International Journal of Social Sciences and Humanities
Available online at www.sciencescholar.us
Vol. 4 No. 2, August 2020, pages: 13-20
e-ISSN: 2550-7001, p-ISSN: 2550-701X
https://doi.org/10.29332/ijssh.v4n2.401

Educational Environment Influence on the Pre-School Children's Social Cognition Development

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Manuscript submitted: 09 Jan 2020, Manuscript revised: 27 Feb 2020, Accepted for publication: 12 March 2020

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Keywords

closed educational environment;
communicative environment;
educational environment;
open educational environment;
pre-school learners;

Abstract

The impact of the type of educational environment showed an influence on the social cognition of pre-school children. An essential characteristic of social maturity was meta-cognitive understanding, in which children were capable of social thinking and accepting the opinion and the position of others and demonstrating pro-social actions. The research examined three types of educational environments as *"open," "closed,"* and *"mixed."* Groups of children of different types of the educational environment were determined by the presence or absence of a significant criterion - a unique communicative space organized by the teacher - *open* or *closed*. It revealed the results of twenty-five children who studied in three types of educational environments using the three different techniques like "Pictures," "Incomplete stories," and "Clarity." It showed significant differences in the data on indicators of children's social cognition: semantic perception of a problem situation - perceptual aspect; proposed actions reflecting a strategy for resolving a problem situation - the behavioral aspect, and child's assessment of character behavior is an evaluation aspect. The research also displayed that the most effective type was an *"open educational environment"* for developing the social cognition of children.

Contents

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1 Introduction

The children's social cognition development focused on the way the realization of the multifaceted world of human relations. It manifested itself in children in thinking about the characteristics of other people and had the following trends, such as first; it developed from concrete to abstract; children learn to notice the appearance and behavior of people, including paying attention to these characteristics in themselves, then with the participation of adults, children learn to recognize internal processes: desires, interests, intentions, moods, and the like; second; children's social cognition developed from spontaneous to organized. The child's consciousness integrated social experience, the individual perception acted of behavior and the holistic view of people; third; children learn to explain behavior, from simple explanations to the consideration of various components of situations, people's behavior. A metacognitive understanding appeared, and children were capable of social thinking and accepting the position of "another." Berk (2006), Perspective-taking was the ability to put oneself in the place of another, to understand what other people think and feel. It was an essential socio-personal characteristic of the child and further determined mature social behavior and prosocial actions. The relevance of studying the conditions for social cognition development of pre-school children was due to the definite socialization possibility of the child and further development as a successful member of society Bass (2002); Golovanova (2004); Mayer *et al.* (2004); Ivanenko, (2007). The article considers the influence of different educational environment types on the formation of some individual pre-school children characteristics associated with social cognition. The conditions and opportunities of a child's development determine the type of educational environment in the social and spatial-objective world (Yasvin, 2001).

There are experimental conditions offered: a group of children of the same age and different one; the organization of the subject-spatial environment like stable or with regular changes to the interests and inclinations of children; the educational program implementation like typical or expanded following the interests and focus of children; the presence or absence of a unique communicative space organized by the teacher. The most significant factor was the absence or presence of specially organized communication, during which the teacher purposefully creates the conditions for discussing the observed situations or any pictures, which depict different social situations. In this way, the child has the opportunity to talk about what he/she sees, reasonably evaluates the behavior of another, and proposes a way of behavior for the further development of events. In a conversation, a teacher helps a child become aware of himself/herself in a given experience and correlate his/her proposals with cultural patterns, socially approved actions, and value bases. On the one hand, the presence of such interaction between an adult and a child reveals the communicative space openness and focuses on the social cognition of pre-school children's development. On the other hand, the absence of such interaction between a teacher and a child reveals some prohibitions, directives, or ignoring the detailed dialogue for a child to understand situations and behavior ways in determined the communicative space closedness and the lack of focus on the social cognition of pre-school children's development.

