



## **PRACTISING SUMMARIZING WITHIN COOPERATIVE GROUPS – EXPERIMENTAL STUDY**

**Carmen Popa \***

*University of Oradea, Romania*

### *Abstract*

*This study presents the data of an extensive experimental research that aimed to measure the experimental conditions of the efficiency of Learning together model regarding the students' ability to summarize ideas in third and fourth grades. We included 236 students in the study. They were selected from four schools from Oradea to ensure a similar level of training and a common area of origin. The experiment lasted 3 months and included implementing cooperative group activities to the experimental classes: 1 hour per week in each of the two disciplines: Romanian and Mathematics. For the control classes the teaching process carried on in a normal way without our intervention. The lessons developed were videotaped and data analysis was done using Cooperative Learning Scale developed in 1997 by B. Kenter, K. Post, S. Veenman and adapted by us with permission. The results gained proved that the model Learning together could lead to an increase in the frequency of cooperative learning behavior, but it is not powerful enough to be able to perpetuate it in time. Although the post-test at the experimental third grades marked an increase in the scores, the average values were low both in the third and fourth grades. The decreased results from the re-test at the third level classes demonstrated that the skill of summarizing ideas of others required a more consistent exercise.*

**Keywords:** cooperative learning; learning together model; summarizing skills; primary school

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Correspondence concerning this paper should be addressed to:

\* Ph.D., University of Oradea, Faculty of Socio-Humanistic Sciences, The Science of Education Department, Universitatii st., no. 3, Oradea, Bihor, Romania, 410087;  
E-mail: [carmen\\_berce@yahoo.com](mailto:carmen_berce@yahoo.com)

## **Introduction**

During our lesson observation at primary school we came across various teaching strategies used by the teachers simply because they saw them in a model teaching lesson or they were recommended to by some local teaching authorities as being interactive. The teachers' open minds towards innovative teaching strategies, as well as their flexibility for adapting and modernizing their own strategies is a good thing. But the idea of just taking such teaching patterns and using them in class without a previous documentation is shallow and dangerous. That is why we have become interested in finding a pattern based on solid knowledge, and also allowing good practice for improving and perfecting traditional strategies of group work. Cooperative learning is such a model.

## **Description of the theoretical model**

There are three theoretical perspectives for explaining cooperative learning for the cognitive development of pupils: *social interdependence theory*, *behaviorist* and *cognitive* theories - theories of development and theories of cognitive training. Field bibliography made us believe that cooperative learning could become an efficient tool for teachers.

### *What is cooperative learning?*

There are various definitions for cooperative learning, all belonging to great names of this field: Aronson (1978), Dansereau (1988), Hertz-Lazarowitz (1990), Kagan (1994), Johnson (1994), Johnson (1984, 1994), Sharan (1994), Slavin (1990), and these are only a few names.

We have chosen the definition given by Johnson, Johnson, and Holubec (1994, p. 3) as representative; it clearly underlines the particularity of cooperative learning groups, as opposed to traditional learning groups: "*Cooperative learning is the instructional use of small groups that allows students to work together to maximize their own and each other's learning*".

Thus, cooperative learning is more than just 4-5 members working together to complete certain tasks. Pupils/Students of a cooperative learning group are responsible not only for their own learning, but also for the learning of the other members of the team. It is about creating a positive

interdependence within the group, about taking roles within the group, about each one of the members being a learning facilitator for his/her peers, and about the task being completed when all members of the group can individually solve it successfully. When pupils/students work in cooperative groups in which they are “all for one” and “one for all”, the members of the team get both knowledge and emotional support that helps them overpass all school problems.

*Learning together* by David and Johnson (1984) is one of the most complex approaches of cooperative learning. According to the theory of Johnson, Johnson, and Holubec (1994), the group efforts lead to better results than those of other learning strategies if certain *principles of cooperative learning* are followed: *positive interdependence, face-to-face promotive interaction, promotive accountability for achieving the goals of the group, frequent use of interpersonal and small-group skills, as well as group assessment.*

For the dependent variable of our study, we quote the article of Knippen and Green (1994), which underlines that summarizing is a behaviour that appears when active listening is involved: “Active listening is where the listener takes an active role in the communications process by applying four techniques: restatement – restating or paraphrasing a message, summary – summarizing the main issues of a series of important points, responding to non-verbal cues – acknowledging and verbalizing the presence and effect of non-verbal messages, and responding to feelings – acknowledging and verbalizing the presence and affect of the feelings expressed”. In other words, summarizing is one of the behaviours the pupils have to practice when they are communicating. Summarizing means selecting the most important ideas of the interlocutor to check if the person that got the message understood exactly what the speaker wanted to communicate. The presence of this behaviour in group work activities is a basic condition to make sure the group communication is effective. If summarizing is bad, the interlocutor can correct the message. The absence of this behaviour can lead to conflicts within the group because of a poor communication.

