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The Role of Extracurricular Activities within Children's Palaces and Clubs in the Development Of Key Competences

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Research article

The Role of Extracurricular Activities within Children's Palaces and Clubs in the Development Of Key Competences

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Abstract

The extracurricular educational activities within the Children's Palaces and Clubs are carried out on the basis of goals that are implemented through a student-centred educational strategy. The content, methods and tools used are student-centred, differentiated according to the abilities and interests of the children. The activities are flexible, optional, and complementary to formal education and help to develop personality, creativity and competencies.
The extracurricular activities are student-centred and focus on the formative side of learning by identifying effective ways of organizing and guiding student activity. The teacher must become a facilitator, a mentor – through his activities students will acquire knowledge, develop competencies and skills, aptitudes, attitudes through which the theoretical knowledge can be transposed into practical knowledge and helps in the integration into contemporary society.
This questionnaire investigates the role, importance and complementarity of extracurricular activities. It studies the factors that influence the participation of the students in the extra-curricular activities offered by the Children's Palaces and Clubs. The study was conducted on a national level among children, an online questionnaire with 19 questions was applied (N = 3945).
The results show us the important role of non-formal activities, activities that together with formal education help to improve results and are complementary in the development of competencies. The study helps to analyze the strengths and weaknesses of extracurricular education, the results shed light on the children's needs children, and to what extent the use of the student-centred educational strategy will help to achieve better results in education, and probably to reduce school dropout.

Keywords:
extracurricular, science and technology, creativity, complementarity, competencies

Zusammenfasung

Der außerschulische pädagogische Unterricht innerhalb der Kinderpalais und clubs fußt auf Zielsetzungen welche durch erzieherische Strategien, mit dem Schüler im Mittelpunkt, erzielt werden. Der Inhalt, die Methoden und Arbeitsmittel sind auf den Schüler zentriert, differenziert je nach den Fähigkeiten und Interessen der Schüler. Die Aktivitäten sind flexibel, wahlfrei und fakultativ, sie sind komplementär mit dem formalen Unterricht und tragen zur Entwicklung der Persönlichkeit, der Kreativität und der Kompetenz bei.
Die außerschulischen Aktivitäten stellen den Schüler inden Mittelpunkt und legen den Schwerpunkt auf das formative Lernen, indem effiziente Modalitäten für die Organisierung und Anleitung der Aktivitäten der Schüler identifiziert werden. Der Lehrer muss ein Moderator, ein Supervisor werden und die Schüler sollen sich durch ihre Aktivitäten Kenntnisse aneignen, es sollen sich Fähigkeiten, Geschicklichkeiten, Einstellungen bilden, mittels deren sich theoretische Kenntnisse in praktische umwandlen und somit können sie zur Integrierung in unserer Gesellschaft beitragen.
Der gegenwärtige Fragebogen untersucht die Rolle, die Wichtigkeit und die Komplementarität der außerschulischen Aktivitäten. Es werden die Faktoren untersucht welche das Mitmachen der Schüler bei außerschulischen Aktivitäten in den Schülerpalais und clubs beeinflussen. Die Untersuchung wurde bei Kindern auf nationaler Ebene durchgeführt und es wurde ein Fragebogen online mit 19 Fragengegeben, (N=3945).
Die Ergebnisse zeigen uns die wichtige Rolle der nonformalen Aktivitäten, welche zusammen mit dem formalen Unterricht zur Verbesserung der erzielten Resultate der Schüler beitragen und diese sind komplementär für die Entwicklung der Kompetenzen. Die Studie hilft uns bei der Analyse der Stärken und Schwächen des außerschulischen Unterrichts, die Ergebnisse machen klar welches der Bedarf der Kinder ist und in welchem Maße die Verwendung der didaktischen Strategie, mit dem Schüler im Mittelpunkt, dazu beiträgt bessere Ergebnisse im Unterricht zu erzielen und wie diese wahrscheinlich zur Verminderung der Zahl der Aussteiger aus der Schule beitragen.

Schlüsselworte:
außerschulisch, Wissenschaft und Technologie, Kreativität, Komplementarität, Kompetenzen

1. Introduction

Children's Palaces and Clubs must become, in view of a modern education that values orientation of knowledge and is based on the selection of economic, political, scientific, technical, cultural values according to the criteria established by communities and common interests, a formative institution in which the needs of the child are paramount. The knowledge society we live in is based on the accumulation and use of data in the form of information and knowledge at a social level. Knowledge is information gained through education and experience,

through the educational process, including formal, non-formal and informal education. Exploiting this knowledge and translating information into practice, increasing interest in science and technology are some of the aspects that extra-curricular activities have to offer participants in non-formal activities. The specificity of non-formal education is achieved through the interference of the educational forms with the requirements of the local community, the specificity of the area and the use of student-centred teaching strategy. The extracurricular activities centred on the student are more than the accumulation of as much information as possible; these activities focus on the actions that help to consolidate the theoretical information and their application in practice (Cristea, 2016).

