen, wird die Probe von 60 Mathematiklehrer gemacht. Die Ergebnisse zeigen, dass die Lehrer meist mit dem Lehrbuch, um ihren Unterricht vorzubereiten und Hausaufgaben für ihre Schüler zuweisen. Studenten meist mit dem Lehrbuch der gegebenen Probleme zu lösen. Es gibt eine Korrelation zwischen dem Lehrer Anleitung Lehrbuch verwenden und wie die Schüler ihre Lehrbücher verwenden.

Schlüsselwörter: Mathematik Lehrbuch, selbstgesteuertes Lernen

1. Introduction

Textbooks are important in teaching and learning Mathematics. There are researches in different countries, about use of mathematics textbooks by teachers and/or pupils (for example, Pepin & Haggarty, 2001; Regis, Approva & Reys, 2006; Rezat, 2009).

The goal of this article is to present a research made among mathematics teachers from Romania about the use of the textbook by themselves and their pupils.

2. Theoretical background

Textbooks are “designed to provide an authoritative pedagogic version of an area of knowledge.” (Stray, 1994, p. 2)

Textbooks from the same country, written based on the same curricula can be very different. In different textbooks the same mathematical topic can be

¹ PhD, Lecturer, Faculty of Psychology and Education Sciences, UBB, Cluj-Napoca.

presented using different methods. Also the content of different textbooks can vary, even if they are written according the same curriculum: one textbook can emphasize a subject more than other textbook; the order of the presented topics and the logical connections between these topics could be different. Analyzing mathematics textbooks from Sweden, Johansson (2005) has concluded, that textbooks do not always follow closely the guidelines of the curriculum; this is also a source of differences.

The content and how this content is presented are also important. Research shows that usually the contents presented in textbooks are more likely to be taught by the teacher in the classroom; and teachers rarely present contents not included in the textbook (Freeman & Porter, 1989; Reys et al., 2003). As mathematics teaching should be problem-orientated, one important factor of evaluating a mathematics textbook is regarding the problems given in the book. Ceglédý and Kovács (2008) in their evaluation criteria for mathematics textbooks consider important the presents of control problems for students to evaluate their individual learning after each unit. Another important aspect is regarding the problems given in the textbooks. These problems should be enough for classroom activities and homework and the difficulty of these problems should be marked in the textbook.

Textbooks doesn't replace the teacher, he/she has an important role to mediate the content to the pupils (Love & Pimm, 1996). There are aspects of problem solving, which are difficult to be put in a textbook. For example, the textbook can't deal with pupils' incorrect solutions; can't reformulate the problem, if needed; can't give the required hints (Kang & Kilpatrick, 1992); can't check the correctness of a different solution given by the pupil. Thus it is important to know how often and how teachers use the textbooks.

Freeman et al. (1983) categorize the ways of using the textbooks by the teachers in four styles: textbook bound (progressing page-by-page in the textbook), selective omission (progressing from the beginning to the end, but omitting some parts), focus on the basics (focusing on some parts and omitted other parts), and management by the objectives (focusing on the main objectives of teaching mathematics and selecting the contents from the textbook for reaching these objectives).

Regis, Approva, and Reys (2006) have conducted a research on use of district adopted mathematics textbook in U.S. middle schools. The research took place during two years with 51 teachers in the first year and 66 teachers in the second year. Every teacher has written a textbook-use diary in which has recorded 30 instructional days. 39% of the teachers used their textbook at least 90% of the documented instructional days, 70% used their textbook 75% of the documented days, one teachers used less than half of the days. 59% of the teachers used the textbook mainly to prepare the lesson.

A study on textbooks use in France, Germany and England shows, that most of the teachers use the textbook more for the exercises than for the theoretical

part. The theoretical part is used differently in different countries: German teachers use different worked examples than in the textbook; French teachers present the rules differently than in the textbook (Pepin & Haggarty, 2001).

Another aspect to be studied is how pupils use the mathematics textbooks. In many cases teachers are influencing pupils' textbook use. For example, if the teacher asks pupils to use the textbook to study the solved problems, most of the pupils will do this. But if the teacher has never asked pupils to read and resolve the worked examples, most of the pupils will not do it.

The results of a research made in four classes of a German school shows that students do not only use the textbook, when they are told to by the teacher. When solving problems students look up for worked examples or boxes with kernels (Rezat, 2009).

Using an efficient way an adequate textbook by the pupils, their self-regulated learning skills could be developed. Self-regulated learning (SRL) is an academically effective form of learning, through which the learner set goals and make plans before starting to learn; monitor and regulate his/her cognition, motivation and behavior during the learning process; and reflect on his/her learning process (Pintrich, 1995; Pintrich, 2000; Zimmerman, 2001).

3. Research

The aim of the research is to study teachers and pupils mathematics textbook use during the teaching and learning process.

There are three research questions:

- 1) Do teachers use the mathematics textbook and for what purposes?
- 2) Do teachers use the mathematics textbook and for what purposes?
- 3) There is any correlation between teachers' and their pupils textbook use behavior?

Research design

The survey was conducted during the second semester of the school year 2009/2010 in secondary schools from the north-vest part of Romania (Transilvania region).

A questionnaire was developed for inquiring teachers how they use the mathematics textbooks and what they have observed about their pupils' textbook use. The questionnaire contained three demographical questions (sex, age and teaching experience of the respondents), six items regarding teachers' textbook use, and five items regarding how pupils' use the textbooks.

The sample of the research is made form 60 mathematics teachers, 17% male and 83% female. This distribution by sex reflects the reality in the Romanian educational system. Regarding the age of the respondents, half of them are between 31 and 40 years old, 18%-18% are between 25 and 30 respectively 41-50 years old, 12% less than 25 years old. The less represented category is the 51-60 years old teachers (Figure 1). This could be explained by the fact, that some of the teachers

from this age-group are already retired. In Figure 2 we could observe the teaching experience of the respondents. Most of the teachers have 11-15 years of experience (31% of the respondents); 20%-20% of the teachers has 2-6 respectively 7-11 years of experience (Figure 2).

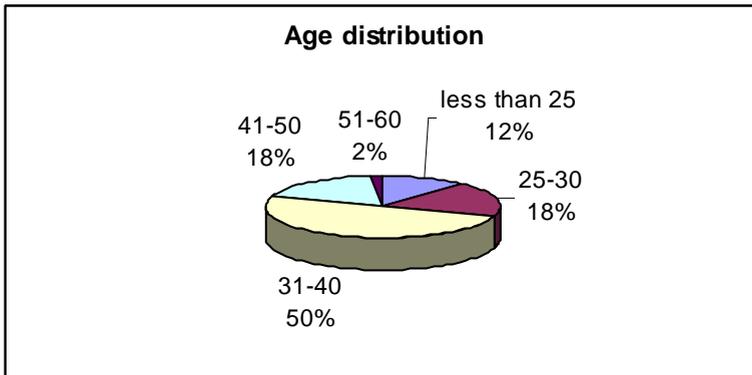


Figure 1. The age distribution of the respondents

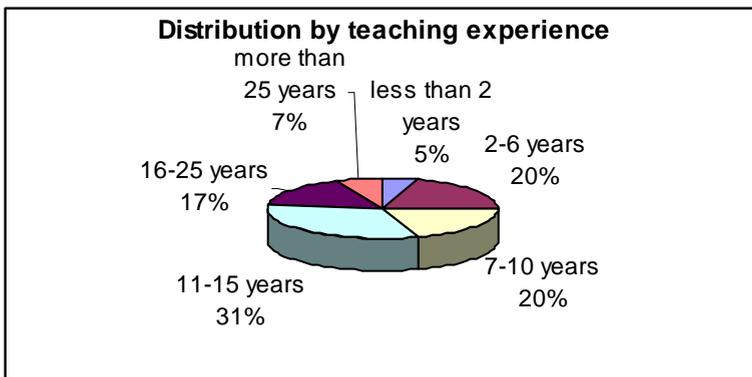


Figure 2. Distribution of the respondents by teaching experience

Results

The questionnaire contains six questions regarding teachers' textbook use. Respondents have to mark on a five step scale how typical for them the given textbook use behavior is. Teachers' responses can be found in Table 1.

Table 1.

Teachers' textbook use

	Not typical at all for me (%)	A bit typical for me (%)	Typical for me (%)	Very typical for me (%)	Totally describes me (%)
I never use the textbook.	45.00	46.67	8.33	0.00	0.00
I use the textbook to prepare the lesson.	5.00	23.33	35.00	20.00	16.67
I select problems from the textbook for the lessons.	1.67	20.00	36.67	21.67	20.00
I assign problems for homework from the textbook.	0.00	16.67	28.33	26.67	28.33
I ask my pupils to read the theory from the textbook during the lesson.	58.33	30.00	10.00	1.67	0.00
I ask my pupils to read the worked examples from the textbook at home.	45.00	25.00	23.33	6.67	0.00

Teachers were also asked about their pupils' textbook use habits. The respondents have to mark on a five step scale how many percentage of their pupils are using textbooks for the specified purpose. The responses are summarized in Table 2.

Table 2.

Pupils' textbook use observed by the teacher

	Less than 20% (%)	21%-40% (%)	41%-60% (%)	61%-80% (%)	81%-100% (%)
My pupils don't use the textbook at all.	60.00	20.00	5.00	13.33	1.67
My pupils read the theoretical parts from the textbook	68.33	8.33	6.67	16.67	0.00
My pupils study the worked problems from the textbook.	48.33	31.67	15.00	3.33	1.67
My pupils solve the problems given in the textbook.	15.00	30.00	16.67	26.67	11.67
My pupils search for the formulas in the textbook.	41.67	25.00	10.00	20.00	3.33

To get the answer for the question if there is correlation between teachers' and pupils' textbook use, we have calculated Pearson correlation coefficients (Table 3).

Table 3.

Correlations between teachers' and their pupils textbook use (df=58)

	My pupils read the theoretical parts from the textbook	My pupils study the worked problems from the textbook.	My pupils solve the problems given in the textbook.
I ask my pupils to read the theory from the textbook during the lesson.	.26**		
I ask my pupils to read the worked examples from the textbook at home.		.50*	
I assign problems for homework from textbook.			.17

* Significance level .01

** Significance level .05

Discussion

Regarding the first research question, we have found out, that most of the teachers use the textbook in their work. It is surprising, that 8.33% of the respondents said, that it is typical for them, that they never use the textbook. Textbooks offer a didactical processing of the scientific content, thus it is useful for a teacher to see this approach, even if he/she doesn't follow it closely. Textbooks also contain problems, which can be solved in the classroom or for homework.

To get a summarize view on textbook use by teachers, we have added up the first two options ("not typical for me" and "a bit typical for me") into "not typical", and the last three options ("typical for me", "very typical for me", and "totally describes me") into "typical" (Table 4).

Table 4.

Teachers' textbook use

	Not typical (%)	Typical (%)
I never use the textbook.	91.67	8.33
I use the textbook to prepare the lesson.	28.33	71.67
I select problems from the textbook for the lessons.	21.67	78.34
I assign problems for homework from the textbook.	16.67	83.33
I ask my pupils to read the theory from the textbook during the lesson.	88.33	11.67
I ask my pupils to read the worked examples from the textbook at home.	70.00	30.00

Most of the teachers (83.33%) use the textbook to give problems for homework and to choose problems for the lesson (71%). They use the textbook to prepare their lesson (71.67%), but they don't use it with their pupils in the classroom for the theoretical part of the lesson (only 11.67% of the respondents ask their pupils to read the theory from the textbook). Only 30% of the teachers ask their pupils to read the worked examples from the textbook at home.

