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## Development of Preschool Physical Activity Program for Strengthening of Grassroots Sports in EU)

### LUDUS PROJECT

#### IO-1: Needs Analysis Report

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## SECTION 1

### Policies and curricular documents

#### ***National Education Programme for Preschool Education in Kindergartens (36-72 months) Published in 2013.***

The content of program has been developed to enable preschool education institutions to grow healthy through their rich learning experiences; to maximise their development in the fields of motor, social and emotional, language and cognitive development; to gain self-care skills and to be ready for primary school.

The main aim of the Movement education is to develop the fundamental movement skills of children and to contribute to the development of the child's physical, motor, cognitive, language, social and emotional, self-care skills.

Thus, lifetime participation of the child in physical activities can be provided. These include the development of physical and motor competences, perceptual motor development and mobility skills, i.e. locomotor, non-locomotor and object control skills. During these activities children's fundamental movement skills, body awareness motor competence (strength, coordination, speed, speed) and physical competence (flexibility, strength, endurance) develop.

Example activities: body awareness (various parts of the body such as shoulder, waist, elbow and wrist), space awareness (up, down, front, back, right, left, etc.), strength, speed, quickness, flexibility, endurance and coordination activities are among the activities that can be carried out. Individual children activities that take into account their characteristics, motivating them, reinforcing their self perceptions and self-confidence place should be given. Environmental regulation in applications, suitable for children's ages and fundamental movement care should be taken to choose materials that will be effective in gaining skills.

Open materials such as ball, rope, chalk, hulahup, balance board, etc. in addition to the use of outdoor game materials, nature presents children with different structure materials and environments such as floors, climbing facilities, logs that can be used for balance it should also be used. In addition, traditional / local children's games, outdoor street the inclusion of their games within the scope of movement activities will diversify the activities.

Action activity, support of motor development of children and mobility skills it can be used as a transition event as well as for the purpose of gaining in this case preparing an activity plan for the work to be done and writing them into daily training flow there's no need.

Activities should last at least 30 minutes the first 5 minutes of this time warming games, 20 minutes of the previous repetition of the practice and new basic movement skills, the last 5 minutes of cooling activities should be. Fundamental movement skill events can be applied in the classroom or outdoors, in the garden.

**Arzu Özyürek, İsa Özkan, Zuhale Begde, N. Ferah Yavuz (July 2015). *Physical Education and Sports in Preschool Period. International Journal of Science Culture and Sport, Special Issue 3, 479-488.***

Early childhood is known as a critical period for development and fundamental movement skills. Growing and development of children have an effect on gaining fundamental movement skills. Besides, the opportunities and movement education provided for the students play an essential role on developing fundamental movement skills properly. In preschool education, physical training is the leading activity given the least importance. From the early years of childhood on, promoting fundamental skills of children such as walking, running, jumping besides bending over, twisting, flinging something away have great importance because it is closely connected to the other zones of development. Physical training strengthens cognitive skills such as inquiring mind, problem solving skills and concept acquisition. Besides, fine and gross motor development is consistent with emotional and social life skills. In virtue of physical training, awareness level of children is heightened and a basis for lifelong sport habits is provided. Consequently, children acquire much more than movement skills thanks to physical training. In this study, the importance of physical training and sports activities, the points to be paid attention to while practicing, basic activities in physical training, and education models and methods used have been issued relevantly.

## **SECTION 2**

### **Overview of research with the implementation of a program to develop children's physical activity**

**Altinkök M. Vazgeçer E. Ölçücü B. (2013) " The Effects Sample Physical Education Program Aiming Motor Movement Patterns On The Development Of Fundamental Motor Movements Of Children In 5–6 Ages", *Uluslararası Türk Eğitim Bilimleri Dergisi, vol.1, pp.74-87, 2013***

This study aimed to investigate the effects of 16 weeks physical education programs on the physical fitness of preschool children ageing 5–6. In this Project, total 60 preschool children as 30 experimental (15 girls 15 boys), and 30 16 girls 14 boys) control group were included

To investigate the effects of physical education programs on preschool children; static and dynamic balance, hand and pinch-grip strength, vertical jump and flexibility, static long jump, throwing tennis-ball, speed and agility tests were evaluated. SPSS package program were used for the statistical analysis's. Independent t test were used to compare the result of experimental and control groups. Paired Samples t test were use for differences between first – last tests in both groups. Significance level showed difference according to test

batteries applied as ( $p < 0,001$ ), ( $p < 0,01$ ), ( $p < 0,05$ ). According to our results of the first tests, the difference was not significant in both groups. The result of the last tests between both groups were found significance ( $p < 0,05$ ). Among the valves of experiment and control group's last test values except for left hand grip meaningful differences are found. In the values of pre-last test in experiment group in values except for left hand grip, it is found that there are meaningful differences at different levels. Meaningful differences are found in values of pre-last test of control group between static balance and hand grip, right hand, as ( $p < 0,01$ ), in pinch grip right and left hand and dynamic balance as ( $p < 0,05$ ). In other values no meaningful significance is found ( $p > 0,05$ ). Differences in control group are found as having negative effect on the last tests. In conclusion, when practiced steady and long times of physical education has been positively improving motor development characteristics.

***Demir, A. Akın, M. (2017) Examining The Effects Of Active Video Games And Balance Training In Pre-School Children. Dünya Spor Bilimleri Araştırmaları Kongresi, 2017-11-23, 2017-11-26, Manisa, Türkiye, 2017.***

In this study, it was aimed to examine and compare the effects of active video games and balance training by considering these two methods on balance characteristic in pre-school children. 54 children aged 6 years, attending Şanlıurfa Fatih Sultan Mehmet Primary School participated in the survey on the voluntary based with permission from their parents with the voluntary consent form in accordance with Helsinki criteria. Children who did not exercise sports and whose physical characteristics were close to each other were selected. Two experimental groups and a control group were randomly assigned to 18 subjects in equal and experimental groups were given training 40-45 minutes for a day, 3 days for a week and at total 8 weeks. Balance applications were implemented with a 'wobble board' balance board for a group, 'nintendo wii game console' from active video games for another group,. The dynamic balance measurements of the pre-post test and the 'Techno-Body Device' of all groups were measured using the 'Balance Error Score System' and the differences between the groups were examined. The Shapiro-Wilks test was applied to the normality distributions of the data. Two-way analysis of variance was used for parametric results and 'Kruskall-Wallis' test for non-parametric results. The Friedman test was used to determine the development of non-parametric groups within themselves. The peri meter length (PL) before the study started was double foot [ $F=2,38$ ;  $p = ,141$ ;  $p > 0,05$ ] right foot [ $F = ,927$ ;  $p = 402$ ;  $p > 0,05$ ] and the left foot [ $F = ,488$ ;  $p = ,616$ ;  $p > 0,05$ ] in the dynamic balance measurement and static balance in the BESS sum [ $F = 1,639$ ;  $p = 204$ ;  $p > 0,05$ ]. There was no significant difference between groups. In the post-study measurements, the dynamic balance PL of the active video game group, balance training group, and control group. PL was double-footed [ $F = 8,0$ ;  $p = 0,01$ ;  $p < 0,05$ ], right foot [ $F = 12,8$ ;  $p = 0,00$ ;  $p < 0,05$ ] left foot [ $F = 82,3$ ;  $p = 0,00$ ;  $p < 0,05$ ] values and static balance BESS [ $F = 175,116$ ;  $p = 0,00$ ;  $p < 0,05$ ] a significant difference was found in the total. When it was examined at which groups there were significant differences, it was found that there was a significant difference between two experimental groups and control group. It has been found that both balance exercises made with Wobbel board and active video games have improved dynamic and static balance in pre-school children and there is no difference between them.