Children's lack of interest in natural sciences, chemistry, physics, biology, technology, technical-scientific activities is a huge problem in the education system in the EU, fact confirmed by several studies (Behtoui, 2019). In Romania the teaching strategies, the school syllabus, the lack of equipment, the lack of interdisciplinarity are some aspects that keep pupils and students away from these activities, and will trigger or has already triggered an acute lack of interest towards the technical disciplines, a lack of specialists in the field, lack of children in vocational schools and lack of specialized teachers in the area of mathematics, natural sciences and technology.

The role of extra-curricular education is to stimulate children's interest in the technical and scientific fields, to motivate children to rediscover the beauties of life through the prism of chemistry, physics, biology and technology to experience their importance in everyday life and to progress, develop towards becoming supporting pillars of modern society. The motivation of the students can be achieved by increasing the complexity of the educational act, whether formal or non-formal, through the interaction of sciences, the flexibility and open character of education, research in the field of educational sciences, globalization, with an education that requires the introduction of the interdisciplinary character (Albulescu, 2008).

Increasing children's motivation towards science and technology, interdisciplinarity, developing key competencies, cultivating interests for this type of activity, spending leisure time in a useful and educational way – this can be achieved through the interaction of the three forms of education: formal, non-formal and informal.

2. Theoretical foundation

Romania prides itself with children being awarded at International Olympics in the field of natural sciences, children who build robots and compete with their toys internationally, and yet we can state that on national level – based on national and international studies – mathematical and science curricular areas have lost ground to other curricular areas (Kitchen, 2017). It cannot be said that students are motivated to learn chemistry, physics, biology, technology even at the level of non-formal activities within Children's Palaces and Clubs, the disappearance of the technical-scientific circles can be clearly stated.

The acute lack of teachers in the respective curricular areas (in 2019, in Covasna county there were no registered candidates for chemistry, physics or technology), the lack of modern teaching materials, the discrimination between children from rural and urban schools, but also between 'elite' schools and neighbourhood schools are not a good environment for the curriculum area. The modern world needs specialists in this field as well, and to relaunch these curricular areas, extracurricular activities – this is largely in the hands of teachers and in investing in equipping laboratories with modern equipment and specialized educational software. The role of the pedagogical society in the natural sciences, technology is to know the way of thinking of the contemporary generation, to find the factors that have led to the departure from the respective subjects. Motivation towards natural sciences, technology, the development of logical thinking, creativity, rediscovering the beauty of chemistry, physics, biology, technology, extracurricular activities in which the sense of beauty develops, skills are some of the points for which answers are sought (Daniel, 2015).

In the modern knowledge-based society, in the sphere of information and in the technological world, it is necessary to attract even from primary education the interest of children towards natural sciences, technology and to apply the student-centred interactive learning. (András, 2010)

The interest and motivation of children in natural sciences, technical-scientific circles can be kept if we apply modern teaching methods, we have a modern material base and an advanced technology. These requirements become the pillar of support for education. (Cristea, 2016)

Non-formal education, complementary to formal education, contributes to the partial or complete development of competencies and complements the information, knowledge, skills and attitude offered by formal education but loses ground in a system already overloaded.

The characteristics of extracurricular education must be explored from the perspective of the different forms of education and require their investigation as non-formal activities must be considered complementary to formal

education and help to develop the personality and achieve the educational aims proposed for the integration of the educable in a modern society (Bocoș & Jucan, 2019; Flueraș, 2014).

On a national level, non-formal activities are included in the national educational system since the 1950s, in Covasna county, the Children's Palace in Saint George, also called the Pioneers' Palace, is for the benefit of the community and children since 1954 and offers a wide range of extracurricular activities.

Non-formal education through its practical activities based on a non-formal student-centred curriculum was the lever that made the transition from the subject-centred curriculum to the student-centred curriculum materialized by the National Education Law no. 1 of 2011 and later on the introduction of school programs for the 5th grade, contained in Annex 2 of OMNE (Order of Ministry of National Education) no. 3393 / 28.02.2017, which is applied in the education system starting with the 2017-2018 school year, school programs focusing on key competencies in which there are some changes that help children to be motivated and to prepare the respective subjects.

