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## EDUCATOR AND PHYSICAL EDUCATION TEACHER IN THE PREVENTION OF SCHOOL VIOLENCE

**Abstract:** Complex issue of school violence has been the subject of numerous research projects in different countries and cultures. The sample usually included primary school pupils of typical development. Only a small number of research papers focused on children with disabilities who have symptoms of hyperkinetic disorder. Excessive and inadequate psychomotor activity which occurs at an early age can become an obstacle in children's attempt to become efficient members of social groups. Children need to develop social skills that enable them to understand their environment and be more efficient in everyday situations in order to function effectively in society and make friendships. School as a social institution has the greatest possibility to exert influence on upbringing and education of pupils in a planned, organized and systematic way. Therefore, it has the responsibility to prevent and reduce violence among the pupils. School violence has to be solved in a systematic, preventive way which insists on the joint action of all available resources. Our research provides a model of cooperation between educators and physical education teachers. The model consists of two different subprograms (educational workshops and complex psychomotor exercises) directed at a single general goal – the prevention of school violence. We can conclude that most of the features of this survey proved to be determinative, considering internal and external behavioral problems. Behavioral component is emphasized by the influence of the situation on behavior and learning of the missing social skills, whereas the cognitive component is emphasized by the attempts to change cognitive deviations and cognitive deficiencies in children.

**Key words:** violence, violence prevention, children with disabilities, educator, physical education teacher.

Researches and experts in the field of education in different countries have been interested in the problem of school violence. The World Health Organization also conducted the survey in thirty countries in Europe and North America (Currie et al., 2008, 202) at the beginning of the twenty-first century. The influence of other people, as a continuous process that affects the socialization of individuals in all periods of his life, has an important place in the analysis of different determinants of human behavior.

School, family and peers are the most significant factors of socialization. Pupils spend most of their time at school, and not only with their family members and their peers, who represent important persons in their lives. The school environment should primarily stimulate children's development and make them feel safe and secure. One of the most

important tasks of teachers and experts in schools is to *create stimulating and safe environment for pupils' development and learning*. Therefore, experts in the school system have a great responsibility in the protection of children from violence by *raising the consciousness about this problem and by creating a positive school climate*.

School represents environmental micro-system which acts as a catalyst to the forces responsible for violent communication that exists outside of it, but it also creates new roles and interactions that lead to a specific forms of violence (Popadić, 2009, 13). Therefore, the school ethos can represent both protective and menacing factor and cause behavioral problems. Children and young people who are aggressive at an early age and show social behavior disorders are at higher risk to become aggressive, develop various forms of addiction and delinquent behavior.

Violence, as a social phenomenon can be observed from different points of view. Therefore, there are different interpretations of the phenomenon of aggression. Universal, general theory cannot be expected, since education represents a process that is constantly changing and evolving. *The question arises: What is it that triggers aggressive behavior?* There are many theories of aggression, such as Bronfenbrenner's theory (ecological approach), instinctive theories, frustration theory, social learning theories and theories that focus on the analysis of cognitive processes of an individual from the moment of exposure to particular stimuli (situation) to possible responses (aggression). These theories have contributed to a better understanding of aggressive behavior. Ecosystem perspective provides a conceptual frame for the combined effects of the social context to the development of individual's behavior. According to social learning theory, aggression represents learned way of achieving the goal of social relationships, the success of which will depend on the social context.

Theoretical analysis have shown that the concept of violence was defined in different ways. These differences among the definitions are caused by different approaches of individual authors. However, since we deal with *behavior which is unjustified and whose intention is to have the harm*, the majority of authors consider violence to be actualized aggression (Popadić, 2009, 15).

Violence represents the "show" where there is always a stage for a victim and the bully, but for the audience, too. Participants in school violence, regardless of the fact if they are bullies or victims, are the holders of the roles assigned to them in the interaction in school environment. Intentional abuse of a child by another child or group of children may involve different types of behavior: verbal, social, psychological, emotional and physical. Violence represents multidimensional phenomenon and there are no precise boundaries between different types and forms of violence, i.e. they are mutually conditioned and intertwined.

Main characteristic of a typical bully is aggressive behavior toward his peers. Bullies are impulsive and need to control and dominate. Characteristics such as impulsiveness and hyperactivity are mostly considered to be „drives“ for physical aggression and are responsible for antisocial behavior development (according to Essau, Conradt, 2004, 73). Thus, *impulsiveness represents reduced ability to inhibit behavior and impulse control*,

resulting in negative consequences both within the peer group and in school environment.

If impulsive aggression is considered, we can conclude that emotional state of discomfort represents the main cause of aggression. According to the theory of surplus children are aggressive *because they do not know to control high levels of anger*. The perception of a situation as provoking depends on the characteristics of the source of provocation, whereas emotional arousal recognition depends on previous experience and other people behavior and assessment of the consequences of aggression depends on the characteristics of the potential target of aggression. According to the theory of deficit, aggression is caused by the lack of communication skills in the conflict which results with violent behavior.

Aggressive behavior often occurs in mentally retarded children and is accompanied by an inability to control impulses. It sometimes takes the form of pan-aggression which is directed towards anyone who tries to get close to the child and his world. Children with mental disorders who show symptoms of hyperactivity/impulsiveness are more vulnerable part of the population and they tend to react swiftly without thinking about the consequences of their behavior. Thus, they intentionally or accidentally irritate the bully. The results or consequences of the above features are *social problems*, recklessness and disorganization.

Aggressive children are often rejected by their peers because of their inadequate behavior, and aggression only harms them. They do not have adequate skills of social communication and do not understand social context. Child's affective reactions and interpretations of immediate social context to some extent depend on the child's cognitive maturity and temperament traits, whereas both of them are caused by socialization experience which teaches child to become efficient member of a social context. Children with developmental disorders are more likely to deviate from accepted social rules than their peers of typical development. Therefore, they need help in the development of social interaction. They often have problems in relations with their peers and become isolated and unpopular in the peer group because of their symptoms of ADHD and social skills deficits.

We come to the conclusion that a child should learn to behave in a socially acceptable way if we start from the premise that aggressive behavior is a form of inadequate response in social interaction, and think that child behaves in this way because it adopted this kind of reaction instead of socially adequate skills. If one wants to become socially competent person, he or she must adopt prosocial behavior and specific skills that enable better understanding of their environment and efficient reactions in everyday situations.

School violence represents the result of numerous factors. Therefore, it is necessary to define preventive actions that would result in the prevention of violence. The role of humanistic oriented pedagogy is to find appropriate and suitable answers to the problems of socially unacceptable behavior of children through prevention programs. School represents the place where violence among children mostly occurs, so that

program for the protection of children/pupils from violence, abuse and neglect represents the part of annual work plan of the school. It ensures planning and implementation of prevention activities, whereas *the role of an educator in them is very important*.

This paper highlights a specific aspect of cooperation between school educators and physical education teachers in school violence prevention, since the educators have developed and enriched the content and organization of their own field of work. The roles of educators and physical education teachers are *“to articulate the overall structure of pupils’ activities so that their outcomes would be progressive changes in the pupils’ behavior”* (Havelka, 1992, 43).

The development of social and communication skills in children and young people represent the basis of preventive measures. However, the models of non-violent communication cannot be acquired at the “theoretical” level, since personal experience of through the group process represents the essential process. The principles of non-violent communication can be perceived, learnt and adopted only through interaction with the group. Thus, they are incorporated in the repertoire of personal “skills”. Therefore, the parameters of non-violent communication can be considered through the prism of the workshop form. The aim of this form of work is to *develop social skills*, to adopt the model of non-violent communication on a personal level, so that they could be applied in everyday life. School represents the essential ecosystem where it is possible to intervene. Therefore, it is necessary for pupils to practice acquired skills in real-life situations, where they would be given support and had an opportunity to develop self-esteem.

Self-confidence strengthening is in the focus of school violence prevention program, as well as empathy development, non-violent conflict solving learning and anger control due to physical activity. Regular participation in physical and sports activities, provides opportunities to discharge negative energy and release aggression in a socially accepted manner, so that a person who is physically active or goes in for some sport will be less aggressive in other situations.

This paper presents a physical education teaching method from a different angle in order to find new approaches and strategies to prevent school violence. Movement therapy or psychomotor exercise represents new approach. It is focused on development and improvement of pupils’ communication due to movement. Pupils first learn to recognize the symptoms of anger and the situations which provoke it, as well as the difference in their own reactions when they are angry, and when they are not. Movement therapy in children with developmental disorders influences emotional contact with a child, the awareness of bodily integrity, self-control development, social interaction and communication, self-esteem development, sensitivity and expression of emotions, empathy and the ability to learn and repeat, reducing aggressive behavior, concentration building.

Even though cognitive and affective aspects are closely intertwined, there are few research projects that unite them in their basic assumptions. The role of emotions is to

alert the individual to pay attention to important aspects of the situation and direct cognitive processes. Therefore, in this paper we trace the idea that the change at the individual level can start the process of changing of entire society, “from the bottom up“.

This problem should be considered from the point of view of pupils in order to improve activities directed at school violence prevention, since pupils represent direct participants of this problem and have a clearer picture of the specific forms, characteristics and consequences of school violence. This research paper deals with school violence examination among pupils of primary school age, as well as with its prevention – developing social skills and encouraging pupils to be physically active. Therefore, the research problem of this paper is to investigate if there are differences between experienced/perpetrated violence among children considering their individual characteristics (gender, age, hyperactivity/impulsiveness) and how prevention program through a partnership model (teacher and teacher of physical education), may contribute to the reduction of violence in school? The research is based on multidisciplinary approach, whereas cooperation between educators and physical education teachers would contribute both to practical solutions and further study of this phenomenon.

According to research problem, its contents and their interaction, the aim and the objectives of the research were defined. School violence represents a widespread phenomenon with numerous manifestations and consequences. Therefore, it must be examined from different aspects. General aim of this research is to *get an insight into primary school pupils’ perception of school violence, noticing the difference between the bullies and the victims, as well as to identify areas where action is needed by implementing prevention programs*. The specific aim of the research is to *examine if the implementation of a prevention program reduces school violence*.

The aim of the research is divided in hierarchal levels and analyzed through research tasks and special hypotheses, which would not be discussed in this paper in details.

Therefore, we can state the research question in terms of a *null hypothesis* ( $H_0$ ) and *alternative hypothesis* ( $H_a$ ):

*(H<sub>0</sub>) The experimental program does not affect the appearance of distinctive features between the experimental and control groups in terms of reducing violence in schools.*

*(H<sub>a</sub>) The experimental program has an impact on the appearance of distinctive features between the experimental and control groups in terms of reducing violence in schools.*

In order to test the hypothesis it is necessary to operationally define the variables. Definition of key concepts of research problem allows us to present the list of variables, as well as to clearly and accurately define them both at theoretical and operational level.

Table 1 Sample of variables

Variable	Variable number	Contents of variables
Gender	1	Description of the sample by gender. Nominal scale that distinguishes between two groups: male (1) and female (2).
Age	1	Description of the sample according to the class they attend: IV (1); V (2) VI (3); VII (4); VIII(5)

Hyperactivity/impulsiveness	1	Description of the sample of examinees by the level of hyperactivity/impulsiveness. Nominal scale that distinguishes two groups: there is expressed hyperactivity/ impulsiveness (1) there is no expressed hyperactivity/ impulsiveness (2)
Family	1	Variable parameters: Family (complete-incomplete).
SFS_FS 1 do SFS_FS5	3	Variable parameters: Subjective feeling at school (Scale ranges from 1 to 4)
SFS_SS1 do SFS_SS7	7	Variable parameters: Safety feeling at some places at school (Scale ranges from 1 to 4)
VFS_VF1 do VFS_VF22	22	Variable parameters: Forms of violence- experienced/perpetrated (Scale ranges from 1 to 3)
BCS_BC1 do BCS_BC7	7	Variable parameters: Characteristics of a bully
VOS_VS1 do VOS_VS9	9	Variable parameters: Violence occurs (Scale ranges from 1 to 3).
AHV_AH1 do AHV_AH6	6	Variable parameters: Asking for help because of experienced violence (Scale ranges from 1 to 3)
HEV_HV1 do HEV_HV6	6	Variable parameters: People who tried to help because they experienced violence (1 to 3 estimation scale).
RVS_RV1 do RVS_RV5	5	Variable parameters: Reaction to violence (Scale ranges from 1 to 3),
SDQ_DQ1 do SDQ_DQ25	25	Variable parameters: Pupil's behavior – strength/difficulties (Scale ranges from 1 to 3).
TOTAL NUMBER OF VARIABLES	94	

Legend:

- SFS\_FS – Subjective feeling at school
- SFS\_SS – A sense of security in some places in the school
- VFS\_VF – Forms of violence (experienced/perpetrated)
- BCS\_BC – Characteristics of a bully
- VOS\_VS - Violence occurs
- AHV\_AH - Asking for help because of experienced violence
- HEV\_HV1 – People who tried to help because they experienced violence
- RVS\_RV1 – Responding to violence
- SDQ\_DQ – Pupils' behavior-strengths/difficulties

### Research techniques and instruments

The technique of questionnaire was applied in this research paper, taking into consideration the specific problem of the research, objectives, goals and tasks, as well as the set hypotheses. Instrument - questionnaire and scaling techniques: instrument – assessment scale was applied. School Violence Questionnaire – SVQ 2003, by Buljan – Flander, Karlović, Štimac (according to: Šimić, 2004, 71) which is constructed on the basis of Bully/Victim Questionnaire by Dan Olweus (Olweus, 1994) was applied in the research. The questionnaire includes some demographic characteristics of the child, the subjective feeling of rejection/acceptance at school, a sense of security in some places in the school, the frequency of being exposed to violence, gender and age, people to whom a child confessed being a victim of violence and people who tried to help the victims of violence. Questions about the experienced or perpetrated violence consist of 11 types of aggressive behavior with the following answers of Likert's scale: 1- never, 2 – rarely or

sometimes, 3- almost every day. The types of aggressive behavior are expressed as follows: I insult others, I use vulgar language when addressing others, I threat to others, I punch and push others, I fight the others, I lose or destroy other people's property, I extort money from others, I hurt others, I expel some children from the game or I do not pay attention to them, I speak ill of others, I touch others in an uncomfortable way. The types of violence are divided into verbal, physical, social/emotional, economic and sexual violence.

