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EMOTIONS' INFLUENCE ON LEARNING PERFORMANCE AMONG ELEMENTARY SCHOOLCHILDREN

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Abstract

Psychology development has led to material understanding of some mental phenomenon that is based on revealing cause-effect links with the help of scientific methods. However, there shows up a great number of publications where interpersonal relations are described as some ideal forces, which are beyond the research base. The aim of our study: to identify how emotions influence learning performance of elementary school children. The methods are theoretical – literature review over the issue stated; empirical – testing, summative experiment, math-statistical processing of the experiment data via Spearman criterion. The average age of children is 8-9 years old. The study results have revealed disadvantaged emotional attitude to school among 13.32% of the respondents, who might need psychological support. In the available range of published sources we could not find any evidence about using the same methodology among second-grade children, the results were very positive. It can be explained with the individual peculiarities of the sampling, including: relations with the teachers and classmates, success in learning and the ability to overcome difficulties, understanding how they can improve the ways to their learning. The correlation analysis on interconnection between the indicators allowed to shape correlation pleiade indicating about reliable connection that exists between emotional attitude and efficacy in learning among second-grade children. The obtained statistical, reliable and correlation connections between the parameters under investigation have the positive modality and are referred to significant and sustainable patterns ($p \leq 0.01$), the fact assures the importance and need to create emotionally comfortable atmosphere in learning processes.

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Keywords: Emotional attitude, learning activity, elementary schoolchildren, correlation analysis.



1. Introduction

Psychology development inter alia Social Psychology, has led to material understanding of some mental phenomenon that is based on revealing cause-effect links with the help of scientific methods. To 'recent achievements' towards this issue we can refer the works studying emotional sphere – emotions' influence on personality development (Leontyev, Lebedeva, & Kostenko, 2017). Among the research including the data on emotional relations a special place should be given to works addressing the influence of emotional relations on a child's learning performance (Bicharova, Lebedeva, & Topchiev, 2017; Kondrashova, Rashchikulina, Isaeva, Plugina, & Suprun, 2017; Mainhard, Oudman, Hornstra, Bosker, & Goetz, 2018). In-depth understanding on how the emotional relations and their models influence learning activity is becoming one of the conditions needed for full and successful personality development. Recognition of all relevance and value of this research will entail the necessity to develop methodological tools that will be applied in organizing special and appropriate conditions. The aim of our study is to identify to what extent emotional relations influence learning performance of elementary school children.

2. Problem Statement

Historically, in pedagogical science, the most well-developed were the research addressing the topic how the system of formal relationships in a team influence personality and its development. Informal relations have attracted the attention of researchers more recently (Shagaeva, 2015; Wong, Strom, Guerrero, Chung, & Dudovitz, 2017; Rytivaara & Frelin, 2017). Modern scholars are exploring various aspects of human emotional relationships. Some researchers analyze the psychological and pedagogical nature of this phenomenon, their functions and role in human activity (Abe, 2011; Batenova, Dolgova, Emelyanova, & Emelyanova, 2018; Dolgova, Emelyanova, Bogachev, & Batenova, 2018); others study the experiential models (McGrath & Bergen, 2015; Bentley, Millman, Thompson, Demro, & Schiffman, 2016; Shapero, Farabaugh, Terechina, DeCross, & Holt, 2019), their psycho-physiological bases (Bakhchina, Polevaya, & Parin, 2013; Faye & Hooper, 2018; Holdaway & Becker, 2018); the cumulative impact of teacher-child and peer-to-peer relations on children socio-emotional adaptation (Thijs & Fleischmann, 2015; Volkova & Besschetnova, 2015; Wang, Hatzigianni, Shahaian, Murray, & Harrison, 2016;); emotional relationships development in educating and upbringing an individual (Corcoran & Tormey, 2013; Catalano & Catalano, 2014; Choi, Lim, Catapano, & Choi, 2018). All researchers are unanimous in their concerns about the main problem: when studying emotional relationships, it is necessary to have a firm focus on their content, composition - this is both an objective process of interaction/information exchange between people and their evaluation of each other. Researchers emphasize those properties that distinguish emotional relationships from other phenomena, for example, spontaneity of emotional relationships, which is considered not as a natural expression of personal characteristics that a person uses in communication, but as antithesis to causality (Salimynezhad, Poor, & Valizade, 2015; Zee & Koomen, 2017; Gasser, Grütter, Buholzer, & Wettstein, 2018).