The non-formal education within the Children's Palaces and Clubs is regulated by M.E.R.S. (Ministry of Education, Research and Sports) order no. 4624/2015 - amending the annex no. 1 to the Regulation of the units offering extracurricular activity. According to the National Education Law, non-formal education, together with informal education, are integrated forms of the planned activities, do not follow a particular curriculum and are complementary to formal education. Children's Palaces and Clubs are state education units specialized in extracurricular activities within which specific instructional-educational activities are performed that develop and practice key competencies making good use of children's free time. The activities must be carried out in such a way as to be complementary to the formal education and to avoid the parallelism or overlapping with the content of the programs specific to the formal education.

The quality and efficiency of the activities within the Children's Palaces and Clubs depend on the following of certain rules and principles, and must form and train the competencies that the formal education forms.

The purpose of extracurricular education is the development of the key competencies, the development of the children's personality through the use of learning strategies, of the methods that favour the development of knowledge and personality, and creativity of the child (Albulescu, 2008).

The characteristics of extracurricular activities in Romania that take place within Children's Palaces and Clubs for which non-formal education militates and which are also governed by regulations, are centred on students, on the real learning needs, thus facilitating a better adaptation of the non-formal educational process. Another positive aspect through its autonomy is that it is adapted to the community, the group and is centred on its own learning pace. The curriculum of non-formal activities, the development programs are structured and organized by areas of interest and not by years of studies or academic disciplines, they have clear learning objectives, they allow moments of abstraction by extracting knowledge from real life, they are complementary activities to formal education (Bocoș, 2017). The flexible contents, the period of achievement of results are shorter than in formal education and the satisfaction is higher among the children. Diversification, extension of the learning framework, flexibility of learning space and time is the duty of the circle leader. The respective activities complement the formal education, respectively the accumulation of knowledge, skills, attitudes that help the personal development of the children. The demands of children and the community, motivating students to participate in non-formal activities in addition to other activities likely to be more interesting or relaxing, requires efficient management and a modern pedagogy focused on competency through education that emphasizes the consolidation of theoretical information through their practical applications (Chiș, 2005).

Play as a teaching method represents a set of actions and operations that pursue the objectives of intellectual, technical, moral, physical training of the child. Incorporated in the extracurricular didactic activity, the 'play' element adds a livelier and more attractive character, it brings variety and a functional good mood, joy, of relaxation, which prevents the appearance of monotony, boredom, fatigue (Albulescu & Catalano, 2018). The didactic game is a specific type of activity by which the circle leader consolidates, specifies and even verifies the students' knowledge, enriches their sphere of knowledge, enhances and trains their creative abilities (Albulescu & Catalano, 2019).

Changing the place of the activities reduces monotony, routine; the laboratories, the workshops, the circles of non-formal activities must offer an alternative. The flexibility to see other forms of education, to compare positively or negatively with what is happening in school, requires a change of place of activities. Children's Palaces and Clubs come to help shape the personality of the child, the place of "play is within the institutionalized framework, but outside the educational system, in institutions that do not have an explicit educational destination" (Bocoș & Jucan, 2017, p. 25).

The educational perspectives of non-formal activities highlight the more relaxed, closer relationship between the teacher and the students. Even if the teacher facilitates the whole didactic process, the students can manifest themselves spontaneously and freely. The teacher or the circle leader does not impose his point of view, at the most he suggests, cooperates and supports them to become good organizers of their own activity. The range of varied teaching strategies offers the student the opportunity to accumulate life experiences through direct contact with people, with the phenomena of material and spiritual culture. The educated person becomes a resource, a producer, an opinion leader, in other words, an active participant in his own learning (Lazăr & Cărășel, 2008).

As with formal education, non-formal education aims to develop appropriate behaviours that are conducive to continuous learning, to acquiring a volume of information and transferring it to various fields of knowledge, developing critical thinking, multiplying positive experiences. The extracurricular education has its role, supporting the efforts of those who wish to increase the coherence of the instructional-educational process through practical educational activities and with a prospective orientation of the extracurricular education.

The development of key competencies, children's life skills, and stimulation of cognitive, spiritual, interpersonal and social development should not take into account the gender of children. Teachers play a particularly important role in developing the ability to understand gender roles in childhood. There is a wide variety of studies from several countries that have shown that parents and teachers tend to encourage children - boys and girls - to participate in activities that do not require practical or technical skills, although the uniform development of key competencies is crucial in the knowledge society. In order to be able to avoid gender barriers coming from adults regarding the education of children, we need to be aware of these differences, to know them, to accept them, and to act so as to avoid stereotypes and gender-cataloguing of children. The perception that children have of themselves is considered to be a crucial element in choosing a non-formal activity. All those involved in the education of children, from parents to teachers must know the problem of gender differences and the need to use or compensate these differences (Balica & Fartuşnic, 2004).