Strength and Difficulties Questionnaire (Goodman, 1997), was applied for estimation of pupils' behavior at school. It provided data on the emotional and behavioral problems of the pupils. The purpose of this questionnaire is to evaluate prevention program.

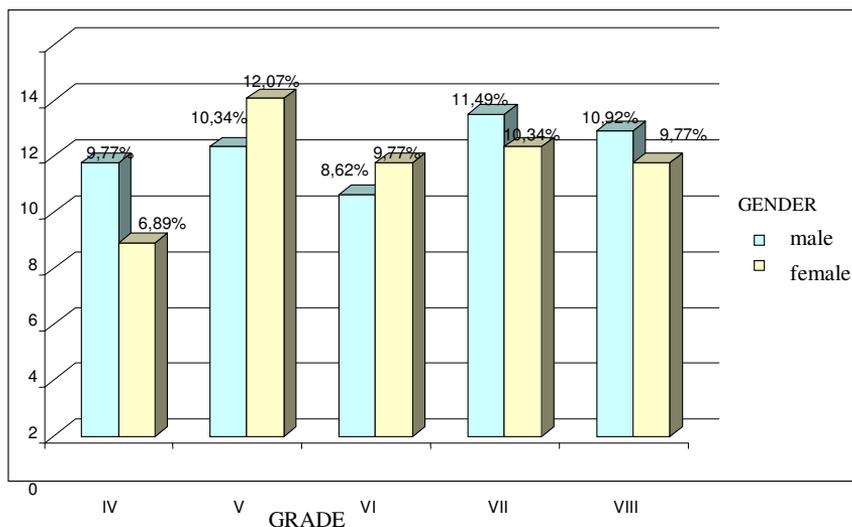
The Questionnaire consists of 25 items divided into five scales:

- Behavioral problems;
- Emotional problems;
- Problems with the peers.
- Hyperactivity/impulsiveness;
- Prosocial behavior;

All these scales consist of 5 items. Pupils assess the presence of a certain degree of problems of a particular problem: False, Partially True, and Absolutely true. Each item is scored by 0, 1, or 2. The score depends on the fact if the answer indicates the strength or difficulty. Greater number of items (1, 2, 3, 4,5 ,6, 8, 9, 10, 11, 12, 13, 15, 16, 17,18, 19, 20, 21, 22, 23, 24) measures the intensity of difficulty and it is scored in the following way: False – 0; Partially true – 1; Absolutely True – 2. Inverse direction of assessment has four items (7, 14, 21, 25): False – 0; partially true – 1; absolutely true – 2.

### **Definition of the basic set and the sampling plan**

Primary school pupils with mild mental problems represent the sample. The research included the sample of 174 examinees with symptoms of hyperkinetic disorder. We have chosen this population because it represents the risk group.



Graph 1. The sample of examinees according to age and gender

Table 2 Experimental group sample according to age and gender

GENDER	IV GRADE		V GRADE		VI GRADE		VII GRADE		VIII GRADE		TOTAL	
	f	%	f	%	F	%	f	%	f	%	f	%
male	9	10	9	10	8	8,89	10	11,11	10	9	46	51,11
female	6	6,67	11	12,22	9	10	9	10	9	10	44	48,89
Total number of examinees	15	16,67	20	22,22	17	18,89	19	21,11	19	21,11	90	100

Table 3 Control group sample according to age and gender

GENDER	IV GRADE		V GRADE		VI GRADE		VII GRADE		VIII GRADE		TOTAL	
	f	%	f	%	F	%	f	%	f	%	f	%
male	8	9,52	9	10,71	7	8,33	10	11,90	9	10,71	43	51,19
female	6	7,14	10	11,90	8	9,52	9	10,71	8	9,52	41	48,81
Total number of examinees	14	16,67	19	22,62	15	17,86	19	22,62	17	20,24	84	100

We consider this sample to be the representative one, even though it cannot be absolutely proven. General conclusion of the research should give an answer to the defined research problem.

### Research strategy and research method

The purpose of the research is to define the characteristics of distribution and relationships among variables by sample testing. In order to test the theoretical hypothesis the following methods were applied: theoretical analysis (in the phase of

theoretical research problem), causal method – pedagogical experiment (in the search for cause-consequence relations), modeling method (check of the effects of prevention program modeling), descriptive method (in describing the results of the survey).

Theoretical analysis has provided a great contribution to the study of this problem in the form of science-based criteria of problem modeling, representing a necessary criterion for empirical testing of the hypothesis.

Characteristic of a *pedagogical experiment* is to systematically investigate the effectiveness of the suggested prevention program (educational workshops and psychomotor re-education exercises). The empirical research was conducted in the following stages: problem selection, the design, data gathering, and statistical analysis of data, analysis and interpretation of research results.

The research is based on both quantitative and qualitative analysis of the data. The analysis was performed in three steps as follows: testing hypothesis about the similarities or differences, determining difference measures with the definition of characteristics and graphs. Multivariate procedures MANOVA and discriminant analysis were applied in the research. Data scaling on contingency tables was performed in order to avoid losing information, by finding the closest links and information on nonparametric values. Univariate procedures included Roy's test, Pearson's correlation coefficient ( $\chi$ ), multiple correlation coefficient (R).

The aim of mathematical and statistical analysis is to determine the characteristics of each sub-sample. Homogeneity and the distance between them are in relation to derived characteristics, so that reliable, accurate and valid prediction could be done.

### **Analysis and interpretation of research results**

Analysis of the research results and their interpretation will be carried out in order to point out the discriminatory effect of the independent on the dependent variable and their mutual relation as a broader term which defines the relationship between the applied variables.

The significance of differences between initial and final testing of the groups was conducted in accordance with previously defined research draft study, on the sample of 174 examinees, consisted of two subsamples: experimental (90) and control (84) groups. The analysis was done for three most discriminant characteristics on initial and final testing.

We will show numerical and percentage frequency of analyzed characteristics in relation to the group in the first part of the research paper. In the second part we will analyze the difference between the groups (experimental and control) in initial and final testing for three most discriminant characteristics, i.e. the hypothesis will be either proven or rejected, so that the obtained results and the appropriateness of further study would be evaluated, as well as the directions and methodological priorities for their processing. We would define the characteristics of each group; the distance and homogeneity between

them, if there were necessary pre-conditions. Finally, the obtained results will be presented in graphs.

### Victim/Bully/Bystander and Behavior Problems

Pupils perceive school with favorable psychosocial climate as a friendly environment where they feel accepted and wanted, and to which they have a positive attitude. Psychosocial climate influences school achievement, value system, social relations and social behavior of pupils. On the other hand, if there are no group cohesion and solidarity among the pupils, mutual respect between pupils and teachers, opportunity to express opinions and needs, pupils perceive that kind of environment as a hostile and have negative attitudes and resistance to school. Aggressive and antisocial behavior occurs in this atmosphere. Aggressive children often do not develop social skills and they tend to be accepted by their peers by socially unaccepted ways. Studies indicate that most pupils do not accept aggressive children and they feel rejected and unaccepted. (according to: Vasta et al., 1998, 67).

Following characteristics were taken into account considering the significance of difference between initial (I) and final testing (F) of experimental and control groups: You hit or push someone out of anger (I) and I often have fits of rage/temper tantrums (F); I do as we learned in school – I report it to a teacher (I) and I am mostly obedient, I usually do what adults request me to do (F); You often beat someone (I) and I often fight with other children or I harass them (F); There are three modes of each assessment: *false, partially true and absolutely true.*

The tables show numerical (n) and percentage frequency (%) of above mentioned characteristics and significant differences will be pointed out, if there are any, between and within the levels. Descriptive procedure will only show some characteristics of particular levels, whereas the significance of difference between the groups will be analyzed later.

Table 4 Characteristics frequency in the initial and final testing

CHARACTERISTICS	GROUPS	FALSE		PARTIALLY TRUE		ABSOLUTELY TRUE	
		n	%	n	%	n	%
VFS_VF15 /FRE_PP6	Experimental group initial	13.	14.4	34.	37.8"	43.	47.8"
	Control group initial	0.	.0	31.	36.9	53.	63.1*
	Experimental group final	70.	77.8*	19.	21.1	1.	1.1
	Control group final	28.	33.3"	34.	40.5*	22.	26.2
RVS_RV1/ FRE_PP7	Experimental group initial	14.	15.6"	29.	32.2	47.	52.2
	Control group initial	0.	.0	7.	8.3	77.	91.7*
	Experimental group final	6.	6.7	32.	35.6"	52.	57.8"
	Control group final	26.	31.0*	47.	56.0*	11.	13.1
VFS_VF16 /FRE_PP8	Experimental group initial	6.	6.7	26.	28.9"	58.	64.4"
	Control group initial	0.	.0	8.	9.5	76.	90.5*
	Experimental group final	75.	83.3*	15.	16.7	0.	.0
	Control group final	34.	40.5"	31.	36.9*	19.	22.6

Legend:

FRE\_PP6 – I often have fits of rage/temper tantrums / VFS\_VF15 – You hit or push someone out of anger

FRE\_PP7 – I am mostly obedient, I usually do what adults request me to do/RVS\_RV1- I do as we learned in school – I report it to a teacher

FRE\_PP8 – I often fight with other children or I harass them VFS\_VF16 – You often beat someone

The data of experimental and control groups, in initial and final testing for three most discriminative characteristics are presented in Table 4. Considering the characteristic VFS\_VF15 (*You hit or push someone out of anger*) it can be noted that *absolutely true* modality is the most frequent one in the initial testing of experimental group since it includes 43 examinees (47.8%) of 90, which is significantly higher than the frequency of *false* modality (13 examinees 14.4%  $p=.000$ ). Frequency of *absolutely true* modality in the control group (53 examinee 63.1%) is significantly higher than the frequency of *partially true modality* (31 examinees 36.9%  $p=.001$ ), and *false* modality (0 examinees .0%  $p=.000$ ). Frequency of *false* modality (70 examinees 77.8%) is significantly higher than the frequency of *partially true* (19 examinees 21.1%  $p=.000$ ) and *absolutely true* modalities (1 examinee 1.1%  $p=.000$ ) in the final testing of a control group for the characteristic FRE\_PP6 (I often have fits of rage/temper tantrums). The frequency of *partially true* modality (34 examinees 40.5%) is significantly higher than the frequency of *absolutely true* modality (22 examinees 26.2%  $p=.051$ ) in the final testing of experimental group.

There is the following difference between the groups: *false modality* is most frequent in the *final testing of control group* (77.78 %), which is significantly higher than the frequency of the same modality in *final testing of experimental group* (33.33%  $p=.000$ ), and both *experimental* (14.44%  $p=.000$ ) and *control groups* (.00%  $p=.000$ ) in *initial testing*.

*Partially true modality* has the highest frequency in *final testing of experimental group* (40.48%), which is significantly higher than its frequency in *final testing of control group* (21.11%  $p=.006$ ), whereas *absolutely true* modality has the highest frequency in *final testing of control group* (63.10%), which is significantly higher than the frequency of the same modality in *initial testing of experimental group* (47.78%  $p=.044$ ).

According to these results it is possible to extract the characteristics of each group in relation to characteristics VFS\_VS15/FRE\_PP6. Therefore, it can be noticed that *partially true* and *absolutely true* answers are more frequent in *initial testing of experimental group*, whereas *absolutely true* answer is more frequent in *initial testing of control group*. *False* characteristic is more frequent in *final testing of control group*, whereas *partially true* and *false* characteristics are more frequent in *final testing of experimental group*. As  $p = .000$   $\chi^2$  - test, it can be stated that there is a correlation between the groups regarding to observed characteristics, since  $\chi = .557$  represents moderate correlation.

The frequency of *absolutely true* modality is the highest in *initial testing of experimental group*, 47 examinees (52.2%) of 90, for RVS\_RV1 characteristic (I do as we learned in school – I report to duty teacher), which is significantly higher than the frequency of *partially true* (29 examinees 32.2%  $p=.007$ ) and *false modalities* (14 examinees 15.6%  $p=.000$ ). The frequency of *absolutely true* modality is significantly higher in *control group* (77 examinee 91.7%), than the frequency of *partially true modality* (7 examinees 8.3%

$p=.000$ ) and *false modality* (0 examinee .0%  $p=.000$ ). The frequency of *absolutely true modality* (52 examinees 57.8%) is significantly higher than the frequency of *partially true modality* (32 examinees 35.6%  $p=.003$ ) and *false modality* (6 examinees 6.7%  $p=.000$ ) in *final testing of control group* for FRE\_PP7 characteristic (*I am mostly obedient, I usually do what the adults request me to do*). The frequency of *partially true modality* (47 examinees 56.0%) is significantly higher than the frequency of *false modality* (26 examinees 31.0%  $p=.001$ ) and *absolutely true modality* (11 examinees 13.1%  $p=.000$ ) in *final testing of experimental group*.

The difference between the groups is as follows: *false modality* is most frequent in *final testing of experimental group* (30.95%), which is significantly higher than the frequency of the same modality in *initial testing of experimental* (15.56%  $p=.017$ ) and *control group* (6.67%  $p=.000$ ), whereas *partially true modality* is most frequent in *final testing of experimental group* (55.95%), which is significantly higher than the frequency of the same modality in *final testing of control group* (35.56%  $p=.008$ ) and *initial testing of experimental* (32.22%  $p=.002$ ) and *control groups* (8.33%  $p=.000$ ). *Absolutely true modality* is most frequent in *initial testing of control group* (91.67%), which is significantly higher than the frequency of the same modality in *final testing of experimental group* (57.78%  $p=.000$ ) and *initial testing of experimental group* (52.22%  $p=.000$ ) and *final testing of control group* (13.10%  $p=.000$ ).

Characteristics of each group can be extracted according to the obtained results in relation to characteristics RVS\_RV1/FRE\_PP7. Therefore, it can be concluded that *false modality* is most frequent in *experimental group*, whereas *absolutely true modality* is most frequent in *initial testing of control group*. *Partially true* and *absolutely true modalities* are most frequent in *final testing of control group*, whereas *false* and *partially true modalities* are more frequent in *final testing of experimental group*. As  $p = .000$   $\chi^2$  - test, it can be stated that there is a mutual correlation between the groups in relation to observed characteristics, since  $\chi = .494$  represents moderate correlation.