It has been seen that there is no significant development in control group. Thus, it was seen that there was a significant difference between control group and the other two groups.

**Nadire Ferah Yavuz, Arzu Özyürek (2018). Effects of Physical Education and Sport Events on Fundamental Movement Skills of Preschool Children *Karaelmas Journal of Educational Sciences* 6, 40-50**

In this study, it was aimed to examine the effects of physical education and sport events on basic movement skills of preschool children. The study was experimental type study and there was a control group. The study groups were 4-6 year-old children who were from two different preschool institutions (N=40) and their parents who accepted to participate in the study (N=40). We performed physical education and sport events in addition to the daily program with the experimental group two days per week for 12 weeks. Control group continued their daily education program. Physical performances of children were evaluated and some tests used in order to collect data. These tests were Vertical Jump, Sit-Lie Flexibility, Standing Long, Flamingo Balance and Tennis Ball Throwing Kests, Jump, Quickness Ability, Foot Ball Control, Running Coordination, 30 Meter Sprint, and Hand Ball Control Tests. Motor tests were applied to both groups as pretests. They were also applied after educations as post tests. Semi-structured interview form was used to determine the opinions of parents related to sporting activities and the participation of their children in these events. SPSS 20 (Statistical Package for Social Sciences-20) was used to analyse the data of the study. All of the motor tests were evaluated by using statistical analyses and frequency, mean and standard deviation values were specified. Mann-Whitney U test was used to compare data of two groups which were not normally distributed. Besides, Wilcoxon Signed Rank Test was used to determine the significance of differences between pretest-posttest scores. Recorded parent interviews by taking notes were analysed by using content analysis. Data were coded, classified, and discussed under different themes. Consequently, physical education and sport events positively affect the development of movement skills of 4-6 year-old preschool children. Parents agree with the idea that physical education and sport events particularly contribute to physical and social developments of children, active sporting events should be performed with preschool children in educational institutions, and primarily mothers-fathers should be a role model in order to encourage children to do sporting activities.

**Akın, S. And Acet M. (2015) *The Effects of Educational Games on Basic Motor Skills Development of 60-72 Months Children, Dumlupınar University, Graduate School of Health Sciences, Department of Physical Education and Sport, PhD Thesis, Kütahya.***

In addition to the application of the present curriculum, in this study the effect of the program, that consist educational games, on basic motor skills for 8, 10, 12 weeks and the effect on the stability of the level of basic motor skills of the training period were investigated. The working and control groups were created from Merkez Zübeyde Hanım Preschool and Merkez TOKI Preschool, children in the age group 60-72 months, in the academic year of 2013-2014. 110 children participated in the study. The working group was applied exercise for 8, 10 and 12 weeks. Program was performed to working groups for 3

days a week for 40 minutes. Bruininks-Oseretsky Test of Motor Proficiency second edition (Bot-2) short form was used for measurement tool. Measurements were taken before and after the study period and stability measurements were taken after retention time for 8 weeks. Shapiro Wilk normality test was applied to data obtained from the first measurement of Bruininks-Oseretsky Test of Motor Proficiency. After the normality test, Repeated Measure ANOVA test was performed ( $\alpha = 0.05$ ). The differences of between groups, measurements and group cross measurement were evaluated with Turkey's (HSD). When the normality test results were evaluated, it were seen that the groups were homogeneous ( $p > 0.05$ ). According to Bruininks-Oseretsky Test of Motor Proficiency both subtests (Fine Motor Skills Sensitivity, Fine Motor Skills Integrity, Hand trick, Hand Arm Coordination, Two-Way Coordination, Balance, Running Speed, Agility and Strength) and the "Total Motor Compound", there were statistical significance ( $p < 0.05$ ) between control and working group results. Likewise, there were found a significant statistical difference between measurements ( $p < 0.05$ ). While there were no statistical difference between the control group ( $p > 0.05$ ), the statistical significance between the measurements of the working group ( $p < 0.05$ ) were found to be significant.

As a result, according to the data obtained, the working program and hours were positively affected basic motor skill and stability levels. When the correct intensity and duration were applied at children basic movement period, it has a positive impact on levels of mastery of basic skills.

***Eda Ölmez, Nuri Karabulut (2017). Investigation of the effects of movement training program, which is applied to preschool children on childrens' creative behaviour. Uşak University Social Science Institute, Department of Physical Education and Sport, Master Thesis, Kütahya.***

The aim of this research was to examine the effect of the movement training program which is applied to preschool children aged 4-5 years on the creative behaviour of children. The samples of the research were 141 students in total aged 4-5 years voluntarily participated in the research that studies in the kinder-gardens of Uşak city center. The purpose of this study was to investigate whether or not it contributes to the creative thinking ability of children to play educational games supported by movement training with guidance of teacher for 14 weeks 2 days a week one hour per day in addition to pre school education. 75 of the children to experiment group and 66 of children to control group were distributed randomly. Thinking Creatively in Action and Movement Test (TCAM) which was developed by Torrence (1981) and adapted to Turkish by Karabulut (2012) was used as the scale. This test consisting of 4 activities has a form that allows children to be assessed for fluency originality and imagination. At the beginning of the test work it was applied to all children as pre-test. For 14 weeks while the control group did not participate any planned activity other than their normal training the experimental group played educational games with guidance of teacher 2 days a week one hour per day. At the end of the cycle the TCAM test was read ministered as a post test and statistical analysis of the obtained data was made. Three of the activities consist of tests that allow children to answer orally or by acting to the open ended questions asked to the children. These 3 activities evaluate fluency as the number of responses of the children and the personal originality of the answer in terms of originality.