Thus, the idea that only certain activities and behaviours are appropriate to a certain gender is reinforced. That is why limits are set instead of improving the non-formal curriculum in the direction of equal opportunities (Skelton, Francis, Valkanova, 2007). The differences between boys and girls in terms of the type of activities they prefer determine differences in the environment, with broad implications for personal development. A number of studies have focused on the type of activities involving girls and boys during play periods and have noted that girls prefer structured activities to a much greater extent than boys (Hutson and Comeaux, 2002). If girls choose well-structured activities, they will have more experience in maintaining structures and providing answers within these structures. Boys, not choosing structured activities, will have more experience in creating their own structures. They will adapt and will have difficulty coping within structures already created (Santrock, 2001).

The study analyzes the positive and negative valences of these "shortcomings" listed above and the factors that generate disinterest in the natural sciences and technology and how they are "affected" by the non-formal activities within Children's Palaces and Clubs.

3. Research methodology

The *online questionnaire* was completed between February and March 2019 in 38 counties in Romania on a sample of 3945 children attending formal education and different forms of non-formal education. Statistical analysis was performed using SPSS24.

The research questions to which the answers were expected:

- What do children think about the activities organized in the Children's Palaces and Clubs?
- What are the reasons students choose to spend their free time at Children's Palaces and Clubs?
- To what extent do non-formal activities in the technical-scientific field contribute to the development of the competencies of the key competencies?
- What are the factors that influence the participation of students in the scientific and technical activities?

The purpose of the questionnaire is to highlight the role of extracurricular activities organized by the Children's Palaces and Clubs in developing the key competencies and in spending free time through education and play. Drawing the attention of teachers based on children's responses to the regression of natural sciences, technology and activities within the technical-scientific circles. Achieving more meaningful visions among teachers in mathematical curricular areas and natural sciences, technologies, circle leaders in the respective fields on the factors that influence student participation and motivation for the respective subjects and finding solutions to achieve better results at national and international assessments (PISA), to find those teaching strategies that will stimulate to study the respective fields and to participate in extracurricular activities, to realize the importance of knowing phenomena, of modern technology and to reduce functional illiteracy among children.

The introduction of the school programs for the secondary education included in Annex no.2 of the OMNE no. 3393/2017 focused on the 8 key competencies also brought changes in extracurricular activities. Non-formal activities through complementarity with formal education can help develop key competencies through specific extracurricular activities. First of all, it has to intervene in the motivation of children to develop those skills that are the strengths, and the ones where there are difficulties, and to find those solutions that will help to obtain the best results in the national and international assessments, but also in finding a hobby for to spend their free time developing their personality, ability, attitude (Cărăşel & Lazar, 2008). This process requires from the teachers an extra effort by reorganizing the teaching strategies by combining the traditional methods with the modern learning-assessment methods in order to get closer to the generation of the modern world.

The extracurricular activities within the Children's Palaces and Clubs in Romania are based on an Organizing Regulation, are an integral part of the national education system and are free. The complexity of the activities, the selection of children according to their age and intellectual capacity or ability, is realized by the circle leader based on a selection procedure approved by the methodical commissions and the board of the institution. The interest of the students for non-formal activities increases with the age of the children, which is confirmed by the study. The extracurricular activities must be complementary to the formal education and respond to the recreational and training needs of students. This implies that students will be consulted in advance about the nature and purpose of a particular activity in order to avoid any abuse arising from the enthusiasm of some to perform the activities only to highlight at any cost a particular student or group of students or for personal interest.

4. Results

Table 1. Percentage of students who attend extracurricular activities in different levels of education

				Extracurricular activities		Total
				Yes	No	
Levels of education	**Primary school students**	Count		809	136	945
		%within level	29,6%	85,6%	14,4%	100,0%
		Adjusted Residual		12,4	-12,4	
	Secondary school students	Count		1134	538	1672
		%within level	41,3%	67,8%	32,2%	100,0%
		Adjusted Residual		-1,9	1,9	
	High school students	Count		796	532	1328
		%within level	29,1%	59,9%	40,1%	100,0%
		Adjusted Residual		-9,2	9,2	
Total		Count		2739	1206	3945
		%within level	100%	69,4%	30,6%	100,0%

$N_{Primary}$=945, p<.001, adj.resid>3, $N_{Secondary}$ = 1672, p<.001, adj.resid>1,5, $N_{High\ school\ students}$=1328, p<.001, adj.resid>3, N=3945

Based on the research it can be observed the increase of the importance of non-formal activities with the increasing age of students due to the increase of autonomy towards their parents. Primary school students participate almost 29.6% in extracurricular activities often chosen by their parents or proposed by the school. The extracurricular activities preferred by the students in primary education are educational instructional processes that mainly develop motor skills. The respective activities must be approached through play, students can discover truths, they can train their ability to act creatively, to know the strategies of the game which are essentially heuristic strategies, in which cleverness, spontaneity, inventiveness, initiative, patience, daring are manifested (Albulescu & Catalano, 2019).