*Absolutely true modality* is most frequent in *initial testing of experimental group*, with 58 examinees (64.4%) of 90 examinees, in relation to VFS\_VF16 characteristic (*You beat someone*), which is significantly higher than the frequency of *partially true modality* (26 examinees 28.9%  $p=.000$ ) and *false modality* (6 examinees 6.7%  $p=.000$ ). *Absolutely true modality* (76 examinees 90.5%) is significantly higher than *partially true modality* frequency (8 examinees 9.5%  $p=.000$ ) and *false modality* frequency (0 examinee  $p=.000$ ) in *control group*. The frequency of *false modality* (75 examinees 83.3%) is significantly higher than the frequency of *partially true modality* (15 examinees 16.7%  $p=.000$ ) and *absolutely true modality* (0 examinee 0%  $p=.000$ ) in *final testing of control group* in relation to characteristic FRE\_PP8 (*I often fight with other children or harass them*). The frequency of *false modality* (34 examinees 40.5%) is significantly higher than the frequency of *absolutely true modality* (19 examinees 22.6%  $p=.14$ ) in *final testing of experimental group*.

The difference between the groups is as follows: *false modality* is most frequent in *final testing of control group* (83.33%), which is significantly higher than the frequency of the same answer in *final testing of experimental group* (40.48%  $p=.000$ ) and *initial testing of experimental* (6.67%  $p=.000$ ) and *control groups* (.00%  $p=.000$ ), whereas *partially true*

modality is most frequent in *final testing* of experimental group (36.90%), which is significantly higher than its frequency in *final testing* of control group (16.67%  $p=.003$ ). *Absolutely true* modality is most frequent in control group (90.48%), which is significantly higher than its frequency in *initial testing* of experimental group (64.44%  $p=.000$ ), whereas the frequency of this modality in *final testing* is as follows: experimental (22.62%  $p=.000$ ) and control groups (.00%  $p=.000$ ).

Characteristics of each group can be separated according to the obtained results in relation to characteristics VFS\_VF16/FRE\_PP8. Therefore, it can be concluded that characteristics *partially true* and *absolutely true* are more frequent in *initial testing* of experimental group, whereas characteristic *absolutely true* is more frequent in *initial testing* of control group. *False* characteristic is more frequent in *final testing* of control group, whereas *partially true* and *false characteristics* are more frequent in *final testing* of experimental group. As  $p = .000$   $\chi^2$  - test, it can be stated that there is high correlation between the groups in relation to observed characteristics, since  $\chi = .632$  represent high correlation.

Table 5 The significance of difference between the groups according to their characteristics in initial and final testing

ANALYSIS	N	F	P
MANOVA	3	65.090	.000
Discriminant analysis	3	75.874	.000

MANOVA analysis with the conclusion reliability of  $p = .000$  indicates significant difference between the groups for some features of the observed field. According to the values of Fischer's distribution with high reliability of conclusion ( $p=.000$ ) for the observed characteristics of discriminant analysis we can state that there is clearly defined boundary between the groups in terms of behavioral problems. Since  $p < 0,05$  we can confirm alternative  $H_1$  hypothesis: *Prevention program has an influence on distinctive characteristics of behavioral problems between experimental and control groups at the initial and final testing*. This means that after the implementation of violence prevention program in schools, external behavioral problems in experimental groups were reduced in comparison to control group. Therefore, there is greater possibility of adaptive responses to potentially conflicting social situations.

Table 6 Univariate significance of difference between the characteristics of groups in initial and final testing

CHARACTERISTICS	$\chi$	R	F	P	DISCRIMINATION COEFFICIENT
FRE_PP6/OVS_ON15	.557	.664	90.687	.000	.049
FRE_PP8/OVS_ON16	.632	.778	176.767	.000	.723
FRE_PP7/RVS_RN1	.494	.560	52.470	.000	.418

With high reliability ( $p < .1$ ) we can state that the following characteristics: FRE\_PP8/VFS\_VF16 (.723), FRE\_PP7/RVS\_RV1 (.418), FRE\_PP6/VFS\_VF15 (.049) have the greatest contribution to discrimination between the groups. The fact that  $p = .000$ , of discriminant analysis proves that there is clearly defined boundary between the groups of

examinees, i.e. it is possible to determine the characteristics of each group in relation to observed features.

According to the assessment of the examinees' answers in initial and final testing, it can be stated that *external behavioral problems* in *final testing* of *experimental group* were *significantly reduced* in comparison to the problems in the initial testing. Following information leads us to this conclusion:

- *experimental group* showed the following characteristics in initial testing: VFS-VF16 (*partially true*", *absolutely true*"), RVS\_RV1 (*false*"), VFS\_VF15 (*partially true*", *absolutely true*"), whereas its characteristic in final testing were as follows: FRE\_PP8 (*partially true*\*, *false*"), FRE\_PP7 (*false*\*, *partially true*\*), FRE\_PP6 (*partially true*\*, *false*").

- *control group* showed following characteristics in initial testing: VFS\_VF16 (*partially true*\*), RVS\_RV1 (*absolutely true*\*), VFS\_VF15 (*absolutely true*\*), whereas its characteristics in final testing were as follows: FRE\_PP8 (*false*\*), FRE\_PP7 (*partially true*"", *absolutely true*"), FRE\_PP6 (*false*\*).

Table.7 Homogeneity of groups regarding the space between experimental and control groups in initial and final testing

Groups	m/n	%
experimental group-initial	69/90	76.67
control group-initial	77/84	91.67
experimental group-final	79/90	87.78
control group-final	68/84	80.95

Therefore, it can be concluded that 69 of 90 examinees have characteristics of experimental group in initial testing. Group homogeneity is high, 76.7%, which means that 21 examinees have other characteristics, and not the characteristics of their group. 77 of 84 examinees have characteristics of control group in initial testing. Group homogeneity is high, 91.7%, since 7 examinees have other characteristics. 79 of 90 examinees have characteristics of experimental group in final testing. Group homogeneity is high, 87.8%, since 11 examinees have other characteristics. 68 of 84 examinees have characteristics of control group in final testing. Group homogeneity is high, 80.9%, since 16 examinees have other characteristics.

Table 8 Distance (Mahalanobis distance) between experimental and control groups in initial and final testing

GROUPS	I	II	III	IV
I	.00	1.10	2.61	1.67
II	1.10	.00	3.24	2.68
III	2.61	3.24	.00	1.82
IV	1.67	2.68	1.82	.00

Legend:

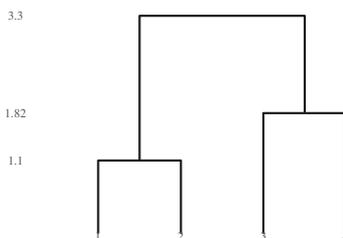
I-experimental group – initial testing

II-control group - initial testing

III-experimental group - final testing

IV-control group - final testing

By calculating Mahalanobis distance between the groups of examinees we obtain another indicator of similarity or difference. The results in Table 8 indicate that the minimum distance is between experimental and control groups in final testing (1.10), and maximum distance is between experimental group in final testing and control group in initial testing (3.24). The differences indicate that the pupils in experimental group made more progress in reducing external behavioral problems compared to pupils in control group. We cannot say that control group did not make any progress, but it is not so significant. This means that the experimental group shows the greatest differences between initial and final testing.

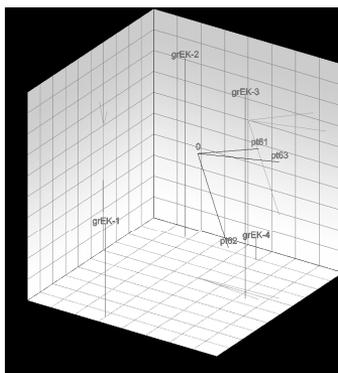


Graph 2 Grouping by proximity

*Legend:* (1) experimental and (2) control groups in initial; (3) experimental and (4) control group in final testing

The dendrogram shows that experimental and control groups are the closest at final testing with the distance of 1.10, whereas the greatest difference is between initial and final testing of experimental group, with the distance of 3.30.

Derived characteristics of groups in relation to observed characteristics of experimental and control groups at the initial and final testing can be graphically presented by star chart. Graph 3 shows that it is possible to observe the difference in most observed characteristics according to the subsample distance from the coordinate system centre. Control group shows significant deviation in final testing with the distance of 1.49, it is followed by experimental group with the distance of 1.31 in final testing (high), control group with the distance of 1.28 (high) and experimental with the distance of .63 (moderate). Significant deviation between the groups can be observed in following characteristics: Child often fights with other children or harasses them, with the distance of 1.65 which is higher; child often has fits of rage, with the distance of 1.40 (high); Child is mostly obedient, does what the adults requests him to do, with the distance of 1.21 (high).



Graph 3 Group characteristics in relation to observed characteristics in initial and final testing

Legend: (EK-1) experimental and (EK-2) control group in initial testing; (EK-3) experimental and (EK-4) control group in final. The child usually fights with other children or bullies them (pt63), the child is usually obedient and does what adults request him to do (pt62), and the child often has fits of rage (pt61).

### Victim/bully/bystander and problems with peers

Peers are very important for social environment in which the child develops. Children acquire social skills in relationships with their peers, they learn to help and cooperate and form self-perception. Research studies suggest that children who are not accepted and who are rejected by their peers have less developed social skills in comparison to popular children and show problems in socialization, such as aggression, loneliness and shyness. Children who are accepted by their peers and who are popular have more opportunity to make friends since they are liked by most children (Katz and McClellan, 1999. 70). Therefore, the development and maintenance of close and mutual relationships, i.e. friendships in childhood is important for social competency development. This emphasizes the need to provide children with skills appropriate to their age which would help them to be accepted by their peers and make friends.

We have observed the significance of difference between initial (I) and final testing (F) of experimental and control group exploring whether the implementation of violence prevention program in schools reduced peer problems, considering the following characteristics: You exclude other children from the game or you do not pay attention to them (I) and I would rather play alone (F); You were excluded from the game or other children did not pay attention to you (I) and I am mostly liked by my friends (F); Someone threatened to do something harmful to you (I) and Other children tease me or harass me (F). Each assessment has three modes: *false*, *partially true* and *absolutely true*.

The tables show numerical (n) and percentage (%) representation of afore-mentioned characteristics, whereas the attention will be paid to significant differences, if there are any. Descriptive procedure will show only some characteristics of particular levels, whereas the significance of difference between the groups will be analyzed later.

Table 9 Characteristic frequencies in initial and final testing

CHARACTERISTICS	GROUPS	FALSE		PARTIALLY TRUE		ABSOLUTELY TRUE	
		n	%	n	%	n	%
VFS_VF20 /FRE_PV16	experimental initial	11.	12.2	13.	14.4	66.	73.3"
	control initial	0.	.0	0.	.0	84.	100.0*
	experimental final	41.	45.6*	26.	28.9"	23.	25.6
	control final	32.	38.1"	28.	33.3*	24.	28.6
VFS_VF9 /FRE_PV18	experimental initial	22.	24.4*	24.	26.7	44.	48.9
	control initial	0	.0	15	17.9	69	82.1*
	experimental final	36.	40.0*	28.	31.1"	26.	28.9
	control final	31.	36.9"	31.	36.9*	22.	26.2
VFS_VF3/ FRE_PV19	experimental initial	18.	20.0	28.	31.1*	44.	48.9"
	control initial	0.	.0	13.	15.5	71.	84.5*
	experimental final	64.	71.1*	26.	28.9"	0.	.0
	control final	29.	34.5"	24.	28.6	31.	36.9

Legend:

FRE\_PV16 – I would rather play alone/ VFS\_VF20 – You exclude others from the game or you do not pay attention to them

FRE\_PV18 – I am mostly liked by my friends / VFS\_VF9 – You were excluded from the game or they did not pay attention to you

FRE\_PV19 – Other children tease or harass me / VFS\_VF3 – Someone threatened to do something harmful to you

Peer violence occurs in a complex social context, where all members of a particular group have the role of victim/bully or bystander. There are three conceptual models that explain the contribution of the quality of peer relationships that influence on psychosocial adaptation (by Ladd et al., 1997, 1185). According to the first model, friendship, acceptance and peer bullying are perceived as separate phenomena that independently contribute to specific social experience of a child. According to the second model three indicators are functionally intertwined, so that two or more of them can contribute to the same outcomes. The third model assumes that friendship, acceptance and peer bullying represent relational systems which are mutually dependant, whereas the effect of a system depends on child's experience in the other system.

Table 9 shows the data about initial and final testing of experimental and control groups for three most discriminant characteristics. *Absolutely true* modality is most frequent in *initial testing* of *experimental group*, with 66 examinees (73.3%) of 90 examinees, in relation to characteristic VFS\_VF20 (*You exclude others from the game or you do not pay attention to them*), which is significantly higher than the frequency of *partially true modality* (13 examinees 14.4%  $p=.000$ ) and *false modality* (11 examinees 12.2%  $p=.000$ ), which is higher than the frequency of *false modality* (0 examinee .0%  $p=.000$ ) and *partially true modality* (0 examinee .0%  $p=.000$ ) in *control group*. The frequency of *false modality* (41 examinees 45.6%) in *final testing* of *experimental group* in relation to characteristic FRE\_PV16 (*I would rather play alone*) is significantly higher than the frequency of *partially true modality* (26 examinees 28.9%  $p=.022$ ) and *absolutely true modality* (23 examinees 25.6%  $p=.006$ ). The frequency of *false modality* (32 examinees 38.1%) in *control group* is higher than the frequency of *partially true modality* (28 examinees 33.3%) and *absolutely true modality* (24 examinees 28.6%).

The difference between the groups of examinees is as follows: *false* modality is most frequent in *final testing* of *control group* (45.56%), which is significantly higher than its frequency in *initial testing* of *experimental* (12.22%  $p=.000$ ) and *control groups* (.00%  $p=.000$ ), whereas *partially true modality* is most frequent in *final testing* of *experimental group* (33.33%), which is significantly higher than its frequency in *initial testing* of *experimental* (14.44%  $p=.004$ ) and *control groups* (.00%  $p=.000$ ). *Absolutely true modality* is most frequent in *control group* (100.00%), which is significantly higher than its frequency in *initial testing* of *experimental group* (73.33%  $p=.000$ ) and *final testing* of *experimental* (25.56%  $p=.000$ ) and *control groups* (28.57%  $p=.000$ ).