As regarding pupils' textbook use, they mostly use the textbook to solve the given problems (26.67% of the teachers stated, that between 61%-80% of their pupils solve the given problems from the textbook, 11.67% of the respondents said, that between 81%-100% of the pupils solve the problems from the textbook). Almost half of the teachers (48.33%) said, that less than 20% of their pupils read the worked examples from the textbook. Worked examples help pupils to acquire problem solving methods. Research shows that studying worked examples it is an effective and efficient way of learning mathematics (Paas & van Gog, 2006).

68.33% of the respondents said, that less than 20% of their pupils read the theoretical part from their textbook; 41.67% of the teachers stated, that less than 20% of their pupils search for the formulas in the textbook. Usually pupils have two sources for learning the mathematical concepts, theorems, and formulas: their copybook and textbook. As in the copybook they are mostly solving problems, the main source for the theoretical part should be the textbook. Thus these results about reading the theory and searching for formulas from the textbook is surprising. Also pupils have to learn how to read a mathematical text, and reading their textbook could be a good practice.

Studying the correlations between teachers' guidance for using the textbook and pupils' textbook using habits, we observe that there is a correlation (Table 3). There is a significant correlation ($p < .01$) between teachers' guidance of reading the worked examples and pupils studying the solved problems from the textbook. There is also a significant correlation ($p < .05$) between teachers' guidance of reading the theory and pupils studying the theoretical part from the textbook.

4. Conclusions

The results show that teachers mostly use the textbook to prepare their lessons and to assign homework for their pupils. Students mostly use the textbook to solve the given problems. There is a correlation between the teacher guidance on textbook use and how pupils use their textbooks.

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THE IMPORTANCE OF EVALUATION IN TEACHING SCIENCE; APPLICATIONS IN THE STUDY THEME: ALKANES

ADRIENNE KOZAN NAUMESCU¹, MARIOARA GLODIAN²

SUMMARY. The major aim (goal) of this didactic research is the role of continuous evaluation on the two experimental classes focused on learning “The Saturated Hydrocarbon Alkanes”. The didactic investigation was preceded by an initial test having the role to diagnose the level of the students and the differences that persist between the two classes. As a result of the initial test, each class was divided into two groups, teaching being done differentially. The investigation (research) took into the consideration two progress tests, one for each group and a final test. The results of the experiment, the analysis and the interpretation of the four evaluation tests were interpreted drawing the histogram of the Gauss Curve showing the students’ progress, which has been the hypothesis of this didactic research. The heuristic strategies used in the experiment are made to assure that the learning is focused on the student (the student is in the centre). Thus the student will be able to become professional, to improve his knowledges.

Key words:continuous evaluation,heuristic strategies,learning focused on student.

ZUSAMMENFASSUNG. Das Hauptziel der Didaktikforschung besteht aus das Verfolgen der staendigen Pruefung der Schuelern im Rahmen der beiden experimentaellen Klassen waehrend der Lehretappen die sich auf das Thema “Alyphatische, gesaettigte Kohlenwasserstoffe -Alkane ” bezieht.Nach dem didaktischem Experiment folgte einen anfangsTest der eine Diagnosisrolle hatte da es den Vorbereitungs niveau der Schueler und die Unterschiede zwischen den beiden Klassen verdeutlicht. Im Folge des Testes, wurde jede Klasse in zwei Niveaugruppen eingeteilt, und es wurde auf Gruppen gearbeitet. Das Experiment bestand auch aus zwei Zwischenpruefungen Fortschrittproben und eine Endpruefung. Die Ergebnisse des Versuches, die Analyse und die statistische Interpration der vier Auswertpruefungen wurden durch eine Histogrammanalyse der Gausschaubilder zusammengefasst, welche die Fortschritte der Schueller hervorheben; diese werden in den letzten Teil des zweiten Abschnittes vorgestellt. Die Schluesse der didaktischen Forschung wurden in einem anderen Abschnitt zusammengefasst. Die euristischen Strategie die benutzt waren, Vefolgen einen interaktiven Lehrgang, der sich auf den Schuelern bezieht so dass, er sein eigener Leistungsverstaerker wird und dass er tuechtig wird, sein Wissen selbst zu aufzubauen konstruieren.

Stichwoerter: Naturwissenschaftslehrer, interaktives Lehrgang, euristischen Strategie, Zusammenarbeit mit der Klasse

¹ PhD, Senior Lecturer, Babes-Bolyai University, Psychology and Educational Sciences Department, Cluj-Napoca, Romania, e-mail: kozanadrienne@yahoo.com

² School Group Borsa Maramures,Romania

1. INTRODUCTION

We need to show an extraordinary attention to the problems that the didactics of different branches of science presents. In this context, the evaluation has a major role in the educational reform. The educational reform suggests as a main element the reorientation of didactic measures and this will be a continuous dialogue between these measures and teachers. The contribution that pedagogues and philosophers of education are producing since decades recently joins the interest in developing techniques for stimulating students' intrinsic motivation in learning science and participating in the scientific debate. The didactic measures means communication, the social transmission of the information with the student as the receiver. The teacher realizes the dialogue, selects and structures the material, conducts the most properly the student's activity.

Teaching has importance (meaning) only if it is a communication with the other two functions of the education: learning and evaluation. The learning theories offer many possibilities which are adaptable to the characteristics of the whole class, of each student and of each teacher who plans the didactic measures in conformity with the objectives (aims) and the competence (the abilities). The organization of learning activities has to be in conformity with the objectives, competences and the contents in order to establish an active learning. The teacher has different ways of organization the classroom activities in conformity with the characteristics of the whole class, of the individuals, these activities help the teacher to see the progress of the students in learning chemistry or other sciences. So, the Chemistry teacher has to develop the specific thinking of his students so that the students can be good at other scientific and technological science. In instructing and teaching the students, the teacher has to have some abilities: a correct and scientific knowledge, a critical analysis of the scientific facts, to motivate and stimulate the students, the project the didactic measures of the learning units in conformity with the students need, the projection of on objective to practice the diagnosis, summative, evaluation, to initiate the students to practice lockstep, individual work .Evaluation has to use plenty of theories and more evaluating instruments. The forms of evaluation (oral, written and practical) are focused on the objectives, so that the feed-back takes place in each teaching sequences and thus the continuous evaluation is essential.

2. SOME CONSIDERATIONS ON EVALUATION IN SCIENCE EDUCATION

Viewed from the perspective of Romanian education in a complex reform at all levels "educational evaluation is the systematic collection, oriented by the defined objectives, of specific data on the evaluation suggested by the situation assessment, the contextual interpretation of these data and the elaboration of them".(Stoica, A., 2001)

As H. Pieron said “Evaluation has an important role in education. It is directly or indirectly to the progress of education”(Ionescu, M., 2000).

Evaluation is a complex development which measures and appreciates the results of education, the effectiveness of resources, of conditions and operations involved in school activities comparing the results with the main objectives necessary to take decisions for the activities from the next stage.

In education, the evaluation’s functions are established in conformity with some psychological, sociological and docimological criteria. (Jinga, I., Gavota, M., Petrescu, A., Stefanescu, V., 1996):

Control function – is the evaluating function of establishment and appreciation of the results in education, by which it is established the level of education regard the objectives trying to find the factors influencing positively or negatively these objectives. Evaluation serves as a feed-back.

Input function – function assessment and guidance which tries foreshadowing the activity in system and anticipation of the results as a result of measures taken.

Adjustment function – is the improvement function of the improvement of the results found in the common measures of the evaluators (assessors) and of those who are examined to make the necessary corrections for the control and appreciation to driving that execution.

Classification and selection function – function of competition to ensure classification of the students regard the ratio value of performances within a group. It gives the satisfaction and reward to the students by obtaining grants, getting the contest a place in a new profile or higher grade in education.

Social – economic function – that function which points out the efficiency of education to the individual, value and performance of each student preparation, the efficiency of socio-economic education that influences decisions on the development and improvement education.

Educational function – that function which motivates and stimulates the interest for ongoing study, for improvement of education and for obtaining better performances. (Naumescu, A., Bocos, M., 2004).If to evaluate means to measure, this doesn’t mean that the evaluation is not only a mere instrument of expressions quantitative student’s performance, it is the “enigme” of a learning unit, a sign for the teacher in each moment of the lesson.

In the teaching – learning science process, the new knowledge will be introduced systematic in an interdisciplinary approach so that the students to be able to realize connections between concepts, to solve various problem situations.

In a modern didactics, we shouldn’t avoid the educational finalities, especially the students role educational finalities, especially the students role to build the new knowledge with the help of the teacher.

In this way we can form and develop the young's personality capable of taking decisions in different economic and social fields.

3. DIDACTIC RESEARCH

The didactic experiment took place at School Group Borşa, from Borşa - Maramureş, in the school year 2008-2009 the first term. Two classes were taken in the experiment: X-A class and X-B. The tenth classes, A and B, profile: Informatics- Mathematics, with two hours classes a week., with 27 students and respectively 28 students. Both of them were experimental classes.

The **main objective** of the didactic research was: the influence of continuous evaluation on the study theme "The Saturated Hydrocarbon – Alkanes".

The **hypothesis** of the didactic experiment was: the continuous evaluation will influence the level of the two experimental classes and make the possibility to follow up the feed-back at the end of each lesson.

The didactic experiment was preceded by an initial test, with the role to diagnose the student's level of knowledge and level differences between the two classes. The heuristic strategies want to provide an interactive education focused on the student, so that the student to be able to make his own knowledge. It was intended if students know:

- to do reasoning, skills, analogies, deduction
- to operate with concepts, rules, definitions
- to establish a connection between theory and practice
- to solve different problems..

All the results were summarized in an analysis by plotting the histogram and Gauss Curves shows the evolution of students.

The assessment objectives which are subordinate to the initial test items are:

1. to indicate the types of links and chains that form the carbon, based on prior knowledge
2. to define isomers and molecular formula based on prior knowledge
3. to identify structural molecular formula based on prior knowledge
4. to calculate de percentage and the equivalent of the corresponding algorithms
5. to identify links σ and π based on prior knowledge
6. to identify the types atoms the carbon, based on prior knowledge

The initial test was given to the students from the tenth grades, at the beginning of the learning unit "Alkanes":

- class X-A, Informatics – Mathematic profile from School Group Borşa
- class X-B, Informatics – Mathematic profile from School Group Borşa

In the school curriculum in 2008-2009 for Chemistry provided a total of two hours / week. The difference was done by groups of level classification:

- the students with score of 8-10 is the group level A
- the students with a lower score than 8 is the group level B

Table 1.

The results of initial test for the tenth grade A (experimental class, 27 students)

<i>Notation interval</i>	<i>Number of students</i>	<i>The percentage (%)</i>	<i>General mean</i>
1 - 2	0	0	7,85
2 - 3	0	0	
3 - 4	1	3,70	
4 - 5	1	3,70	
5 - 6	3	11,11	
6 - 7	5	18,51	
7 - 8	8	29,62	
8 - 9	4	14,81	
9 - 10	5	18,51	
Total	27		

Table 2.