## **Objectives**

This study presents some data of a more complex experimental research whose goal was measuring the efficiency of implementing cooperative learning

strategy in the study of Romanian Language and Mathematics at the level of the 3<sup>rd</sup> and the 4<sup>th</sup> grades, under experimental conditions.

Hypothesis: *Involving pupils in learning activities in cooperative groups leads to an improved summarizing behavior of the pupils.* The independent variables were: *class level (3<sup>rd</sup> grade and 4<sup>th</sup> grade), group of pupils (experimental group, control group) and moment of assessment*, while the *summarizing skill* was the dependent variable.

## **Method**

### *Participants*

The subjects were selected from four schools in Oradea to ensure a similar level of training and a close school environment: „A. Mureşanu” Secondary School, „O. Goga” Secondary School, „Iosif Vulcan” Pedagogical High School, „Onisifor Ghibu” Theoretical High School. The group of subjects included 12 grades, *six experimental grades* (three 3<sup>rd</sup> grades and three 4<sup>th</sup> grades) and *six control grades* (three 3<sup>rd</sup> grades and three 4<sup>th</sup> grades) and had 236 pupils, 124 pupils in the experimental grades (59 third-graders and 65 fourth-graders) and 112 pupils in the control grades (50 third-graders and 62 fourth-graders).

### *Research Tool*

The *video data analysis* method was used to analyse the summarizing skill within group work. The interpretation of the recorded data was conducted by an observation grid taken from the foreign field bibliography: the *Cooperative Learning Scale*, designed in 1997 by Veenman, Kenter, Post (Veenman, Kenter, & Post, 2000), and adapted by us with the authors’ permission.

In the observation grid we took, the active listening behavior was divided into: summarizing, agreement/disagreement towards peers’ interpositions, expressing beliefs/attitudes/personal ideas. This study presents only the results for summarizing.

### *Research Process*

The research process underwent three stages: pre-test stage, psycho-pedagogical intervention stage and post-test stage.

The *pre-test* stage focussed on establishing the level of the statistical compatibility between the experimental grades and the control ones. Thus, during the school year of 2005/2006, in October, a set of assessment papers were conducted for both, the experimental grades and the control grades to measure the pupils' group work skills.

The experiment stage took place in the second half of the 1<sup>st</sup> semester and the first half of the 2<sup>nd</sup> semester of the same school year. The experimental grades had one class of cooperative group work activities per week for each of the two school subjects: Romanian Language and Mathematics, while the control grades had traditional teaching activities, without any involvement from our side.

The main objective of the post-test stage was the monitoring of possible chances of the development of the pupils in the experimental grades as opposed to the pupils in the control grades. It definitely checked up to which degree the hypothesis of our study was confirmed for the frequency growth of active listening behaviors.

#### *Data Analysis*

Each item of the scale was statistically measured by: frequency analysis for exemplifying the structure of the group of subjects and ANOVA mixed method of analysis of variance for observing the degree in which the differences at the level of subject groups are significant at the level of population.

### **Results and interpretation**

Table 1 shows the averages and standard deviations for *Listen carefully and summarize the ideas of the others* variable.

Table 1. Descriptive statistics for Listen carefully and summarize the ideas of the others behavior frequency according to grade level, group and moment of assessment (post and re-test)

Moment of assessment	Grade	Lot/Group	Average	Standard deviation	N
Posttest	3 <sup>rd</sup> grade	experimental	0.50	0.67	59
		control	0.10	0.30	70

Table 1. Descriptive statistics for Listen carefully and summarize the ideas of the others behavior frequency according to grade level, group and moment of assessment (post and re-test) - *continued*

Moment of assessment	Grade	Lot/Group	Average	Standard deviation	N
Retest	4 <sup>th</sup> grade	experimental	0.31	0.63	64
		control	0.17	0.42	68
	3 <sup>rd</sup> grade	experimental	0.38	0.58	59
		control	0.15	0.40	70
	4 <sup>th</sup> grade	experimental	0.31	0.61	64
		control	0.08	0.28	68

The results in table 2 show there were statistically significant differences for *lot/group* intergroup factor, *moment of assessment* intra-group factor and for *moment of assessment* and *lot/group* interaction only for the pupils in the 3<sup>rd</sup> grade. There were no statistically significant differences for any of the factors for the pupils in the 4<sup>th</sup> grade.