According to these results it is possible to extract the characteristics of each group in relation to the characteristics VFS\_VF20/FRE\_PV16. Therefore, it follows that *absolutely true \**, answer was more frequent in *initial testing* of *experimental group*, *absolutely true \** answer was more frequent in *initial testing* of *control group*, whereas *false\** and *partially true"* answers were more frequent in *final testing* of *control group*, and *partially true\**, and *false"* answers were more frequent in *final testing* of *experimental group*. As  $p = .000$   $\chi^2$  - test, it can be said that there is a correlation between the groups in relation to these characteristics, since  $\chi = .534$  represents moderate correlation.

For the characteristic VFS\_VF9 (You were excluded from the game or they did not pay attention to you) *absolutely true* modality is most frequent in *initial testing* of *experimental group*, with 44 examinees (48.9%) of 90, which is significantly higher than the frequency of *partially true* (24 examinees 26.7%  $p=.002$ ) and *false* modalities (22 examinees 24.4%  $p=.001$ ). The frequency of *absolutely true* modality (69 examinees 82.1%), is significantly higher than the frequency of *partially true* (15 examinees 17.9%  $p=.000$ ) and *false* modalities (0 examinees .0%  $p=.000$ ) in *control group*.

For the characteristic FRE\_PV18 (I am mostly liked by my friends, the frequency of *false* modality (36 examinees 40.0%) is higher than the frequency of *partially true* (28 examinees 31.1%) and *absolutely true* modalities (26 examinees 28.9%) in *final testing* of *experimental group*. The frequency of *false* modality (31 examinees 40.0%) is higher than the frequency of *partially true* (31 examinees 36.9%) and *absolutely true* modalities (22 examinees 26.2%  $p=.003$ ) in *control group* testing.

The difference between the groups is as follows: *false* modality has the highest frequency in *final testing* of *control group* (40.00%), which is significantly higher than its frequency in *initial testing* of *experimental* (24.44%  $p=.027$ ) and *control groups* (.00%  $p=.000$ ), whereas *partially true modality* is most frequent in *final testing* of *experimental group* (36.90%), which is significantly higher than its frequency in *initial testing* of *control group* (17.86%  $p=.006$ ). *Absolutely true* modality is most frequent in *initial testing* of *control group* (82.14%), which is significantly higher than its frequency in *initial testing* of *experimental group* (48.89%  $p=.000$ ) and *final testing* of *experimental* (28.89%  $p=.000$ ) and *control groups* (26.19%  $p=.000$ ).

The characteristics of each group can be extracted according to the obtained results in relation to VFS\_ONg/ FRE\_PV18 characteristic. Therefore, it can be said that *absolutely true"*, is more frequent in *initial testing* of *experimental group*, whereas *absolutely true*

modality is more frequent in *initial testing* of control group, *false\** and *partially true*" modalities are more frequent in *final testing* of control group, whereas *partially true\** and *false*" modalities are more frequent in *final testing* of experimental group. Since  $p = .000$   $\chi^2$  – test and  $\chi = .422$  represents moderate correlation, it can be said that there is correlation between the groups in relation to observed characteristics.

*Partially true* modality, 44 examinees (48.9%) of 90, is more frequent in *initial testing* of experimental group, for the characteristic VFS\_VF3 (Someone threatened to do something harmful to you), which is significantly higher than the frequencies of *partially true* (28 examinees 31.1%  $p=.016$ ) and *false* modalities (18 examinees 20.0%  $p=.000$ ). The frequency of *absolutely true* modality (71 examinees 84.5%) is significantly higher in control group testing than the frequencies of *partially true* (13 examinees 15.5%  $p=.000$ ) and *false* modalities (0 examinees .0%  $p=.000$ ). *False* modality is more frequent in *final testing* of experimental group (64 examinees 71.1%) than the frequencies of *partially true* (26 examinees 28.9%  $p=.000$ ) and *absolutely true* modalities (0 examinees .0%  $p=.000$ ) for FRE\_PV19 characteristic (Other children tease or harass me). The frequency of *absolutely true* modality (31 examinees 36.9%), in control group testing is higher than the frequencies of *partially true* (24 examinees 28.6%) and *false* modalities (29 examinees 34.5%).

The difference between the groups is as follows: *false* modality has the highest frequency in *final testing* of control group (71.11%), which is significantly higher than its frequency in *final testing* of experimental group (34.52%  $p=.000$ ), and *initial testing* of experimental (20.00%  $p=.000$ ) and control group (.00%  $p=.000$ ), whereas *partially true* modality is most frequent in *initial testing* of experimental group (31.11%), which is significantly higher than its frequency in *initial testing* of control group (15.48%  $p=.016$ ) and *final testing* of experimental (28.90%  $p=.000$ ) and control groups (28.60%). *Absolutely true* modality is most frequent in *initial testing* of control group (84.52%), which is significantly higher than its frequency in *initial testing* of experimental group (48.89%  $p=.000$ ) and *final testing* of experimental (.00%  $p=.000$ ) and control groups (36.90%  $p=.000$ ).

The characteristics of each group can be extracted according to the obtained results in relation to VFS\_VF3/ FRE\_PV19 characteristic. Therefore, it can be said that *partially true*" and *absolutely true*" answers are more frequent in *initial testing* of experimental group, whereas *absolutely true* modality is more frequent in *initial testing* of control group, *false\** and *partially true*" modalities are more frequent in *final testing* of control group, whereas *false*" modality is more frequent in *final testing* of experimental group. Since  $p = .000$   $\chi^2$  – test and  $\chi = .555$  represents moderate correlation, it can be said that there is a correlation between the groups in relation to observed characteristics.

Table 10 Significance of difference between the group characteristics in initial and final testing

ANALYSIS	N	F	P
MANOVA	3	42.084	.000
discriminant analysis	3	48.013	.000

MANOVA analysis with the conclusion reliability of  $p = .000$  indicates significant difference between the groups for some features of the observed field. According to the values of Fischer's distribution with high reliability of conclusion ( $p=.000$ ) for the

observed characteristics of discriminant analysis we can state that there is clearly defined boundary between the groups in terms of problems with peers. Since  $p < 0,05$  we can confirm alternative.  $H_2$  ( $\alpha$ ) hypothesis: *Prevention program has an influence on distinctive characteristics of problems with peers, between experimental and control groups at the initial and final testing.* This means that after the implementation of violence prevention program in schools, problems with peers in experimental group were reduced in relation to control group. Therefore, there is greater possibility of adaptive responses to potentially conflicting social situations.

Table 11 Univariate significance of difference between the characteristics of groups in initial and final testing

CHARACTERISTICS	$\chi$	R	F	P	DISCRIMINATION COEFFICIENT
FRE_PV16/OVS_ON20	.534	.628	74.877	.000	.414
FRE_PV18/OVS_ON9	.422	.464	31.475	.000	.181
FRE_PV19/OVS_ON3	.555	.659	88.364	.000	.818

With high reliability ( $p < .1$ ) we can state that the following characteristics: FRE\_PV19/VFS\_VF3 (.818), FRE\_PV16/VFS\_VF20 (.414), FRE\_PV18/VFS\_VF9 (.181) have the greatest contribution to discrimination between the groups. The fact that  $p = .000$ , of discriminant analysis proves that there is clearly defined boundary between the groups of examinees, i.e. it is possible to determine the characteristics of each group in relation to observed features.

According to the assessment of the examinees' answers in initial and final testing, it can be stated that *problems with peers in final testing of experimental group were significantly reduced* in comparison to the problems in the initial testing. Following information leads us to this conclusion:

- *experimental group showed following characteristics in initial testing: VFS\_VF3 (partially true", absolutely true"), VFS\_VF20 (absolutely true"), VFS\_VF9 (absolutely true"), whereas its characteristics in final testing were as follows: FRE\_PV19 (false"), FRE\_PV16 (partially true\* false\*), FRE\_PV18 (partially true\*, false").*

- *control group showed following characteristics in initial testing: VFS\_VF3 (absolutely true\*), VFS\_VF20 (absolutely true\*), VFS\_VF9 (absolutely true\*), whereas its characteristics in final testing were as follows: FRE\_PV19 (false\*, partially true"), FRE\_PV16 (false\*, partially true"), FRE\_PV18 (false\*, partially true").*

Table 12 Homogeneity of groups regarding the space between experimental and control groups in initial and final testing

Groups	m/n	%
experimental group-initial	66/90	73.33
control group-initial	73/84	86.90
experimental group-final	71/90	78.89
control group-final	62/84	73.81

Therefore, it can be concluded that 66 of 90 examinees have characteristics of experimental group in initial testing. Group homogeneity is high, 73.3%, which means that 24 examinees have other characteristics, and not the characteristics of their group. 73 of 84 examinees have characteristics of control group in initial testing. Group homogeneity

is high, 86.9%, since 11 examinees have other characteristics. 71 of 90 examinees have characteristics of experimental group in final testing. Group homogeneity is high, 78.9%, since 19 examinees have other characteristics. 62 of 84 examinees have characteristics of control group in final testing. Group homogeneity is high, 73.8%, since 22 examinees have other characteristics.

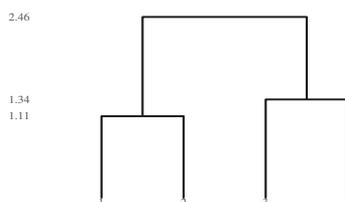
Table 13 Distance (Mahalanobis distance) between experimental and control groups in initial and final testing

GROUPS	I	II	III	IV
I	.00	1.11	1.73	1.28
II	1.11	.00	2.73	2.25
III	1.73	2.73	.00	1.34
IV	1.28	2.25	1.34	.00

Legend:

- I-experimental group - initial testing
- II-control group – initial testing
- III-experimental group – final testing
- IV-control group - final testing

By calculating Mahalanobis distance between the groups of examinees we obtain another indicator of similarity or difference. The results in Table 13 indicate that the minimum distance is between experimental and control groups in initial testing (1.11), and maximum distance is between experimental group in final testing and control group in initial testing (2.73). The differences indicate that the pupils in experimental group made more progress in reducing problems with peers compared to pupils in control group. We cannot say that control group did not make any progress, but it is not so significant. This means that the experimental group shows significant differences between initial and final testing.

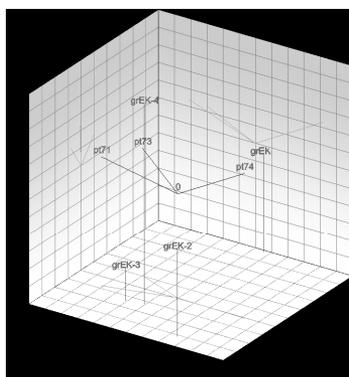


Graph 4 Grouping by proximity

Legend: (1) experimental and (2) control groups in initial; (3) experimental and (4) control group in final testing

The dendrogram shows that experimental and control groups are the closest at final testing with the distance of 1.11, whereas the greatest difference is between initial and final testing of experimental group, with the distance of 2.46.

Derived characteristics of groups in relation to observed characteristics of experimental and control groups at the initial and final testing can be graphically presented by star chart. Graph 5 shows that it is possible to observe the difference in most observed characteristics according to the subsample distance from the coordinate system centre. Experimental group shows significant deviation in final testing with the distance of 1.47 (higher), it is followed by control group with the distance of 1.46 in final testing (higher), control group with the distance of 1.27 (higher). Significant deviation between the groups can be observed in following characteristics: Other children of the tease or harass him, with the distance of 2.17 (higher); Child is mostly lonely, tends to play alone, with the distance of 2.08 (higher), Other children mostly love him, with the distance of 1.53 (higher).



Graph 5 Group characteristics in relation to observed characteristics in initial and final testing

Legend: (EK-1) experimental and (EK-2) control group in initial testing; (EK-3) experimental and (EK-4) control group in final. Other children tease or harass him (pt 71), Child is mostly lonely, tends to play alone (pt73), Other children mostly love him (pt74).

### Victim/bully/bystander and emotional symptoms

With the primary emotions, which occur very early after birth, during the second half of the second year of life children become aware of their emotional behavior related to primary emotions and learn emotional complex emotional processes, which are a prerequisite for development. Children's understanding of emotions plays an important role in dealing with their feelings and interpersonal relationships with others and it is associated with children's expression of emotions, pro-social skills and pro-social and aggressive behavior. Thus, children's understanding of emotions is associated with social competence and positive relationships with friends as important determinants of psychosocial adjustment (Lennon and Eisenberg, 1987., Garner et al., 1994., Hughes and Dunn, 2000.; by: Brajša-Žganec, 2003, 18).

Studies have confirmed that children more easily identify some primary emotions, whereas some primary emotions are not easily identified. Fear is the emotions that is often confused with other negative emotions and it is rarely recognized. Also, studies have shown that a child will better understand and recognize emotions if he or she gets

as much information about the emotion (MacDonald et al., 1996., Barth and Bastiani, 1997., by: Brajša-Žganec, 2003, 19).

Children at a young age understand emotions depending on the cognitive assessment in social interactions, whereas the ability to identify emotional expressions and situations and understand their own and others' emotions increases as they become older. At preschool age children usually recognize a wide range of their own and others' emotional states, and show understanding of a number of typical emotional expressions, as well as the ability to predict emotional reactions (LaFreniere, 2000., Oatley and Jenkins, 2000., by: Brajša-Žganec, 2003, 19).

Child's reaction in a particular situation depends on his perception of the situation, inherited temperament characteristics and actions and behaviors of the child's immediate environment models. Research studies confirm that children with hyperkinetic disorders show less ability to understand emotions (Hughes et al., 1998., by: Brajša-Žganec, 200320). Children show their feelings and learn to recognize and control emotions in interaction with their environment from the moment of birth.. Positive emotions, such as happiness, surprise, and negative emotions: anger, sadness and fear, are considered to be basic emotions, and they can be identified very early in childhood.

