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# The Shaping of Interest in Mathematics in the "Świerszczyk" Magazine in the 20th Century

## Kształtowanie zainteresowań matematyką na łamach czasopisma „Świerszczyk" w XX wieku

KEYWORDS

mathematical interests, mathematical education, early school education, "Świerszczyk" magazine, teachers of grades 1-3

ABSTRACT

The acquisition of educational experiences by children from grades 1-3 may be enhanced by means of the use of various didactic aids. Undoubtedly, one of them may be printed materials; therefore, the subject matter of the presented text is the *Świerszczyk* magazine published in the 20th century. The objective of the analysis was to show the magazine as a didactic aid for teachers of grades 1-3 in the course of teaching mathematics. In this context, special attention was paid to the presence of tasks, games and exercises which offer an incentive for taking an interest in mathematics for early-school pupils.

The quantity, type, and also the quality of the *Świerszczyk* content referring to mathematics varied, depending on the decade of the 20th century. However, the diversity of texts and also tasks addressed to young readers was a support at the beginning of their educational path. It could also provide an inspiration for teachers of grades1-3 with respect to preparing interesting and activating lessons. In particular, board games and card games included in the magazine contributed to the formation of a number of vital competences in children (especially in the area of mathematics), encouraged them to modify the presented ideas and stimulated the development of creativity and imagination.

SŁOWA KLUCZOWE

zainteresowania matematyczne, edukacja matematyczna, edukacja wczesnoszkolna, czasopismo „Świerszczyk", nauczyciele klas I-III

ABSTRAKT

Zdobywanie doświadczeń edukacyjnych dzieci klas I-III można wzbogacić wykorzystując różnorodne środki dydaktyczne. Niewątpliwie jednym z nich mogą stać się materiały drukowane, dlatego przedmiotem prezentowanego tekstu uczyniono czasopismo „Świerszczyk" w okresie XX wieku. Celem dokonanej analizy było ukazanie magazynu jako pomocy dydaktycznej dla nauczycieli klas I-III w toku realizacji zajęć z zakresu edukacji matematycznej. W tym kontekście zwrócono szczególną uwagę na obecność w tygodniku zadań, gier i ćwiczeń stanowiących impuls do zainteresowania się matematyką uczniów w wieku wczesnoszkolnym.

Ilość, rodzaj, a także jakość treści „Świerszczyka" odnoszących się do matematyki różniła się w zależności od dekady XX wieku. Jednak wielorakość tekstów, a także zadań kierowanych do młodych czytelników była wsparciem na początku ich edukacyjnej drogi. Mogła stać się również inspiracją dla nauczycieli uczniów klas I-III do realizacji ciekawych i aktywizujących zajęć. Szczególnie zamieszczane w magazynie gry planszowe oraz karciane przyczyniały się do kształtowania u dzieci wielu kompetencji kluczowych (zwłaszcza z zakresu matematyki), pobudzały do modyfikacji zamieszczonych pomysłów przyczyniając się tym samym do rozwijania kreatywności i wyobraźni.

## Introduction

The characteristic trait of the period in which the child ends the education in kindergarten and starts the school adventure, is the occurrence of a number of changes. Not only are the manners of a child's activity transformed from dominant play to a school education, but also the manners of teaching and related expansion of knowledge and skills of younger pupils, as well as a dynamic development of cognitive processes. Among them, special attention should be paid to thinking, attention and memory with respect to mathematical education.

In the discussed period of development, thinking is characterised by a transfer from the pre-operational stage to the concrete operational stage, connecting the process of thinking to specific experiences that the child encounters during operation, the appearance of the reversibility of terms related to the permanence of numbers, mass, weight and volume, as well as an improvement of categorisation. Thanks to the maturing central nervous system, children control attention to a greater degree, which helps them expand it and minimise distraction. Younger pupils become more concentrated, which allows them to solve tasks, including mathematical ones. In the

period of late childhood, mechanical memory slowly transforms into logical memory. Children, in an increasingly conscious manner, start to construct their own modes of memorising the material with which they became acquainted in the course of classes. They are characterised by a greater ability to order and to categorise information, which facilitates remembering and longer term of storage of memory.[1]