The results of initial test for the tenth grade B (experimental class, 28 students)

<i>Notation interval</i>	<i>Number of students</i>	<i>The percentage (%)</i>	<i>General mean</i>
1 - 2	0	0	7,50
2 - 3	0	0	
3 - 4	2	7,14	
4 - 5	2	7,14	
5 - 6	4	14,28	
6 - 7	5	17,85	
7 - 8	6	21,43	
8 - 9	5	17,85	
9 - 10	4	14,28	
Total	28		

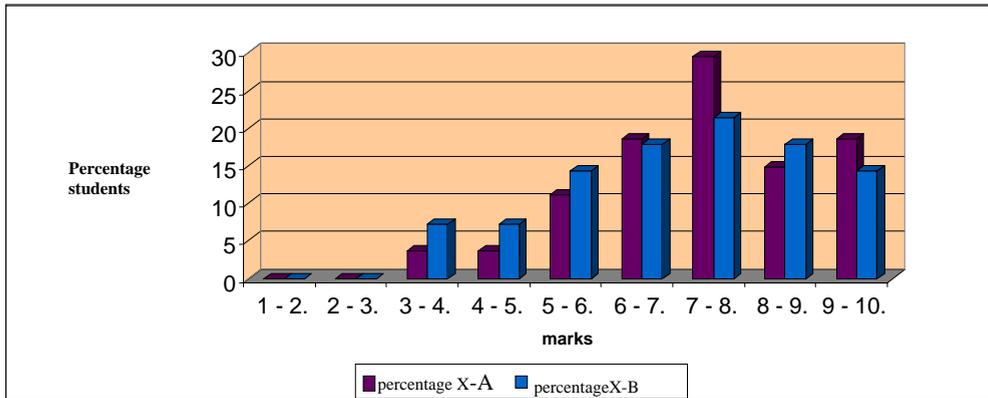


Figure 1. The histograms scoring for classes X-a and X-B

Turning the two histograms in the Gauss probability curves, the obtained results can be compared and the following conclusions are presented below.

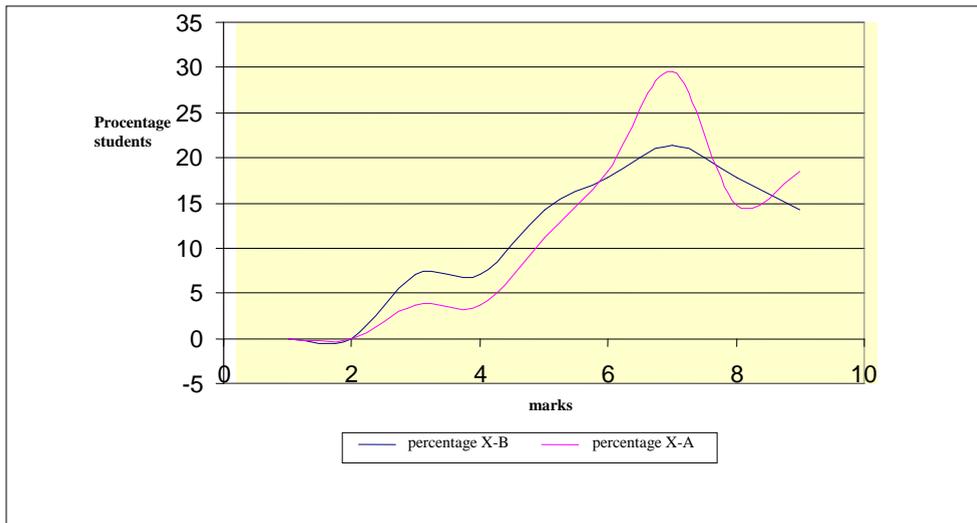


Figure 2. Gauss Curve comparative scoring for the tenth grades, A and B

From the analysis of the curves, it is observed that for class X-A, the percentage is higher, the rate for the marks between 9-10 is 18,51 compared to X-B where the rate for the marks between 9-19 is 14,29. We can observe the existence of marks between 3 or 4 for both classes. For the class X-A general mean is 7,85 higher than the general mean for the class X-B which has 7,50.

To conclude the class X-A presents a better smoothing of the curves and a more uniform grading, it has a maximum between 7 and 8. For the class X-B also has a maximum between 7 and 8.

After the initial test, the two parallel classes were divided into two level groups, by known criteria: So in the class X-A, there are 17 students in the group at the level A, and 10 students in the group at the level B. In the class X-B, there are 15 students in the group at the level A and 13 students in the group at the level B.

Table 3.

The results of final test for the group level A

Notation interval	Number of students X A A ₁	The percentage (%)	Number of students X B A ₂	The percentage (%)
1 - 2	0	0	0	0
2 - 3	0	0	0	0
3 - 4	0	0	0	0
4 - 5	0	0	0	0
5 - 6	0	0	0	0
6 - 7	0	0	1	6,67
7 - 8	1	5,88	3	20
8 - 9	7	41,18	6	40
9 - 10	9	52,94	5	33,33
Total	17	100	15	100
General mean	9,47		9,00	

After the final test, both classes had the general mean over 9, more exactly X-A – 9.47 and X-B -9.00, which shows the accumulation of knowledge and progress.

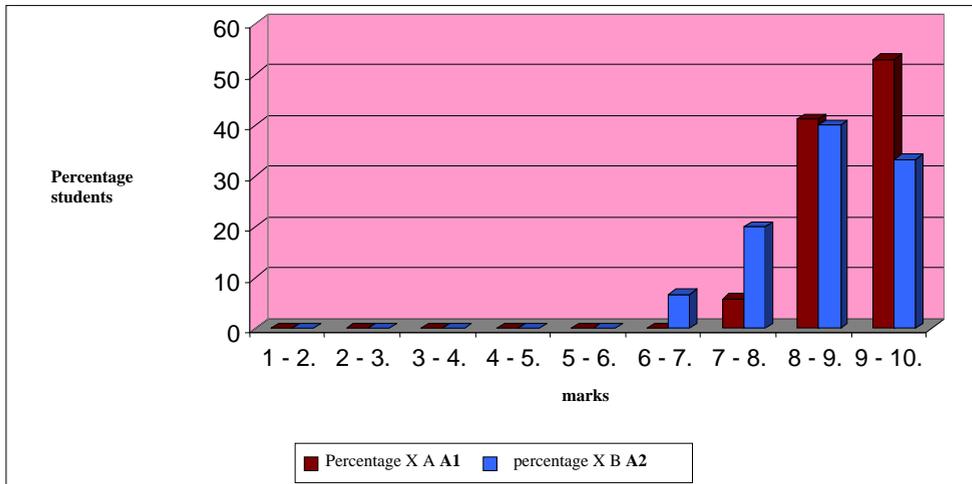


Figure 3. Histogram for the final test, group level A

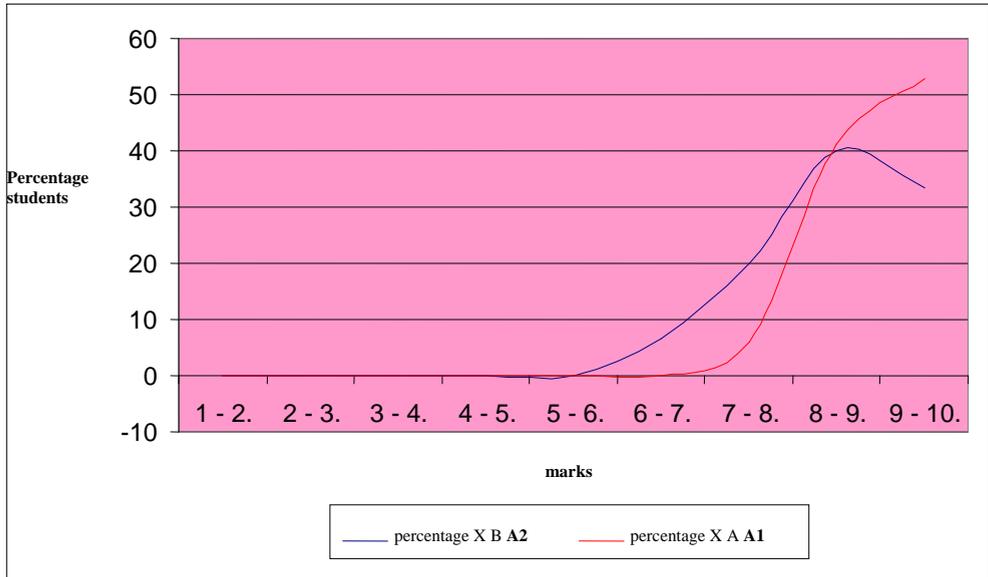


Figure 4. Gauss Curve comparative scoring for the group level A (A₁ and A₂)
-Final test

From the analysis of the histogram, it can be observed that the percentage is higher for X-A, between 9-10 (52,94%) and for X-B the percentage between 8-9 (40%).

The Gauss Curves have a suddenly ingrase. The tenth A (the class X-A) has a general mean higher than class X-B.

The progress that has been registered is:

- 8,17 – 9,47 for X-A
- 7,93 – 9,00 for X-B

X-A has registred a progress of 1,3% and X-B 1,07%.

Table 4.

The results of final test group level B

Notation interval	Number of students X A B ₁	Percentage (%)	Number of students X B B ₂	Percentage (%)
1 - 2	0	0	0	0
2 - 3	0	0	0	0
3 - 4	0	0	0	0
4 - 5	0	0	1	7,69
5 - 6	1	10	1	7,69
6 - 7	1	10	2	15,38
7 - 8	3	30	3	23,08
8 - 9	3	30	4	30,77

THE IMPORTANCE OF EVALUATION IN TEACHING SCIENCE

9 - 10	2	20	2	15,38
Total	10	100	13	100
General mean	8,40		8,07	

After the final test, both classes had the general mean over 8, more exactly X-A – 8,40, and X-B – 8,07, wich shows the acumulation of knowledge and progress.

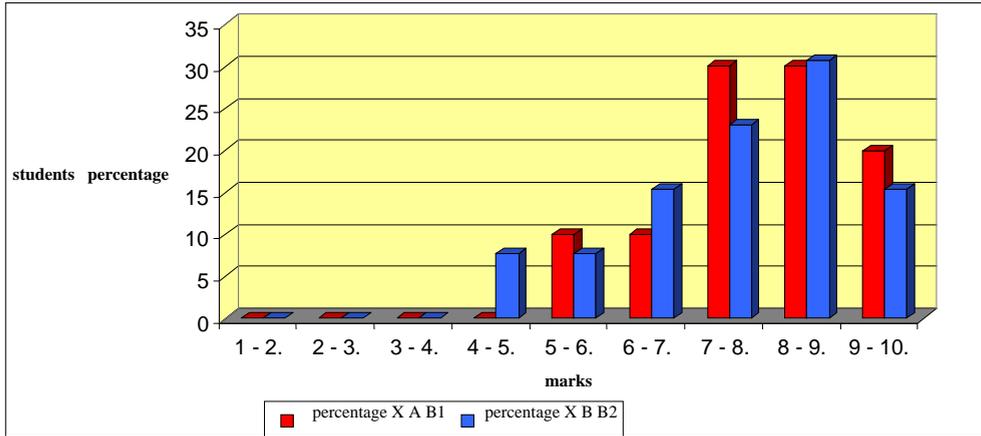


Figure 5. Histogram of notation for the final test, group level B (B_1 și B_2)

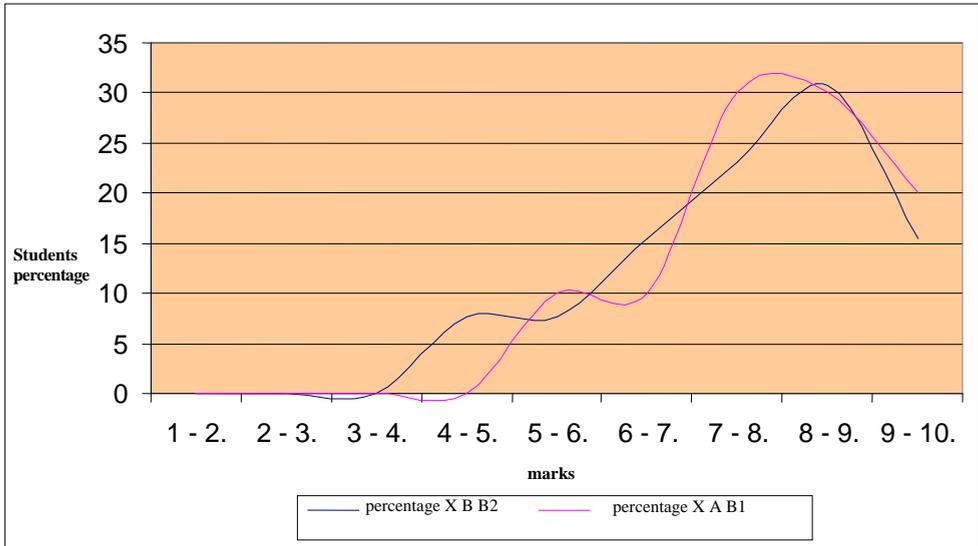


Figure 6. GaussCurve comparative scoring for group level B (B_1 și B_2)-Final test

From the analysis of the histogram, both classes get a maximum at the notation level between 8-9. The Gauss Curves have a slowly increase class X-A has a general mean higher than X-B. The both classes progress at A level is:

- 7,70 – 8,40 for X-A
- 7,46 – 8,07 for X-B

The class X-A has registered a progress of 0,7% and X-B 0,61%.