We have observed the significance of difference between initial (I) and final testing (F) of experimental and control group exploring adaptive responses to potentially conflicting situations and internal behavior problems, considering the following characteristics: Subjective feeling at school(I) and I often feel sad, depressed and tearful (F); Sense of security in some places in the school (I) and I 'm nervous or reserved in new situations, I easily lose confidence (F); Reaction to violence: I do nothing (I), I've got many fears, I am easily frightened (F). Each assessment has three modes: *false, partially true and absolutely true.*

The tables show numerical (n) and percentage (5) representation of afore-mentioned characteristics, whereas the attention will be paid to significant differences, if there are any. Descriptive procedure will show only some characteristics of particular levels, whereas the significance of difference between the groups will be analyzed later.

Table 14 Characteristic frequencies in initial and final testing

CHARACTERISTICS	GROUPS	FALSE		PARTIALLY TRUE		ABSOLUTELY TRUE	
		n	%	n	%	n	%
SFS/ FRE_ES3	experimental initial	54	60.0*	3	3.3	33	36.6
	control initial	20	23.8*	29	34.52	35	41.7
	experimental final	72.	80.0*	17.	18.9	1.	1.1
	control final	30.	35.7	30.	35.7*	24.	28.6*
SFS_SS3/ FRE_ES4	experimental initial	27.	30.0	13.	14.4	50.	55.6''
	control initial	6.	7.1	11.	13.1	67.	79.8*
	experimental final	71.	78.9*	17.	18.9	2.	2.2
	control final	27.	32.1	40.	47.6*	17.	20.2*
VOS_VS1 /FRE_ES5	experimental initial	0.	.0	0.	.0	16.	17.8*
	control initial	0.	.0	0.	.0	0.	.0
	experimental final	71.	78.9*	16.	17.8	3.	3.3
	control final	17.	20.2	47.	56.0*	20.	23.8*

Legend:

FRE\_ES3 - I often feel sad, depressed and tearful / SFS – Subjective feeling at school

FRE\_ES4 - I'm nervous or reserved in new situations, I easily lose confidence / SFS\_SS3 - The feeling of security on the way to / from school

FRE\_ES5 - I've got many fears, I am easily frightened / VOS\_VS1 Reaction to violence: I do nothing

Children learn how to interact with others in relationships with peers, which has influence on their behavior later in life. Since the rejection by peers can contribute to the development of emotional symptoms and inappropriate behavior, it is necessary to identify children who have difficulties in establishing and maintaining relationships with peers at an early age. Relationships with peers greatly contribute to the social and cognitive development and affect the functioning at an older age. Children who are rejected are unable to establish and maintain relationships with peers at school age are at increased risk of leaving school (Hartup and Moore 1990, 16).

Table 9 shows the data about initial and final testing of experimental and control groups for three most discriminant characteristics. *False* modality is most frequent in *initial testing of experimental group*, with 54 examinees (60.00%) of 90 examinees, in relation to characteristic SFS (*Subjective feeling at school*), which is significantly higher than the frequency of *partially true modality* (3 examinees 3.3%  $p=.000$ ) and *absolutely true modality* (33 examinees 36.6%  $p=.000$ ).

The frequency of *false* modality (20 examinees 23.8%) in control group is significantly higher than the frequency of *absolutely true* (35 examinees 41.7%  $p=.015$ ) and *partially true* modalities (29 examinees 34.5%). The frequency of *false* modality (72 examinees 80.0%) in *final testing of experimental group* in relation to characteristic FRE\_ES3 (I often feel sad, depressed and tearful) is significantly higher than the frequency of *partially true modality* (17 examinees 18.9%  $p=.022$ ) and *absolutely true modality* (1 examinee 1.1%  $p=.000$ ). The frequency of *false* modality (30 examinees 35.7%) in control group is higher than the frequency of *absolutely true* modality (24 examinees 28.6%).

The difference between the groups is as follows: *false* modality has the highest frequency in *final testing of experimental group* (80.00%), which is significantly higher than its

frequency in *initial testing* of control group (60.00%  $p=.000$ ), and final testing of control group (23.80%  $p=.000$ ), whereas *partially true modality* is most frequent in *final testing* of control group (35.71%), which is significantly higher than its frequency in *final testing* of experimental group (18.89%  $p=.013$ ). *Absolutely true modality* is most frequent in *final testing* of control group (41.70%), which is significantly higher than its frequency in *initial testing* of experimental group (36.6%  $p=.000$ ) and *final testing* of control group (1.11%  $p=.000$ ).

The characteristics of each group can be extracted according to the obtained results in relation to SFS and FRE\_ES3 characteristic. Therefore, it can be said that *false* "answer is more frequent in *initial testing* of experimental group, whereas *absolutely true modality* is more frequent in *initial testing* of control group. *False\** modality is more frequent in *final testing* of experimental group, whereas *partially true\** and *false*" modalities are more frequent in *final testing* of control group. Since  $p = .000$   $\chi^2$  – test and  $\chi = .423$  represents moderate correlation, it can be said that there is a correlation between the groups in relation to observed characteristics.

*Partially true modality*, 50 examinees (55.6%) of 90, is more frequent in *initial testing* of experimental group, for the characteristic SFS\_SS 3 (*The feeling of security on the way to / from school*), which is significantly higher than the frequencies of *false* (27 examinees 30.0%  $p=.001$ ) and *partially true* modalities (13 examinees 14.4%  $p=.000$ ). The frequency of *absolutely true modality* (67 examinees 79.8%) is significantly higher in control group testing than the frequencies of *partially true* (11 examinees 13.1%  $p=.000$ ) and *false* modalities (6 examinees .71%  $p=.000$ ). *False* modality is more frequent in *final testing* of control group (71 examinees 78.9%) than the frequencies of *partially true* (17 examinees 18.9%  $p=.000$ ) and *absolutely true* modalities (2 examinees 2.2%  $p=.000$ ) for FRE\_ES4 characteristic (*I am nervous or reserved in new situations, I easily lose confidence*).The frequency of *partially true modality* (40 examinees 47.6%), in final testing of experimental group is significantly higher than the frequencies of *false* (27 examinees 32.1%  $p=.042$ ) and *absolutely true* modalities (17 examinees 20.2%  $p=.000$ ).

The difference between the groups is as follows: *false* modality has the highest frequency in *final testing* of control group (78.89%), which is significantly higher than its frequency in *final testing* of experimental group (32.14%  $p=.000$ ), and *initial testing* of experimental (30.00%  $p=.000$ ) and control groups (7.14%  $p=.000$ ), whereas *partially true modality* is most frequent in *final testing* of experimental group (47.62%), which is significantly higher than its frequency in *final testing* of control group (15.48%  $p=.016$ ) and *initial testing* of experimental (14.44%  $p=.000$ ) and control groups (13.10%  $p=.000$ ). *Absolutely true modality* is most frequent in *initial testing* of control group (79.76%), which is significantly higher than its frequency in *initial testing* of experimental group (55.56%  $p=.000$ ) and *final testing* of experimental (20.24%  $p=.000$ ) and control groups (2.22%  $p=.000$ ).

The characteristics of each group can be extracted according to the obtained results in relation to SFS\_SS3/ FRE\_ES4 characteristic. Therefore, it can be said that *absolutely true*" answer is more frequent in *initial testing* of experimental group, whereas *absolutely true modality* is more frequent in *initial testing* of control group, *false\** modality is more frequent in *final testing* of control group, whereas *partially true\** and *false*" modalities are

more frequent in *final testing* of *experimental group*. Since  $p = .000$   $\chi^2$  – test and  $\chi = .576$  represents moderate correlation, it can be said that there is a correlation between the groups in relation to observed SFS\_SS3/FRE\_ES4 characteristic.

Absolutely true modality, 16 examinees (17.80%) of 90, is more frequent in *initial testing* of *experimental group*, for the characteristic VOS\_VS 1 (*Reaction to violence: I do nothing*), whereas the same modality is not represented in *initial testing* of *control group* 0 examinees .0%  $p = .000$ ). False modality is more frequent in *final testing* of *control group* (71 examinees 78.9%) than the frequencies of *partially true* (16 examinees 17.8%  $p = .000$ ) and absolutely true modalities (3 examinees 3.3%  $p = .000$ ). for FRE\_ES5 characteristic (*I have a lot of fears, I am easily frightened*). The frequency of *partially true modality* (40 examinees 47.6%), in *final testing* of *experimental group* is significantly higher than the frequencies of *absolutely true* (20 examinees 23.8%  $p = .000$ ) and *false modalities* (17 examinees 20.2%  $p = .000$ ).

The difference between the groups is as follows: *false modality* has the highest frequency in *final testing* of *control group* (78.89%), which is significantly higher than its frequency in *final testing* of *experimental group* (20.24%  $p = .000$ ), and *initial testing* of *experimental* (.0%  $p = .000$ ) and *control groups* (.0%  $p = .000$ ), whereas *partially true modality* is most frequent in *final testing* of *experimental group* (55.95%), which is significantly higher than its frequency in *final testing* of *control group* (17.78%  $p = .016$ ) and *initial testing* of *experimental* (.0%  $p = .000$ ) and *control groups* (0.00%  $p = .000$ ). *Absolutely true modality* is most frequent in *final testing* of *experimental group* (23.81%), which is significantly higher than its frequency in *initial testing* of *experimental group* (55.56%  $p = .000$ ) and *final testing* of *experimental* (16.80%  $p = .008$ ) and *control groups* (.0%  $p = .000$ ).

The characteristics of each group can be extracted according to the obtained results in relation to VOS\_VS1/FRE\_ES5 characteristic. Therefore, it can be said that *false* answer is more frequent in *initial testing* of *experimental group*, whereas *absolutely true modality* is more frequent in *initial testing* of *control group*, *false\** modality is more frequent in *final testing* of *control group*, whereas *partially true\** and *absolutely true* modalities are more frequent in *final testing* of *experimental group*. Since  $p = .000$   $\chi^2$  – test and  $\chi = .727$  represents moderate correlation, it can be said that there is a correlation between the groups in relation to observed VOS\_VS1/FRE\_ES5 characteristic.

Table 15 Significance of difference between the group characteristics in initial and final testing

ANALYSIS	N	F	P
MANOVA	3	98.038	.000
discriminant analysis	3	145.229	.000

MANOVA analysis with the conclusion reliability of  $p = .000$  indicates significant differences between the groups for some features of the observed field. According to the values of Fischer's distribution with high reliability of conclusion ( $p = .000$ ) for the observed characteristics of discriminant analysis we can state that there is clearly defined boundary between the groups in terms of emotional symptoms. Since  $p < 0,05$  we can confirm alternative.  $H_{3(a)}$  hypothesis: *Prevention program has an influence on distinctive characteristics of emotional symptoms, between experimental and control groups at the*

*initial and final testing.* This means that after the implementation of violence prevention program in schools, internal behavioral problems in experimental group were reduced in relation to control group. Therefore, there is greater possibility of adaptive responses to potentially conflicting social situations.

Numerous studies indicate that if a child has developed emotional regulatory strategies, it will be able to overcome personal distress, and thus improve the quality of social interaction. The results indicate that children's structural style of overcoming negative emotions is positively correlated with their social status, whereas aggression is negatively correlated to social status (Eisenberg, 1997., Denham, 1998., Saarni, 1999., by: Eisenberg et al., 2001, 1115).

Table 16 Univariate significance of difference between the characteristics of groups in initial and final testing

CHARACTERISTICS	$\chi$	R	F	P	DISCRIMINATION COEFFICIENT
FRE_ES3/SOŠ	.423	.434	26.272	.000	.188
FRE_ES4/OŠ SS3	.576	.633	75.860	.000	.123
FRE_ES5/VOS_VS1	.727	.882	397.641	.000	2.884

With high reliability ( $p < .1$ ) we can state that the following characteristics: FRE\_ES5/VOS\_VS1 (2.884), FRE\_ES3/ SFS (.188), FRE\_ES4/ OSS\_SS3 (.123) have the greatest contribution to discrimination between the groups.

In accordance with the applied methodology, the logical path was to determine the characteristics and homogeneity of each group of examinees and the distance between them. The fact that  $p = .000$ , of discriminant analysis proves that there is clearly defined boundary between the groups of examinees, i.e. it is possible to determine the characteristics of each group in relation to observed features.

According to the assessment of the examinees' answers in initial and final testing, it can be stated that *internal behavioral problems* in *final testing* of *experimental group* were *significantly reduced* in comparison to the behavior in the initial testing. Following information leads us to this conclusion:

- *experimental group* showed following characteristics in initial testing: (VOS\_VS1 *absolutely true*", ), SFS (*false*"), SFS\_SS3 (*absolutely true*"), whereas its characteristics in final testing were as follows: FRE\_ES5 (*partially true\**, *absolutely true*", *false*"), FRE\_ES4 (*partially true\** *absolutely true*"), FRE\_ES4 (*partially true\**, *false*").

- *control group* showed following characteristics in initial testing: DVS\_VS (*false*) SFS (*partially true*", *absolutely true\**), SFS\_SS3 (*absolutely true\**), whereas its characteristics in final testing were as follows: FRE\_ES5 (*false\**, *partially true*" ), FRE\_ES3 (*false*), FRE\_ES4 (*false\**)

Table 17 Homogeneity of groups regarding the space between experimental and control groups in initial and final testing

Groups	m/n	%
experimental group-initial	61/90	67.78
control group-initial	83/84	98.81
experimental group-final	87/90	96.67
control group-final	74/84	88.10

Therefore, it can be concluded that 61 of 90 examinees have characteristics of experimental group in initial testing. Group homogeneity is high, 67.8%, which means that 29 examinees have other characteristics, and not the characteristics of their group. 83 of 84 examinees have characteristics of control group in initial testing. Group homogeneity is high, 98.8%, since 1 examinee have other characteristics. 87 of 90 examinees have characteristics of experimental group in final testing. Group homogeneity is high, 96.7%, since 3 examinees have other characteristics. 74 of 84 examinees have characteristics of control group in final testing. Group homogeneity is high, 88.1%, since 10 examinees have other characteristics.