The manner of constructing children's knowledge depends on a number of factors and one of the most important ones is the person of the teacher. The teacher's authority, but also the teacher's competences, determine the manner in which younger pupils pursue their interests in a given area. The didactic aids that are offered and which are commonly available provide assistance for the teacher in this difficult task. Among such aids, it is possible to distinguish natural specimens, didactic games, television films and programmes, radio programmes, but also books, textbooks and magazines. One of them is the weekly "Świerszczyk" magazine, which is going to be analysed in this article with respect to mathematical content. This is the background for answering the following questions: was the "Świerszczyk" magazine a useful didactic aid for teachers in the course of teaching mathematics in grades 1-3? To which degree did *Świerszczyk* develop interest in mathematics among children in the 20th century? Which mathematical contents and tasks were proposed to children in the analysed magazine?

## The Importance of Mathematics in Early School Education

The term mathematics derives from the Greek word *máthema*, which means science, knowledge, cognition, whereas the term *mathesis* is translated as learning through thinking. Mathematics is a science whose definition cannot be determined precisely and the term has been used to denote knowledge that allowed for specific conclusions to be reached. It was also believed that its basis are quantity relations and spatial forms of the reality surrounding man.[2]

Mathematics is undoubtedly one of scientific disciplines that has accompanied man since the very beginning. It may be noted that it has a thorough and significant application in daily life and, therefore, teaching mathematics starts from the very first stage of education. Mathematics teaches students how to draw conclusions about, analyse and perceive reality. It enables not only the performance of practical calculations related to every-day life situations or solving life problems, but it also prepares students for making hypotheses, justifications, generalisations, categorisation and

[1] R. Stefańska-Klar, "Późne dzieciństwo. Młodszy wiek szkolny", in: *Psychologia rozwoju człowieka. Charakterystyka okresów życia człowieka,* ed. B. Harwas-Napierała, J. Trempała, Warsaw 2000, p. 134-136.

[2] J. Filip, T. Rams, *Dziecko w świecie matematyki,* Kraków 2000, p. 11-12.

synthesising. It forms a very useful instrument for thinking which helps us overcome difficulties in daily life. This is one of the most important skills that a pupil should acquire in the course of early school education, and it is called the capacity for mathematical thinking. This capacity may be observed in children already at the level of early school education, or even kindergarten education. A child thinks mathematically in task-related situations, e.g. when "building a house made of blocks, wondering which blocks fit the project, when putting figures from tangram elements and trying to decide how to arrange the elements of the puzzle to get the expected shape, when playing domino, looking for a correct piece, not to mention playing chess, when, planning your move, you have to anticipate the opponent's move."[3] Mathematical thinking, which is one of the key elements of mathematical competences, encompasses the whole knowledge that children have in the area of mathematics and also allows them to perceive mathematical problems. This type of thinking helps in analysing quantity and quality facts, as well as assisting them in perceiving mathematical objects. Additionally, mathematical thinking helps children control their emotions.[4]

G. Claxton designed a concept of mathematical thinking wherein it is triggered by all types of contradictions, tensions and unexpected events. The best atmosphere for fostering the development of mathematical thinking is the casual atmosphere of asking questions, thinking, reflection, but also challenges. According to G. Claxton's concept, mathematical thinking helps in self-discovery and self-awareness, as well as understanding the world.[5]

Mathematics will accompany pupils throughout their lives; therefore, it is worth taking care that children have positive memories related to this subject. Teachers have a very important and responsible task in this respect as it is they who use various methods and techniques of teaching, introduce children into the world of mathematics and, thanks to their endeavours, young school graduates have a chance to understand and become passionate about this very important subject. Teachers should make children aware of how useful and, contrary to expectations, interesting and omnipresent mathematics is in the modern world.[6] Teachers may use various forms

[3] J. Nowik, *Kształcenie matematyczne w edukacji wczesnoszkolnej*, Opole 2011, p. 8.