3. Research Questions

Research issues are linked with reliable data indicating emotional attitude of elementary schoolchildren to a school and to successful learning. The sampling was done as second-grade schoolchildren not occasionally, this period is characterized with finished adaptation to systematic learning, to new duties and new relation models with peers and adults; a child at this age is ready to school, with a set of own expectation and insights.

4. Purpose of the Study

To identify the interconnection of two notions – emotional attitude to school and high learning performance; the target group is second-grade schoolchildren.

5. Research Methods

The research methods: theoretical – literature review over the issue stated; empirical – testing, summative experiment, math-statistical processing of the experiment data via Spearman criterion. The methodology: express-diagnostic “Faces” authors – Lukiyanchenko and Yadryshnikova (2006); expert assessment of a teacher about successful learning. The average age of children is 8-9 years old.

6. Findings

The second-grade age, when learning is very active, is characterized with significant changes going in children’s psycho-physiological development that entails a wide dispersion range in psychological and physiological indicators. This age period lasts on average for a year and a half and can be featured with high individual indicators relating to variability in the maturation rate. The vigorous development of body and muscles is going on, their volume and power capacity increase; lung capacity is either increased. The muscle fibers of the heart, despite they are still relatively poorly developed, are well supplied with blood and grow rapidly. The heart activity of a younger schoolchild is generally characterized by right-functioning and rhythm. The feature of this age is incoherence in a rate at which bones and muscle tissue are growing. The bones are rapidly increasing in size and mass, outgoing the development of muscle tissue. These features in the musculoskeletal system lead to the peculiarities in the motor activity of younger schoolchildren such as: poor coordination when moving, rapid fatigue and posture breach. All basic mental processes are developing well. The dominance of involuntary-nature psychological processes, however, requires the development as well as arbitrary, controlled forms of perception, memory and attention. Teamwork in classroom, doing the same tasks, unwittingly, unite children and contribute to collectivist character traits development. Since the second-grade age they begin to consider themselves and their behavior not only from the point of personal success, but also as members of a team. They try in practice the first forms of team helping, learn to respect opinions of others. In no other school age children’s successes in learning are so closely related to health and physical development as at the age under consideration.

We were studying the emotional sphere peculiarities of the age with the express-method “Faces” designed by Lukiyanchenko and Yadryshnikova (2006) (Fig. 1).

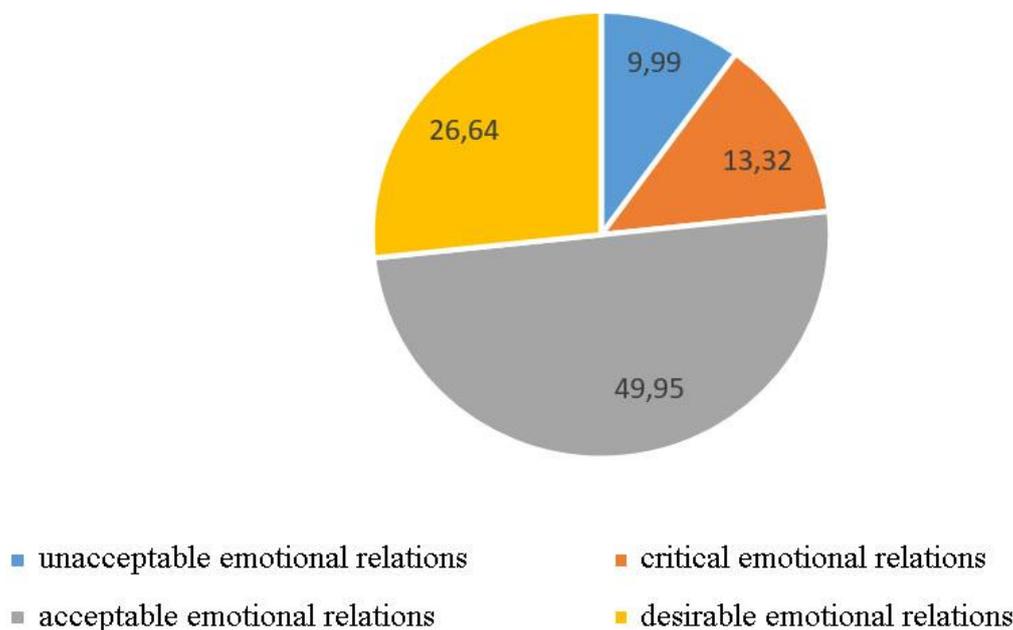


Figure 01. Express-method “Faces” results (in %)

