

## Important Itegration Principles of integration of Literature and Mathematics

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### ABSTRACT

*The following article is devoted to the study of important principles of integration between the sciences of Literature and Mathematics. In particular, the educational and aesthetic significance of riddles, numbers, and mathematical operations in children's poems and fairy tales is discussed.*

**Key words:** *psychology, artistic element, detail, plot, experience, physical, mental, mental, emotional, extraordinary, adventure, puzzle, action, detail, image, medium, thinking.*

### I. Introduction

The world of children is much more complicated. As society and the social environment change and renew human thinking, so do the changes in the world of childhood, like the laws of nature.<sup>1</sup>

However, the mind and thinking of each child is full not only with the knowledge acquired at school, but also with artistic reading, aesthetic pleasure, attitude to life. An important factor in this is the integration of sciences with each other on the basis of continuity. That is, if the direction of science and knowledge, the patterns of artistic creation logically require each other, it lays the foundation for the formation of full thinking in students. In this sense, the mathematical numbers, problems and riddles, figurative interpretations found in children's literature are noteworthy.

### II. Main Part

For example, in the poem "Journey through the numbers" by the great children's poet Kavsar Turdiyeva, the importance of the integration of sciences is obvious, comparing the level of mathematical numbers and artistic image of each number. Initially, the definition of a number (1) shows that it is smaller than two, the most "dwarf", but its value is high:

Ko`kda bitta oy,  
Sochadi chiroy,  
Va bitta quyosh  
Ufqqa qoyar bosh.  
Bittadir yana  
Vatan va ona.  
(One month in the sky,  
It is so beautiful,

<sup>1</sup> Bashorat Jamilova . Description of the spirit of teenagers in uzbek children's prose . -MIDDLE EUROPEAN SCIENTIFIC BULLETIN ISSN 2694-9970 <https://cejsr.academicjournal.io/index.php/journal/article/view/134/136https>

And one sun  
It puts his head on the horizon.  
One more  
Homeland and mother)

So, this is the inequality of one (1), and it is the miracle of this number. It is possible to observe the imagery of mathematical numbers in fiction by paying attention to the meaning assigned to it, without neglecting one as small. The poet classifies such interpretations according to the expression of each issue in life, in literary creation. For example, the number two (2) not only understands the emptiness of knowledge, but also thinks about the importance of two ears, two eyes, two hands, feet, which accompany a person. The number three (3) is often used in proverbs, fairy tales, and riddles, such as "three brothers", "three ways", "one, two, three", like "three lights at a traffic light". The number four (4) has an artistic expression enriched with deeper and more interesting information:

Bordir to‘rt taraf.  
Sharqu, g‘arb, janub:  
Shimol - qori ko‘p.  
Yilning ham asli  
O‘tar to‘rt fasli.  
Qish, bahor va yoz,  
Kuz ham juda soz.  
Gijinglar toychoq -  
Unda to‘rt oyoq.<sup>2</sup>

(There are four sides.  
East, west, south:  
There is a lot of snow in the north.  
The original of the year  
It's been four seasons.  
Winter, spring and summer,  
Autumn is also very pleasant.  
Horse has four legs).

It should be noted that primary schoolchildren make many mistakes when adding, subtracting and writing numbers. It is a good idea to use poems like the ones above to do the same thing in math classes. At the same time, we see the integration of Literature, science, Geography and Mathematics. In this sense, in this poem by K. Turdiyeva, the number five (5) is artistically expressed, along with the "excellent" grade, with our five fingers, and the five epics in "Khamasa". The number six (6) also refers to the impossibility of getting gold in folk proverbs, and the number seven (7) symbolizes the "seventh heaven", "seven angels", the seven colors of the rainbow, and the seven days of the week. The proverb "Don't count eight" or the phrase about octopus helps to expand students' understanding of the number eight (8). Similar numbers nine (9) and ten (10) are represented by literary concepts.

Kavsar Turdiyeva's poem "Number" also shows an active image of mathematical numbers. True, this is actually a topic related to the mother tongue, but mathematical concepts are predominant in its expression.

Sonlar **Tartib** va **Sanoq**,  
Biri-biriga o‘rtoq.  
Asli sonlar turi ko‘p,  
Desangiz bir bog‘, o‘n tup.  
Uchta do‘st, beshta xona,

<sup>2</sup> Turdiyeva K. "Dunyoni saqlar bolalar" (Children keep the world) –Tashkent, 2012 –P.116

Bu sonlar nomi “**Dona**”.  
 Yana shunday sonlar bor,  
 Har narsani chamalar,  
 Savol bersang bu uyda,  
 Nechta deya xonalar,  
 Deydi o'ntacha o`ylab.  
 Yo yuzlarcha, yo yuzlab,  
 Bor, der uchtacha chana,  
 Bu sonlar ismi “**Chama**”.<sup>3</sup>  
 (Numbers **Ordinal** and **Cardinal**,  
 We are friends.  
 There are many types of original numbers,  
 One garden, ten bushes.  
 Three friends, five rooms,  
 These numbers are called "Piece".  
 There are more such numbers,  
 Everything,  
 If you ask this house,  
 How many rooms,  
 He thinks about it.  
 Or hundreds, or hundreds,  
 There are three sledges,  
 These numbers are called "Aproximately")

Or,

Bolalarga bittadan  
 Desang choyshab, yostiqlar,  
 “Dona” songa bu yerda  
 “Dan” qo‘shimcha ilinar,  
 Bittadan degan sonning.  
 “Taqsim” ligi bilinar.  
 (One for the children  
 Pattern sheets, pillows,  
 "Piece" is here  
 "From" is added,  
 The number one.  
 It is known as "distribution")

It seems that in this, too, mathematical operations, rules, basic concepts are reflected in a more concise and meaningful way through poetic expression. Such examples of literary creation help students to understand the complex aspects of the natural sciences in a meaningful and interesting way with the help of the word art of literature, which gives aesthetic pleasure.