[4] D. Waloszek, *Między przedszkolem a szkołą. Rozważania o gotowości dzieci do podjęcia nauki w szkole*, Warsaw 2014, p. 210-218; E. Gruszczyk-Kolczyńska (ed.), *Wspomaganie rozwoju umysłowego oraz edukacja matematyczna dzieci w ostatnim roku wychowania przedszkolnego i pierwszym roku nauki szkolnej*, Warsaw 2009, p. 17; A.W. Biderman, "Kompetencje matematyczne, naukowe (przyrodnicze) i techniczne – co to jest i jak je rozwijamy w realizacji projektów edukacyjnych?" in: *Dzieci odkrywają świat, ed.* E. Tołwińska-Królikowska, Warsaw 2013, p. 18-20.

[5] D. Waloszek, *Między przedszkolem a szkołą. Rozważania o gotowości dzieci do podjęcia nauki w szkole*, op. cit., p. 219-220.

[6] I. Fechner-Sędzicka, B. Ochmańska, W. Odrobina, *Rozwijanie zainteresowań i zdolności matematycznych uczniów klas I – III szkoły podstawowej. Poradnik dla nauczycieli*, Warsaw 2012, p. 5.

of out-of-class activities to arouse interest in mathematics, and supplement it with reading books and magazines.

"Świerszczyk" Magazine: History of Origin and First Mathematical Exercises

The beginnings of *Świerszczyk* date back to 1945, i.e. the period after the end of World War II. From its lauch until the present, the main group of addressees are children aged 7 to 12. It was established thanks to the efforts of activists from the Union of Polish Teachers who, after the end of military activities, decided to resume publishing activity in the area of children's magazines. The idea for initiating the weekly magazine started in Łódź as several outstanding scientists, graphic artists and literary people lived in the city after the war. The chief editor of the magazine was Wanda Grodzieńska, and the literary director and the author of the magazine's name (Polish: cricket), which was meant to evoke associations with a warm and peaceful home, was Ewa Szelburg-Zarembina. It is also worth mentioning that the artistic director of the weekly magazine was the prominent Polish graphic artist, Jan Marcin Szancer. The magazine was published by the "Czytelnik" Publishing Cooperative and printed in Kraków in Drukarnia Narodowa. The first historical issue of *Świerszczyk* appeared on 1 May 1945.

Outstanding Polish poets and writers worked for the literary division of *Świerszczyk*. They included Janina Porazińska, Jan Brzechwa, the above-mentioned Ewa Szelburg-Zarembina and Mira Jaworczakowa, and they played a crucial role in shaping the character of the weekly magazine.[7]

The first issues primarily contained poems and short stories. Their subject matter referred to children's daily life, but contemporary social issues were also discussed. Texts were provided with numerous illustrations, which helped young readers understand the message of the texts and, despite limited materials, the drawings were characterised by a high artistic level.[8]

In the period of the 1940s, little content in *Świerszczyk* pertained to the formation of the mathematical interests of children. However, it is possible to find works which could have been used by teachers in the course of mathematical education. For example, the very first issue of *Świerszczyk*[9] contains Jan Brzechwa's poem entitled *Przyjście wiosny* (*The Advent of Spring*), which could be used as an introduction to the concept of natural numbers and its cardinal and ordinal aspects. Ordinal numbers are also included in the offering of H. Januszewska[10] entitled *Rąbał, rąbał siekereczką* ("Chopping with an Axe")

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7 B. Tylicka, G. Leszczyński (ed.) *Słownik literatury dziecięcej i młodzieżowej*, Wrocław 2003, p. 74.

8 S. Frycie, *Literatura dla dzieci i młodzieży w latach 1945 – 1970. Tom II – baśń i bajka, poezja, książka dla najmłodszych, utwory sceniczne, grafika, czasopiśmiennictwo, krytyka literacka*, Warsaw 1982, p. 180-182.