4. CONCLUSIONS

As a result of this didactic experiment it was found:

In teaching activity, the teacher has to have some specific competences, a correct scientific knowledge, a critic analysis of the scientific facts, he has to motivate and stimulate the students, to make them to enjoy chemistry, to project the didactic scheme of each unit in conformity with the students' needs, and to practice the diagnosis summative and formative evaluation, to learn the students to work in teams or groups.

The continuous evaluation is extremely important and useful. This evaluation can be done if the teacher uses many theories and various instruments of evaluation. The **hypothesis** of the didactic experiment has been confirming: the level of the two experimental classes has been improved by continuous evaluation. The Evaluation is a complex process which measures the results of teaching, the resources' efficacy, and the activities used in teaching having as goals the improvement of teaching. So, the teacher can use a different teaching, in conformity with the students' abilities. During teaching of a unit (lesson, or groups of lesson, themes and chapters), this evaluation is useful for the student who can notice his own progress (autoevaluation) and it is also good for teachers who care see if their objectives were achieved. The continuous evaluation focused on the objectives which have a major role both for teachers and students.

Using a modern didactic requires an increased interdisciplinarity with Physic and Biology. The methods used in this experiment were very useful in both theoretical and practical knowledge of the students, but also the raising the knowledge of the classes level taken in the study.

Lately the volume and quality of information increased, becoming even acute the problem of teacher-student interaction.

Using the heuristic strategy and continuous evaluation in order to use a creative didactic would require the need of "ventilation" of school curricula from curriculum area in Mathematics and Natural sciences for ensuring the desire to be his own training agent.

The school curriculum is extremely loaded, and both teachers and students have to do a gnat effort in teaching, respectively learning it with negative effects on their capacity to assimilate knowledge. The amounts of hours assigned to the "Chemistry" should be increased according to the classes profile.

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ON TEMPORARY SYNTACTIC AMBIGUITY

ALINA PREDA¹

ABSTRACT. Syntactic ambiguity is a feature displayed by a complex expression which may have more than one meaning, due to the possibility of interpreting its grammatical structure (at one point or another in the sentence) in more than one way. An instance of syntactic ambiguity leads to a network of alternative attachments, and temporary ambiguity occurs when there may be more than one possible syntactic structure for one part of a sentence. Sentences marked by temporary ambiguity cause the human sentence processor to construct an initial syntactic structure which turns out to be incorrect and, consequently, they require, at a certain point, both syntactic and semantic reanalysis.

Key-words: syntactic ambiguity, temporary syntactic ambiguity, the Garden Path Effect, syntactic reanalysis, semantic reanalysis.

INTRODUCTION

Ambiguity is a feature that can be displayed not only by linguistic expressions, but by photographs, paintings, drawings, and other art forms as well. Therefore, it can be defined as a word, phrase, sentence, term, notation, drawing, sign, symbol, or any other form used for communication that admits at least two different interpretations. *Linguistic ambiguity* is an extremely pervasive feature of natural language, and, consequently, it has enjoyed the attention of researchers specialising in various fields, such as syntax, semantics and pragmatics, or literature, psychology, philosophy and law (Preda, 2009: 107-108). Hoefler (2005) offers a classification of linguistic ambiguity by distinguishing between *structural* (or compositional) *ambiguity*, which includes **syntactic** and **semantic** types and *non-structural ambiguity*, which comprises **pragmatic** and **lexical** types. **Syntactic ambiguity** is a feature displayed by a complex expression which may have more than one meaning, due to the possibility of interpreting its grammatical structure (at one point or another in the sentence) in more than one way. Although a given sentence normally consists of a single set of unambiguous words, that string of words may have more than one well-formed set of groupings, thus giving rise to syntactic ambiguity (Preda and Coman, 2008: 16).

Temporary syntactic ambiguity is a linguistic phenomenon also known under the name of “The Garden Path Effect”: one is led down the garden path by

¹ PhD, Lecturer, Faculty of Psychology and Education Sciences, UBB, Cluj-Napoca.

the structure of the sentence, as the first syntactic parsing will not fit the rest of the sentence. Garden Path Sentences are sentences that may cause an ambiguity in interpretation, which, however, is resolved at the point where a disambiguating element occurs. These sentences lead one down the garden path in a quest for proper understanding. For example, the utterance ‘*While Don was reading the newspaper ...*’ could be continued in at least two different ways:

{[While [Don [was reading [the newspaper]]] [his sister knocked on the door]]}.
 {[While [Don [was reading]]] [the newspaper [lay unnoticed on the floor]]}.

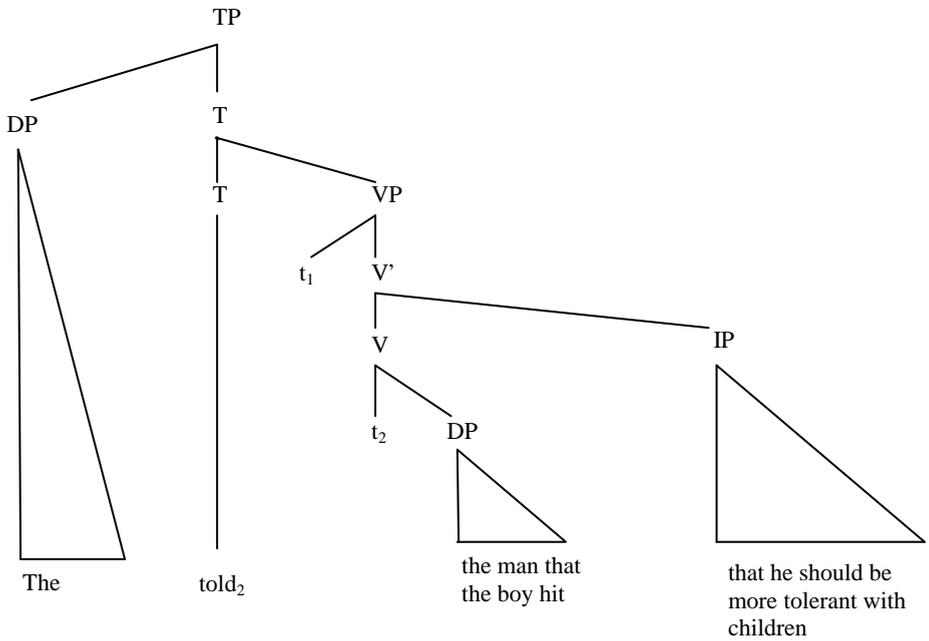
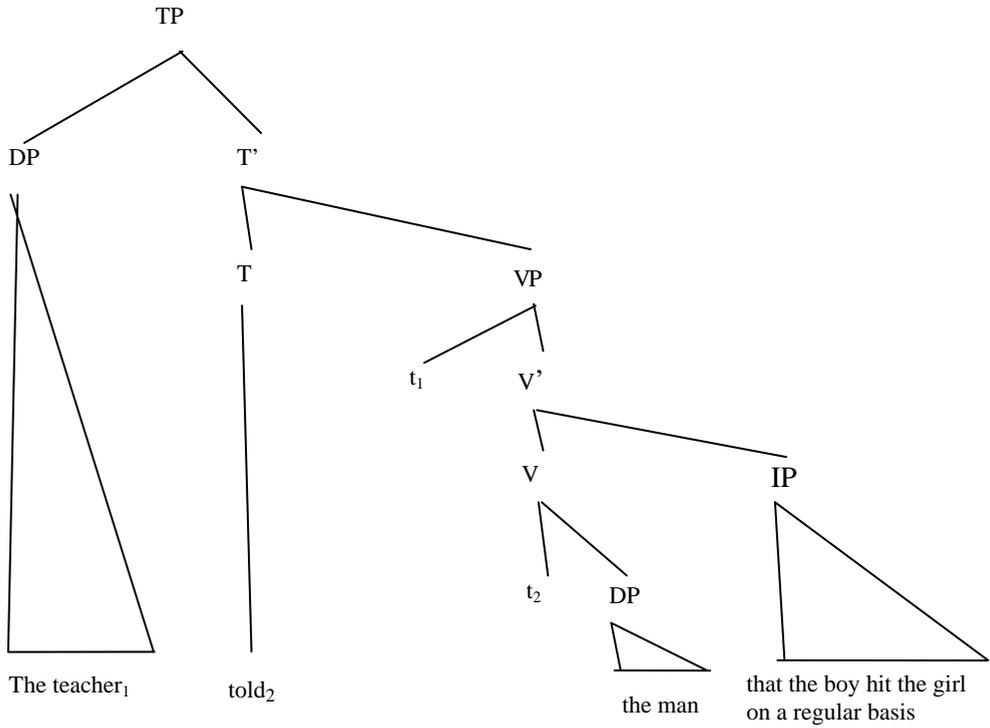
When a reader or, especially, a listener is confronted with a sentence like this, s/he cannot be certain from the start which the right structural analysis is, so ‘*the newspaper*’ may get an initially incorrect analysis. This noun phrase could be either the Direct Object of the verb phrase ‘*was reading*’ or the Subject of the main clause verb ‘*lay*’. Until reaching the noun phrase ‘*the newspaper*’, which can have the syntactic function of Subject or, respectively, Direct Object of a verb, the parser may go either way, so the sentence is marked by temporary syntactic ambiguity .

There are several types of sentences that create difficulties for the parser due to the fact that they contain elements compatible with two different syntactic structures (Grant, 2005: 41-49). Such instances of temporary ambiguity may occur when the listeners or readers are confronted with a choice: Direct Object Nominal Clause versus Defining Relative Clause, Direct Object of Subordinate Clause versus Subject of Main Clause, Direct Object of Main Clause versus Subject of Embedded Clause, and Main Clause versus Reduced Relative Clause. Another problematic situation is the presence of two prepositional phrases placed one after the other in one sentence: the issue known as Prepositional Phrase Attachment.

Direct Object Nominal Clause versus Defining Relative Clause

The fact that both nominal clauses and defining relative clauses can be introduced by the word “that” often causes temporary ambiguity to appear in certain linguistic contexts. Thus, after the sequence ‘*The teacher told the man that the boy hit ...*’ the reader’s syntactic analysis is expecting a pronoun such as “him” or some sort of noun, such as “the girl”, to follow the verb “hit” and complete the whole sentence analysis, as in (1) ‘*The teacher told the man that the boy hit the girl on a regular basis*’. However, as the sentence reads (2) ‘*The teacher told the man that the boy hit that he should be more tolerant with children*’ there is a point where the readers unwarily pause for an instant due to the appearance of temporary ambiguity. This point is precisely at the moment when the word “that” appears again, causing the human processor to perform a new analysis of the sentence.