Table 2. Analysis of variance for the comparison of the effect of moment of assessment and lot variables on Listen carefully and summarize the ideas of the others behavior (item 1, scale 4)

Grade	Source	Sum of squares	Df	Average of the squares	F	p
3 <sup>rd</sup> grade	Moment of assessment	6.04	2	3.02	23.93	***
	Lot	4.66	1	4.66	16.81	***
	Moment of assessment X Lot	2.42	2	1.21	9.61	***
	Error		254			
	Error (lot)		127			
4 <sup>th</sup> grade	Moment of assessment	0,15	2	0.07	0.481	0.61
	Lot	1,40	1	1.40	3.04	0.08
	Moment of assessment X Lot	0,86	2	0.43	2.65	0.07
	Error		260			
	Error (lot)		130			

Note: Df=Degrees of freedom; \*\*\*p<.001

For the *moment of assessment* intra-group factor, for the 3<sup>rd</sup> grade, there was the following result:  $F_{(2,254)}=23.93$  ( $p<.001$ ). The data presented in Figure 1 show a rise of values in post-test as compared to pre-test (from .03 to .50 for the experimental grades and from .01 to .10 for control grades). The averages are low for each of the moments of assessment, which shows the frequency of incidence for this behavior was not high. The values of re-test at the 3<sup>rd</sup> grades are dropping for the experimental grades (from .50 to .38) and show a slight growth for the control grades (from .10 to .15).

Behavior: Listen carefully and summarize the ideas of the others  
3<sup>rd</sup> grade

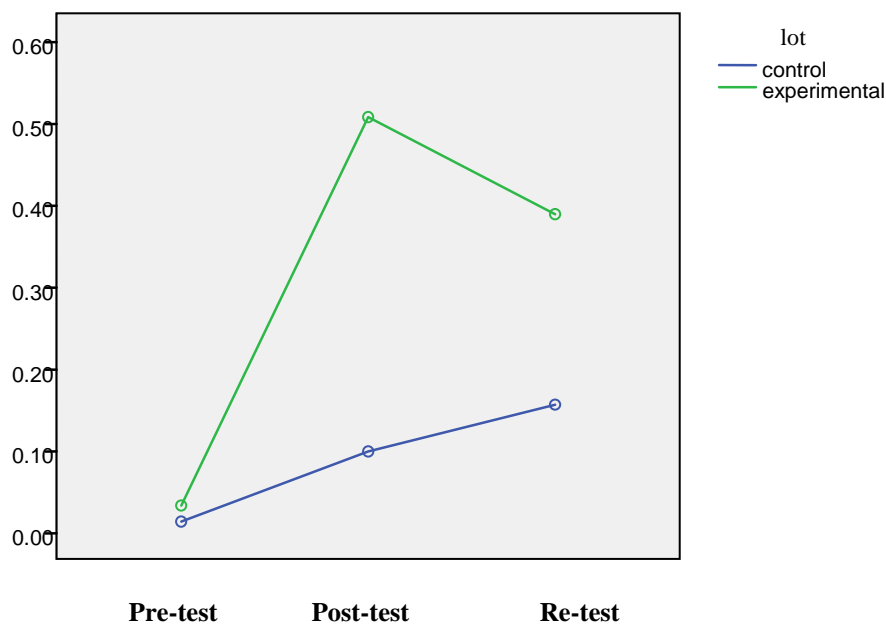


Figure 1. Diagram of averages for the 3<sup>rd</sup> grade for active listening behavior – summarizing according to lot and moment of assessment

The intergroup factor of *lot*, for the 3<sup>rd</sup> grade, has the following result:  $F_{(1,127)}=16.81$  ( $p<.001$ ). Figure 1 shows there was an improvement of results in post-test for the experimental group, but the results are dropping again in re-

test; it proves a longer period of time is needed for turning a summarizing behavior into ability. The control lot shows a slight improvement from one moment of assessment to another (from .01 in pre-test to .10 in post-test and .15 in re-test) and can be seen as an effect of the changes the pupils underwent from one stage to the other.