As seen in fig 1, the majority of the respondents have coefficients below 1, and the minority of them have coefficients with the sign ‘minus’ or negative meaning.

26.64% of the respondents have high coefficients describing emotional attitude that testifies about desirable, advantaged attitude to school; the medium value – 49.95% - says about acceptable emotional attitude to school; low coefficients (13.32%) confirm critical emotional attitude among the respondents that points to the need of psychological support; and negative (unacceptable) values (9.90%) speak about that children are in the risk-zone and need the sustainable psychological help.

In the sources available to us, we did not find any descriptions about the use of the same method relating to second-graders. But with first-graders this method was carried out (Kazakova & Sokolova, 2018), and it turned out that almost all children are friendly, open and have a positive attitude towards school (91%).

The results of a teacher’s expert assessment about how children are successful in learning activities show that the greatest number of them has the average values. 28% of the respondents have high values – excellent/high marks in learning; 48% of schoolchildren have the average values and this means that the children study without satisfactory marks; 24% of the schoolchildren have low values – children who have poor marks in learning.

The results that we obtained within the experiment were subjected to mathematical analysis, using the Spearman criterion. It allows to determine the closeness and direction of the correlation relationship between the two characteristics, which is necessary to confirm the hypothesis.

But: the correlation between the indicators denoting the emotional attitude to school and the success in doing the learning activities does not differ from 0.

Hypothesis 1 (H1): the correlation between the indicators denoting the emotional attitude to school and the success in doing the learning activities differs from 0.

The calculation of the Spearman criterion is presented in table 1.

Table 01. Spearman criterion

Code	A		B		d	d ²
	Value	Rank	Value	Rank		
1	-0,83	1,5	3	1,5	0	0
3	0,75	10	3,8	5	5	25
4	1,5	25	5	22	3	9
5	0,67	9	4,2	12,5	-3,5	12,25
7	0,42	6	3,9	6	0	0
8	0,92	14	4	9	5	25
9	0,92	14	4	9	5	25
11	1	17	4	9	8	64
12	0,33	4	3,6	4	0	0
13	1	17	4	9	8	64
14	1,17	22	5	22	0	0
15	1,08	20	5	22	-2	4
16	1	17	4	9	8	64
17	0,83	11,5	4,4	15	-3,5	12,25
18	-0,83	1,5	3	1,5	0	0
19	1,33	23	5	22	1	1
20	1,08	20	5	22	-2	4
22	0,58	7,5	4,3	14	-6,5	42,25
23	0,92	14	4,7	17,5	-3,5	12,25
24	0,33	4	3,5	3	1	1
25	1,83	24	5	22	2	4
26	0,58	7,5	4,2	12,5	-5	25
27	1,08	20	5	22	-2	4
29	0,83	11,5	4,5	16	-4,5	20,25
30	0,33	4	4,7	17,5	-13,5	182,25
Total (Σ)		325		325		600,5

$$\Sigma R = \frac{N(N+1)}{2} = \frac{25(25+1)}{2} = \frac{25 \times 26}{2} = \frac{650}{2} = 325$$

where N – total number of respondents.

The sums of the calculated ranks' values and empirical ones coincide.