Other activity was designed was designed to measure children's imagination. The role given to the children ( for example the rabbit fleeing from hunter) was required to respond with action. As a result in this study which made by determining the effect of movement training on creative thinking behaviours.

***Emsal Öztürk, Hatice bekir (2016). The effect of the entertaining athleticism program to the body composition and flexibility of the 48 – 60 month age children who continued to pre - school education Gazi University Educational Science Institute, Department of Physical Education and Sport, Master Thesis, Ankara.***

The aim of this study is to define whether or not there is any difference between body composition and flexibility measurement of the 48 – 60 month aged children who attended to the entertaining athleticism program and who didn't attend. In this research control group designs, from experimental designs, with pre-test, post-test were used. Working group consists of 35 children aged between "48 – 60 month" who are studying in two practice kindergarten schools in Gazi University. Working group was divided into two groups: 18 in experimental and 17 in control groups. In data collection, individual information form and weight, height, length (diameter), circumference (wrist, knee, shoulder, biceps, stomach, waist, bottom, chest, femur, calf) subdermal fat (triceps, biceps, subscapula, supriliac, abdomen, quadricaps, calf) and flexibility measurement were used. Entertaining athleticism program was applied to the experimental group under supervision of teachers as 24 sessions during 8 weeks between 10:00 – 10:30 a.m. The children in the control group, continued to the education activities in their program. In the research, nonparametric statistics Mann Whitney and Wilcoxon test were used. In the end of the study, a meaningful difference was found between means of experimental group pre-post test body weights, biocremial, chest, elbow, knee length values, waist, chest, thigh, hip, shoulder girth measurements, biceps, triceps, chest, subscapula, supriliac, abdomen subdermal fat measurements and flexibility measurements ( $p < 0.05$ ). In experimental group, while a meaningful decrease was found in female children' body weight and abdomen subdermal fat measurements ( $p < 0.05$ ), a significant increase occurred in female children' pre-test post-test flexibility measurements ( $p < 0.05$ ). In the experiment group that was designed according to age factor, meaningful decrease was found at the 60 months old children' pre-test post-test body weight values ( $p > 0.05$ ). In the experiment group that was designed according to age factor, there was meaningful change at the 60 months old children length (biacromial) values, pre-test post-test biacromial, elbow, knee values ( $p < 0.05$ ). In the experiment group, there was meaningful change at the 60 months old children waist, chest and shoulder measurements, triceps, subscapula, abdomen subdermal fat measurements and pre-test post-test flexibility measurements ( $p < 0.05$ ). When the experimental and control groups' pre-test post-test results are statistically investigated in terms of length, meaningful difference was determined at elbow, knee, bitrochantric measurements, wrist (area) measurements pre-test post-test values and from subdermal fat measurements calf pre-test post-test values ( $p < 0.05$ ). According to the obtained research results, it can be said that well-planned, long term, entertaining athleticism activities would be useful for the children in pre-school term to have a healthy body composition and develop flexibility performances.

***Uğur Şentürk, Atike Yılmaz, Utku Gönener Content Analysis Of Movement Education And Play Studies On Motor Development In Preschool Spor Yönetimi Ve Bilgi Teknolojileri Dergisi Issn: 1306-4371 Cilt:10 Sayı:2 2015***

The purpose of this study; is to contribute to researchers who would study on this field by summarise the studies on motor development in preschool with "content analysis of movement education and play studies on motor development in preschool". The study is scanned as combination of key words "motor", "psychomotor", "movement education and play", "motor development" between published essays among journals of Universities (Atatürk University, Hacettepe University, Niğde University, Pamukkale University, Selçuk University) between the years 200-2014 on thesis research page of the website of Council of Higher Education (YÖK). Related to motor development and movement education in preschool period 21 as licence thesis, 6 doctoral thesis, 5 scientifically articles in total 32 studies are detected. As a result; When we examine the studies on motor development in preschool, we see that there is no play-based programmes for increasing the motor development level of children who are at lower motor development level due to social environment factors even though they are not physically or mentally retardation. Therefore, the studies which contribute to basic movement skills of children must increase. We wish that this study would be useful for creating ideas for those who would study on this field.

### **SECTION 3**

#### **Overview of pre-school teacher, child, family and school management descriptive studies**

***Sevimli-Çelik, S., Kirazci, S., & Ince, M. L. (2011). Preschool Movement Education in Turkey: Perceptions of Preschool Administrators and Parents. Early Childhood Education Journal, vol.39, 323-333.***

The purpose of this study was to examine the views of parents and preschool school administrators about preschool movement education and the practices regarding the teaching movement education to young children in early childhood programs. Participants (8 preschool administrators and 21 parents) were from 8 randomly selected private preschool in the region of Çankaya, Ankara, Turkey. Semi structured interview and document analysis methods were used for data collection. Content analysis method was used for data analysis. The results suggested that play and movement activities had no effects on parents' school choice and parents did not seem to be influential on curriculum decisions about movement education activities. Structured play and movement activities were not considered as an academic subject by both groups. Instead participants perceived structured play and movement activities as a free play. Parents were aware of subjects as math, science and language; but they had limited knowledge about movement education activities. Parents generally focused on children's such sport specific activities as swimming, tennis, horse riding which were not developmentally appropriate for children's

fundamental movement skills. Demands about the additional skills related with the movement education focused more on sport specialized activities and large environments for children to play comfortable. To conclude, parents and administrators have little knowledge about movement education so they are needed to be informed about the subject through educative workshops or seminars given by the people who are professional in their field.

***Dilek Karabiber and Ayperi Dikici Sığirtmaç (2016). Examination Of Pre-School Children's Out Of School Activities. Çukurova Üniversitesi Master Thesis.***

It's well known that importance of personal development in 0-6 age when early childhood development completed and primary education starts in this period. One of the most important responsibility of the parents is enable to outgrowth-promoting rich condition and different stimulates for their children to pass the most impressive way in this years. In this study was determined the extracurricular activities for preschool children and investigated to preschool children and their mothers opinions about extracurricular activities. The study was conducted with 12 children and their mothers at Hatay city/Erzin Province. In study were request to mothers keep a diary 10 day for determine the children's extracurricular activities, semi-structured interviews observation techniques are used for determine the views of children and their mothers. The data gathered was analysed by descriptive analysis technique. As a result of research, it is pointed out that children spend most of out of their school time by watching TV, playing game, computer, spending time by tablet, reading book, singing song, painting, home working, playing with play dough, cutting paper-splicing, listening music/ playing instrument, math-working with number, painting and playing with jigsaw puzzle and by doing such activity. It's reached that children spend most of time by watching tv and playing game both weekend and weekdays. It's defined that mothers have been satisfied to their children's activity Such homework, play dough, developers book works, number works, activity being himself/herself. On the other hand, mother's complains about their children's watching including violence cartoon film, spending excessive time with phone and computer, they don't want to doing homework and doing over painting. It's defined that children favourite games are defined as star of the game, hide and seek, horse riding, playing house, sheriffs, tablet computers and games, car racing, eggs, game, catch, chase, playing balls.

