

Cognitive Processes as a Factor in the Development of the Literary and Creative Talents of Children

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Abstract

This paper describes and analyses the results of experimental courses designed to improve the role played by cognitive processes in the development of the literary and creative talents of young school children. It was proven that these talents can be developed through improvements in some of the structural components of these talents, in particular creative imagination, figurative thinking and logical memory. The individual influences of these components, as well as the interrelationships that exist between them, were studied. It was established that task-oriented and simultaneous activation of the processes of creative imagination, figurative thinking and logical memory in young school children during their studies greatly contributes to the development of their literary and creative talents.

Key words: creative imagination, figurative thinking, logical memory, literary and creative talents, development factor.

Introduction

A contemporary society that is characterized by swift changes still faces the problem of how to develop a creative personality capable of efficiently using acquired knowledge in different existential situations and which can act under atypical conditions. The solution to this problem requires the mechanisms for the development of creative talents to be studied, as well as the creation of the optimal conditions for these mechanisms to work. Analyses of theoretical and experimental investigations (Druzhinin 2005; Ilin 2011) show that where talents exist, these can only be developed during the course of activities and can only be educed on the grounds of the study of such activities. Today, studies which focus on the talents of children are usually conducted in connection with specific types of creative activities (musical, figurative, literary, etc.). The particular focus in this research is on the development of the literary and creative talents of children (according to age)

and the impact this has on their ability to independently and successfully narrate oral and written stories, fairytales and poems.

Different aspects of this problem were taken into consideration, namely the structure of these kinds of talents (Melik-Pashaev 1998), the conditions required for these talents to develop (Leontev 1998; Yakovleva 1996), and the age dynamics of their manifestation (Novlyanskaya and Kudina 2005). Analyses of research data on the structure of the literary and creative talents of individuals identify a wide range of components and combinations thereof for the successful realization of such talents, as well as for compensating for those that are less present. As a result, the following components of the structure of literary talents were assessed: impressionability, imagination, creative, verbal and logical memory, figurative thinking, and the ability to verbally narrate thoughts, sensations and images.

The empirical research conducted enabled the conditions that contribute to the development of the literary creativity in school children to be defined and determined, in particular the formation of new impressions, the compliance of literary topics with the age of the school children, the encouragement for the school children to join a creative team, the joint creativity of the school children and their teacher, etc. However, these conditions only provide the external environment for the literary and creative process. In addition, the factors that contribute to and create the internal environment for the creative activities of school children, and which brings these talents to life, have particularly concerns the role of cognitive processes (creative imagination, figurative thinking and logical memory) in the development of their talents. More specifically, it concerns the productive forms of their interactions which manifest themselves in the creative activities of school children when composing original texts, and their relevance in the organization and realization of such texts.

It should be noted that the aptitude of children for literary and creative activities has mainly been studied in adolescents and teenagers. Consideration has only been given to the issue of the development of the literary and creative talents of young school children by a few researchers (Staragina 2004). Unfortunately, the results have failed to gain sufficient support in the psychological and pedagogical fields. However, it is well known that in this age group children experience an intensive development in their cognitive processes (Soloveva 2003), which are considered to be the main components of their literary and creative talents.

Materials and Methods

The objective of this research was to conduct a study into the influence of cognitive processes on the optimization of the development of the literary and creative talents of school children.

The basis for the study is the assumption that creative imagination, figurative thinking and logical memory are the most important components of literary and creative talents: creative imagination contributes to the creation of new images; figurative thinking

specifies and corrects those images; logical memory, which serves as the basis for the ability to work with a text, acts as the productive function for the organization of the creative activities which focus on the design of original verbal messages. In addition, the task-oriented and simultaneous activation of the given cognitive interrelated processes in young school children during the course of their learning activities is a factor that optimizes the development process of their literary and creative talents.

In order to fully comprehend the role of creative imagination, figurative thinking and the logical forms of memory in the development of the literary and creative talents of young school children, it was necessary to determine the development levels with regards to these talents in children. For this purpose, a set of tests was carried out on school children prior to and after the end of a period of tuition. The school children in the study were pupils in four third-year classes (in total 110 pupils; aged 8-9 years) attending Comprehensive Secondary School No. 65 in the city of Kharkov, Ukraine. Up to the start of the study, they had all been following the standard curriculum.