We have the equal ranks and some adjustments are need:

$$T_a = \frac{\Sigma(a^3 - a)}{12}; T_b = \frac{\Sigma(b^3 - b)}{12}$$

where a=A, b=B

$$T_a = \frac{(2^3 - 2) + (3^3 - 3) + (3^3 - 3) + (3^3 - 3) + (3^3 - 3) + (2^3 - 2) + (2^3 - 2)}{12}$$

$$= \frac{6 + 24 + 24 + 24 + 24 + 6 + 6}{12} = \frac{114}{12} = 9.5$$

$$T_b = \frac{(2^3 - 2) + (7^3 - 7) + (2^3 - 2) + (5^3 - 5) + (2^3 - 2)}{12} = \frac{6 + 336 + 6 + 120 + 6}{12} = \frac{474}{12}$$

$$= 39.5$$

The ranks' correlation coefficients are determined with the formula:

$$r_s = 1 - \frac{6 \times \sum d^2 + T_a + T_b}{N(N^2 - 1)}$$

where $\sum d^2$ - sum of squared difference between ranks;

Ta and Tb – adjustments;

N – number of respondents.

$$r_s = 1 - \frac{6 \times 600,5 + 9.5 + 39.5}{25(25^2 - 1)} = 1 - \frac{3603 + 49}{25 \times 624} = 1 - \frac{3652}{15600} = 1 - 0.23 = 0.77$$

With the table containing the critical values of the Spearman ranks' correlation coefficient we define r_{cr} for N=25 (table 2).

Table 02. Critical values of Spearman ranks' correlation coefficient

Critical value (r_{cr})	
$p \leq 0.05$	$p \leq 0.01$
0.49	0.51

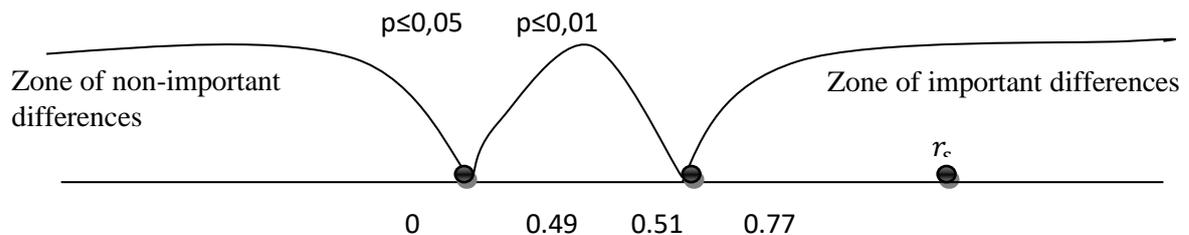


Figure 02. Axe of importance

$r_s = 0.77 > r_{cr} = 0.51$ ($p \leq 0.01$), consequently, the alternative hypothesis is taken (H1): correlation between the indicators relating to emotional attitude to school and to successful learning activity differ from 0.

Answer: H1 is accepted, since $r_{emp} = 0.77 > [r]_{cr} = 0.51$ ($p \leq 0.01$), is in the zone of important differences, therefore the correlation between the indicators of the emotional attitude to school and successful learning activities of second-grade children is different from 0 (Figure 02). This means that they have the connection between each other and the emotional attitude influences success in learning performance.

This indicates that emotions have not only independent motivational value in learning processes, but they depend on what sort of this learning activity is and how it is organized. In learning, the positive emotions can be associated with a school as a whole and with the time a child spends there; with relationships with a teacher and classmates (no conflict with them); with active participation in a school's life; with the awareness of their potential to achieve success in learning and to overcome difficulties. This may also include the emotions taken from positive outcomes/results a child gets in the learning process, satisfaction from a mark, some positive emotions from discovery done while learning new material (from curiosity emotions and subsequent stable emotional-cognitive attitude to a subject characterizing a child's enthusiasm towards learning more within the subject) (Hernández, Valiente, Eisenberg, Berger, & Thompson, 2017; Brinkworth, McIntyre, Juraschek, & Gehlbach, 2018). Positive emotions can also arise when children develop their own methods to learning, new ways to improve their academic work and methods of self-study (Wagner, 2012; Wong, Li-Tsang, & Siu, 2014; Stillman, Stillman, Martinez, Freedman, & Leet, 2018). The importance of all these emotions lies in the fact that they create an atmosphere of emotional comfort when learning. This atmosphere is necessary to achieve the goal at creating the successful educational process.

7. Conclusion

The correlation analysis on interconnection between the indicators allowed to shape correlation pleiade indicating about reliable connection that exists between emotional attitude and efficacy in learning among second-grade children. The obtained statistical, reliable and correlation connections between the parameters under investigation have the positive modality and are referred to significant and sustainable patterns ($p \leq 0.01$).

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