ON TEMPORARY SYNTACTIC AMBIGUITY

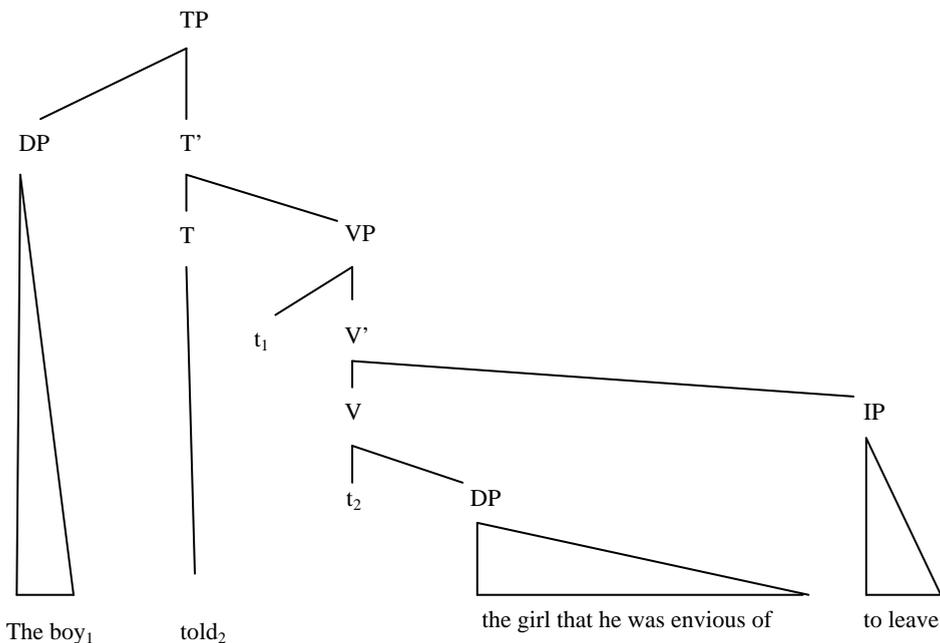


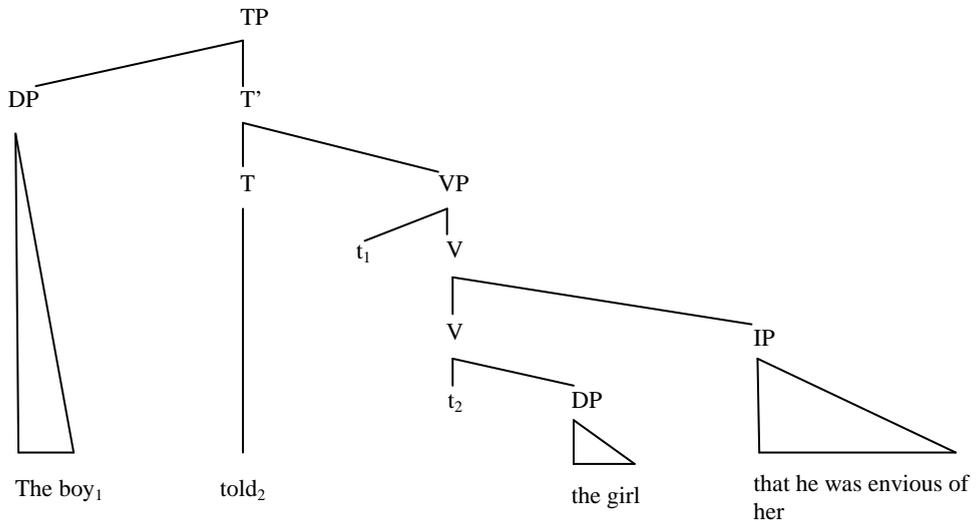
As they read through the sentence, the readers construct a certain pattern of syntactic analysis; but, when they stumble upon a linguistic unit that does not belong to that particular pattern, their brain needs a split second to perform a re-analysis solving the temporary ambiguity and reaching the correct interpretation. This type of ambiguity arises due to the fact that, while we process the sentence, we expect ‘*that the boy*’ to be the beginning of a Nominal Clause with the syntactic function of Direct Object. But this is not the case, since it should actually be read as a Defining Relative Clause.

Here is one more example of ambiguity due to the double use of the word “that”: ‘*The boy told the girl that he was envious of to leave*’ is an example where temporary ambiguity arises after reading the preposition “of”, the readers expecting a pronoun like “her” or a proper noun like “John” to follow, in order to finish what they believe to be a Nominal Clause. However, the “that”-clause is, in this case, a Defining Relative Clause and, thus, reanalysis is required.

(3) {[*The boy told the girl*] [*that [he was in envious of her]*]}. – Nominal Clause, Direct Object

(4) {[*The boy*] [*told [the girl [that he was envious of]] to leave*]}. – Defining Relative Clause





This type of temporary ambiguity is neither very strong, nor long-lasting, but both listeners and readers fall into the trap of expecting the wrong syntactic structure to follow, having, thus, to start again the analysis of such sentences in order to access the correct interpretation (Grant, 2005: 42-43).

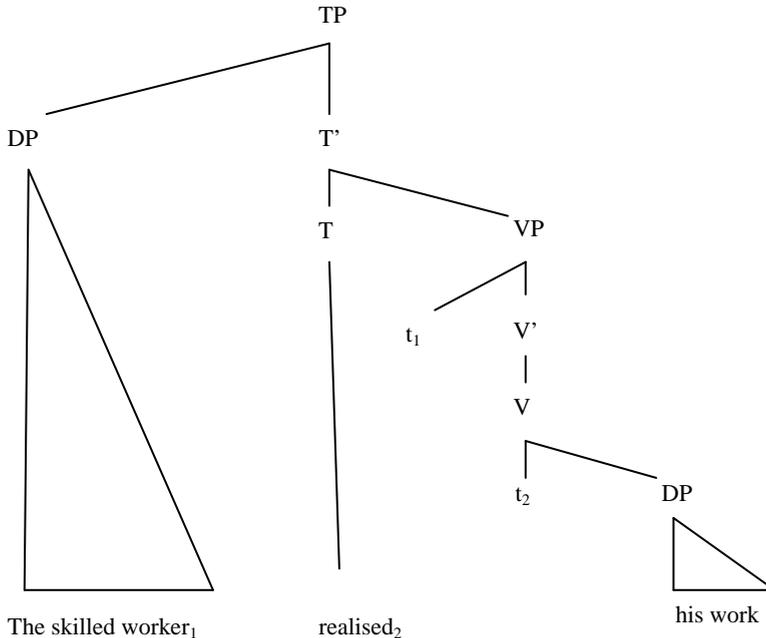
Direct Object of Subordinate Clause versus Subject of Main Clause

This type of temporary ambiguity occurs when the sentence begins with a word such as “while” or “when”. It can be contrasted with its unambiguous counterpart, which, in writing, includes a comma mid-way through the sentence. The misinterpretation of the sentence is caused by the supposition that the expression which is, actually, the subject of the sentence (of the main clause, that is) should be the object of the subordinate clause introduced by the relative adverbs “while” or “when”. For instance, a sentence that begins with: ‘*While John was driving the car ...*’ is more likely to receive an interpretation similar to

(5) {While [John [was driving [the car]], [a man jumped in front of it]}.

But a reanalysis will be required if the sentence is actually of the type:

(6) {While [John [was driving]], ***the car [blew up in flames]***}.



The noun phrase *'the car'* is not the object of the clause introduced by *'while'*; it is the subject of the main clause's verb phrase *'blew up in flames'*. When processing this sentence, the listener/reader comes to up to a certain point of the syntactic analysis where *'the car'* is perceived as being Noun Phrase, Direct Object, and, when the phrasal verb *'blew up'* appears, a reanalysis is required to dissipate the ambiguity: *'the car'* is, then, correctly interpreted as being the Subject of the Main Clause and not the Direct Object of the Subordinate Clause that begins with the relative adverb *'while'*. As Grant (2005: 44) points out, this type of temporary syntactic ambiguity that may arise between these two concepts "is extremely slight but can cause all sorts of semantic pitfalls".

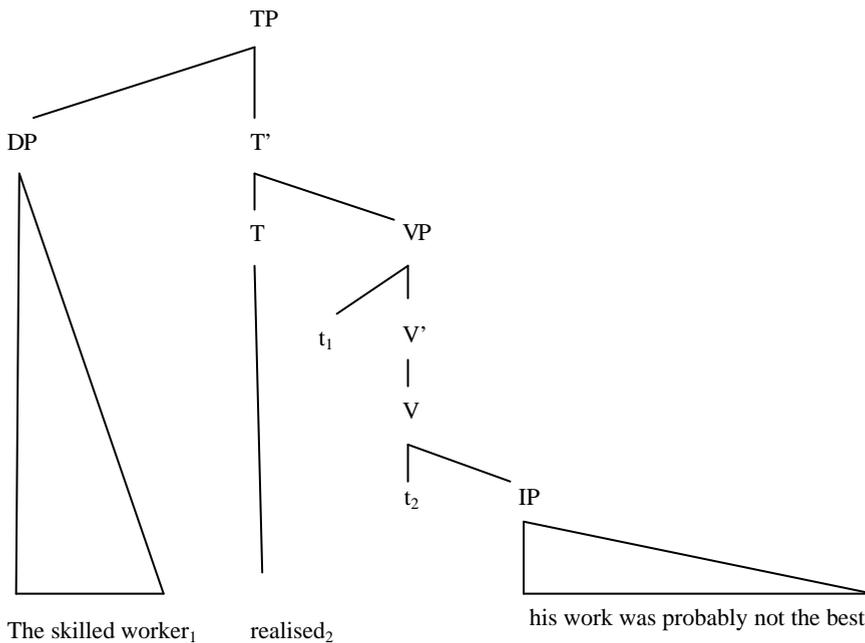
Direct Object of Main Clause versus Subject of Embedded Clause

This type of ambiguity appears in sentences containing verbs such as "to suggest" or "to believe", which can be analysed syntactically in more than one way. The noun phrase that follows such a verb is often expected to be its very own direct object but, in the end, it turns out to be the subject of the embedded clause. The unambiguous sentences feature the word "that" immediately after the verb, making it clear that the reader should not expect an object to immediately follow. In a sentence like *'The skilled worker realised his work was probably not the best'*,

the listener's/reader's syntactic construction normally combines the noun phrase 'the skilled worker' and the verb 'realised', so that the noun phrase 'his work' is perceived as being the Direct Object of this verb, in the very common word order pattern S + V + DO. The reanalysis of the sentence is required by the appearance of the auxiliary verb 'was', so that a new, this time correct, structure of the sentence can be provided:

(7) {[The skilled worker [realised [his work]]]}.

(8) {[The skilled worker [realised [[his work [was probably not the best]]]]]}.