9 J. Brzechwa, "Przyjście wiosny", *Świerszczyk* 1945, No 1, p. 8.

10 H. Januszewska, "Rąbał, rąbał siekiereczką", *Świerszczyk* 1945, No 4, p. 7.

The lumberjack chops wood, from which shavings fly (from 1 to 16) to all regions of Poland. An inspiration for attractive geometry classes may be a text by E. Szelburg-Zarembina,[11] in which children use wooden blocks to rebuild Warsaw after the destruction of World War II. On the other hand, the poem of H. Koszutska[12] encourages children to plan their activities (the children decide to clean the area around the school) and space (school yard designs). The next issues feature texts that may be helpful in the formation of concepts related to the passage of time: yesterday, today, tomorrow,[13] as well as developing the capacity to perceive rhythms. According to E. Gruszczyk-Kolczyńska,[14] the capacity to capture regularity and make use of it is a feature of a child's intelligence. The better a child notices, continues and translates rhythms, the greater is his/ her intellectual capacity. Rhythm is also the basis for forming the skill of counting, measuring and other important mathematical competences. The poem of E. Szelburg-Zarembina[15] about a rolling egg that encounters animals along its way that ask the same, predictable questions, is an attractive proposal for diversifying classes devoted to the perception of regularity and developing the classification skills (the creation of chains made of images to the text, in which characters appear in a specific sequence). The magazine also starts to present the first riddles. Giving a positive answer to the slogans coded in the text is not an obvious issue as it requires the association of facts, cause and effect thinking, logical analysis and synthesis of text, as well as the use of experiences that the child already has. All these skills are necessary and used in the course of the mathematical education of younger pupils. Another proposal that appeared in the magazine are rebuses. The black and white illustrations are beautiful in their simplicity, at the same time being unambiguous; however, the terms that they hide are not easy to decipher. They stimulate thinking and constitute a great challenge and encourage children to look for solutions in various manners. On the other hand, later issues of the magazine started to develop practical skills in children, which also form a basis for the mathematical education of pupils. Therefore, *Świerszczyk* suggests that children independently make a clock (it may offer indispensable assistance when learning to tell the time), an elephant made of paper laces, toys made of chestnuts, Christmas trinkets, furniture for dolls and a number of others. In the course of their activities, children acquire a number of experiences, learn to plan, measure, count, use materials economically, as well as develop the ability to read with understanding – it is necessary to read the instructions and translate the text

[11] E. Szelburg-Zarembina, "Dzieci, deszcz i klocki", *Świerszczyk* 1945, No 2, p. 3.

[12] H. Koszutska, "Szkolny ogródek", *Świerszczyk* 1945, No 4, p 3.

[13] H. Koszutska, "Powrót", *Świerszczyk* 1945, No 2, p 6.

[14] E. Gruszczyk-Kolczyńska, E. Zielińska, *Dziecięca matematyka. Metodyka i scenariusze zajęć z sześciolatkami w przedszkolu, w szkole i w placówkach integracyjnych*, Warsaw 2000, p. 37.

[15] E. Szelburg-Zarembina, "Bajka o gęsim jaju", *Świerszczyk* 1945, No 3, p. 4-5.

into practical actions. Such tasks not only develop fine motor skills, but also contribute to noticing the necessity of the precision of measurement, accuracy of drawing, skilful planning of activities and distribution of projects on a sheet of paper, as well as in space. This is a unique training for imagination and creativity.

In relation to numerous letters from readers, a new section was added to the magazine, which was called *Świerszczyk's Post*. This section presented both children's letters and answers to them from the editors. I also wish to emphasise that the answers were edited in a manner to encourage and excite young readers to make further statements, as well as influence their conduct. In one of the letters,[16] the editors handle the issue of plagiarism, explaining in a descriptive way that just as you cannot take somebody's pen, you cannot sign your name under somebody else's poem. What is more, an entertainment section was introduced: puzzles and riddles were presented on the last page of the magazine. In relation to the dynamic development of the weekly magazine, the Ministry of Education sent a letter to schools on 3 October 1946 in which it recommended using *Świerszczyk* during classes and make it available in libraries and reading rooms.[17]

In August 1949, the "Czytelnik" Publishing Cooperative was transferred from Łódź to Warsaw and thus the editors also went to work in Warsaw, contributing to the establishment of contacts with several new talented contributors. The change also had a beneficial impact on the expansion of the section of correspondence with readers and cooperation with schools.[18]

## Evolution of the Magazine During Content Censorship Period

The beginning of the 1950s initiated a number of changes in *Świerszczyk*. In the middle of 1951, publication of the magazine was handed over to the "Nasza Księgarnia" publishing house, which resulted in the merger of *Świerszczyk* and *Iskierki*, a bi-weekly magazine for children and brought about a change of name. For the next five years, the magazine had a double title, *Świerszczyk – Iskierki* and was addressed to children aged 7 – 8.[19] It is necessary to mention that in this period, the magazine, similarly to the rest of press, was subject to censorship. The editors received guidelines pertaining to the content that was to be published, as well as facts that should not be

16 "Poczta Świerszczyka", *Świerszczyk* 1946, No 40-41, p. 31.