Table 18 Distance (Mahalanobis distance) between experimental and control groups in initial and final testing

GROUPS	I	II	III	IV
I	.00	1.41	3.01	3.40
II	1.41	.00	4.23	4.41
III	3.01	4.23	.00	1.21
IV	3.40	4.41	1.21	.00

Legend:

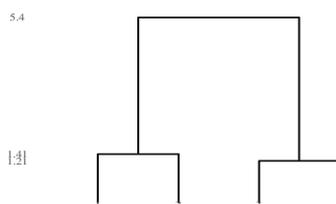
I - experimental group - initial testing

II - control group - initial testing

III - experimental group - final testing

IV - control group - final testing

By calculating Mahalanobis distance between the groups of examinees we obtain another indicator of similarity or difference. The results in Table 18 indicate that the minimum distance is between experimental and control groups in final testing (1.21), and maximum distance is between experimental group in final testing and control group in initial testing (4.41). The differences indicate that the pupils in experimental group made more progress in reducing internal behavioral problems compared to pupils in control group. We cannot say that control group did not make any progress, but it is not so significant. This means that the experimental group shows significant differences between initial and final testing.

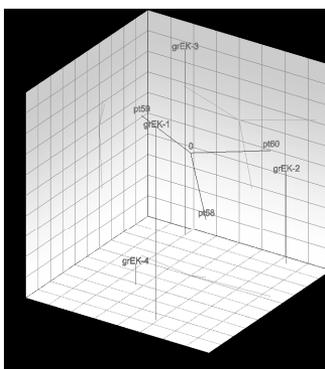


Graph 6 Grouping by proximity

Legend: (1) experimental and (2) control groups in initial testing; (3) experimental and (4) control group in final testing

The dendrogram shows that control group in final testing and experimental group in final testing are the closest, with the distance of 1.21, whereas the greatest difference is between initial and final testing of experimental group, with the distance of 5.40

Derived characteristics of groups in relation to observed characteristics of experimental and control groups at the initial and final testing can be graphically presented by star chart. Graph 7 shows that it is possible to observe the difference in most observed characteristics according to the subsample distance from the coordinate system centre. Experimental group shows significant deviation in final testing with the distance of 1.40 (higher), it is followed by control group with the distance of 1.26 in final testing (higher), control group with the distance of 1.23 (higher) and experimental group with the distance of .97. Significant deviation between the groups can be observed in following characteristics: Child has a lot of fears, it is easily frightened, with the distance of 1.70 which is higher, Child is nervous or feels insecure in new situations with the distance of 1.21 (high), Child often feels unhappy, depressed or tearful, with the distance of .83 (moderate).



Graph 7 Group characteristics in relation to observed characteristics in initial and final testing

Legend: (EK-1) experimental and (EK-2) control group in initial testing; (EK-3) experimental and (EK-4) control group in final. Child has a lot of fears, easily gets frightened (pt 58), Child is nervous or feels insecure in new situations (pt59), Child often feels unhappy, depressed or tearful (pt60).

### **Victim / bully / bystander and hyperactivity / impulsivity**

Hyperkinetic disorder in children is more and more present in everyday life. Basic features of hyperkinetic disorders are attention deficit, impulsivity, hyperactivity, difficulties in obeying by the rules and guidelines and excessive variability in their responses to the situation. All of these symptoms are related to a larger issue of poor regulation and behavior inhibition.

Children who have symptoms of hyperactivity willingly make contact with other children, but they often do not know how to recognize subtle social cues. They misinterpret the intentions of their peers and unintentionally make mistakes in interpersonal relationships. In hypothetical social situations they know how to recognize the appropriate social reaction, but they do not apply this knowledge in everyday situations. This inability to adjust to the group in combination with impulsiveness, which other children usually equal with aggression, results in the rejection of hyperactive children by their peers.

White et al. (2000, 693) show the results of extensive research. They found out that cognitive impulsivity based on the process of thinking (acting without thinking) is important predictor of violent behavior. Based on research results Dodge (1980, 165) indicated that the characteristics of the person who is the source of provocation will affect if a situation will be seen as provoking or not. If the intentions are perceived as aggressive, then they are more likely to cause aggressive behavior, than if the intentions of "provocateurs" are perceived as non-aggressive.

We have observed the significance of difference between initial (I) and final testing (F) of experimental and control group exploring if the symptoms of hyperactivity/impulsiveness were reduced considering the following characteristics: I immediately join the bullies, I am restless (I) I am restless, hyperactive, I do not stay long in one place (F); You lose other people's things – I cannot keep my attention (I) and I have problems with concentration, I cannot keep my attention (F), You threaten others without thinking about the consequences (I) and I can stop and think before I do something (F). Each assessment has three modes: *false*, *partially true* and *absolutely true*.

The tables show numerical (n) and percentage (%) representation of afore-mentioned characteristics, whereas the attention will be paid to significant differences, if there are any. Descriptive procedure will show only some characteristics of particular levels, whereas the significance of difference between the groups will be analyzed later.

Table 19 Characteristic frequencies in initial and final testing

CHARACTERISTICS	GROUPS	FALSE		PARTIALLY TRUE		ABSOLUTELY TRUE	
		n	%	n	%	n	%
RVS_RN5/ FRE_HI11	experimental initial	23.	25.6*	35.	38.9	32.	35.6
	control initial	3.	3.6	26.	31.0	55.	65.5*
	experimental final	70.	77.8*	20.	22.2	0.	.0
	control final	40.	47.6"	31.	36.9*	13.	15.5
OVS_ON17/ FRE_HI13	experimental initial	4.	4.4	16.	17.8	70.	77.8"
	control initial	0.	.0	0.	.0	84.	100.0*
	experimental final	64.	71.1*	19.	21.1"	7.	7.8
	control final	35.	41.7"	33.	39.3*	16.	19.0
OVS_ON14 /FRE_HI14	experimental initial	48.	53.3	33.	36.7*	9.	10.0*
	control initial	73.	86.9*	11.	13.1	0.	.0
	experimental final	11.	12.2	30.	33.3*	49.	54.4*
	control final	36.	42.9*	27.	32.1"	21.	25.0"

Legend:

FRE\_HI11 - I am restless, hyperactive, I do not stay long in one place / RVS\_RV5- I immediately join the bullies, I am restless

FRE\_HI13 - I have problems with concentration, I cannot keep my attention/ VFS\_VF17 – You lose or destroy someone else's things

FRE\_HI14 - I can stop and think before I do something/ VFS\_VF14 – You threaten others without thinking about the consequences

Table 19 shows the data about initial and final testings of experimental and control groups for three most discriminative characteristics. *Absolutely true* modality is most frequent in *initial testing of experimental group*, with 32 examinees (35.60%) of 90 examinees, in relation to characteristic RVS\_RV5 (*I immediately join the bullies*), which is significantly higher than the frequency of *partially true modality* (35 examinees 38.90%  $p=.011$ ) and *false modality* (23 examinees 25.60%  $p=.000$ ). The frequency of *absolutely true modality* (55 examinees 68.50%) in control group is significantly higher than the frequency of *partially true* (26 examinees 31.00%  $p=.00$ ) and *false modalities* (3 examinees 3.60%  $p=.000$ ). The frequency of *false modality* (70 examinees 77.8%) in *final testing of control group* in relation to characteristic FRE\_HI11 (*I am restless, hyperactive, I do not stay long in one place*) is significantly higher than the frequency of *partially true modality* (20 examinees 22.2%  $p=.000$ ) and *absolutely true modality* (0 examinee .0%  $p=.000$ ). The frequency of *false modality* (40 examinees 47.6%) in control group is higher than the frequency of *partially true modality* (13 examinees 15.5%  $p=.000$ ).

The difference between the groups is as follows: *false modality* has the highest frequency in *final testing of control group* (77.78%), which is significantly higher than its frequency in *final testing of experimental group* (47.62%  $p=.000$ ), and *initial testing of experimental* (14.44%  $p=.000$ ) and control groups ((.00%  $p=.000$ ). *Partially true modality* is most frequent in *final testing of experimental group* (36.90%), which is significantly higher than its frequency in *final testing of control group* (22.22%  $p=.035$ ). *Absolutely true modality* is most frequent in *initial testing of control group* (65.50%  $p=.000$ ), whereas its frequency in *final testing of both groups* were as follows: *experimental group* (15.48%  $p=.000$ ) and *control group* ((.00%  $p=.000$ ).

The characteristics of each group can be extracted according to the obtained results in relation to RVS\_RV5/FRE\_HI11 characteristics. Therefore, it can be said that *partially true\* and absolutely true"* answers is more frequent in *initial testing* of *experimental group*, whereas *absolutely true"* modality is more frequent in *initial testing* of *control group*. *False\** modality is more frequent in *final testing* of *control group*, whereas *partially true\* and false"* modalities are more frequent in *final testing* of *experimental group*. Since  $p = .000$   $\chi^2$  – test and  $\chi = .423$  represents moderate correlation, it can be said that there is a correlation between the groups in relation to observed characteristics.

*Absolutely true* modality, 70 examinees (77.8%) of 90, is more frequent in *initial testing* of *experimental group*, for the characteristic VFS\_VF17 (*You lose someone else's things – I cannot keep my attention*), which is significantly higher than the frequencies of *partially true* (16 examinees 17.8%  $p=.000$ ) and *false* modalities (4 examinees 4.4%  $p=.000$ ), which is also significantly higher than the frequency of *false* (0 examinees .0%  $p=.000$ ) and *partially true* (0 examinees .0%  $p=.000$ ) modalities in *control group* testing. *False* modality is more frequent in *final testing* of *control group* (64 examinees 71.1%) than the frequencies of *partially true*(19 examinees 21.1%  $p=.000$ ) and *absolutely true* modalities (7 examinees 7.8%  $p=.000$ ) for FRE\_HI11 characteristic (*I have problems with concentration, I cannot keep my attention*).The frequency of *false* modality (35 examinees 41.7%), in *final testing* of *experimental group* is significantly higher than the frequency of *absolutely true* modality (16 examinees 19.0%  $p=.002$ ).

The difference between the groups is as follows: *false* modality has the highest frequency in *final testing* of *control group* (71.11%), which is significantly higher than its frequency in *final testing* of *experimental group* (41.67%  $p=.000$ ), and *initial testing* of *experimental* (4.44%  $p=.000$ ) and *control groups* (.00%  $p=.000$ ), whereas *partially true* modality is most frequent in *final testing* of *experimental group* (39.29%), which is significantly higher than its frequency in *final testing* of *control group* (21.11  $p=.010$ ) and *initial testing* of *experimental* (14.44%  $p=.000$ ) and *control groups* (13.10%  $p=.000$ ). *Absolutely true* modality is most frequent in *initial testing* of *control group* (79.76%), which is significantly higher than its frequency in *initial testing* of *experimental group* (77.78%  $p=.000$ ) and *final testing* of *experimental* (19.05%  $p=.000$ ) and *control groups* (7.78%  $p=.000$ ).

The characteristics of each group can be extracted according to the obtained results in relation to RVS\_RV5/ FRE\_HI11 characteristic. Therefore, it can be said that *absolutely true"* answer is more frequent in *initial testing* of *experimental group*, whereas *absolutely true* modality is more frequent in *initial testing* of *control group*, *false\** and *partially true\** modalities are more frequent in *final testing* of *control group*, whereas *partially true\* and false"* modalities are more frequent in *final testing* of *experimental group*. Since  $p = .000$   $\chi^2$  – test and  $\chi = .636$  represents moderate correlation, it can be said that there is a correlation between the groups in relation to observed RVS\_RV5/ FRE\_HI11 characteristic.

*False* modality, 16 examinees 48 examinees (53.3%) of 90, is most frequent in *initial testing* of *experimental group*, for the characteristic VFS\_VF14 1 (*You threaten others without thinking about the consequences*), which is significantly higher than the frequencies of *partially true* modality (33 examinees 36.7%  $p=.026$ ) and *absolutely true* modality (9 examinees 10.0%  $p=.000$ ). *False* modality is more frequent in *final testing* of *control group* (73 examinees 86.9%) than the frequencies of *partially true* (11 examinees 13.1%  $p=.000$ )

and *absolutely true* modalities (0 examinees 0%  $p=.000$ ). *Absolutely true* modality for FRE\_ES5 characteristic (*I have a lot of fears, I am easily frightened*). The frequency of *partially true* modality (40 examinees 47.6%), in final testing of *experimental group* is significantly higher than the frequencies of *absolutely true* (20 examinees 23.8%  $p=.000$ ) and *false* modalities (17 examinees 20.2%  $p=.000$ ). The frequency of *absolutely true* modality (49 examinees 54.4%) is significantly higher than the frequencies of *partially true* (30 examinees 33.3%  $p=.005$ ) and *false* modalities (11 examinees 12.2%  $p=.000$ ) for the FRE\_H14 characteristic (*I can stop and think before I do something*). The frequency of *false* modality (36 examinees 42.9%), is significantly higher than the frequencies of *absolutely true* (21 examinees 25.0%  $p=.016$ ) and *partially true* (27 examinees 32.10%  $p=.000$ ) modalities in control group testing.

The difference between the groups is as follows: *false* modality has the highest frequency in *initial testing* of control group (86.89%), which is significantly higher than its frequency in *initial testing* of experimental group (53.27%  $p=.000$ ), and *final testing* of experimental (12.20%  $p=.000$ ) and control groups (42.90%  $p=.000$ ). *Partially true* modality is most frequent in *initial testing* of experimental group (36.70%), which is significantly higher than its frequency in *initial testing* of control group (13.10%  $p=.028$ ) and *final testing* of experimental (33.30%  $p=.000$ ) and control groups (32.10%). *Absolutely true* modality is most frequent in *final testing* of experimental group (54.40%), which is significantly higher than its frequency in *final testing* of experimental group (25.00%  $p=.000$ ) and *initial testing* of experimental (10.00%  $p=.000$ ) and control groups (.00%  $p=.000$ ).

The characteristics of each group can be extracted according to the obtained results in relation to VFS\_VF14 /FRE\_H14 characteristic. Therefore, it can be said that *false*" and *partially true*\* answers are more frequent in *initial testing* of experimental group, whereas *partially true*\* and *absolutely true* modalities are more frequent in *initial testing* of control group, *partially true*\* and *absolutely true* modalities are more frequent in *final testing* of control group, whereas *false*" and *partially true*\* and modalities are more frequent in *final testing* of experimental group. Since  $p = .000$   $\chi^2$  – test and  $\chi = .697$  represents moderate correlation, it can be said that there is a correlation between the groups in relation to observed VFS\_VF14 /FRE\_H14 characteristic.