The objective of the first set of tests was to determine the current development level of the school children with regards to their literary and creative talents prior to the start of a period of additional tuition. To achieve this, the pupils were asked to fulfill two tasks, namely to compose a fairy tale of their own, and subsequently to compose a fairy tale using a set of key words. The work done by the children was analyzed on the basis of the following criteria (Kushch, Artemov and Gregor 2016; Malykhina 2006): the availability of an idea and the successful realization of it; the level of plot originality; specific features of the composition; specific features of the language; the scope of the creative work and the coherency of the text.

The objective of the second set of tests was to determine the development levels of the cognitive processes of the young school children in terms of their creative imagination, creative thinking and logical memory.

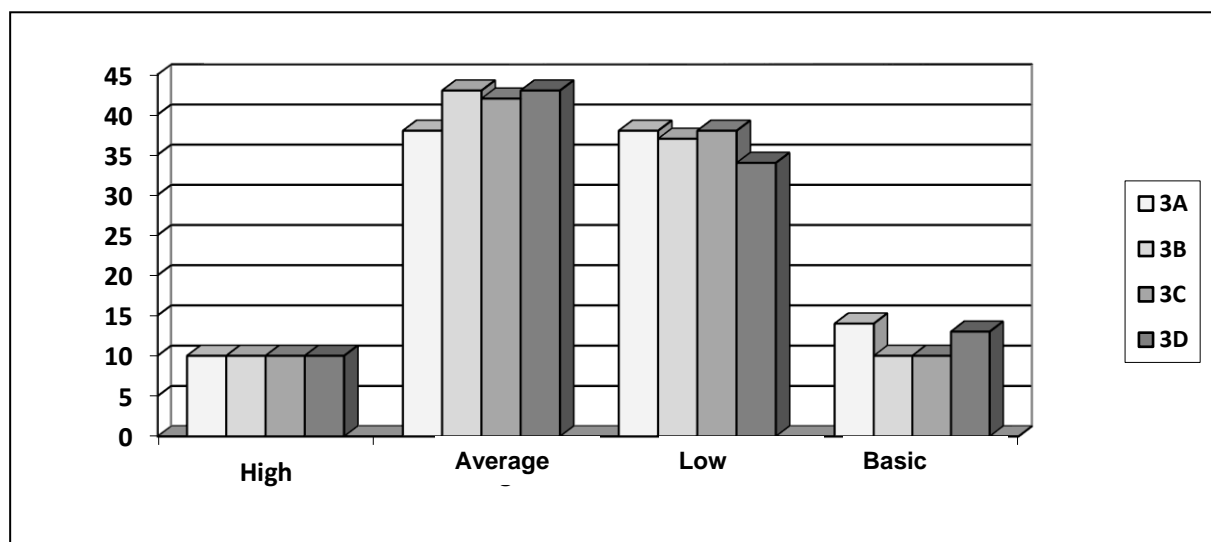
The psychodiagnostic part of the empirical research was performed using appropriate techniques, in particular the methods used by Bocharova (1997) for the study of logical memory, the methods used by Simanovskiy (1994) for the study of figurative thinking, the methods used by Loseva (2004) for the determination of the originality and flexibility of graphic images by P. Torrance, and the methods used by Terlets'ka (2006) for the revelation of individual specific features of literary creativity. The mathematical-statistical processing of the research data was performed using the Kolmogorov-Smirnova, Lilliefors and Shapiro-Wilcox criteria, the non-parametric Mann-Whitney criterion, and the non-parametric Wilcoxon criterion for dependent samples (using STATISTICA 5.5 software).

Research Data

On the basis of the results of the conducted empirical research, four development levels were clearly defined with regards to the literary and creative talents of the young school children, namely:

- high development level (average 10% for all the classes) - characterized by an original idea, apt fairytale topic, clear-cut composition that covers logicity, consistent narration, the proportions of text parts, text completeness, etc. A specific feature of these creative works is that different verbal instruments (epithets, metaphors and iterations) are used;
- average development level (average 41% for all the classes) - characterized in both created texts by imperfections in the original idea or the topic. This means that there are either essential compositional drawbacks or the range of the verbal instruments used to express themselves is small, or that a well-constructed text lacks an original independent context i.e. there is a balance observed between creativity and succession;
- low development level (average 37% for all the classes) - characterized by succession at the stage of the origination of an idea and a topic, as well as at the stage of realization;
- basic development level (average 12% for all the classes) - characterized by writings that contain no idea and/or topic, although an attempt was made to construct a text.

Figure 1: Development levels with regards to the literary and creative talents of the tested school children (%) prior to additional tuition



Source: Authors

The results of the second set of tests are presented in Table1.