***Eynur, A. (2013). Investigation of Gross Motor Development of Children who educating in preschools in Center Town of Kütahya. Dumlupınar University Health Science Institute, Department of Physical Education and Sport, Master Thesis, Kütahya.***

The purpose of this study is investigating of preschool children who educating center town of Kütahya. In this study; all children who educating in Center town in Kütahya was accepted research universe. The research sampling was accepted children who educating not only public preschool but also private preschool 405 children. Within this research, to determine sampling children's gross motor development, was used TGMD-2 that

developed by Dale Ulrich (2000). Datas comes from sampling group, statistically benefited from SPSS 20.0 pocket programme.

Species of School, age and gender was accepted variance and to determine significantly differences was used two-way ANOVA and  $\alpha=0.05$  was accepted significant level. At the end of this study, In children who educating in preschools in Center Town of Kütahya, was not founded significantly variance in gross motor development to species of schools, age and gender.

***Selma Soyyiğit (2013). Pre-School The Five-Six Years Old Group of Children to Investigate the Fine Arts and Sports Preferences. Karadeniz Teknik University Educational Science Institute, Department of Physical Education and Sport, Master Thesis, Trabzon.***

Nowadays, neuronal development and education of children is the most important period of the fastest age is emphasised that stage. Biological foundations were laid in this period of child development, music and psychomotor movements, this development is of great important in the formation are accepted by scientific authorities. This study in the province of Trabzon, 11 pre-kindergarten and 12 elementary school offering education who attend to kindergarten, 385 girls and 406 boys on a total of 791 children were made. Problem at this research; pre-school-age the 5-6 age group of children, whether there is a relationship between sports skills and fine arts. The purpose of this study is from this point, pre-school 5-6 age children to examine the relationship between the fine arts disciplines are expressed as sports skills. In this research, in order to identify the features sports motor is used three tests which are ruler capture test, standing jump test and hit test target. Personal information form was used to determine the demographic characteristics of children. Consisting of a total of 10 photographs to determine the preferences of children with visual art, music and images of sports figures are used. Analysis of the raw data obtained from the survey were used spss 17.00 statistical package program. As a result of statistical analysis, not found a significant relationship between the children's sport motor characteristics and preferences. But, girls and boys sports motor skill tests appeared to be different from each other.

***Güvenç Güven And Göral M. (2006). Preschool Education Institutions In Kütahya Applied Games And Programs Examination And Evaluation Dumlupınar University Social Science Institute, Department Of Physical Education And Sport, Master Thesis, Kütahya.***

Calisthenics education, indirectly sport and game programs, is very important for both early childhood development and society in pre-school education. The aim of this study is to analysis the games and sport programs which are applied in pre-school education institutions in Kütahya and to determine the existing problems. The total field under survey is the teachers who work in 38 nursery school classes dependent on the primary schools in Kütahya in 2006 and 3 private nursery schools. The sampling of this study consists of 41 pre-school teachers. In this study the views of the teachers are determined with survey

method. Chi-Square test and Cross-Tabulation are used as statistical test method. In this master thesis, we tried to come to a conclusion for the existing problems and their Solutions, it was determined that present games and sport programs cannot be applied with scientific principles. Because of content, application, material and physical environment insufficiency and when these come together with the program's own insufficiency it was determined that the educational period related to the sport cannot be achieved successful. In addition to the elements above the deficiency of the pre-school teachers in the field of game and sport applications and the pre-school teacher' lack of coordination with the other teachers and the experts of the subjects are getting worse the problems. In the last section of the study some concrete proposals about the problems are presented as a solution. The investigation and application was realised in the pre-school education institutions in Kütahya.

## **SECTION 4**

### **Preschool teacher' education**

***Sümevra Sert, Dilşad Mirzeoğlu (2016). Investigation of opinions and implementations of preschool teachers regarding to the field of motor development Abant İzzet baysal University Social Science Institute, Department of Physical Education and Sport, Master Thesis, Kütahya.***

The aim of this study was to determine the opinions of the preschool teachers working at the schools in the central of Bolu province regarding to the field of motor development within the 3-6 ages preschool educational curricular; and also to introduce their implementations about this issues. The explanatory sequential design among the mixed models in which both quantitative methods used together, was applied in this study. In order to select the preschool teachers to incorporate into the investigation, criterion sampling method was used. For the quantitative section of the research a survey developed by the researcher was implemented to 148 teachers working at standalone preschools and nursery classes of primary schools regulated by the MoE in the fall semester of 2014-2015 academic year. For the qualitative section of the research data was collected by using semi structured focus group discussion and observation form. A total of 16 teachers, joined the focus group interviews. As a result teachers considered the motor field part of preschool curriculum to be clear and instructive for teachers. On the other hand although they declared that some terms are not clear but the curriculum was flexible. The teachers identified motor development as fine and gross muscle development and not much used field; whereas they identified the importance of movement activities as enjoyable and supportive for learning in other fields, providing knowledge about their body and spending their excessive energy. The participant teachers said that they generally offered movement activities composed of dance and folk dance and children liked mostly the competitive games drama activities activities including moving and musical activities. On the other hand, it was found that the participant preschool teachers did not spend sufficient time for movement activities. The teachers said that the space in the schools was not enough for implementation of the movement activities and more than a half of them said that they used

the available areas effectively. Besides, they specified that the usage of garden (outdoor space) was also not adequate because of various reasons. The main difficulties faced during the implementations were determined as attitude of parents, age and development features of the students, physical conditions, security problems and lack of teacher qualifications. Additionally, it was determined that the teachers mostly used ball, rope and mat for movement activities; and they seriously had trouble with supplying of materials. As a result, the participant teachers stated that they did not consider themselves to be sufficient to implement movement activities in their classes. Only one third of the teachers considered their undergraduate education to be supportive for implementation of these activities.