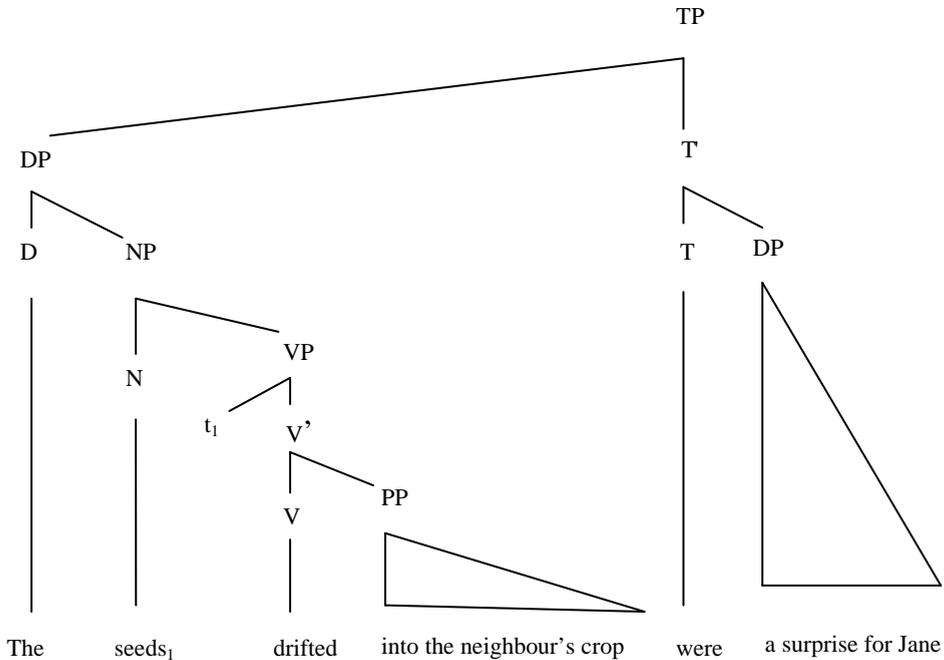


The ambiguity in such cases arises when the Subject of an Embedded Clause is misinterpreted, on the first syntactic analysis, as being the Direct Object of the Main Clause. However, since the re-analysis in such linguistic situations is easily performed, this kind of temporary ambiguity is quickly solved (Grant, 2005: 45-47).

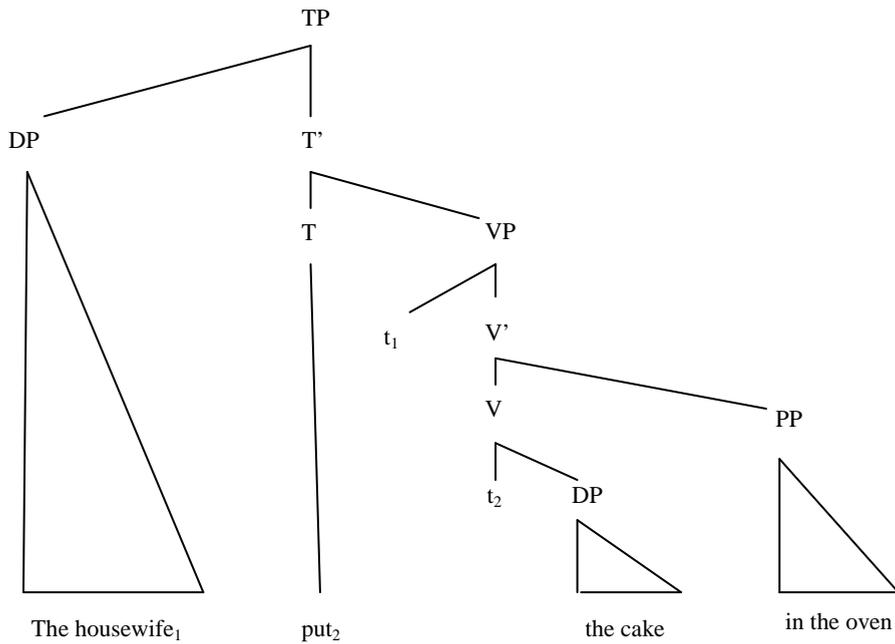
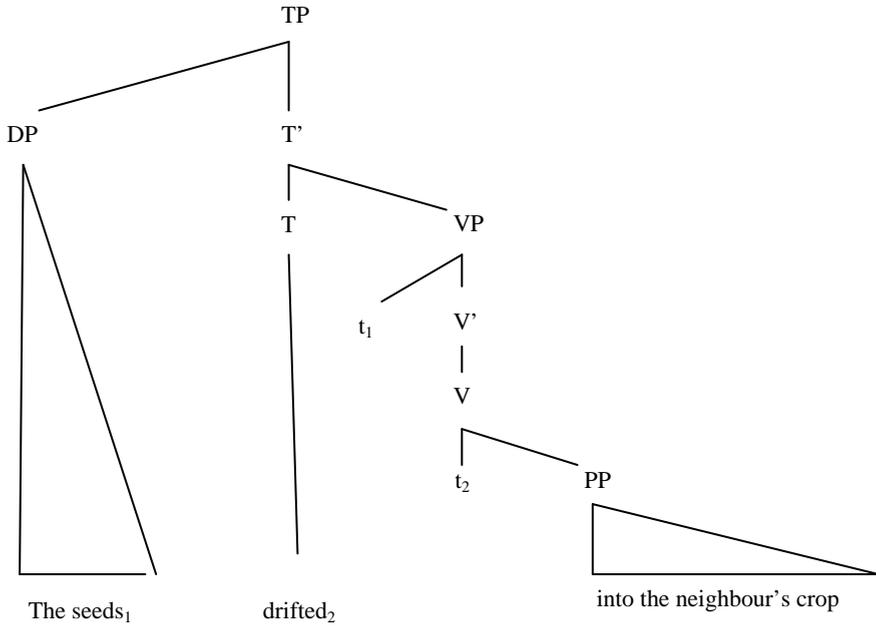
Main Clause versus Reduced Relative Clause

This type of temporary ambiguity is characterised by the presence of an *-ed* verb form + a Prepositional Phrase immediately following the Subject of the Main Clause. While this *-ed* verb form is first perceived as a past tense verb, namely the verb of the Main Clause, followed by a Prepositional Phrase, it is actually a past

participle, part of a Defining Relative Clause that has been subject to reduction. The Relative Clause, if present in its entirety, would have been introduced by the relative pronoun “that”, accompanied by the auxiliary “had”. The presence of these two words marks an unambiguous sentence, as they signal the beginning of the Relative Clause to the listener/reader. However, in the reduced version, these two disambiguators are missing, giving rise to ambiguity. Thus, when confronted with a sentence like ‘*The seeds drifted into the neighbour’s crop were a surprise for Jane*’, the reader is certain to construct a Main Clause, in light of the information contained in the first part of the sentence, but the appearance of the auxiliary ‘*were*’ signals the need for re-interpretation: (9) *{[The seeds][drifted into the neighbour’s crop]}* is a structure that does not fit the initial analysis, and the listener/reader finally arrives at the correct syntactic structure, namely (10) *{[The seeds [drifted [into the neighbour’s crop]]][were a surprise for Jane.]}*.

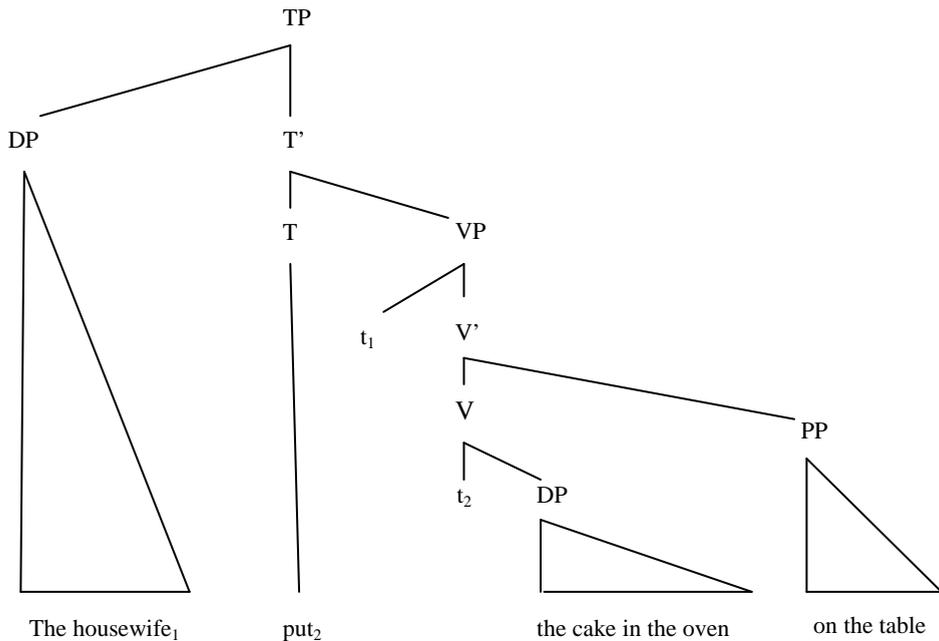


This occurs because, upon reaching the end of the sentence, the listener/reader realises that, in fact, ‘*drifted*’ is a past participle, part of a Reduced Relative Clause, not the main verb of the Main Clause. This type of sentence structure is rather rare in the English language, and, thus, more difficult to process than almost all the other possible instances of temporary ambiguity (Grant, 2005: 48-49).



Prepositional Phrase Attachment

This type of ambiguity arises when there are more Prepositional Phrases occurring one after another in a sentence and when, therefore, their *attachment to referent objects is temporarily unclear*. The ambiguity lies in the unfamiliarity of such a construction. It may be disambiguated by resorting to unambiguous sentences, which contain the additional *that + auxiliary: is/was/etc.* before the first prepositional phrase. Upon hearing/reading an example like ‘*The housewife put the cake in the oven on the table*’, the addressee assumes that ‘*The housewife put the cake in the oven*’ is the complete sentence, an independent clause, but when the preposition ‘*on*’ is perceived, a reanalysis of the syntactic structure is required, the initial interpretation failing to function. On the first reading, the reader assumes that the housewife put the cake in the oven but, after performing a new syntactic analysis, s/he realises that the housewife put the cake (that had been in the oven) on the table. The prepositional phrase which seemed, at first, to refer to *where the cake was placed* eventually refers to the place **where the cake had been** before it was moved (in the oven). The provisional structure (11) {*The housewife [put [the cake][in the oven]]*} is abandoned in favour of the correct (12) {*The housewife [put [the cake [in the oven]] [on the table]]*}.



The unfamiliar syntactic construction featuring two prepositional phrases side by side in a sentence causes processing difficulties because of the temporary ambiguity pertaining to prepositional phrase attachment. This type of temporary ambiguity

appears to be the most challenging of all, given the relatively low frequency of sequential prepositional phrases in the English language, which renders the addressee's horizon of expectations rather opaque to such occurrences (Grant, 2005: 47-48).

CONCLUSIONS

It might, quite reasonably, be argued that most, if not all, types of ambiguity can be assigned to the category of temporary ambiguity, given that the insertion of a disambiguator (a piece of either semantic or pragmatic information) would lead to ambiguity resolution in the case of virtually any linguistic context. However, the distinctive feature of temporary syntactic ambiguity lies in the possibility of identifying the true meaning on the basis of the sentence's constituents only, no additional information being required. Temporary ambiguity is a form of syntactic ambiguity that can be gradually solved upon hearing/reading the entire sentence, by taking into account all the individual constituents of that particular sentence. An instance of syntactic ambiguity leads to a network of alternative attachments, and temporary ambiguity occurs when there may be more than one possible syntactic structure for one part of a sentence. Sentences marked by temporary ambiguity cause the human sentence processor to construct an initial syntactic structure which turns out to be incorrect and, consequently, they require, at a certain point, both syntactic and semantic reanalysis. All the examples mentioned above constitute fully grammatical sentences, and unambiguous ones at that, if taken as a whole, since there is only one possible parsing that fits each sentence in its entirety. Nevertheless, due to the fact that the information processing procedure is, necessarily, marked by temporality, some readers/listeners may find themselves being "led up the garden path", as, up to a point, the initially perceived structure of the sentence allows for two different parsings. However, if the first syntactic parsing does not fit the rest of the sentence, the human processor will ultimately re-evaluate the whole in light of the new information, thus successfully reaching a state of ambiguity resolution.