The biggest contribution to non-formal activities comes from secondary school students. They participate in a percentage of 41.3%, in these interdisciplinary activities that are complementary to the formal education, are free and develop their personality, skills, creativity. At

adolescence, children try all kinds of extracurricular activities until they find the ones that they are attracted to. Non-formal activities within Children's Palaces and Clubs attract 42.1% girls and 41.8% boys to these activities in which they spend their free time actively. The motivation of the students to participate in a certain activity depends very much on the personality of the circle leader and on the didactic strategy he uses to increase the interest in these often rebellious, sometimes aggressive children, who do not like to follow the rules, but they are eager to achieve something and to stand out.

The role of extracurricular activities decreases significantly when accessing higher education, only 29.1% participate among those surveyed in non-formal activities. High school students participate in these activities based on those declared to develop self-esteem, practical knowledge and to dedicate themselves to a hobby. Within the activities they socialize with students from other schools and learns to self-evaluate, to make comparisons with students from other high schools, locally and countrywide. The wide range of educational activities offers the necessary framework for students to get to know their limits, so that they can pass beyond them, which helps them in future social and professional integration.

One general objective at all levels of education was to stimulate creativity in order to modernize the didactic approach and to carry out a quality educational act, by stimulating the interest for the in-depth study in the targeted fields, developing the capacity of documentation, communication and the use of media in order to make the discoveries accessible, teachers' awareness of the need to use new learning and evaluation methods, promotion of teachers' experiences in a multidisciplinary context.

Table 2. *The proportion of students who choose to do an extracurricular activity by themselves*

Levels of Education	At the choice of the teacher or parents	When choosing the child
Primary school students	92,9%	7,1%
Secondary school students	45,1%	54,9%
High school students	9,3%	92,7%
		N=3945

The choice of extracurricular activities organized by Children's Palaces and Clubs, the increasing autonomy of choosing leisure activities is directly proportional to the age of the children. In primary education, children choose non-formal activities that teachers suggest in partnership with parents (92.9%). In the secondary education, things start to change, the students choose their activities through which they want to develop their strengths and which helps to develop their skills in the respective field. Parents need to help, inform and find out the weaknesses of their children in order to develop those skills, those lacks of knowledge, attitudes that are needed in the children's future and which can be corrected through extracurricular activities.

Secondary school children choose their activities voluntarily in proportion of 54.9% of those interviewed. Those in high school education have a broader vision for the activities they want, they choose 92.7% non-formal activities that they want to follow and that will help develop competencies. They follow the activities that have become their hobbies such as music, modern dance, folk dance, and rarely there are students passionate about electronics or natural sciences.

Table 3. *The proportion of students according to the levels of education and the gender of the children*

Levels of Education					Total
		Primary	Secondary	High	
Gender	**girl**	591	955	725	2271
		26,0%	42,1%	31,9%	100,0%
	boy	354	716	604	1674

	21,1%	42,8%	36,1%	100,0%
Total	945	1671	1329	3945
	24,0%	42,4%	33,7%	100,0%

N=3945

The proportion in which girls or boys participate in these non-formal activities depends on the field of the activity. In extracurricular activities, the composition of the sexes depends on the field of the activity, girls are more likely to choose cultural-artistic and the sports-touristic activities, while boys like the sports-touristic and technical-application ones. Based on the questionnaire, it is possible to state a slight shift in the participation of girls in non-formal activities. The study corresponds to the research carried out in the respective fields in Europe, girls in primary education participate in a proportion of 26% as compared to 21% of boys in non-formal activities. In secondary education it cannot be said that girls or boys are keener to spend their free time doing extracurricular activities, it is 42.1% girls and 42.8% boys. High school education brings a slight shift towards the more active participation of boys 36.1% and girls with 31.9%. Overall, the participation of girls in these activities is higher, which corresponds to other research done.

The following question investigates the reasons why students participate in extracurricular activities.