***A. Dilsad Mirzeoglu, Figen Altay, Sumeyra Sert Agca (2017)Views, Achievements and Implementation of Preschool Teachers Regarding Movement Education Workshop Journal of Education and Training Studies Vol. 5, No. 6; June.***

The aim of this study was to determine the views, achievements and actions of preschool teachers regarding the workshop on movement education. In this study qualitative research design and action research approach were used. The participants comprised 10 voluntary female preschool teachers working in the Central district of Bolu province. In order to collect data, the drawings of the participants, open-ended questions and focus group interviews were used. Content analysis technique was used on the analysis of data obtained in the study. According to the findings, the preschool teachers thought that the attendance of workshop improved self-development. Teachers stated that workshop caused the improvement of their knowledge, skills and self-confidence about movement education and help them to overcome the problems they experienced with teaching this subject. However, they determined that with the use of more gross muscle activity in class and outdoor space (garden), they could design a variety of activities and materials, and stated that in this way the students would also become more active individuals. Another important effect of the workshop on the teachers was the encouragement of the teachers to collaborate between the members of their own professional group in the creation of the activities. Thus, this kind of workshops should be seen as important for preschool teachers and should become prevalent in their practice.

# Preliminary Research Report and National Literature Review

## SLOVAKIA

### **SECTION 1**

Policies and curricular documents

### **SECTION 2**

Overview of research with the implementation of a program to develop children's physical activity

### **SECTION 3**

Overview of motion inactivity research in relation to adherence to daily motion norms

### **SECTION 4**

Overview of parental attitudes to children's physical activity

### **SECTION 5**

Textbooks, methodical guidelines and games to develop children's physical activity co-financed by EÚ

### **SECTION 6**

Preschool teacher's education

## **Abstract**

Article present selected literature review focused on Preschool Physical Education and Care in Slovakia. Articles are separated on six parts: Policies and curricular documents, Overview of research with the implementation of a program to develop children's physical activity, Overview of motion inactivity research in relation to adherence to daily motion norms, Overview of parental attitudes to children's physical activity, Textbooks, methodical guidelines and games to develop children's physical activity co-financed by EÚ and Preschool teacher' education.

**Key words:** Preschool physical education, Policies, Textbooks

## **SECTION 1**

### **Policies and curricular documents**

In National Education Programme for Preschool Education in Kindergartens (2016) the content is divided into education fields: Language and Communication, Mathematics and Information, Natural Science, Social Science, Technics, Art and Music, Health and Movement. The main aim of the education field Health and Movement is to give basic information on health and physical exercise and to develop motor abilities and motor skills through appropriate physical activities. This education field is focused on movement as a means of healthy lifestyle and a means of supporting appropriate psychomotor development. A preschool child should be motivated to physical activity and to its use in everyday life without the feeling of tiredness an important part of this education field is also support of hygiene and self-service activities.

Masaryková (2016b) in the handbook Zdravie a pohyb (Health and Movement) describes the most important aims of the education field Health and Movement in preschool education. It offers recommendations for practical activities to develop children's motor abilities and skills as well as to create a positive attitude to physical activities and games. The handbook also explains the most important milestones in children's motor development and helps the teachers to understand basic physiological response of the body to regular physical activity.

Masaryková (2013) describes national educational programme. The contemporary national educational programme was going through innovative changes, which were aimed

especially at simplifying the teacher's work and bridging the educational fields with higher levels of education. Physical education has adopted the name of educational field Health and Movement and has followed the educational standards in this field. The concept leads to higher contribution of education in kindergartens, but with respect to all the educational principles. The paper explains the main changes related to Health and Movement, but also deals with the implementation and communication with kindergartens for reaching the optimal results of curricular work.

Derevjaníková, Čarný & Masaryková (2015) prepared the handbook *Svet škôlkara*. This is a practical handbook for teacher in kindergarten focused on health and movement of preschool children. The handbook presents a set of activities that can be directly used in everyday teaching process and can be helpful for teachers in their practice. The stress is put on organisation and content of the particular activities, there are also explanations on expected results as well as advice on possible outcomes.

Masaryková (2016) presents the publication aimed at evaluation in kindergartens specifically in the field of health and movement. There are given examples for teachers how to evaluate the child's progress in this area, what are the appropriate means and how to understand the results. This publication shows a little bit different approach in comparison to the traditional evaluation methods, because it is more qualitative than quantitative oriented.

## **SECTION 2**

### **Researches with the implementation of a program to develop children's physical activity**

Chovanová & Majherová (2010) present the study *Pohybové aktivity detí predškolského veku*. [Physical activity of children of pre-school age]. The study focuses on the physical activities of children of pre-school age. The study deals with the physical program called "Motion Game" and analyzes the effectiveness of the program for the development of 5 to 6-year-old children. The study sample consisted of 43 children, which were divided into two groups. The first (experimental group) consisted of 12 boys and 10 girls with an average decimate age of 5.3 years. The second (control group) consisted of 10 boys and 9 girls with an average decimate age of 5.4 years. Design of physical activities was partly inspired by the children's education program in kindergartens by Guziová et al. (1994). Children's performance was detected through a reduced test battery, including a run of 20 meters, a run of 500 meters, a long jump from a place and a throw tennis ball (Parížková & Kábel, 1986). Applying a physical program influenced the level of children's physical abilities. The results of the study showed that the implementation of the physical program called "Motion Game" in the experimental group of children significantly improved their physical abilities compared to the control group of children. On the basis of research findings, authors recommend that regular activities included in educational practice as they are demonstrably contributing to the healthy movement of pre-school children.

The study of Krška, Hubinák & Novotná (2010) deals with the exercise of a special Bubo project children's physical activity in kindergarten. The aim of the study was to analyze the level of selected conditioning and coordination skills of pre-school children involved in the BUBO project and to compare them with children graduating from the classical physical education process at kindergarten. Design of physical activities was inspired by The Junger Movement Test Manual (2000). The study sample (experimental and control group) had 148 children, of which 72 children were involved in the Bubo project. The test results of children's physical activity showed a more balanced performance of those who have gone through the BUBO project. On the basis of the research findings, the authors formulate conclusions in which they appeal to expand the number of hours with a project Bubo.

The study of Novotná (2014) deals with the development of the physical abilities of pre-school children. Due to the fact that pre-school age is a sensitive period for the development of children's conditioning and coordination skills, the authors recommend applying to the school practice interventional movement programs with the content of physical activities that are verified at kindergartens, for example: The program called Healthy Backpack, Athletics for Kids, Be Fitness with Gymnastics, Motion Game or Bubo. The author recommends implementing programs focused on children's physical activity as they support the development of children's physical abilities and contribute to the healthy physical and psychological development of pre-school children.