17 S. Frycie, *Literatura dla dzieci i młodzieży w latach 1945 – 1970. Tom II – baśń i bajka, poezja, książka dla najmłodszych, utwory sceniczne, grafika, czasopiśmiennictwo, krytyka literacka*, op. cit., p. 180-181; J. Łojek, J. Myśliński, W. Władyka, *Dzieje prasy polskiej*, Warsaw 1988, p. 180-181; S. Aleksandrzak (ed.) *Pół Wieku Przyjaźni z Dzieckiem i Szkołą*, Warsaw 1972, p. 153-154.

18 S. Frycie, *Literatura dla dzieci i młodzieży w latach 1945 – 1970. Tom II – baśń i bajka, poezja, książka dla najmłodszych, utwory sceniczne, grafika, czasopiśmiennictwo, krytyka literacka*, op. cit., p. 182.

19 B. Tylicki, G. Leszczyński (ed.), *Słownik literatury dziecięcej i młodzieżowej*, op.cit., p. 385-386.

mentioned. Thanks to the wisdom and intelligence of the editors of *Świerszczyk*, the magazine steered away from politics. Nevertheless, the magazine published translations of fairy tales from USSR nations and commemorated Stalin's death with his image on the cover,[20] as a result of which the content that would form the mathematical interests of children was undoubtedly impoverished. Some issues featured pictorial riddles which required pictures to be put in chronological order or to connect matching objects. In principle, texts that could be used by teachers to diversify children's mathematical education were absent.

Soon after the two magazines were merged, Maria Krüger joined the editorial team. She enhanced the content of *Świerszczyk-Iskierki* with legends and fairy tales and later writers, such as Tadeusz Kubiak, Czesław Janczarski, Wanda Chotomska, and a number of others, started to cooperate with the magazine.[21]

After 1956, it is possible to notice a clear improvement in the content of the magazine, when it returned to its' original name, *Świerszczyk*. At the end of 1957, in relation to a letter sent to the Ministry of Education, the editors of the magazine worked on the better adjustment of its content to the needs of schools. On account of this, *Świerszczyk* received a new section, entitled "Dzień dobry, pierwsza klaso" ("Good Morning, First Grade"), which was primarily focused on developing skills in the area of Polish language. It featured illustrations without text, used to train and master speaking skills. Picture stories were published here with questions to be answered, as well as riddles and rebuses. Colourful illustrations, accompanying the written texts, also with gaps, to facilitate writing and reading skills, were used. However, to avoid making *Świerszczyk* a copy of the school textbook, attention was focused on the presentation of works which did not resemble the ones known from the textbook by content and drawings.[22]

## *Świerszczyk*: The Gradual Increase of Mathematical Content in the 1960s and 1970s

In the 1960s and 1970s, a relative stabilisation of the political and economic situation took place in Poland and this was reflected in the dynamic development of magazines. The editors of *Świerszczyk* decided to make it a literary magazine; in relation to the above, attention was focused on featuring poetry, short-stories,

[20] http://www.swierszczyk.pl/historia.html (access: 30.08.2017).

[21] S. Frycie, *Literatura dla dzieci i młodzieży w latach 1945 – 1970. Tom II – baśń i bajka, poezja, książka dla najmłodszych, utwory sceniczne, grafika, czasopiśmiennictwo, krytyka literacka*, op. cit., p. 184.