Table 4. *Reasons of the students for participating in extra-curricular activities within Children's Palaces and Clubs*

	Primary school students		**Secondary school students**		**High school students**	
	yes	**no**	**yes**	**no**	**yes**	**No**
It helps me in teaching	55,5%	44,5%	47,4%	52,6%	46%	54%
Adjusted residual	5.6			1.0		1.7
It's a nice way to spend your free time	80,9%	19,1%	78,8%	21,2%	66,5%	33,5%
Adjusted residual	8.9		4.9			7.5
Because that's what parents want	92,9%	7,1%	83,4%	16,6%	78,6%	21,4%
Adjusted residual	13.4			1.2		6.4
I I'm bored at home	40%	60%	29,6%	40,4%	17,8%	82,2%
Adjusted residual	7.4		1.8			9.2
My friends are there	50,1%	49,9%	42,3%	57,7%	35,1%	64,9%
Adjusted residual	6.0		1.7			3.7
I prefer a healthy lifestyle	74%	36%	64,8%	35,2%	60,4%	39,6%
Adjusted residual	7.3			1.4		4.8
It helps me in my daily life	73,1%	26,9%	73,3%	26,2%	67%	33%
Adjusted residual	3.4		4.6		4.4	
I feel better than at school	88,1%	11,9%	78,2%	21,8%	70,6%	29,4%
Adjusted residual	9.8			1.1		7.5
I can stand out	78,6%	21,4%	73,6%	26,4%	67,8%	32,2%
Adjusted residual	8.0		2.4			4.3
Other	72,4%	27,6%	57,2%	42,8%	50,7%	49,3%
Adjusted residual	9.6			1.9		4.6

N=3945

The extracurricular activities within the Children's Palaces and Clubs occupy an important place amongst the educational influences. Participation in this type of activity broadens the cultural horizon of the students, completing the volume of knowledge acquired in the formal education with new concepts. It constitutes a means of forming competencies, contributing to the moral, aesthetic, technological education of the students,

disciplining their actions and extending their cultural-artistic, technical-scientific horizon. Extracurricular activities are a means of training students' skills to use their free time rationally. They are favourable to the spirit of independence and initiative.

The results of the study conclude with the above mentioned. Students often participate in the respective activities for a better understanding of the lesson learned in formal education and to have better school results.

To observe the significant differences in the choice of extracurricular activities, the adjusted standardized residuals are followed for each cell. In primary education 55.5% of the children who answered the questions participate in a form of non-formal activity because it helps in learning, and 80.9% think it is a good way to spend their free time. The results of the research confirm that in primary education there is a closer attachment of the pupils to their parents. The pupils in primary education participate in non-formal activities being influenced by their parents, 92.9% attend an activity because their parents want them to. At the secondary level 78.8% of the participants believe that the respective activities are a pleasant way to spend their free time. The organization of free time and healthy life begins to take shape at the secondary level, within the reach of parents (83.4%), they prefer to follow an activity within the Children's Palaces and Clubs because they prefer a healthy lifestyle (64.8%). The purpose of extracurricular activities in high school, with greater autonomy in terms of spending free time, is the development of special skills, the cultivation of interest for socio-cultural actions, the facilitation of integration in the school environment, the value of personal talents and the correlation of aptitudes with the characteristic attitudes (67%). Through these activities students are offered another way of learning about life, positive values of life, moral values and not only and thus feel better than at school (70.6%) and can also stand out (67.8 %).

Probably the lack of educational alternatives at secondary level, the curiosity about these activities attracts an increasing number of children who want to combine the educational game with the increase of school and sports performance. High school students have a more eloquent chance to pursue their hobbies within Children's Palaces and Clubs through creative and recreational activities. The results of the research are supported by other research carried out within the extracurricular activities at national and international level (Ionescu & Popescu, 2012, Eschelman, Madsen, Alarcon, Barelka, 2014).

Table 5. *The proportion of students participating in non-formal activities in curricular and gender areas*

	Extracurricular activity		**Extracurricular activity**	
	Technical - scientific		**Culturally - artistic**	
	Not participating	**Participate**	**Not participating**	**Participate**
Girls	46,5%	43,5%	34.5%	65,5%
Boys	44,6%	55,4%	55.6%	44,4%

N=3945

Non-formal education is innovative, attractive and fun. Involves participants in practical and creative activities and supports students' communication and networking skills through team activities. Parents have the responsibility to identify and guide their children's needs so that they have the skills to cope with situations they will encounter in life, but also to have a successful career. Parents should use their children's free time so that they can develop, find those activities that reflect their age and skills, help them express themselves more easily, gain confidence in themselves, and take initiatives both at school and at home.

The lack of alternatives for boys play an important role in the non-formal activities of the Children's Palaces and Clubs. A particularity of the extracurricular activities, of real importance, is their connection with the practical side. The application of knowledge in extracurricular activities has the value of a developing exercise in developing students' skills. Important in carrying out these activities is the fact that students can be trained in both initiation

and organization, as well as in the way they are carried out.

According to the analysis of the quantitative data, the boys' participation in the technical-scientific activities within the Children's Palaces and Clubs is 55.4%, and 65.5% of the girls prefer culturally artistic activities. Students prefer these activities to improve school performance, even if the time allocated to them is at the expense of their free time or doing homework.