Ružbarska (2010) dealt with the conditioning and coordination skills of preschool-aged 5 to 6 years. The study sample consisted of 124 children, of which 60 were girls and 64 boys, coming from 6 pre-primary schools in Prešov. The test battery was composed of items of conditioning and coordination abilities. It was based on selected tests of the Eurofit system (Adam et al., 1988) and coordinating abilities according to Měkota and Blahuš (1983), Raczek et al. (1998). Selected test items included: Plain tapping - frequency of upper limbs, Bending forward with reaching in the seating- articulated hull mobility, Long distance jump – The extreme force of the lower limbs and Jogging 10x5m - Running speed with a change of direction according to Adam et al. (1988). Turntables - Dynamic Balance, Ball Running - Orientation, Rhythmic Hand Drumming - Rhythmic Skill (Měkota, Blahuš, 1983; Raczek et al., 1998). The basic somatic indicators were also analyzed: Body Weight, Physical Height, Sum of Skin Edge Thickness (Adam et al., 1988). The study had a correlational research design. The applied analysis revealed the distribution of the individual variables and the acceptability of the test battery.

Ružbaská and Turek (2009) focused on children's physical activity in kindergarten. The study sample consisted of 124 children, of which 60 girls and 64 boys from randomly selected five kindergartens. The test battery was composed of items of conditioning and coordination abilities. It was based on selected Eurofit-system tests according to Moravec et.al. (1996) and coordination skills according to Měkota and Blahuš (1983), Raczek, Mynarski and Ljach (1998). Selected test items included: Plain tapping - frequency of upper limbs, Bending forward with reaching in the seating- articulated hull mobility, Long distance jump – The extreme force of the lower limbs and Jogging 10x5m - Running speed with a change of direction according to Adam et al. (1988). Turntables - Dynamic Balance, Ball

Running - Orientation, Rhythmic Hand Drumming - Rhythmic Skill (Měkota, Blahuš, 1983; Raczek et al., 1998). The basic somatic indicators were also analyzed: Body Weight, Physical Height, Sum of Skin Edge Thickness (Adam et al., 1988). The results of the study showed that motor development is almost identical in both sets. Authors found significant differences in the indicators of the explosive force of the lower limbs and in the body weight in favor of the set of boys. On the basis of the research findings, it is possible to determine the hierarchy of the position of coordination and conditioning abilities in the common motor space. It turns out that the hierarchy of motor and somatic indicators is also in pre-school age characterized by internal differentiation by gender.

Baisová (2012) deals with the impact of movement games and activities on the development of physical performance in children of pre-school age. The aim of the study was to monitor the performance of children before and after an experiment in which the most important determinant was a set of movement games and activities. The study sample consisted of 263 children of pre-school age, which were divided into two groups. The first experimental group, that passed the movement games, consisted of 152 children. The second control group, in which children did not practice according to a special program, was 111 children. The study used standardized motor tests by Junger (2000). The results of the study showed that positive changes in the performance of the experimental group occurred not only due to a natural motor and physical development but also due to the use of the battery of exercise activities. Authors have found that using movement games and activities can positively contribute to the development of physical and motor development of preschool children. And they have also found that using movement games may promote healthy children's development and prevent civilization diseases. Among other things, by

implementing games and activities, children of pre-school age create a positive relationship to physical activity.

Jelínková, I. (2010) was focused on swimming as one of the methods of motor's development of pre-school age children. The aim of the study was to analyze the development of conditioning and coordination skills in a group of 5-6 years old children, that participated in swimming training. The study sample consisted of 40 children, of which 20 boys and 20 girls, attending two kindergartens in Prešov (Sabinovska and Solivarská kindergarten). Physical fitness and motor performance were assessed using a standardized battery of tests, including: (T1) anthropometry (weight, height), (T2) coordination ability of joining motion - three reels forward (Belej - Junger, 2006) (Junger, 2000), (T4) fitness test (dynamic upper limb force) - manual dynamometry (Junger, 2000), (T5) fitness test endurance capability) - run for 500 meters (Junger, 2000). By analyzing the results of the conditioning and coordination skills of preschool children we found that 10-day swimming training significantly influenced the motor performance of pre-school children. Based on research findings, the author recommends developing the conditioning and coordination skills of preschool children through swimming and building these skills as a basis for further sporting activities.

The aim of the Benčúriková (2013) study is to assess the level of coordinating abilities of pre-school age children at the beginning and at the end of the swimming course. The study sample included 280 children aged 5-6, attending 9 kindergartens in Bratislava. The swimming course was 13 hours with a meeting frequency of one week. The level of coordination skills of pre-school age children was determined by the following tests: "Obstacle course in water, Jump into the water, Level of diving, Orientation under water, Floating, Swimming across distance Crawl kicking with a board.". The level of swimming abilities was assessed by the distance that a child of pre-school age is able to overcome in the swimming pool. The results of the study showed a significant correlation between the variables examined. Children with a higher level of coordination abilities have also been shown to have a higher level of swimming abilities. Based on these findings, the development of coordinating abilities of preschool children positively influences the level of swimming abilities and accelerates the process of learning to new skills.

Benčúriková and Putala (2017) studied the influence of motor activity on swimming ability of preschool children. The aim of the study was to find out whether physical activity can accelerate the learning process in 5-6-year-old children. The research sample consisted of 190 children, coming from various kindergartens in Bratislava. Swimming training took a total of 2 weeks and consisted of 10 hours. The level of swimming ability of pre-school age children was tested before and after swim training began. The evaluation consisted of two tests of swimming skills: underwater orientation and subsequent capture of a hockey puck from a depth of 1 meter and swimming at the water level. The results of the study have shown that physically active children have been better able to acquire swimming abilities compared to children considered passive.

Professionally planned and implemented educational programs positively influence the development of abilities of pre-school children. In the study Szabóová (2011) presents the results of the research carried out at Albert Molnár Szenczi's Kindergarten in Senec. The aim of the research was to find out the impact of the established educational program of movement and musical-movement games on the development of the social competences of children of pre-school age. The study was primarily aimed at detecting the presence of positive and negative interactions before and after the application of the self-assembled program. The study sample consisted of 5-6-year-old children attending kindergartens coming from a normal socio-cultural and economic family environment (n = 16) consisting of 10 girls and 6 boys. The children were divided into 4 groups of 4 children, which were engaged in a group of activities. A non-structured and participatory observation method was used in the data collection study. The results of the research showed that the proposed program, through group activity in games, positively influenced the interactions among children as well as the level of their social competences. The advantage of the author of the proposed program is its modifiability to specific conditions and to the actual needs of pre-school age children.