There are several educational environment types distinguished: the first type is a "*closed educational environment,"* where the child attends a coeval group in a typical state educational institution. The developmental environment complies with standard requirements like the availability of game aids, toys, household items, the necessary facilities for various kinds of activities, productive and gaming activities as well. A standard educational program is being implemented. There is no specially organized communication aimed at the social cognition of pre-school children's development. The second type is an "*open educational environment,"* where the child attends a diverse group of typically developing peers in the educational institution. The developmental environment meets the standard requirements, but it is variable and changeable following the interests and inclinations of children. Developmental courses supplement the educational program following the interests of children. There is an openness in the communicative space aimed at the social cognition of pre-school children's development. According to this characteristic, it is an "*open educational environment*."

2 Materials and Methods

There are three groups in this research: the first one is the *experimental group* (EG), where children attended one kindergarten group in which the "*open educational environment"* took place. From year to year, the group participants partially changed due to the graduation of some children who reached the age of seven. The teachers' staff was stable. Every year, partial changes were allowed in educational programs based on the interests of children and inclinations. In this regard, new educational events welcome adults like parents, teachers, and specialists to contribute; the second one is the *control group* – 1 (CG-1.), where children attended a kindergarten group in which the *"closed educational environment*" took place. The group participants and teachers' staff were not changed. Educational activities were traditional, of the same type; there were some complications in connection with the age-related capabilities of children, and the third one is the *control group* – 2 (CG-2.) randomly formed from children of the age from six to seven attending kindergarten ("mixed group"). From five to seven years old, these children attended different children's groups with no permanent teachers over two years. It means that this group had an unstable educational environment. That is why the second control group is the "*mixed educational environment*." The educational activities were the same as in group CG-1.

Twenty-five children took part in this research; ten children from the *open* the *close educational environments* and five children from the *mixed educational environment*. The controlled variables were children at ages from six to seven and entered the pre-school group. The level of mental development of children corresponds to the age norm. Children attend kindergarten regularly from the age of 3. The family's social status had an average level of total income. The study was conducted based on the combined type of Public Kindergarten No. 24 of Tomsk, Russia, from 2017 to 2019.

We have identified the following indicators of children's social cognition: a) perceptual: semantic perception of a problem situation; b) behavioral: proposed actions that reflect the strategy for solving a problem situation; c) evaluative: the child's assessment of the behavior of the characters. We used the projective diagnostic techniques "Pictures," "Unfinished stories," "Comprehension" (Smirnova & Xolmogorova, 2003). D. Wexler introduced the technique of "Comprehension" (Filimonenko & Timofeev, 1993). Using the technique of "Comprehension" and "Pictures" allow to identify the presence of a child's desire to independently solve problem situations, the ability to find socially appropriate ways of behavior. The "Pictures" technique made it possible to find out the child's way of understanding the situation, what the child saw in the first place, and what meaning put into the material discussed. According to this technique, we identified the ways of solving the problem, the ability to assess the behavior of the characters, the type of assessment. The "Pictures" technique and the "Unfinished stories" technique measure a child's "social intelligence" and its orientation in social reality. The "Unfinished Stories" technique grants to identify a child's attitude to others like attitude to peers, help others, show a sense of duty towards peers, or younger children, or animals, or adults, show emotional state; react to the success and failures. According to this technique, the dominance of an object, subject, or personality in a child is also determined. The first indicates the predominance of dominant egocentrism. The second focuses on the tendency toward decentration in relationships with others.

Conducting an individual conversation, we gave the child the stimulus material like pictures depicting a problem situation, unfinished sentences describing problem situations, questions on understanding social situations. At the same time, the child considered the problem situation presented in a projective form, for example, looking at the picture, or finishing unfinished stories. The child put himself/herself in the place of characters in the situation and designed the behavior in the proposed circumstances. We studied the child's ability to explain situations, assess the character's behavior, and explain the judgment.