The technical-scientific activities are attended by 55.4% of which 26.9% boys from primary school, 22.8% from secondary school and 12% from high school. These data are in line with statistics from the Council of the European Union in 2019 (Kitchen, 2017, Behtoui, 2019). Studies come and reinforce the aforementioned and demonstrate that extracurricular activities help to build a positive attitude towards learning, encourage teamwork and solidarity, but also the ability to find solutions and solve problems more easily.

Table 6. *Factors that influence students' participation in the technical-scientific activities*

	Primary school students		**Secondary school students**		**High school student**	
	Yes	**No**	**Yes**	**No**	**Yes**	**No**
Teachers do not keep up with technology	26,1%	73,9%	30%	70%	30,6%	69,4%
Adjusted residual		2.8		2.6		5.2
The equipment from the laboratories is obsolete	86,2%	13,8%	73,4%	26,6%	67,7%	32,3%
Adjusted residual	10.1			1.6		5.3
The exercises / exercises are too demanding	29,3%	70,7%	33%	67%	34,7%	65,3%
Adjusted residual		2.2	2.5		3.8	
The time of realization / exercise is too long	24,8%	75,2%	33%	67%	39,9%	60,1%
Adjusted residual		6.1		3.3	5.8	
I have no friends in circles	31,6%	68,4%	37,2%	62,8%	41,5%	58,5%
Adjusted residual		4.3	2.4		3.4	
They are not useful	39%	61%	38,1%	61,9%	40,1%	59,9%
Adjusted residual	2.4			3.0	3.8	
Teachers are not well trained	46,4%	53,6%	41,7%	58,3%	42,9%	57,1%
Adjusted residual	2.1			2.0		1.3
Other	46,4%	53,6%	41,7%	58,3%	42,9%	57,1%
Adjusted residual	2.1			2.0		1.3

Table no. 6 refers to activities that will stimulate students to pay greater attention to the disciplines in the curricular areas of science and technology, whose curricula are based on the idea of education using five different disciplines: chemistry, physics, biology, technology and mathematics, and presupposes cohesive learning based on real-world demands, integrated into a cohesive, interdisciplinary learning paradigm and not the study of four different disciplines.

What distinguishes the technical-scientific activities within the Children's Palaces and Clubs from the traditional education (based on science and mathematics) is the mixed learning that demonstrates to students how the scientific method can be applied in everyday life. They develop their calculation-based thinking and focus on solving problems by applying real-life solutions. This type of education can be applied starting from the smallest classes, secondary school, high school and until college, also included (Kerekes & Barabas, 2019).

The scientific-technical circles within the Children's Palaces and Clubs have activities that help to develop the basic competencies in science and technology. These activities are complementary to formal education and are non-formal in nature. The activities are interdisciplinary in

which the artificial boundaries between the disciplines of mathematics, chemistry, physics, biology, technology and other disciplines are exceeded and problems, can be solved more easily due to their practical relevance (Albulescu, 2008). Practical activities such as aero-modelling, applied electronics, carting, and experimental chemistry are some circles that lose ground to humanistic circles.

And yet, despite all the efforts of the teachers to carry out motivating activities, the students ignore the technical-scientific activities. The results show that the message for the correct and coherent reception of the information, the methods, the procedures, the mode and the modalities used as the pedagogical tact of the circle leader represent the strong point of this kind of activity.

The equipment of laboratories, of the technical-application circles are the main barriers that make the pedagogical act difficult and is an important reason for which the secondary school students (73.4%) and high school students (67.7%) do not attend the respective circles.

Attention and patience is one of the major problems of the contemporary generation that develops with time, patience and hard work. Instead, children have a natural curiosity about the surrounding world, the human being, at every stage of its development, has needs, needs, interests, and later on aspirations that have certain specificity. Their knowledge and respect ensure the child's involvement in these educational activities. The child is motivated to learn if what he is learning is related to reality, if it is useful and helps him in his daily life, if he starts from what he knows and what corresponds to his experience. He learns by doing, interacting directly, acting practically, applying, analysing, appreciating, observing, drawing conclusions, that is, if he is actively involved mentally and, especially at a young age, through sensory and motor skills. Effective learning is carried out in a pleasant, supportive atmosphere, where the child feels he can decide, that he has a certain degree of freedom, in which he is allowed to make mistakes and in which he is supported to correct the mistakes, not criticized for them or be compared to others. At a young age, and not only, the playful aspect of learning is very important and motivating (Albulescu & Catalano, 2019).

The respective activities must be managed in such a way, using didactic strategies to motivate them, to not require long time to achieve, to perform, and not to be too demanding (Barabas, 2019).