The aim of the monograph of Junger & Palanská (2016) is to present current situation of the intensity of physical activity and exercise of children in kindergarten. The authors suggest that the kindergarten is responsible for appropriate motor development of children which

can only be achieved by certain intensity of physical activity in kindergarten. They used in their research sporttesters to monitor heart rate of children during their activities in kindergarten. They found out that the 63,2 % of physical activity was performed at lower intensity and the average time of physical activity per day during the monitored weeks was 72,7 minutes. Therefore, it can be concluded that the children did not meet the recommendations of physical activity for enhancing health.

The aim of the research of Masaryková & Zdychavská (2012) was to investigate the current state of somatic development of children in preschool age in terms of basic somatic parameters and to compare it with data ten and twenty years ago. We analysed the impact of these changes on motor skills among preschool children. The research was also focused on the analysis of parents' lifestyle, which directly affected the somatic and motor development of children. We found out, that somatic changes in the development had also some impact on children's motor skills. In the selected sample of children, we discovered that despite changes in somatic development, there were more children not gifted in any activity, but they had affirmative and positive attitude to exercising, their movement was appropriate, they did not have problems with the technique of exercises and they were not avoiding any kind of physical activities. The most interesting discovery was, that the factors which caused somatic changes in children's development could be indicated as bad eating habits, lack of exercise, disproportion between acceptance and expenditure of energy, sedentary lifestyle, but also heredity.

### **SECTION 3**

#### **Physical inactivity research in relation to adherence to daily motion norms**

The aim of the Junger & Palanská (2014) study was to extend the knowledge about the movement activity of pre-school children not only while attending kindergarten but also in free time. A study sample consisted of 50 children, of which 25 boys and 25 girls, attending 5 kindergartens. The research consisted of a weekly follow-up of the day-long movement of pre-school age children, realized from autumn to spring. Using Polar Team 2, the physical load of the children's organism was observed during their stay at the kindergarten. The obtained data were compared with the time record which was filled by the teachers of the kindergarten. The full-day picture of children's physical activity was supplemented by parents' responses that we obtained through the child's time recording of the child's movement mode. The results of the research showed that children did not get the required stimuli in either of the 5 kindergartens.

The aim of the Junger & Palanská (2017) study was to extend the knowledge about the physical load of pre-school age children in kindergartens in the context of The State Educational Program ISCED 0 and to compare them with the results of the research conducted in the past. Using the Polar Team 2 they measured the physical load and observed the 229 children of randomly selected 12 kindergartens. By monitoring children they found that the average daily exercise activity during the monitored weeks was 72.7 minutes. From the measured data, it follows that up to 63.2% of the exercise activity was performed at a low intensity. During the organizational form of outdoors - free play, children

achieved the highest heart rate values. The results showed that children did not achieve medical recommendations for physical activity. Research findings point to a decreasing trend in exercise activity volume compared to previous periods. Based on research findings, authors recommend increasing children's physical activity during their stay in kindergarten, leaving more children outdoors - free play even under less favorable weather conditions, thereby providing the required physical load while strengthening the children's immune system. They also recommend shortening the time spent in the afternoon rest on max. 60 minutes and the time spent on a spontaneous motion.

Halmová, Czaková & Tóthová (2011) present obesity is a major and serious problem of today's modern age, and pre-school children are already beginning to be concerned. The authors of the article pointed to the low volume and frequency of physical activity, as well as to the unhealthy diet of pre-school age children. The aim of the article was to promote a healthy lifestyle and purposeful physical activities as prevention of childhood obesity. Authors have appealed for increased physical activity in pre-school age children, also recommend increasing fruit and vegetable consumption, creating habits for regular consumption of meals throughout the day, and raising awareness of the nutritional value of meals.

Kanasová (2011) dealt with the body posture of children aged 6-8 years. The study sample consisted of 42 children of the 1st year at the elementary school in Nitra, of which 21 boys and 21 girls. The body posture of the children was evaluated by the Klein and Thomas method, modified by Mayer (1978), where body posture was detected visually, using six indicators: head, chest, spine curve, outline of shoulders, bladders and abdomen. In the tested children, a high incidence of bad body posture was detected. Incorrect posture body was recorded in 28.6% of boys and girls, very bad body posture in 14.3% of girls. Among the most common factors affecting the body's posture, the author has identified child hypoactivity, non-adaptation of furniture to height proportions of children, carrying a one-shoulder bag, long-term incorrect sitting at the computer or TV and many more. Based on alarming results, the author recommends preventive physical activities for children not only during the school physical education but also in free time, and to carry out child screening at the beginning and at the end of the school year.

Benčuriková (2010) deals with the equilibrium abilities of pre-school age children. The aim of the study was to extend the knowledge on the level of equilibrium abilities in relation to swimming abilities of 5 to 6-year-old children. On drought, the current level of equilibrium abilities was evaluated by MFT S3-Check (Raschner, 2008). In water, the current level of equilibrium abilities was evaluated by a non-standardized test: Run over Pontone by Benčuriková (2009). The level of swimming abilities was determined by the swimming test: Distance traveled. The author has found statistical significance between drought and water equilibrium levels and consequently also swimming abilities.

## SECTION 4

### **Parental attitudes to children's physical activity**

Ondrejková and Gubricová (2008) conducted a research in which they focused on the attitudes of parents to the movement activity of pre-school children. The research sample consisted of 210 parents whose children are visiting a kindergarten with a sporting focus. The results of the research showed that as many as 93% parents spend their free time with sports activities, with almost half of the interviewed parents saying they had been active athletes in the past. It has also been found that parents are aware of the importance of regular physical activity, which improves the health of the child but also helps to acquire new physical skills and dexterity in pre-school age children. The results of the study support the idea that parents are a model for children and an ideal they want to resemble.

## SECTION 5

### **Textbooks, methodical guidelines and games to develop children's physical activity co-financed by EÚ**

The textbook was created from *The National Inclusive Model of Education Project at the pre-primary level of the school system* and was co-financed from European Union sources. The publication focuses on the physical education of preschool children, which forms the basis for the health and development of the child's personality. The publication includes movement and relaxation exercises to develop the psychomotor competencies of pre-school children, including health exercises, exercise games, exercises with poems, musical-movement games and various relaxation exercises using fairy tales. The aim of creating a pedagogical educational material is to promote children's healthy growth, intensify their metabolism, increase their appetite, improve sleep, and promote the development of children's personality, including their social (interpersonal) competencies.