3 Results and Discussions

In a comparative analysis of these groups, which differ in two types the "*open educational environment"* and the "*closed educational environment*," the "*open educational environment"* and the "*mixed educational*

environment," the application of the Mann-Whitney criterion made it possible to detect a significant number of differences in several indicators. The formula for calculating the Mann-Whitney U-test:

$$U = n_1 \cdot n_2 + \frac{n_x \cdot (n_x + 1)}{2} - T_x$$

n_1 is the number of elements in the first sample, and n_2 is the number of elements in the second sample. T_x is the larger of the two rank sums corresponding to the sample with n_x elements; p - the level of statistical significance. When studying the average values of the studied characteristics in the groups, some significant differences were revealed. The results of applying the Mann-Whitney criterion are shown in tables 1, 2, 3.

Table 1
Significance assessment of differences in the severity of the researched characteristics in groups of children of CG - 1 and EG, brought up in different educational environments

Feature	Educational Environment	№	Middle rank	U criteria	p
Picture Perception	close	10	7,65	21,5	0,0216
	open		13,35		
Picture Solution	close	10	7,5	20	0,0148
	open		13.5		
Picture Completeness - Fragmentation of Perception	close	10	7,9	24	0,0322
	open		13,1		
Picture Interaction - Non-Interaction	close	10	6,8	13	0,0019
	open		14,2		
Picture Closure - Openness in Perception	close	10	7,4	19	0,0115
	open		13,6		
Picture Sensitivity - Insensitivity in Perception	close	10	7,25	17,5	0,0084
	open		13,75		
Pictures Assessment Reasoning - Assessment Pattern	close	10	6,6	11	0,0015
	open		14,4		
Picture Evaluation of One or All Characters	close	10	8	11	0,0399
	open		13		
Independence - non-independence (intelligibility)	close	10	7,75	24,5	0,0384
	open		13,05		
Understanding - misunderstanding of the highest values	close	10	7,85	23,5	0,0238
	open		13,15		
Self-orientation - orientation to another (intelligibility)	close	10	6,85	13,5	0,0021
	open		14,15		
Closure - openness in explanation (unfinished stories)	close	10	7,8	23	0,0235
	open		13,2		

A comparative analysis of the severity of the studied characteristics in the CG-1 and EG groups showed the following: children from the EG group fully described the plot of the pictures. Significant differences also appeared in the proposed solutions to situations by children of the compared groups. Children from the EG are much more likely than peers from CG-1 to offer effective options aimed at interaction. The examples of children's responses are the following: "*… I will bring my ball and invite everyone to play.*" "*I recommend building a new house.*" It noticed that the verbal decision aimed at interaction containing a request, clarification, discussion, for example, "*... I will ask the boy to give…*" "*I will explain that it is so bad.*" "*I will say that you cannot do this, I will ask him to apologize*," or a productive solution: "... I will fix the doll myself," and the like. Examples of children's responses from CG-1 and CG-2: *"... I will run away." "Cry." "Offended." "I will complain to the teacher." "I will call my mother." "I will not play with him again."* and the like; some of the children expressed the tendency to violence: *"... I will beat." "I will hit with a stick on the head." "I will snatch*

from." "I will also break something." and the like. Some children expressed the appeal to an adult or another child to punish another child, for example, *"... I will call my mother, and she will punish the girl." "I will tell everything to the teacher and scolded him." "I will call my girlfriends and collect them from him together."* and the like. Alternatively, appeal to an adult with a view to a productive solution as the appeal for help, for example, *"... I will tell his mother, and mother will tell him, "Build, son, yourself." "I would ask my mom to buy me a new one." "I will ask dad to do it for me."* and the like. A verbal decision, not aimed at interaction, often contains a threat, or an indication, for example, *"... I will say that if you do this, then no one will be friends with you." "I will say, "Give it back, I will also break your doll."* and the like.

This fact is due precisely to the features of communication between adults and children. In the process of discussing social behavior with adults, children discover effective decisions aimed at interaction and the inefficiency of other behavior ways. The teacher specially recorded the consequences of such decisions in the way of the children's experience, thereby leading the children to the meaningful use of the prosocial actions. The teacher pointed to the achievement of the benefits that grant all participants in situations resulting from the application of such actions, and the teacher paid attention to children's feelings, emotional state, well-being, and feelings of other children as well.