Children, especially in primary education, think that the activities are too demanding (70.7%). As they get older, work and exercises have to be done, more sophisticated problems have to be solved – high school students do not participate in these activities because they are too demanding (67%), they think that the introduction into the sophisticated world of technology must be progressive. The time of accomplishment and exercise is another impediment that is not to the liking of the students, 67% of the secondary school participants consider the time too long to carry out a work or an exercise fact confirmed by high school students (60.1%) as well.

Learning has an important relational side, which is why connecting the circle leader and the parent with the child, appreciating the effort put into the task and not the end result, encouraging, trusting that he/she will succeed are important elements in learning, especially in the repetitive, difficult, frustrating times of the learning process.

The attitude of the circle leader, of the parents, regarding learning and ensuring a proper study climate contributes to the increase in motivation in learning. The students appreciate the use of modern learning methods, such as the online educational product which have the role of presenting the information from the school syllabus in a pleasant way (Kerekes, 2018). These are means that students really like and which can be masterfully introduced by teachers. It helps children, because technology is part of their lives, and its use by circle leaders means making learning attractive, friendly, taking into account their concerns and interests. Students consider that the teachers are well trained (53.6% in primary education, 58.3% in secondary education and 57.1% in high school education).

The results of the study are also confirmed by other research which shows that participation in extracurricular activities is generally considered beneficial (Shannon, 2006, p. 400), while Barnett (2007, p. 316) notes that some schools encourage students to participate in various extracurricular activities, such as athletic activities, vocational clubs, etc. International studies on the effects of extracurricular activities at high school level are positively correlated with higher grades, positive attitudes towards school (Fredricks and Eccles 2008).

Results consistent with other studies show that students who generally participate in extracurricular activities are positively correlated with school performance, personality and acceptance by their peers, thus emphasizing both academic and social benefits (Fung and Wong, 1991, pp. 155-160).

5. Conclusions

The scientific research was carried out on a sample of 3945 children from 38 counties of Romania who answered the online questionnaire regarding the participation in extra-curricular activities. The study highlighted the importance of extra-curricular activities organized within the Children's Palaces and Clubs, activities that are complementary to formal activities.

Our questions focused on the role and importance of the extracurricular activities specific to Children's Palaces and Clubs, of the school environment, of the factors that influence the participation in the respective activities. The respondents seem to devote time to extracurricular activities and consider that non-formal education is consistent with formal activities and participation in extracurricular activities did not adversely affect their school performance (grades). The data of the research carried out are in accordance with the results of the researches carried out in Luxembourg, Cyprus, Hungary and Romania, boys prefer activities that develop more the competencies in the field of science and technology, and girls mainly attend the artistic cultural circles (Olaru, 2015)

Another question addressed was related to the students' preference for choosing different forms of non-formal activities. According to our results, secondary school students participate in a higher proportion than the primary and high school students in extracurricular activities. In the choice of activities, the choice of parents for those in primary education dominates due to the young age of the children. Regarding secondary school students we can see that the same activities are chosen almost equally by both parents and students, while in high school education the student chooses the preferred activity. Students attend extracurricular activities because they are innovative, attractive and fun. It helps to apply the theoretical information in daily life by involving the participants in practical, creative activities and supports the communication and networking skills of the students through team activities. The activities are more relaxing, the way of highlighting through competitions, shows, visits to different societies is greater than in formal education.

The competencies in science and technology along with the ones in mathematics are indispensable to the knowledge society. Forming competencies in science and technology is a complex field, which can have a strong influence on children's development. During these activities, children have the opportunity to know, to handle various tools and materials. They are curious, clever and eager to create, to experiment. By motivating students, they become interested in everything around them, they become eager to try, create, carry out a successful activity and have confidence in their own strengths. The lack of equipment of the technical circles is in the way of the students to form and develop skills, abilities and practical aptitudes.

Adapting the extracurricular activities to the national and international standards and to the current necessity of society will be a qualitative leap in the non-formal education offered by Children's Palaces and Clubs. The quality of educational services to spend their free time, motivating children to participate in the respective activities, will generate the use of interactive teaching strategies with a diversified methodology, based on combining learning activities and independent work with the cooperative activities, intensely involving all psychic and knowledge process of students, ensuring optimal conditions for individual and team affirmation, developing critical thinking, motivation for learning and allowing evaluation of their own activity.

The study shows us a positive attitude towards extracurricular activities within Children's Palaces and Clubs. These activities help students to develop a positive attitude towards learning, have higher academic performance, and have diversified practical skills and good problem-solving strategies.

Extra-curricular activities are a way to spend your free time learning. Our follow-up research will study in more depth the factors that influence the frequency of these forms of activities.

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