Abbreviations

The following abbreviations were used in the representation of the parsing trees:

S – sentence

IP – inflection phrase

AP – adverbial phrase

DP – determiner phrase

NP – noun phrase

TP – tense phrase

VP – verb phrase

PP – prepositional phrase

D – determiner

N – noun

V – verb

t – trace

Spec. – specifier

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IN MEMORIAM

UNIVERSITY LECTURER ANANIE FĂRÇAȘ (1930-1990) – 80 YEARS FROM BIRTH

IOAN MÂRZA¹, MIRON IONESCU², ION ȘERDEANU³

ABSTRACT. This article deals with the life and activity (didactic, scientific and publicistic) of Ananie Fărcaș, assistant professor, former member of Pedagogy Department at “Victor Babeș”/”Babeș-Bolyai” University, Cluj-Napoca, Romania, who for 30 years had been an expert in general pedagogy as well as in the history of Romanian education in Transylvania.

Key words: Assistant professor Ananie Fărcaș, biography, activity (didactic, scientific, publicistic).

The information referring to Ananie Fărcaș’s life in his native village (childhood, primary school, family) and to his school and university years comes from his autobiographies written on different occasions at different times: 28.11.1953 when he was a student at Cluj, 25.05.1956 – student at Leningrad, 12.06.1971 – university teacher at the Department of Pedagogy, “Babeș-Bolyai” University.

These authentic sources reveal living conditions of a child in the family of needy peasants from Salaj, being described with utmost sincerity which characterizes this son of a peasant filled with enthusiasm and energy in his fight with the difficulties of life.

However, the most authentic understanding of a man and his activity as a pupil, student and university teacher, comes from our being colleagues. There was true friendship between the authors of this article and the man whom we used to call simply – Ananie.

We used to be together when we were pupils and then students. We used to work side by side as colleagues of the department or of the institution. We used to meet quite often, having relations of personal and family friendship. Our friend’s

¹ Mineralogy Department, Biology and Geology Faculty, “Babeș-Bolyai” University, Cluj-Napoca, Romania, Mihail Kogălniceanu Street n.1, e-mail: ioanmarza@personal.ro

² Pedagogy Department, Psychology and Educational Sciences Faculty, “Babeș-Bolyai” University, Cluj-Napoca, Romania, Sindicatelor street n.7; e-mail: miron_ionescu@yahoo.com

³ Horea street n 47-49, 3rd floor, apt 58, Cluj-Napoca, Romania

life, the problems that tormented him, no matter what nature, were an open book to those who were dear to him because of his natural nobleness and openness could not hide anything from his true friends. He was really of a confiding nature. By sketching a mini-portrait of our colleague and life-time friend, by presenting briefly his activity and struggle for the good of people, school in general and Romanian society, we pay our deep respect on anniversary moment to a real fighter with the destiny of life, a loyal and persevering supporter of school – teachers, a devoted servant of pedagogical education in Transylvania, first of all at the Pedagogical Department of Cluj University.

What Ananie valued most was humaneness which he inherited from his native village situated on Someș hills in Sălaj. Humaneness is a complex of exquisite qualities deriving from a deep understanding of human condition. It presupposes promoting of an ideal of permanent auto-perfection which comes from this noble understanding. Humaneness represents a fundamental feature of Romanian spirituality. Here are the the qualities in this respect which characterized Ananie: honesty, correctness, kind-heartedness, generosity, patriotism, high respect for man and friendship as well as thirst for knowledge and learning. Generosity presupposes magnanimity, devotion, kind feelings towards one's fellow persons. In addition to these qualities, generosity which characterized Ananie included moral, material and financial help which was never refused to those who asked for it. Cult of friendship which presuppose attachment to and affection for a person you are connected with, constituted an important feature of Ananie's. At school he was in a relation of friendship with many colleagues of his. This kind of relationships did not change till he died.

A remarkable happening in this respect was related by one of his close friends, Ion Șerdeanu: "When in July 1954 I was released from prison – I had been arrested on political charges – the greater part of my acquaintances and colleagues avoided talking to me. When coming across me in the street they used to avert their faces. There were very few exceptions to this kind of attitude. One of these exceptions was Ananie Fărcaș. I know they were afraid of my status of political prisoner. At that time quite a lot of my school colleagues affirmed that it was Ananie and his friends who had put me into prison. Yet I knew from the trial that it was not true. It was others whom I knew. I those trying moment for me I got a postcard sent by Ananie from the USSR where he was studying. This gesture at that time was risky. I am absolutely certain that Ananie was not capable of doing harm to anyone. His emotional mettle – profoundly humane – prevented him from doing anything blameable".

It is worth mentioning that his special preoccupations refer to patriotism, cult for national heroes, for the history of his country – feelings cultivated in his sons as well. The courageous deeds of a hero – Gheorghe Dranda, a schoolteacher from the Apuseni Mountains, a participant in the Second World War, are described in a book written in collaboration: "Arms Deeds in the March Westward" (Gh.

Neamțu, G. Neamțu, Ananie Fărcaș 2003). Among other things, Ananie had a sense of humour too, trying sometimes cheerfully to overcome an almost insurmountable situation – a characteristic feature of many Romanians.

Ananie Fărcaș was born on 30 January 1930 in the village of Brâglez, Surduc commune, Someș then Sălaj county. His parents were Teodor (Nechita's Todor) and Terezia (Treji), born Vid, “peasants with a small farm of approximately 2 hectares of land”, as it is written in one of the autobiographies. In Todor's family there were children: Vasile, Ion and Ananie. The youngest child – Ananie – was the only one who completed the course of primary school and then the high school and university studies. Ion died (1944) in the Hungarian army while performing military training – during Horthy occupation of northern Transylvania – while Vasile married Florița and lived in his parents' house till he died at home in Brâglez (1996) after many years of hard work as a miner boring tunnels at the construction sites of socialist Romania.

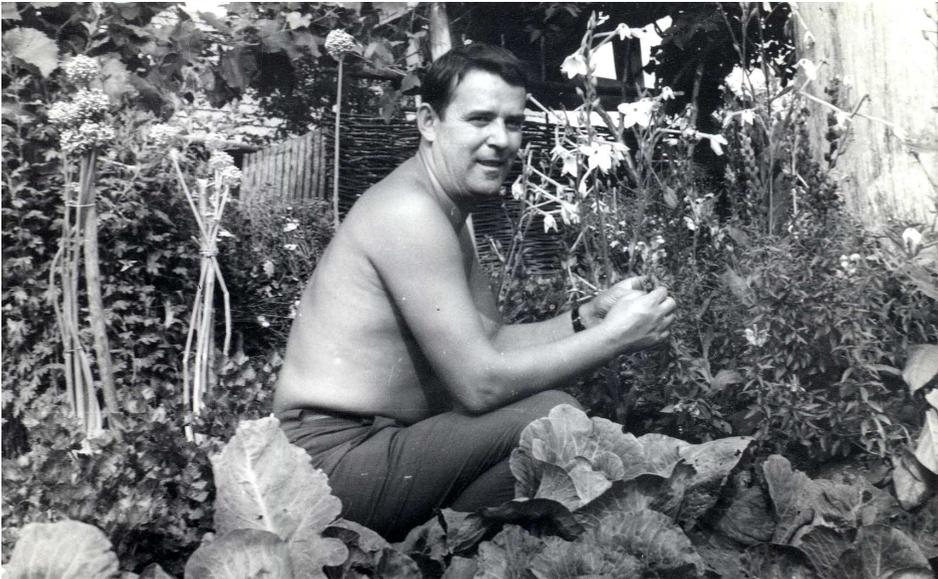


Fig. 1. Ananie Fărcaș in the garden in Brâglez.

In his childhood Ananie Fărcaș raised in a family of three children with little weakly productive land. “We were obliged to work for sharecropping for different rich men and for the former baron Josika János from Surduc. Father also worked from time to time at the Diosi firm and in 1938-1939 as a day labourer at the Cristolțel coal mines. During the Horthy regime he worked at the forestry of the above mentioned firm. After 1944 he worked at different construction sites: Predeal, Salva-Vișeu, Biczaz etc.” This exceptional effort of Todor's earning money was necessary to support Ananie at school among other necessities. Such were the

extremely hard social-economic conditions Ananie tried to get rid of. He left his native village only to make his way to schools in Zalău and then in Gherla, continuing university studies in Cluj and Leningrad.

School was very important for young Ananie. But as a pupil he had to overcome quite a lot of barriers. The audacious son of a peasant would never avoid difficulties in a roundabout way. The difficulties met at school in town were not personal. They were common to the majority of children from the countryside who came to town when the Second World War was over in 1945. These were as follows: the lack of literary vocabulary, generalized poverty reflected in low quality food, poor clothing, lack of school supplies etc. Of no less importance was the change of social and psychic climate specific to the rural environment in which the pupil used to live by the urban. On the whole Ananie succeeded in coping with all of them. He became not only a correct, disciplined and hard working pupil but also remarkable in his studies.

School studies. In 1937 Ananie Fărcaș became a pupil in the first form of primary school in Brâglez. His schoolteacher, Nicolae Fanea, became his true mentor whom he loved and respected dearly and about whom he spoke with veneration. In all his school vacations he was a permanent and favourite guest in his schoolmaster's family. Up to 1940, when northern Ardeal was ceded to Hungary, he finished three classes, but then interrupted his studies for one year – 1941. From 1942 he continued the primary school courses, taught in Hungarian, in the village and finished the classes IV, V and VI. He finished the VII class, in Romanian, after the liberation of northern Transylvania, in Brâglez in 1945.

The family in which he was raised lived a very hard life. Ananie realized that his parents could not afford to send him to town for studies and endeavoured to fight with his own forces in order to get a scholarship. He succeeded in it. Whenever possible, he was returning to his parents' home, to his native village.

In the autumn of 1945, as a result of examinations he past he entered as a pupil in class III of the Mixed Gymnasium in Zalău and finished it. Material difficulties connected to maintenance in this boarding school forced him to transfer in the following year to the Boys' Normal School in Gherla (this unit of confessional education helped substantially poor family pupils as far as school taxes and boarding were concerned). In one of his autobiographies, Ananie wrote that he had been admitted conditionally: 'I was admitted on condition that I worked at the school farm in summer'. And he did so during his spring and summer vacations. In connection to his transfer to the Boys' Normal School in Gherla, which was under the patronage of Uniate/Greek-Catholic Church Bishop Iuliu Hossu, Ananie Fărcaș related to one of the authors of this article (I. Mârza, friend and former bench-colleague in all classes in Gherla) the following episode rendered in the manner in which it was told: "I was wandering how to transfer from Zalău to Gherla especially because teachers' school was closer to my heart. It was what Mr. Fanea, my school teacher from Brâglez encouraged me to do. One evening I asked my mother to put some food in my bag and next day, early in the morning, I went on foot to Gherla, more across the hills than

along roads. Passing Bobâlna, I arrived at Gherla in the afternoon wet with sweat and dusty as the weather was very hot. I came from home with the intention to go to the bishop's church and there I was. I was asked all kinds of questions by the doorkeeper and by different priests dressed in lawns and here I am in front of Bishop Iuliu Hossu who had been told what I wanted. The bishop was writing at his luxurious desk in a long hall. I stopped at the door and had no idea what to do. Very excited I was staring at him. At some moment he uplifted his eyes and in a very kind voice he says to me "Come closer, young man and tell me what do you want". Then I am advancing towards him, barefooted as I was, on some rugs. At some moment a rug slips with me on the parquet bright as a mirror. I turn a somersault but quickly jump on my feet ashamed of what happened to me. The bishop slightly smiles but at the same time he was worried because he asked me if I was all right. I said I was. 'All right' he says and pointing to a chair he asks me how he can help me. I informed him where I was from, that I came on foot from home, about material hardships of our family as poor peasants with a child at school and my request to be helped to become a school teacher. He wrote down my name in his notebook and told me "go quietly home, young man, and in autumn, when the school starts, go to the school secretariat and enter your name. Happy, I thanked him and left".