Behavior: Listen carefully and summarize the ideas of the others 4<sup>th</sup> grade

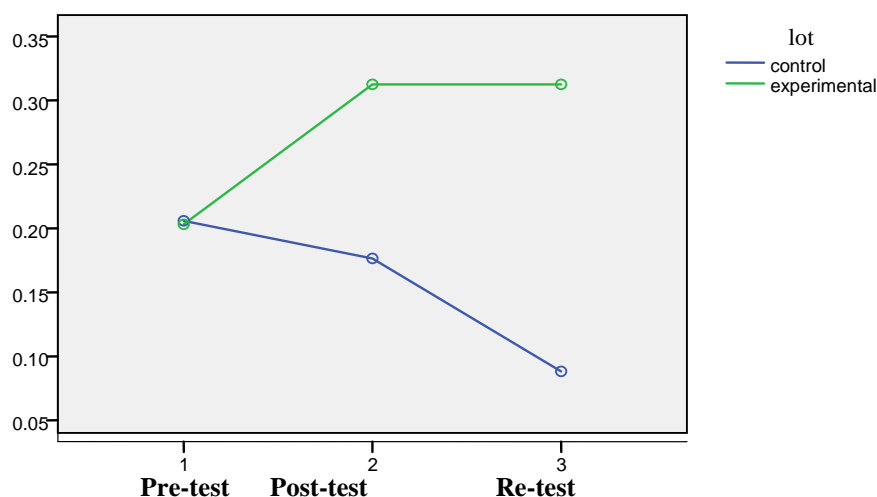


Figure 2. Diagram of averages for the 4<sup>th</sup> grade for active listening behavior – summarizing according to lot and moment of assessment

The result for the *moment of assessment* and *lot* interaction, for the 3<sup>rd</sup> grade, is  $F_{(2,254)}=9.61$  ( $p<.001$ ). Figure 2 shows close values for both groups, experimental and control, in pre-test (.03 for the experimental grades and .01 for the control grades), while in post-test they are rising (.50 for the experimental grades and .38 for the control grades). But at re-test, there is a difference between the two lots. The experimental grades show a drop of .40 as compared to post-test, while the control grades show a rise in value (from .10 in post-test to .15 to re-test).

Because the 3<sup>rd</sup> grades in the experimental group had a lower score in re-test than in post-test, as well as relatively low values for their averages than the control group for the post-test and re-test stages, we believe cooperative



group work was effective for improving the frequencies of incidence of the behaviors of summarizing for the pupils in the experimental 3<sup>rd</sup> grades. But this behavior is not for long term; its practice needs more time.

The results for the 4<sup>th</sup> grade in the experimental group in post-test are higher than in pre-test, the re-test showing the same values as the post-test, while in the control group the results are dropping from one moment of assessment to the other. There were no statistically significant differences for the 4<sup>th</sup> grade, neither for *moment of assessment* intra-group factor, nor for the *lot* intergroup factor.

### Conclusions

The results of this study on *summarizing* skill demonstrates that the cooperative learning strategy, as we implemented it, leads to an increase frequency of incidence of this behavior, but insufficient for keeping it for a longer period of time. Although the post-test for the experimental 3<sup>rd</sup> grades show a rise in values, because the values of averages are low for both, 3<sup>rd</sup> and 4<sup>th</sup> grades, as well as the dropping results in re-test for the 3<sup>rd</sup> grade; they make it clear that the summarizing skill needs a more complex practice. The simple interaction in a cooperative environment will not lead to the improvement of the summarizing skill for pupils. Because it is a more complex skill, it involves cognitive mechanisms like: suppressing the redundant information, replacing some information and keeping other (Marzano, Pickering, & Pollock, 2001). The pupils have to take part in special activities to practice this skill under the supervision of the teacher. Despite the fact the pupils are asked to summarize various text for the Romanian Literature classes, they do not use this skill within group interactions. We expected the results for the 4<sup>th</sup> grades would be higher than those of the 3<sup>rd</sup> graders due to a more frequent practice of summarizing performed by the elder pupils. Close values of the averages between the two grades show that the skill of summarizing the ideas of their peers is insufficiently practiced in an environment where it is really necessary.

The results of the study draw the attention on the fact that the *summarizing skill* is not improving simply because pupils participate in cooperative group activities. The pupils have to take part in special trainings where they could learn this skill.

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