In general, textbooks, manuals, collections, dictionaries are written on various subjects, children's encyclopedias on various fields of science, such as "Interesting Botany", "Interesting Chemistry", "Interesting Linguistics", "Book of Miracles", the life of celebrities, the natural and social phenomena, scientific and educational works on history, various educational literature live as the inheritors of didactic traditions in our classical literature. So, this goal is fully achieved through the integration of primary school reading, mathematics, etiquette, and science. The didactic basis of such lessons is to ensure that students have the same interesting knowledge as above. If only primary school

<sup>3</sup> The same souece. –P.141

teachers could intelligently grasp the connection between these subjects and fully demonstrate their pedagogical skills - oratory, art, directing and literacy. The effective result of one lesson will be achieved. At the same time, of course, interactive methods are organized according to the individuality of each student, small groups, the direction of the interests of the class, the potential.

In addition, in children's literature, fairy tales are a genre that can attract everyone equally. In addition, as children's language begins to emerge and begin to comprehend, such an attractive example of folklore is necessary for human development. After all, its ethical and pedagogical significance of fairy tales becomes even more important in the upbringing and thinking of the younger generation, as well as the fact that it always ends well, the heroes achieve their goals.

In particular, the inclusion of mathematical puzzles in the content of fairy tales further strengthens this goal. The child listens to the fairy tale and observes it, solves the problem by listening to the fairy tale, and does not even notice that he has entered the palace of mathematics through the realm of fairy tales. Indeed, the collection "Mathematics in fairy tales" prepared for publication by U. Ismailov evokes such a consideration.<sup>4</sup>

It is noteworthy that the collection, along with interesting logical questions, contains mathematical questions and riddles that come from the genre of fairy tales. For example, a well-known and popular fairy tale called "Prince Ivan and the Immortal Koshshey" is a proof of our idea. The story has a traditional beginning and end:

"Prince Ivan used to live in a country a long time ago. He has three sisters, the eldest Princess Maria, the middle Princess Olga and the youngest Princess Anna. Both of their father and mother have died. Prince Ivan married his sisters. The eldest princess married Maria to the ruler of the copper kingdom, the middle princess Olga to the ruler of the silver kingdom, and the little princess Anna to the ruler of the golden kingdom. It is said that the immortal Koshshey stole it and turned it into a thin white birch. Prince Ivan set out to free his lover and encountered many adventures, met a lonely old woman's hut and took advice from her. The mathematical puzzle in this tale is that in the palace of Koshshey, the prince and his soldiers locked a total of 24 people in eight rooms, three on each wall, that is, three people, but he did not know how to count more than 9, so he counted all three houses in the evening, makes sure there were soldiers. The prince, on the other hand, opened the houses with a magic key and sent his 3 soldiers out to the three kingdoms. Koshshey didn't notice it. That was the mystery. It turned out that after releasing 3 people, Prince Ivan placed 21 people in the basement as followed.

Thus, it is possible to understand that the prince's wisdom led him to achieve his goal.

Another story begins: Once upon a time, in ancient times, an old wise old man lived in peace and harmony with his three sons. The old man's fortune consisted of 17 camels. Days passed, years passed, and the old man, realizing that he was very old and about to die, called his sons to him and made a will:

- "My sons, we have 17 camels, before I dying, I wanted to distribute these camels to you equally "said the father.

- "Give my eldest son half a camel, my average son a third, and my youngest son a ninth, but don't kill camels" said the old man.

Since the puzzle in this fairy tale has some complex inequalities, the image of a passenger is added to the story. That is, when the boys do not know what to do, a passenger arrives on a camel. Now the smarter reader will find the answer immediately. The passenger also added his camel to 17 camels, half of the 18 camels, i.e. 9 to the eldest son, one third, 6 to the middle son, and to one of the girls gave 2 of them to the youngest son and rode away on his camel.

4	1	4
1		2
4	2	3

<sup>4</sup> Ismoilov U. Mathematics in fairy tales. Tashkent, "Yangi asr avlodi" publishing, 2007. -P.91

### III. Conclusion

It is clear that the sciences of mathematics and literature, which at first glance seem contradictory, are in fact interconnected on the basis of mutual integration, increasing our thinking. Even for the brain, which is tired of mathematical calculations, the power of artistic expression in fairy tales and poems is a pleasure, while the thought of reading a literary word and a poem is a serious obsession. Therefore, the existence of factors that ensure the longevity of interdisciplinary integration, the popularity of encyclopedic scholars such as Ibn Sina, Al-Beruni, Ulugbek, Farobi not only in specific sciences, but also in literature, music and history, and we know that they wrote treatises and poems as well.

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