Table 1: Developments levels with regards to the cognitive processes of the tested school children (%) prior to additional tuition

Development level of cognitive processes	Logical memory			Figurative thinking			Creative imagination		
	High	Aver.	Low	High	Aver.	Low	High	Aver.	Low
Form 3A	22	39	39	14	38	48	14	34	52
Form 3B	24	45	31	17	34	49	10	34	56
Form 3C	23	43	34	20	38	42	13	37	50
Form 3D	21	33	46	17	38	45	12	36	52

Source: Authors

On the basis of the results of the initial study into the development levels of the school children prior to additional tuition, the following conclusions can be drawn:

1. On the basis of the current form of education, approximately half of all the tested school children at the start of their studies in the third form were unable to compose a text with an original concept and form. The analysis showed that when writing an essay the school children were only able to do one thing well, namely to either devise an original topic of their own or make up their own story using appropriate fairytale techniques on the basis of a known idea or topic.
2. According to the standard curriculum, the creative imagination, figurative thinking and logical memory of school children should be developed in primary school during the course of their studies, which should be reflected in the three identified development levels: high, average and low. The percentage of tested school children with a low development level for the given cognitive processes was very high.
3. An analysis of the successfully fulfilled set of tests showed the presence of a certain interconnection between the successful literary creativity of the school children and their development level with regards to their creative imagination, figurative thinking and logical memory.

The obtained research data made it possible to formulate and develop an experiment. The objective of the experiment was to develop the literary and creative talents of the school children through the activation of their cognitive processes. The experiment consisted of three special courses, each delivered separately to one of the forms previously tested, namely forms 3A, 3B and 3V. One form, namely 3G, acted as a reference group.

The aim of the first course, delivered to Form 3A, was to provide simultaneous activation of their creative imagination, figurative thinking and logical memory. The content of the course was developed on the basis of the methods used for the development of figurative thinking and creative imagination by Simanovskiy (1994) and Zaika (1990; 1993) and the

methods for the development of logical memory by Bocharova (1997) and Voloshenko (1992). During the course, pupils were taught how to mark out features of objects, how to combine them, how to establish the interrelationships between phenomena, how to determine the type of text, how to draw up simple and compound text plans, and how to compose a text whilst adhering to a plan.

The aim of the second course, delivered to Form 3B, was to develop the creative imagination and figurative thinking of the school children on a task-oriented basis. The content of the course was developed on the basis of research data (Simanovskiy 1994; Zaika 1990 and 1993) on the activation of these cognitive processes. During the course, pupils were taught how to mark out different features of objects, how to combine them to create a new image, how to put a sufficient number of options forward to resolve problems, how to establish the interrelationships between phenomena, and how the consequences of events can be forecast.

The aim of the third course, delivered to Form 3C, was to develop the logical memory of the pupils by deliberately teaching them how to orient themselves in the structures of different types of texts. The content of the course was developed on the basis of the methods used by Bocharova (1997) and Voloshenko (1992) for the development of logical memory. During the course, pupils were taught how to mark out the main idea and the text type, how to draw up a plan (simple and compound) for different types of text, and how to compose a text whilst adhering to a plan.

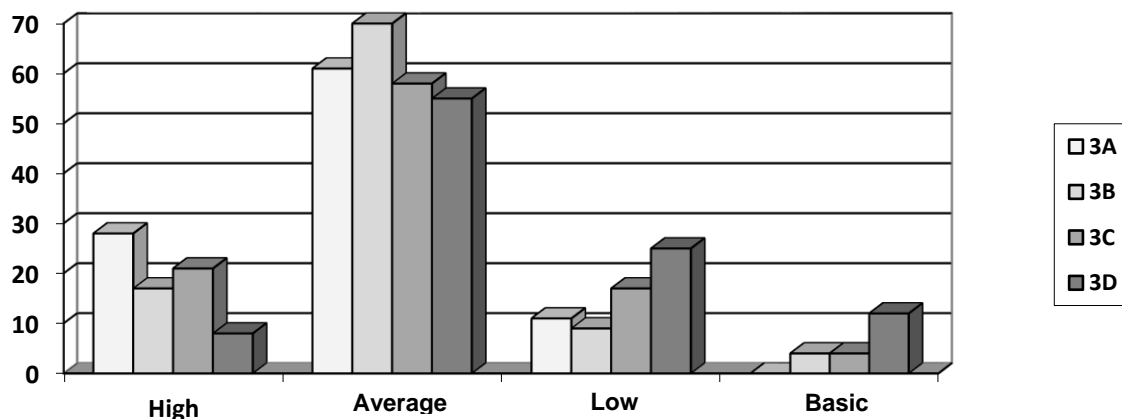
Upon completion of the courses, the classes were asked to complete the set of tests which they undertook at the beginning of the school year, again. The analysis of the data garnered shows that the aims of the courses, and thereby the objective of the experiment, were achieved. This is evidenced by the improvements in the development levels of the cognitive processes in those pupils that undertook the courses (Forms 3A, 3B and 3V) in comparison to the reference group that did not (see Table 2 and Figure 2).