[22] Ibidem.

fairy-tales and serialised novels. Débuts of new authors were promoted in the magazine. In this period, *Świerszczyk* became the "promoter of literature for younger children."[23]

Analysing the magazine with respect to the content that would develop mathematical skills in children, one can notice its diversity and gradual increase. Taking care of children's cognitive development, as well as for entertainment purposes, the magazine started to publish special separate pages with tasks addressed to young readers. They contain pictorial stories which develop logical thinking, cause and effect thinking, as well as imagination and creativity. These are not only tasks which require putting the pictures in a correct order (such proposals are quite rare); sometimes, it is necessary to refer to illustrations, supplement something, add some story, offer one's own solution or make a decision on the justifiability of conduct of the story's characters. *Świerszczyk* features tasks that develop the skill of coding, e.g. a cat's poem,[24] where the illustrations have to be given names, the first letter of the name has to be written down and the child has to read it in a proper sequence in order to find the codeword. The skill of reading symbolic language is exercised with the use of colouring tasks, and observation skills are formed via instructions such as: "connect pictures that match into pairs", "find two similar pictures", "show differences." The magazine also publishes the first crosswords which consist in naming individual pictures, entering words into relevant fields and reading the keyword in line with the instructions. Children also learn how to make rebuses from pictures and letters, they solve riddles, jigsaws and labyrinths, plant watercress in lines with the instruction of Maria Kownacka or set up a garden of cactuses. In this period, the editors also returned to the formation of practical skills by suggesting that the young readers make Christmas baubles, clothes for dolls, a well made out of a box of sweets, fences and houses (series: Majster Grześ buduje wieś [Master Greg Builds a Village]). All of the above-listed tasks are very important in forming children's mathematical skills and interests. It is worth adding that *Świerszczyk* features typically mathematical tasks, e.g. the so-called "suns" (2/1962) which train the facility of factorising numbers, text-based tasks (49/1962), where it is necessary to indicate persons in line with the specific content and drawings or guess a friend's telephone number (1/1973), pictures (1/1973), where it is necessary to search for and provide the number of items designated in instructions or a game called "Każdy liczy sam" ("Everybody Counts on Their Own") (52/1962), which develops the skills of adding, subtracting, multiplying and dividing. There are also numerous illustrations with instructions to perform calculations in order to, e.g., find out who won the bowling game (2/1970), how many cherries one bird is going

[23] B. Tylicki, G. Leszczyński (ed.), *Słownik literatury dziecięcej i młodzieżowe*, op.cit., p. 385.

[24] *Świerszczyk* 1961, No 1, p. 13.

to eat (20/1970), as well as logical and geometric riddles, magic squares or calculation riddles. A sample content of a riddle for good mathematicians is as follows:

Ten little foxes were running across a stubble field.

Who can count quickly: how many ears and legs did they have all together? (1973, No 2).

The magazine also returned to the publication of tasks which could be used by teachers during classes. Such texts as *Niespodzianka* (*Surprise*)[25] or *Na głębokim śniegu* (*In Deep Snow*) (1962, No 52) develop the skill of orientation in time (familiarity with days of the week), *Marchewkowe liczydła* (*Carrot Abacus*)[26] shows the necessity of precision in counting and *W hali targowej* (*At the Market*) (1970, No 6) masters the skill of money calculation or preparing text tasks for illustrations, a price list and a general situation. Proposals of board games were also printed, including: *Zdobywamy odznakę turystyczną* (*Getting a Tourist Badge*) (1970, No 33), *Poradź sobie sam* (*Be Independent*) (1970, No 51), *Wyścigi z przeszkodami* (*Obstacle Races*) (1973, No 52), card games – *Czarny Piotruś* (*Black Peter*) (1971, No 37) or *Loteryjka* (*Lottery*) (1971, No 51). Games proposed by the magazine allow young readers to accumulate a number of valuable experiences. First of all, they have to read and understand the instructions for the game; later, they have to follow the rules and learn the symbolic language that it uses. In the course of the game, the child learns to count when playing, sometimes multiplying, sometimes dividing, and also acquires the ability to code their own accomplishments. Depending on the randomness of the game, the child masters the skill of logical thinking in order to win, but also the capacity of combinatorial thinking. Games constitute underestimated assistance in shaping young children's emotions, overcoming difficulties, dealing with the situation of victory and failure.

Going back to the magazine, it is worth mentioning that in the 1960s, the editors of *Świerszczyk* received up to 7,000 letters per month, and at the beginning of the 1970s, the magazine was at the peak of its' popularity. The magazine systematically increased its circulation and, at that time, enjoyed a print run of 900,000 copies.