According to the *"Comprehension"* methodology, children from the EG showed a greater tendency to independence in solving the proposed situations than children from the CG-1. This fact indicates that adults who show an open type of interaction with children always expected their independence in the processes of interaction with others by the world, they did not give ready-made solutions, but encouraged them to find them through collaborative discussion. The technique results showed that children from the EG showed a greater understanding of human values, children showed more orientation towards another, and in the children's responses from CG-1 showed more orientated instead. These facts indicate a greater severity in children from the EG of the ability to understand the interests and desires of another child, higher severity of subjective attitude to another, which indicates the manifestation of the phenomenon of decentration.

Table 2
Significance assessment of differences in the severity of the researched characteristics in groups of children of CG - 1 and CG - 2, brought up in different educational environments.

Feature	Educational Environment	№	Middle rank	U criteria	p
Picture Perception	close	10	9,45	10,5	0,0425
	mixed	5	5,1		
Picture Interaction - Non-Interaction	close	10	6,7	12	0,0398
	mixed	5	10,6		
Independence - non-independence (intelligibility)	close	10	6,35	8,5	0,0297
	mixed	5	11,3		

Comparing the severity of the researched characteristics in the children's groups from the CG-2 and the EG, I note that children from the EG more fully perceive the situation, describing it in detail. Children from the CG-2 group more often gave a fragmentary description of the subjects proposed for discussion. In assessing the behavior of the characters in the situations, more detailed answers were given by children from the EG group. In their responses, they more often discussed the behavior of all participants in the situation. While the children from CG 2 group evaluated the behavior of one character, these data indicate that children from an *"open environment"* are more sensitive to other people, they see details of situations and show decentration.

Table 3
Significance assessment of differences in the severity of the researched characteristics in groups of children of CG - 2 and EG, brought up in different educational environments.

Feature	Educational Environment	№	Middle rank	U criteria	p
Picture Perception	mixed	5	7,65	2,5	0,0034
	open	10	13,35		
Picture Solution	mixed	5	7,5	5	0,0082
	open	10	13.5		
Picture Completeness - Fragmentation of Perception	mixed	5	7,9	3	0,0036
	open	10	13,1		
Picture Closure - Openness in Perception	mixed	5	6,8	8	0,0268
	open	10	14,2		
Picture Sensitivity - Insensitivity in Perception	mixed	5	7,4	7,5	0,0226
	open	10	13,6		
Pictures Assessment Reasoning - Assessment Pattern	mixed	5	7,25	3	0,0028
	open	10	13,75		
Picture Evaluation of One or All Characters	mixed	5	6,6	5	0,0082
	open	10	14,4		
Self-orientation - orientation to another (intelligibility)	mixed	5	8	12,5	0,0461
	open	10	13		

"Pictures" technique revealed significant differences in indicators related to children's ability to propose solutions aimed at interaction. Children from the CG-2 group showed more frequent responses that involve interaction from the CG-1 group; children showed a greater tendency to independence than children from the CG 1 group. These facts can be explained by the fact that children from the *"mixed education environment"* type were more likely to find themselves in various situations of interaction, have more experience communicating with diverse adults and children.

So, according to the "Pictures" technique, children from the EG group, entering the *"open educational environment"* type, had complete and adequate situations perception more often described situations in the form of plots, taking into as many situation elements as the connection required, rather than children from "closed educational environment." Children from these types of educational environments were often limited to listing the elements or actions of the characters. Examples of children's responses from the EG group where a child can describe not only the plot but also to talk about the relationship between the characters, bribing the personal experiences, *"... A girl and a boy built a tower, and another boy broke it, and everyone was upset." "A girl and a boy built a castle, another boy next to them sat and looked, then he broke their fortress, and the boy and girl were offended."* and the like.