Table 20 Significance of difference between the group characteristics in initial and final testing

ANALYSIS	N	F	P
MANOVA	3	94.860	.000
discriminant analysis	3	160.576	.000

MANOVA analysis with the conclusion reliability of  $p = .000$  indicates significant differences between the groups for some features of the observed field. According to the values of Fischer's distribution with high reliability of conclusion ( $p=.000$ ) for the observed characteristics of discriminant analysis we can state that there is clearly defined boundary between the groups in terms of emotional symptoms. Since  $p < 0,05$  we can confirm alternative  $H_{4,(a)}$  hypothesis: *Prevention program has an influence on distinctive characteristics of hyperactivity/impulsiveness, between experimental and control groups at the initial and final testing*. This means that after the implementation of violence prevention program in schools, the symptoms of hyperactivity/impulsiveness in

experimental group were reduced in comparison to control group. Therefore, there is greater possibility of adaptive responses to potentially conflicting social situations.

Table 21 Univariate significance of difference between the characteristics of groups in initial and final testing

CHARACTERISTIC	$\chi$	R	F	P	DISCRIMINATION COEFFICIENT
FRE_HI11/ RVS_RN5	.591	.716	119.540	.000	.066
FRE_HI13/ OVS_ON17	.636	.787	183.936	.000	.537
FRE_HI14/ OVS_ON14	.697	.882	398.886	.000	2.402

With high reliability ( $p < .1$ ) we can state that the following characteristics FRE\_HI14/ OVS\_ON14 (2.402), FRE\_HI13/ OVS\_ON17 (.537), FRE\_HI11/ RVS\_RN5 (.066): have the greatest contribution to discrimination between the groups. The fact that  $p = .000$ , of discriminant analysis proves that there is clearly defined boundary between the groups of examinees, i.e. it is possible to determine the characteristics of each group in relation to observed features.

According to the assessment of the examinees' answers in initial and final testing, it can be stated that *the symptoms of hyperactivity/impulsiveness in final testing of experimental group were significantly reduced in comparison to the initial testing.* Following information leads us to this conclusion:

- *experimental group showed following characteristics in initial testing: RVS\_RV5 (false"), VFS\_VF17 (absolutely true", partially true"), VFS\_VF14 (absolutely true")*, whereas its characteristics in final testing were as follows: FRE\_HI14 (*false\*, partially true", absolutely true"*), FRE\_HI13 (*partially true\*, false"*), FRE\_HI11 (*partially true\*, false"*).

- *control group showed following characteristics in initial testing: RVS\_RV5 (false\*), VFS\_VF17 (absolutely true\*), VFS\_VF14 (absolutely true\*)*, whereas its characteristics in final testing were as follows: FRE\_HI14 (*partially true\**), FRE\_HI13 (*absolutely true\**), FRE\_HI11 (*false\*, partially true"*).

Table 22 Homogeneity of groups regarding the space between experimental and control groups in initial and final testing

Groups	m/n	%
experimental group-initial	67/90	74.44
control group-initial	83/84	98.81
experimental group-final	89/90	98.89
control group-final	72/84	85.71

Therefore, it can be concluded that 67 of 90 examinees have characteristics of experimental group in initial testing. Group homogeneity is high, 74.4%, which means that 23 examinees have other characteristics, and not the characteristics of their group. 83 of 84 examinees have characteristics of control group in initial testing. Group homogeneity is high, 98.8%, since 1 examinee have other characteristics. 89 of 90 examinees have characteristics of experimental group in final testing. Group homogeneity is high, 98.9%, since 3 examinees have other characteristics. 72 of 84 examinees have characteristics of control group in final testing. Group homogeneity is high, 85.7%, since 12 examinees have other characteristics.

Table 23 Distance (Mahalanobis distance) between experimental and control groups in initial and final testing

GROUPS	I	II	III	IV
I	.00	1.26	3.54	3.21
II	1.26	.00	4.78	4.44
III	3.54	4.78	.00	.81
IV	3.21	4.44	.81	.00

Legend:

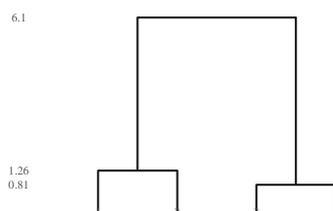
I - experimental group - initial testing

II - control group - initial testing

III - experimental group - final testing

IV - control group - final testing

By calculating Mahalanobis distance between the groups of examinees we obtain another indicator of similarity or difference. The results in Table 23 indicate that the minimum distance is between experimental and control groups in final testing (.81), and maximum distance is between experimental group in final testing and control group in initial testing (4.78). The differences indicate that the pupils in experimental group made more progress in reducing the symptoms of hyperactivity/impulsiveness compared to pupils in control group. This means that the experimental group shows significant differences between initial and final testing.



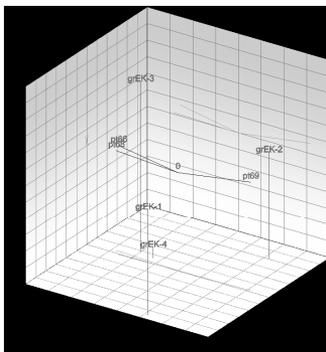
Graph 8 Grouping by proximity

Legend: (1) experimental and (2) control groups in initial testing; (3) experimental and (4) control group in final testing

The dendrogram shows that control group in final testing and experimental group in final testing are the closest, with the distance of .81, whereas the greatest difference is between initial and final testing of experimental group, with the distance of 6.10.

Derived characteristics of groups in relation to observed characteristics of experimental and control groups at the initial and final testing can be graphically presented by star chart. Graph 9 shows that it is possible to observe the difference in most observed characteristics according to the subsample distance from the coordinate system centre. Experimental group shows significant deviation in final testing with the distance of 1.49

(high), it is followed by control group with the distance of 1.48 in final testing (higher), control group with the distance of 1.11 (high) and experimental group with the distance of .58 (moderate). Significant deviation between the groups can be observed in following characteristics: Child thinks before it does something, with the distance of 1.58 (high); Child is distracted, easily loses concentration, with the distance of 1.40 (high); Child is restless, excessively active, with the distance of 1.28 (high).



Graph 9 Group characteristics in relation to observed characteristics in initial and final testing

Legend: (EK-1) experimental and (EK-2) control group in initial testing; (EK-3) experimental and (EK-4) control group in final. Child thinks before it does something (pt69), Child is easily distracted, loses concentration (pt68), Child is restless, excessively active (pt66).

### Victim/bully/bystander and pro-social behavior

Pro-social behavior is one of the important factors of a favorable climate for learning and advancement. For healthy social interaction of pupils and the development of prosocial behavior it is important that children and young people develop a sense of belonging to the school and the class, and thus aggressive behavior will be less present.

Emotional competence is the most important ability for successfully interaction with peers. Therefore, personal efficiency in social interactions which involves emotional exchange is very important for the outcome of prosocial behavior. Emotion recognition is very important for social interaction and successful social functioning, primarily because of the role of this information in the modification of social behavior. Children who respond to the needs of other children express more positive emotions and react mostly prosocial than antisocial (Denham, 1986., Philippot and Feldman, 1990., Hubbard and Coie, 1994., according: Vicari et al., 2000, 839). By helping each other, pupils have the opportunity to create a more positive and tolerant relationship with peers and greater social support, getting more opportunity to present their own experience.

Therefore, we can conclude that the cooperation, support and empathy, as components of social skills, should be encouraged and implemented in educational process in order to enable pupils to achieve the goals in collaboration with others in everyday life. Skills that are developed in relationships with peers enable peaceful conflict resolution, cooperation and other prosocial behaviors.

We have chosen specific emotional competencies that proved to be relevant in a number of studies (Denham, in 1998., Saarni, in 1999., according to: the same, 842): You hurt someone (I) I take care of other people's feelings (F); I do nothing and I am just a bystander, it's not my concern (I) and I help others when they are hurt, if they are worried or sick (F), I defend the victim (I) and I often volunteer to help others (F). It is important to emphasize that by specifying these emotional competencies we do not want to reduce the concept of social competence only to them. The importance of these individual attributes is considered in relation to their contribution to the establishment of appropriate social status among peers which represents the most important developmental task of an observed group.

The tables show numerical (n) and percentage (%) representation of afore-mentioned characteristics, whereas the attention will be paid to significant differences, if there are any. Descriptive procedure will show only some characteristics of particular levels, whereas the significance of difference between the groups will be analyzed later.

Table 24 Characteristic frequencies in initial and final testing

CHARACTERISTICS	GROUP	FALSE		PARTIALLY TRUE		ABSOLUTELY TRUE	
		n	%	n	%	n	%
OVS_ON19 /FRE_PS21	experimental initial	3.	3.3*	13.	14.4*	74.	82.2
	control initial	0.	.0	0.	.0	84.	100.0*
	experimental final	4.	4.4	21.	23.3	65.	72.2*
	control final	44.	52.4*	21.	25.0	19.	22.6
RVS_RN3/ FRE_PS23	experimental initial	60.	66.7*	29.	32.2"	1.	1.1
	control initial	40.	47.6"	23.	27.4	21.	25.0"
	experimental final	5.	5.6	14.	15.6	71.	78.9*
	control final	39.	46.4	33.	39.3*	12.	14.3
RVS_RN2/ FRE_PS25	experimental initial	55.	61.1	20.	22.2*	15.	16.7*
	control initial	74.	88.1*	10.	11.9	0.	.0
	experimental final	2.	2.2	31.	34.4	57.	63.3"
	control final	36.	42.9*	32.	38.1	16.	19.0

Legend:

FRE\_PS21 - I take care of other people's feelings / VFS\_VF19 – You hurt someone

FRE\_PS23 - I help others when they are hurt, if they are worried or sick and RVS\_RV3 - I do nothing and I am jFRE a bystander, it's not my concern

FRE\_PS25 - I often volunteer to help others / RVS\_RV2 - I defend the victim

Table 24 shows the data about initial and final testing of experimental and control groups for three most discriminant characteristics. *Absolutely true* modality is most frequent in *initial testing of experimental group*, with 74 examinees (82.2%) of 90 examinees, in relation to characteristic VFS\_VF19 (*You hurt someone*), which is significantly higher than the frequency of *partially true* modality (13 examinees 14.4%  $p=.000$ ) and *false* modality (3 examinees 3.3%  $p=.000$ ), which is significantly higher than the frequency of *false* (0 examinees .0%  $p=.000$ ) and *partially true* modalities (0 examinees .0%  $p=.000$ ) in *control group* testing. The frequency of *absolutely true* modality (19 examinees 22.6%) in *final testing of control group* is significantly higher than the frequency of *partially true* modality (21 examinees 25.0%  $p=.000$ ) and *false* modality (44 examinees 52.4%  $p=.000$ ) for FRE\_PS21

characteristic (I take care of other people's feelings). The frequency of *false* modality (65 examinees 72.2%) in *final testing* of *experimental group* is significantly higher than the frequency of *partially true* (21 examinees 23.3%  $p=.027$ ) and *absolutely true* modalities (4 examinees 4.4%  $p=.001$ ).

The difference between the groups is as follows: *false* modality has the highest frequency in *initial testing* of *experimental group* (82.20%), which is significantly higher than its frequency in *final testing* of *experimental* (72.2%  $p=.000$ ) and *control groups* (22.6%  $p=.000$ ), whereas *partially true* modality is most frequent in *final testing* of *experimental group* (14.4%), which is significantly lower than its frequency in *final testing* of *control group* (25.0%) and *initial testing* of *experimental* (23.3%) and *control groups* (.00%  $p=.000$ ). *Absolutely true* modality is most frequent in *initial testing* of *control group* (100.00%), which is significantly higher than its frequency in *initial testing* of *experimental group* (82.2%  $p=.000$ ) and *final testing* of *experimental* and (72.2%  $p=.000$ ) *control groups* (22.62%  $p=.000$ ).

The characteristics of each group can be extracted according to the obtained results in relation to VFS\_VF19/FRE\_PS21 characteristics. Therefore, it can be said that *absolutely true*, answer is more frequent in *initial testing* of *experimental group*, whereas *absolutely true* modality is more frequent in *initial testing* of *control group*. *False\** modality is more frequent in *final testing* of *control group*, whereas *absolutely true*" and *partially true\** modalities are more frequent in *final testing* of *experimental group*. Since  $p = .000$   $\chi^2$  - test and  $\chi = .566$  represents moderate correlation, it can be said that there is a correlation between the groups in relation to observed characteristics.

*False* modality, 60 examinees (66.7%) of 90, is more frequent in *initial testing* of *experimental group*, for the characteristic RVS\_RC3 (*I do nothing, I am jFRE a bystander, it is not my concern*), which is significantly higher than the frequencies of *partially true* (29 examinees 32.2%  $p=.001$ ) and *absolutely true* modalities (1 examinee 1.1%  $p=.000$ ). The frequency of *false* modality (40 examinees 47.6%) in *control group* testing is significantly higher than the frequencies of *partially true* (23 examinees 27.4%  $p=.007$ ) and *absolutely true* modalities (21 examinees 25.0%  $p=.003$ ). *Absolutely true* modality is more frequent in *final testing* of *control group* (71 examinees 78.9%) than the frequencies of *partially true* (14 examinees 15.6%  $p=.000$ ) and *false* modalities (5 examinees 5.6%  $p=.000$ ) for FRE\_ES4 characteristic (*I am nervous or reserved in new situations, I easily lose confidence*). The frequency of *false* modality (39 examinees 46.4%), in *final testing* of *experimental group* is significantly higher than the frequency of *absolutely true* modality (12 examinees 14.3%  $p=.000$ ).

The difference between the groups is as follows: *false* modality has the highest frequency in *experimental group* testing (66.67%), which is significantly higher than its frequency in *initial testing* of *control group* (47.62%  $p=.012$ ) and *final testing* of *experimental* (46.43%  $p=.008$ ) and *control groups* (5.56%  $p=.000$ ), whereas *partially true* modality is most frequent in *final testing* of *experimental group* (39.29%), which is significantly higher than its frequency in *final testing* of *control group* (15.56%  $p=.001$ ). *Absolutely true* modality is most frequent in *final testing* of *control group* (78.89%), which is significantly higher than its frequency in *initial testing* of *control group* (25.00%  $p=.000$ ) and *final* (14.29%  $p=.000$ ) and *initial testing* (1.11%  $p=.000$ ) of *experimental group*.