## Stabilisation of 1980s and Revolution of 1990s with respect to *Świerszczyk* Content

*Świerszczyk* in the 1980s did not change much. Inserts with tasks addressed to young readers continued to be printed. Apart from sample exercises that were described above, new challenges appeared: supplementing or colouring pictures in line

[25] M. Terlikowska, "Niespodzianka", *Świerszczyk* 1962, No 1, p. 818-819.

[26] M. Rosińska, "Marchewkowe liczydła" *Świerszczyk* 1962, No 51, p. 802-803.

with the applicable rhythm or another principle, connecting points (where the counting skill is mastered), competitions for the penny-wise (which masters the efficiency of counting and shows the power of sets), adding missing elements in pictures, mathematical tasks that feature such instructions as: is there more of, is there less of, as well as exercises in geometry. In 1989, *Świerszczyk* started to print proposals of various games on the back cover. For approximately a year, young readers had the option of becoming acquainted with ideas of various games. The originality and creativity of game designs, in my opinion, call for admiration and respect for their authors. They include proposals thematically adjusted to the seasons of the year, e.g. in January, children can play a game called Ski Slalom. Other concepts include pentomino, a lottery with puzzles, various domino variants, games for observant kids (training visual memory), standard board games, so-called races, clocks (completion games) and a number of others.

As far as the prior decade was a period of peace and balance with respect to the content, at the beginning of the 1990s *Świerszczyk* underwent a true revolution. From a literary type magazine, it transformed into a magazine publishing interviews with various interesting persons, reports from events, as well as advertisements. In the course of time, it introduced more and more journalistic forms and also included photographs.[27] However, every issue of the magazine still contained tasks addressed to young readers in the form of puzzles, labyrinths, jigsaws and crosswords, also those that form mathematical interests and skills. Tasks of a practical nature also appeared, e.g. *Świerszczyk's Boutique*, where children could find cut-outs for sewing a skirt for dolls, etc.; occasionally, board games were also published. When analysing the content of the magazine in this period, one can get the impression that the number and type of tasks containing mathematical threads is decreasing and other content is introduced in its place. A young reader may find short dialogues in English, there are also glossaries and Polish and English translations, information about interesting places around the world such as Italy, or practical advice about practising sports (e.g. ping-pong, water polo). Longer stories in the form of pocket books that can be cut out were also published.

## Conclusions

*Świerszczyk* was a magazine that has changed its external and also internal appearance over the decades. The colour illustrations of Jan Marcin Szancer were replaced by proposals of subsequent graphic artists who tried to reach the young readers with their message. Content was also subject to transformations; various literary forms were

[27] B. Tylicka, G. Leszczyński (ed.), *Słownik literatury dziecięcej i młodzieżowej*, op. cit., p. 385.

proposed to children, adjusted to their needs. *Świerszczyk* reflected the political and social situation in Poland and the changing sections indicate the desire to understand the needs of children aged 7-12. However, the magazine has always been prepared with a thought about supporting cognitive development of readers, in particular shaping mathematical interests. This is evidenced by the publication of pictorial stories, lotteries, puzzles, riddles, jigsaws, as well as typically mathematical tasks – text exercises, magic squares, activities with instructions, pictures and texts requiring calculation. The exercises presented in the magazine are constructed in a manner to make their content related to children's everyday life and experiences. Calculation takes place spontaneously; it is not imposed and becomes a fun activity. It is also difficult to overestimate the variety and the number of proposals pertaining to board games and card games offered by the magazine's editors.

Depending on the decade, early school education teachers could have used the ideas included in *Świerszczyk* to a greater or smaller degree. To diversify the class, as well as to activate children in the course of the class, it is justified to use the proposals of tasks included in the magazine. Apart from interesting exercises, the structure of which differs from textbooks, *Świerszczyk* publishes literary works with mathematical content. Their analysis may constitute an interesting introduction to classes, stimulate thinking, develop the ability of asking questions, as well as become a foundation for creative activities of pupils.

*Świerszczyk* is a magazine that is still published, having survived difficult moments and winning the battle with magazines for children based on animated films which are present on the market. It is a modern magazine with a wealthy tradition and a long past, which, let us hope, will support the development of the young generation for decades to come.

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