That is how the daring Ananie Fărcaș reached the teachers' school in Gherla. Obviously, at the time of communism he could not write in his autobiographies that he had been helped by Bishop Iuliu Hossu – the personality that read publicly on 1 December 1918 in Alba Iulia the Proclamation of Union of Transylvania with Romania – the one who suffered hard imprisonment in communist jail only because he had refused to share the orthodox rite as a Greek-Catholic bishop.

At the Boys' Normal School in Gherla, A. Fărcaș graduated classes IV (1946-1947) and V (1947-1948) with remarkable results at his studies and at the religion Circle (headed by Professor Ioan Chira), where he presented his paper "Saint Anthony of Padova".

The confessional schools were closed in 1948 by the education reform dictated by the new red power. The communist ideas penetrated and re-oriented Romanian education of all grades. As a result, the two Normal Schools for girls and for boys in Gherla became pedagogical schools. At the Boys Pedagogical School A. Fărcaș attends three classes: second (1948-1949), third (1949-1950) and fourth (1950-1951). Here A. Fărcaș was remarkable for his exemplary behaviour and was considered to be prominent in his social-political activity in the pupils' organization of his school as well as in his studies, finishing the last year (IV) with an average mark 9.33 (as it is mentioned in one of his autobiographies – 1953).

In the last years of school he took part in literary competitions (school and town phases), being sometimes among the best. At the completion of the course of his studies he was among the 8 pupils of the class (out of 42) who received from the school directorate, for very good results in his studies, an allocation for higher education. It was Octavian Măhălean, a teacher from Gherla, a true Maecenas of

schools in the years 1950-1970, who exercised a strong influence on Ananie Fărcaș, orienting him towards pedagogy and psychology. At the same time, the general atmosphere of education concentrated on the formation of the teacher also contributed to his choice. In 1983 A. Fărcaș and Gh. Neamțu presented a fascinating literary portrait of the outstanding teacher and psychologist – Octavian Măhălean.

As a pupil, Ananie Fărcaș learned with unusual thirst, firmness and will, even if he had no inclination for certain subjects (mathematics), always obtaining good results.

Ananie was the pupil, the student, that paid always a continuous high respect to professors that taught him

Following the entrance examination of autumn 1951, Ananie Fărcaș becomes a student of the “Victor Babeș” University Faculty of Pedagogy and Psychology in Cluj, which he chose due to his inclination for teaching and education in general that was to be his life-long profession. As a student he distinguishes himself by his very good results in his studies (average mark 9.50 at the end of first year) and in his socio-political activity. In his second year at the university, he receives the highest distinction for good marks and behaviour – The Gheorghe Gheorghiu-Dej Bursary – that was being allotted only to one student in the whole faculty of pedagogy and psychology. When finishing the second year at the University in Cluj, in 1953, he accepts the proposal to continue his studies in the USSR and enters as a student of the second year at the State Institute of Pedagogy “Herzen”, pedagogy and psychology department in Leningrad. Upon graduation in 1956 he receives the Diploma of Merit for his very good results in his studies.

He returns from Leningrad as a graduate of “Herzen” Pedagogical Institute, married to Tatiana Makarenko, graduate of the Foreign Languages Faculty of Leningrad, a devoted wife and mother of his two sons – Alexandru (a reputed lawyer) and Serghei (a renowned medical doctor in the USA), both very well accomplished intellectuals and professionals. It is a pity that their father – always very proud of his sons – did not live to enjoy their development and successes.

From the beginning of their marriage, Tania and Ananie struggled to build themselves a home for their sons, Alexandru and Serghei, to be risen in a well provided family with a most harmonious and loving climate.

Coming back to Romania with a diploma in pedagogy – psychology, he was integrated in the Pedagogy-Psychology Chair of the “Victor Babeș” University as a main preparator (1956-1957), chief of staff (1957-1959) and assistant professor (1959-1960). In 1960, he leaves his university position and favourable chances for university promotion in a department that appreciated him, including the head of this chair – the reputed psychologist Professor Alexandru Roșca, member of Romanian Academy – to pursue his doctoral studies in philosophy at Academy Ștefan Gheorghiu in Bucharest. Between 1960 and 1964 he passes all exams and compulsory papers in his doctoral studies but falls ill and cannot finish and defend his doctoral thesis which he had prepared intensively. All this influenced his further promotion and for some time even his morale.



Fig. 2. A.Fărcaș and his wife Tania on a trip to Brâglez, 1974.

In 1964, upon his return to Cluj, he finds that his assistant professor position at the university was not vacant and is given various temporary assignments at the faculty of economics of “Babeș-Bolyai” University. Beginning with the autumn of 1965 he is a deputy lecturer in the chair of psychology of the Pedagogical Institute and is eventually integrated as university lecturer in 1966.

Determined to finalize his doctoral studies, he once again passes his entrance exam for Ph.D. in Pedagogy and begins ample work in archives and publishes scientific articles about schools and teachers in past northern Transylvania in preparation of his doctoral work “Romanian Education in Sălaj up to 1918”.

Due to his teaching and intense scientific activity performed with good results, Ananie Fărcaș is reintegrated in the university chair of pedagogy where he will devotedly perform his didactic mission in his work with students. In this chair he found again his place and environment for which he had the calling, peace and scientific research results in a stimulating group of colleagues and worked passionately for his new doctoral thesis which he did not have time to defend because of illness and premature departure from life at the age of 60.



Fig. 3. Family of University Lecturer A. Fărcaș (from left to right): Tatiana, spouse, A.Fărcaș and their two sons Alexandru (in military service uniform) and Serghei at the Christmas tree in their Cluj home, January 1979.

Ananie was a man of hard work, from his childhood in the village where he had to perform difficult duties unknown to many, and through out his live he enjoyed a good health. Only at the age of 60 an unexpected health situation worries him and he seeks advice from doctors that are not alarmed by his symptoms. In this uncertainty the fatal tragedy occurs with his death so sudden and unexpected by all that knew this man noble of soul and kind of heart

Ananie Fărcaș lived passionately his life at all stages striving boldly for his generous goals in the teaching profession, in his family life and in the society that he wished to be fair to all and developing for the good and for the betterment of man.

This is how unfolded and ended the life of Ananie Fărcaș, worthy son of Sălaj peasants, that sailed through three political regimes in the history of Romania and confronted social, material, personal difficulties with persistence and will to go forward, to serve teaching, education and fellow people.

His memory will remain with his friends and acquaintances, Cluj University people especially, for his kindness and remarkable professional, social and family accomplishments as well as for his strife for better that is for his posterity a real model to follow. After all life's struggles, Ananie now rests in peace in the central cemetery of Cluj, by coincidence not very far from his beloved home.

Didactic activity

The University Fellow Ananie Fărcaș focused his teaching activity on general pedagogy and philosophy fields where he acted as assistant and then

lecturer. As an university assistant he conducted seminars and as lecturer he read courses for students and wrote various chapters of 5 pedagogy courses that were edited collectively by the chair of pedagogy for the use of future teachers and professors. In his didactic activity A.Fărcaș demonstrated a refined pedagogical tact that was recognized even at the time he was a pupil at the Pedagogical School in Gherla where he taught children in primary school. His conferences were appreciated by his students both for the power of conviction and for the clarity and organization of arguments.

Below we present the titles of chapters wrote by A.Fărcaș in the collective courses edited by the Chair of Pedagogy:

Fărcaș, Ananie: The content of moral education, chapter in the Course of General Pedagogy, 2nd volume, Cluj, Lithography of Education, pp. 75-97.

Fărcaș, Ananie: The content of teaching, chapter in Contemporary Pedagogy Issues, Integration of Teaching with Research and Production, Oradea, 1978-1979, pp. 1-13.

Scientific Research and Publications

The scientific research performed by A.Fărcaș was much wider in subjects than his didactic activity. Besides themes from the field of pedagogy and schooling in general, teaching to pupils and students etc. he was interested in the history of modern and contemporary events in our country, especially in Transylvania as well as in the actors and heroes of these events.

His preferred fields of research and publication, where he worked in perfect partnership with his friend Gheorghe Neamțu, also from Gherla, were: history of Romanian pedagogy in Transylvania; development of Romanian teaching in Sălaj and the role of Sălaj teachers; school and the building of one's personality; patriotic, moral and civic education of pupils; contribution of education to the fulfilment of Romanian national unitary state; heroic deeds of countryside teachers on the fronts of World War II; heroism of Romanians in defence of Motherland and in struggle against Horthy's occupation of northern Transylvania; summary of books.

The studies written by A.Fărcaș alone or in collaboration were published by prestigious reviews like *Studia Universitatis "Babeș-Bolyai"*, *Revista de pedagogie*, *Philosophia*, *Acta Musei Porolissensis – Zalău*, *Steaua*, *Almanahul Tribuna*, *Tribuna*, *Almanahul educației – București* etc. As to his research work we note, without possibly being exhaustive, one book, published articles, unpublished conference presentations and book reviews. The lists below contain a selection of A.Fărcaș publications mainly on pedagogical issues as well as on the history of Romanian education in Transylvania.

Book

Gheorghe Neamțu, Gelu Neamțu, Ananie Fărcaș. *Fapte de arme în marșul spre vest (Pe bază de documente inedite)*. Edit. Argonaut, Cluj-Napoca, 2003, 360 p.

Scientific papers

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Reviews

Together with his steady research fellow and partner, Gheorghe Neamțu, but also alone, A.Fărcaș demonstrated his intellectual quality as fan of books and

printed material by authoring a number of reviews of books issued by reputed pedagogues that dwell upon themes studied thoroughly by Ananie.

- Fărcaș, Ananie, Neamțu, Gh.: Review to: Gal Teodor, *Ioan Slavici despre educație*. Tribuna, 12, nr. 5 (575), 1968, p. 2.

- Fărcaș, Ananie, Neamțu, Gh.: Review to: Gal Teodor și Ion Retegan, *Valorificarea instructiv-educativă a elementelor de istorie locală*. EDP. București, 1967, 156 p. Revista de pedagogie, 17, nr. 4, 1968, p. 126-128.

- Fărcaș, Ananie: *Un prețios instrument de lucru*. În: Revista de pedagogie, 7, XXXII, 1983, p. 64, Cluj-Napoca. Review to: Stela Rafila-Triteanu, Mircea Popovici, *Revista de pedagogie, 1952-1979. Indice Bibliografic Analitic și Selectiv*. Cluj-Napoca, 1982, editat de Univ. "Babeș-Bolyai și Biblioteca Centrală Universitară, 444 p.

At the end of this endeavour of ours, we would like to express our satisfaction for trying to pay tribute, at the moment of his 80th birthday anniversary, to university lecturer Ananie Fărcaș, a demarche that highlights for the first time the work and activity of this worthy pedagogue who served devotedly the Pedagogy Chair of Cluj University for more than 30 years.