The characteristics of each group can be extracted according to the obtained results in relation to RVS\_RV19/FRE\_PS23 characteristics. Therefore, it can be said that *false\** and *partially true*" answers are more frequent in *initial testing of experimental group*, whereas *false\** and *absolutely true* modalities is more frequent in *initial testing of control group*. *Absolutely true \** modality is more frequent in *final testing of experimental group*, whereas *false\** and *partially true\** modalities are more frequent in *final testing of control group*. Since  $p = .000$   $\chi^2$  – test and  $\chi = .566$  represents moderate correlation, it can be said that there is a correlation between the groups in relation to observed characteristics.

*False* modality, 55 examinees (61.1%) of 90, is more frequent in *initial testing of experimental group*, for the characteristic RVS\_RC2 (*I defend the victim*), which is significantly higher than the frequencies of *partially true* modality. (15 examinees 16.7%  $p = .017$ ) The frequency of *false* modality (75 examinees 88.1%) in *control group* testing is significantly higher than the frequencies of *partially true* (10 examinees 11.9%  $p = .007$ ) and *absolutely true* modalities (0 examinee .0%  $p = .000$ ). *Absolutely true* modality is more frequent in *final testing of experimental group* (57 examinees 63.3%) than the frequencies of *partially true* (31 examinees 34.4%  $p = .000$ ) and *false* modalities (2 examinees 2.2%  $p = .000$ ) for FRE\_PS25 characteristic (*I often volunteer to help others*). The frequency of *false* modality (36 examinees 42.9%), in *final testing of control group* is significantly higher than the frequency of *absolutely true* modality (16 examinees 19.0%  $p = .001$ ).

The difference between the groups is as follows: *false* modality has the highest frequency in *final testing of control group* (42.86%), which is significantly higher than its frequency in *initial testing of control group* (88.10%  $p = .000$ ) and *final* (2.22%  $p = .000$ ) and *initial testing* (61.1%  $p = .000$ ) of *experimental group*, whereas *partially true* modality is most frequent in *final testing of control group* (38.10%), and *absolutely true* modality is most frequent in *final testing of experimental group* (63.3%), which is significantly higher than its frequency in *initial testing of experimental group* (16.7%  $p = .000$ ) and *final testing of control group* (19.05%  $p = .000$ ).

The characteristics of each group can be extracted according to the obtained results in relation to RVS\_RV2/ FRE\_PS25 characteristic. Therefore, it can be said that *false*" answer is more frequent in *initial testing of experimental group*, whereas *false* modality is more frequent in *initial testing of control group*, *absolutely true*", modality is more frequent in *final testing of experimental group*, whereas *false\** modality is more frequent in *final testing of experimental group*. Since  $p = .000$   $\chi^2$  – test and  $\chi = .446$  represents moderate correlation, it can be said that there is a correlation between the groups in relation to observed characteristic.

Table 25 Significance of difference between the group characteristics in initial and final testing

ANALYSIS	N	F	P
MANOVA	3	60,551	.000
discriminant analysis	3	63,387	.000

MANOVA analysis with the conclusion reliability of  $p = .000$  indicates significant differences between the groups for some features of the observed field. According to the values of Fischer's distribution with high reliability of conclusion ( $p = .000$ ) for the

observed characteristics of discriminant analysis we can state that there is clearly defined boundary between the groups in terms of emotional symptoms. Since  $p < 0,05$  we can confirm alternative.  $H_3 (a)$  hypothesis: *Prevention program has an influence on distinctive characteristics of pro-social behavior, between experimental and control groups at the initial and final testing.* This means that after the implementation of violence prevention program in schools caused prosocial behavior of examinees of experimental group.

Table 26 Univariate significance of difference between the characteristics of groups in initial and final testing

CHARACTERISTICS	$\chi$	R	F	P	DISCRIMINATION COEFFICIENT
VFS_VF19/FRE_PS21	.566	.668	92.501	.000	.649
RVS_RV3/ FRE_PS23	.556	.663	90.117	.000	.539
RVS_RV2/ FRE_PS25	.446	.497	37.775	.000	.142

With high reliability ( $p < .1$ ) we can state that the following characteristics: OVS\_ON19/FRE\_PS21 (.649), RVS\_RN3/ FRE\_PS23 (.539), RVS\_RN2/ FRE\_PS25 (.142). have the greatest contribution to discrimination between the groups. The fact that  $p = .000$ , of discriminant analysis proves that there is clearly defined boundary between the groups of examinees, i.e. it is possible to determine the characteristics of each group in relation to observed features

According to the assessment of the examinees' answers in initial and final testing, it can be stated that *prosocial behavior was more present in final testing of experimental group than in the initial testing.* Following information leads us to this conclusion:

- *experimental group showed following characteristics in initial testing: VFS\_VF19 (absolutely true"), RVS\_RV3 (false\*, partially true"), RVS\_RV2 (false"), whereas its characteristics in final testing were as follows: FRE\_PS21 (partially true", absolutely true"), FRE\_PS23 (absolutely true\*), FRE\_PS25 (absolutely true\*).*
- *control group showed following characteristics in initial testing: VFS\_VF19 (absolutely true\*), RVS\_RV3 (false"), RVS\_RV2 (false\*), whereas its characteristics in final testing were as follows: FRE\_PS21 (false\*, partially true\*), FRE\_PS23 (false\*, partially true), FRE\_PS25 (false").*

Table 27 Homogeneity of groups regarding the space between experimental and control groups in initial and final testing

Groups	m/n	%
experimental group-initial	77/90	85.56
control group-initial	62/84	73.81
experimental group-final	71/90	78.89
control group-final	65/84	77.38

Therefore, it can be concluded that 77 of 90 examinees have characteristics of experimental group in initial testing. Group homogeneity is high, 85.6%, which means that 13 examinees have other characteristics, and not the characteristics of their group. 62 of 84 examinees have characteristics of control group in initial testing. Group homogeneity is high, 73.8%, since 22 examinees have other characteristics. 71 of 90 examinees have characteristics of experimental group in final testing. Group homogeneity is high, 78.9%, since 19 examinees have other characteristics. 65 of 84 examinees have characteristics of

control group in final testing. Group homogeneity is high, 77.4 %, since 19 examinees have other characteristics.

Table 28 Distance (Mahalanobis distance) between experimental and control groups in initial and final testing

GRUPE	I	II	III	IV
I	.00	.94	2.38	2.11
II	.94	.00	1.85	2.50
III	2.38	1.85	.00	2.42
IV	2.11	2.50	2.42	.00

Legend:

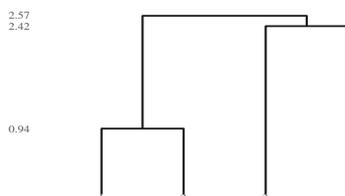
I-experimental group - initial testing

II-control group - initial testing

III-experimental group - final testing

IV-control group - final testing

By calculating Mahalanobis distance between the groups of examinees we obtain another indicator of similarity or difference. The results in Table 28 indicate that the minimum distance is between experimental and control groups in initial testing (.94), and maximum distance is between experimental group in final testing and control group in initial testing (2.50). The differences indicate that the pupils in experimental group made more progress in pro-social behavior compared to pupils in control group. We cannot say that control group did not make any progress, but it is not so significant. This means that the experimental group shows significant differences between initial and final testing.



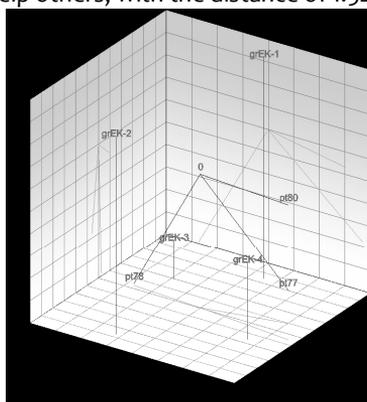
Graph 10 Grouping by proximity

Legend: (1) experimental and (2) control groups in initial testing; (3) experimental and (4) control group in final testing

The dendrogram shows that control group in final testing and experimental group in final testing are the closest, with the distance of 0.94, whereas the greatest difference is between initial and final testing of experimental group, with the distance of 2.57.

Derived characteristics of groups in relation to observed characteristics of experimental and control groups at the initial and final testing can be graphically presented by star chart. Graph 11 shows that it is possible to observe the difference in most observed characteristics according to the subsample distance from the coordinate system centre. Experimental group shows significant deviation in final testing with the distance of 1.44

(high), it is followed by control group with the distance of 1.42 in final testing (high), experimental group with the distance of 1.02 (high) and control group with the distance of .93 (moderate). Significant deviation between the groups can be observed in following characteristics: Child readily shares with other children, with the distance of 2.07 which is higher, Child is willing to help if someone is injured, with the distance of 2.00 (high), and Child often volunteers to help others, with the distance of 1.52 (high).



Graph 11 Group characteristics in initial and final testing

Legend: (EK-1) experimental and (EK-2) control group in initial testing; (EK-3) experimental and (EK-4) control group in final. Child readily shares with other children (pt76), Child is willing to help if someone is injured (pt78), and Child often volunteers to help others (pt80).

### Final conclusions and pedagogical implications

The study of violence is particularly challenging to theoretical and empirical researches conducted by scientists from various sciences and disciplines. However, review of the results of a number of previous research studies emphasizes the need to develop appropriate multidisciplinary and interdisciplinary approaches concerning the problem area: prevention of school violence. The study of violence among elementary school pupils with disabilities, as a very important social area, is caused by educator's significant role in it. The lack of similar studies, have led to a lack of scientific basis for deeper analysis and establishing of closer links between research factors, as well as the reliability of the conclusions.

In an effort to come up with an answer to the question whether *the prevention program has an influence on reducing school violence we have distinguished five different parts*: Behavioral problems, Hyperactivity/impulsivity, Problems with peers, Emotional symptoms, Prosocial behavior and we have come to the following conclusion: the alternative hypothesis that encompasses the entire investigated area (Ha) *Experimental program has an impact on the appearance of distinctive features between the experimental and control groups in terms of reducing school violence*, can be accepted. We may conclude that most of the observed features proved to be determinative, since they significantly differentiate the experimental and control groups in terms of reducing

internalized and externalized behavioral problems, and therefore there is a greater possibility of adaptive responses to potentially conflicting social situations.

Our results are consistent with the results of similar studies, it was found that most of hyperactive/impulsive children who behave aggressively have not developed social skills and try to be accepted by their peers in a socially unaccepted ways. Studies indicate that most students do not accept aggressive children, and they feel rejected and unaccepted in the group (according to: Vasta et al., 1998, 67).

Moffitt (1993, 732) has observed children with disabilities for decades, trying to link the impact of low intelligence with behavior problems and aggression. She found out that lower intelligence can lead to aggression and behavioral disorders due to poor development of self-control, inability to delay gratification, underdeveloped skills of conflict resolution and the inability to develop pro-social relationships. A review of previous research (Žužul, 1989., Moffitt, 1993., Bojanin, 1997., Rube and Reddy, 2005., according to: Mitrović et al., 2008, 40), showed that hyperactivity/impulsivity represents one of the characteristics of bullies, which is confirmed by this study, too. We conclude that children and young people with behavioral disorders such as hyperactive/impulsive behavior often have problems in interpersonal relationships of varying intensity.

Since the results of our study showed that educational workshops represent effective form of work for children with disabilities - every school should write a curriculum of educational workshop, explain its purpose, goals and tasks to be implemented, what children and young people in education can learn and what would be its benefits to them. It has been shown that besides pedagogical and sociological significance, play, which represents a major activity within the educational workshops, has a preventive and intervention role. Also, special classes of physical education, perceived as a structured physical activity in the re-education of psychomotor exercises, incorporated into the school curriculum, can be crucial in the influence of school on violence prevention.

Our study primarily provides a model of cooperation between educators and physical education teachers, consisting of two substantially different subprograms (educational workshops and complex of psychomotor exercises) directed towards a single goal – *school violence prevention*. Comprehensive preventive action is based on survey results from different scientific fields - the results of theoretical and empirical research on the importance of violence prevention programs in schools.

We believe that the results of this study can serve as a valid basis for setting new hypotheses that could, with greater precision, represent guidelines for further researches oriented towards the same goal. Our research has raised new research problems - one of the most important is the model of school violence prevention, based on the principles of inclusive education.

The school may intervene, by acting on a number of factors of violent behavior - on pupil, his family, peers, the media. The school is "the only agent of socialization by the wider community to approach a young person early enough to influence in an efficient way, massive enough to be really preventive, long enough to be effective and, most

importantly, mediated enough by the work of experts (teachers) to be subjected to intervention" (Hrnčić, 2001, 231).

In order to successfully prevent and reduce violence, schools should not only be a center of learning and knowledge, but also a center of cultural and sports activities – place of entertainment for children and young people. It is necessary to make a bridge between the school and the pupils' parents, to increase care for children and their education and learning. Therefore, it is necessary to connect the various individuals and groups within and outside the school in a so-called "educational network", where everyone is aware of their unique characteristics, and every person plans his activities in order to ensure conditions for better life and preventive action.

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### Biographical note

**Marta Dedaj** was born in 1973 in Novi Sad. She graduated from the Philosophical Faculty in Novi Sad in 1998 (Pedagogy Department). She has gained her professional experiences since 1998 working in the School for primary and secondary education “Bratstvo” in Becej as a professional associate – pedagogue. She has passed her licence exam and obtained the title *school pedagogue*. Apart from working as a school pedagogue, she also worked as a school principal assistant since the academic year of 2006/07. She enrolled master degree studies at the Philosophical Faculty in Novi Sad (general pedagogy) in academic 1999/2000 year. She obtained master degree in 01.02.2010. She worked as a school principal of the School for primary and secondary education “Bratstvo” in Becej in the period between 01.06.2011 and 08.07.2012. Since 09.07.2012 she has been a lecturer for the professional-scientific field Pedagogic group of subject at the Preschool Teacher Training College in Sremska Mitrovica. She teaches the following courses: family pedagogy, kindergarten curriculum development, inclusive education and family counselling. She is the member of the Committee for preschool teacher licences. In February 2013 she was certified as a Family therapist. She defended her doctoral thesis in 15.04.2013 at Philosophical Faculty in Novi Sad and gained the academic title of *Doctor of pedagogical sciences*. Dr Marta Dedaj is an author of a number of scientific texts. She presented her papers at conferences and participated in professional gatherings in Serbia and abroad.