Children's responses from the CG-1 group, *"... the doll is broken, two boys, two girls." "Here, the doll and the girl are sad." "the girl brought the clown." "The boy scatters cubes," "the girl is sad, the other girl is cheerful, and they broke the doll."* Children from the EG group were more likely to substantively evaluate the behavior of the characters than children from other educational environments. They also showed higher sensitivity to the state of another when assessing - they often took into account the possible experiences of participants in the situation than children from other educational environments. These children more often gave detailed answers having various grounds like moral standards, possible consequences, value orientations; that is, the children gave an assessment-reasoning. The children from CG-1 and CG-2, the prevailing-assessment was a template; the child repeated the description of the situation or referred to the norms of a specific characterization of the character.

Children's responses from the EG group focused on reasonable the assessment, considering future consequences, for example, *"... He did poorly because he would have to buy new things." "Because the owner of the toy may be offended and not play with you."* and the like. There is an indication of a particular experience, a condition in the assessment, and it can be impersonal or refer to the child himself, for example,*"... The boy did a bad thing because he took a share from a girl; this is unpleasant." "This is wrong because it is insulting." "It is*

bad because they do not let the boy go because if you do not let it go, you are sad to play alone." and the like. The assessment is given with an explanation; there is an indication of the condition of another, usually injured child, for example, *"... The boy acted up because toys cannot be taken from children, because the girl is sad when the toys are taken from her"*, and the like. The assessment-reasoning, in which there is an assumption of the intentions of the characters, for example, *"... The boy did wrong because he destroyed the turret; maybe they wanted to show it to another person like mom, dad."* and the like. The assessment-reasoning, taking into account the positions of all children, for example, *"... He does bad things to another child, he does well for himself, but it is necessary that not only you feel good, but also somebody else."* and the like. The assessment-reasoning, taking into account the positions of all children and indicating the emotional state, for example, *"... He did poorly because he did not take care of them, did well for himself, but they were upset."* and the like. The assessment is given from value orientations, for example, *"... We must agree because the world will not work out that way." "You can just admire, not break." "This is a manifestation of disrespect for another person."* and the like. Children's responses from the CG-1 group usually no answer. Children kept silent or refused to answer, or the answer was, *"I do not know."* Children repeated the description of the plot without rating or description, for example, *"…The girl played, and the boy came up and took it away."* The assessment of behavior is curtailed, a statement of fact, for example, *"acted well." "acted up." "acted right." "acted wrong."* and the like. The assessment of behavior about the norm, for example, *"... The boy acted up because one cannot take other people's toys." "The girl acted up because it is impossible to break toys,"* or the opinion of an adult, for example, *"A bad deed, this is Miss. Nadezhda Iva'novna told us." "My mother taught me that."* and the like. There is an indication of a characteristic of a child who is doing wrong in the assessment, for example, *"... This boy did wrong because he liked to break houses." "Because he is bad."* and the like. According to the "Incomplete Stories" technique, significant differences were revealed in the ability of children to give explanations. Children from the EG group could more fully explain their opinion based on an understanding of the situation under discussion than children from CG-1 and CG-2 groups.

4 Conclusion

The research shows that in the open educational environment, children show a more complete and adequate perception of behavioral situations, more pronounced focus on constructive interaction of participants in situations, the ability to give a meaningful assessment of the behavior of the characters, while taking into account all participants in the events and be sensitive to the condition, and experiences. In the closed educational environment, children show fragmentation in the perception of the situation, unexpressed tendency to constructive interaction in solving difficult situations, difficulties in the assessment process, the transformation of the assessment to the statement of facts, paying attention to a single character means with whom the child associated himself. Thus, the most effective for the development of social cognition is the "open educational environment." Discovered differences in the diagnostic indicators of children brought up in different types of educational environments show that the type of educational environment influences on the child's social and personal development, and "openness" is a significant characteristic of the environment.

Acknowledgments
The author expresses our gratitude to the head of the Autonomous municipal preschool educational institution No. 24 in Tomsk, Larisa Koryakina, and the kindergarten teachers for the opportunity to carry out this study and to the International Journal of Social Sciences and Humanities for the opportunity to publish this article.

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