Table 2: Developments levels with regards to the cognitive processes of the tested school children (%) after additional tuition

Development level of cognitive processes	Logical memory			Figurative thinking			Creative imagination		
	High	Aver.	Low	High	Aver.	Low	High	Aver.	Low
Form 3A	43	35	22	33	41	26	39	41	20
Form 3B	27.5	47	27.5	35	40	25	34	43	23
Form 3C	40	43	17	22	35	43	19	44	37
Form 3D	25	40	35	19	36	45	13	39	48

Source: Authors

Figure 2: Development levels with regards to the literary and creative talents of the tested school children (%) after additional tuition.



Source: Authors

Discussion

The pupils in Form 3A who were trained to simultaneously activate their creative imagination, figurative thinking and logical memory showed noticeable reliable changes in their development. Non-parametric Wilcoxon T-criterion for dependent samples were used to determine the following: the development of logical memory in terms of accuracy and coherency (at $T=12$, $\rho \leq 0.01$; $T=0.00$, $p \leq 0.01$); the development of figurative thinking with the ability of operating the imagined concept ($T=4.5$, $p \leq 0.01$); and creative imagination ($T=52$, $p \leq 0.01$). The number of original topics in the fairytales composed by the pupils increased, as did the indicators for the text arrangement. In particular, the school children took into account the requirements set for the composition: the proportions of text parts were subordinated to a common theme and the texts were characterized by logical completeness. On the whole, the number of children with a high development level with regards to their literary and creative talents increased by an average level of 20%, and the number of pupils with a low development level decreased by 20%. None of the pupils fell into the basic development category.

The pupils in Form 3B that underwent training in the task-oriented activation of their figurative thinking and creative imagination saw reliable changes in the development levels of the following specific cognitive processes: the development of figurative thinking with the ability to operate the imagined concept ($T=0.00$; $p \leq 0.01$); and creative imagination in terms of coherence and originality ($T=66$, $\rho \leq 0.01$); ($T=0.00$; $p \leq 0.01$ accordingly). In terms of their literary and creative talents, the work done resulted in the following: the number of school children with a high development level increased by a factor of 2; the number of children with a low development level noticeably decreased; and the percentage of children with only a basic development level for verbal creativity decreased threefold. This was evidenced by the increased number of fairytales written by the pupils independently and the increased number of original topics, even though the

majority of topics were not realized in full, and the text parts were not proportionate and texts were not always complete.

The pupils in Form 3C that were trained to develop their logical memory saw reliable changes in their development levels, in particular with regards to all the indicators for text reproduction (for completeness at $T=26$, $p \leq 0.01$; accuracy at $T=32$, $\rho \leq 0.01$; and coherency at $T=12$, $\rho \leq 0.01$). The development levels with regards to the other cognitive processes showed no essential changes, although better indicator values were achieved in comparison with the reference class. An analysis of the creative task to compose a fairytale showed an insignificant increase in the number of original topics. However, the values of the indicators improved for text construction, in particular coherency, realization of ideas, internal integrity, completeness and adequacy of the text parts. As for the development level of the children in the form with regards to their literary and creative talents, the number with a high development level increased twofold, the number of children with a low development level noticeably decreased, and the percentage of children with a basic development level decreased threefold.

The pupils in Form 3D i.e. the reference group, also showed certain changes in the development level of their cognitive processes, although these changes were insignificant. The results of Form 3D with regards to the development of their literary and creative talents actually showed no change, which was confirmed through the statistical analysis.

Conclusion

It was established through an experiment that creative imagination, figurative thinking and logical memory are some of the most important structural components that contribute to a child's literary and creative talents. It was also shown that the successful composition of a text depends to a large extent on the development level of these cognitive processes. The development of creative imagination and figurative thinking is characterized by the ability of independent thought and the originality of the artistic ideas that are developed and implemented. The development of logical memory is characterized by knowledge of the world, the text structure and the availability of skills to select and grasp information and to generate a coherent text from it. The task-oriented and simultaneous activation of these cognitive processes and their interrelationships during the educational activities of school children is therefore an important factor in optimizing the development process of their literary and creative talents.

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