The presented pedagogical-methodical teaching material is primarily intended for pedagogical staff of kindergartens. It was created as part of *The Modern Learning for Knowledge Society* project and was co-funded by the European Union. It includes educational activities focused on physical abilities and physical development of pre-school age children. It includes a methodology of health and breathing exercises aimed at preventing the onset of health impairment, or removing existing functional and body disorders of a body organ. It is applied especially in pre-school physical education, in the curriculum of kindergartens, where it focuses on training to properly body posture and for proper growth and development. Part of the methodology includes exercises designed for children suffering from upper respiratory tract diseases.

The Methodical Handbook of Masaryk (2016) responds to changes in the concept of physical education, the lifestyle of the present children, and the basic starting points of the educational area focused on health and movement. In individual chapters, it offers an introduction to the issue of children's physical inactivity, outlines the possibilities of kindergartens in relation to health promotion and healthy lifestyle. An important part of the

methodical recommendations are the organisational forms of physical exercises together with the proposed time subsidy model. The core of the methodological guide is the characteristics of each sub-region, together with examples of physical exercises that can be applied in educational activities. Individual physical exercises are explained in terms of their physiological effect and from the point of view of the importance of respecting the motor learning process in the acquisition of motor skills. The Methodology Guide also provides an overview of physical exercises that should be perceived as risky in relation to pre-school age children. Most often, the author describes activities associated with uncontrolled head bends, with uncontrolled bends in the lumbar part, long-term stay in one position or attitude, one-sided load, an inappropriate increase of the joint range, jump on the hard pad, movement kneeling habits seamlessly between heels and many others.

The textbook was created from *The National Inclusive Model of Education Project at the pre-primary level of the school system* and was co-financed from European Union sources. The aim of the project was to create a set of activities, games, exercises, puzzles and worksheets that a teacher could use in teaching at kindergarten. It is based on the idea that game is the dominant and most natural activity of the child, contributing to the healthy physical and psychological development of children.

The author of the article points to the current unfavorable health status of children in pre-school age. It draws attention to the importance of applying water as a medical device and its attributes (heat, steam, water hardening, cold) in the various above-standard activities of the kindergarten. Practice confirms the importance of stimulating children in the area of rehabilitation and relaxation activities, pre-swimming training, exercise activities, relaxation exercises, games in water, infra-saunas. The above examples of activities and exercises contribute to the overall mental balance, concentration and supporters immune system of children. The focus of the project is in line with the objectives and tasks of *The Bajkal Fish Fiscal Education Program* according to ISCED 0. The Relaxation project is regularly monitored by the school management, the child and the rehabilitation physician. The program includes playful relaxation - rehabilitation projects focusing on the prevention and improvement of children 's health. The program focuses on the development of the physiological, motoric, coordinating, but also cognitive, emotional, psychological and social aspects of children.

The study deals with the importance of movement games in the development of pre-school age children. The aim of the study was to extend the knowledge about the positive impact of physical activity on the quality of children's lives and also to propose a series of movement games that will correspond to the individual characteristics of children in terms of their ontogenetic development. The study contains 12 locomotive activities with an emphasis on developing (speed and endurance) and coordinating skills (time-spatial ability), on the development of basic locomotion such as running, but also on the development of social or learning competence in learning the rules of the game.

The article in the Proceedings of the Scientific - Professiona Conference deals with the impact of the movement towards the formation and consolidation of children 's health in

kindergartens. It approximates the importance of movement in kindergarten to the physical and mental health of pre-school children and provides answers to selected questions from the physical education process at kindergarten.

ONDREJKOVÁ, A. – GUBRICOVÁ, J. (2008). Podpora pohybovej aktivity detí predškolského veku [Supporting the movement activity of pre-school age children]. *Praxe současné školy a výchova ke zdraví* [Current school practice and health education]. 21(3), 75-80.

The article deals with unusual aids in motion and relaxation exercises on the movement activity of pre-school age children. In addition to the importance of physical activity of pre-school age children, it also presents specific ideas and practical ideas for the use of atypical objects in motion and relaxation exercises performed in the educational process under the conditions of the present kindergartens.

Ondrejková (2016) deals with the health exercises of pre-school age children. The publication elaborates individual health exercises in the form of assemblies so they are effective for the exercise of all parts of the body and for the children. There are a total of twenty for each age group of children. Each set is divided into three parts: sprouting, health exercises and subsequent relaxation. The publication also provides the necessary tools for exercising.

The National Children's Sports Olympics Project is focused on the movement activities of pre-school age children. The textbook was created from *The National Inclusive Model of Education Project at the pre-primary level of the school system* and was co-financed from European Union sources. The project is based on the idea of a child's relationship to movement, which is seen as a growth stimulator. Its main components are specific demonstrations of individual sports activities as well as content standards. It is a methodology that informs children of the movement and levels of exercise intensity.

## **SECTION 6**

### **Preschool teacher' education**

The concept of this paper is based on the problem of reflective practitioner (Schön, 1983) with connecting theory and practice in preschool teachers' education. As a traditional method for creating this connection we can consider personal attendance of future teachers in schools. However, this method has certain "black holes", where students are not able to understand and then analyse the education process using their theoretical background. In our research we tried to prepare students for pedagogical practice through video records from kindergartens. The students had the possibility to answer survey questions about pros and cons of a classic method and a new innovative approach. The results showed better level of moving theory into practice due to detailed explanation in the videos. The videos of preschool education process made a valuable step into Virtual University and in the future can contribute to higher quality of distance education.

This chapter in scientific monograph suggests the approaches in kindergarten teacher education. In Slovakia the kindergarten teachers are prepared at secondary schools as well as at universities (bachelor and master degree). This publication analyses the most important issues related to the education field Health and Movement in kindergartens. It offers a theoretical background on the child's development as well as a practical view on teacher practice. The author suggests that the approach of reflective practitioner should be the most important in the teachers' education because it enables a feedback on practice itself.

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# Preliminary Research Report and National Literature Review

## ITALY

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## SECTION 1

### Policies and curricular documents

**MIUR (Ministero dell'Istruzione, dell'Università e della Ricerca – Italian Ministry of Education, University and Research), Indicazioni Nazionali per il curricolo della scuola dell'infanzia e del primo ciclo d'istruzione [Italian national guidelines for kindergarten and first cycle school curricula] (<http://www.gazzettaufficiale.it/eli/id/2013/02/05/13G00034/sg>, issued on November 16<sup>th</sup>, 2012).**

### THE BODY AND THE MOTION

Children have the opportunity to know and experience their own body, and to use it since their birth as a “knowledge tool” to explore the world. Movement is the first “learning tool”, for discovering, playing, jumping, running, ... movement is intended as a source of wellbeing and a factor to promote psychophysical balance.

Body action allows children to experience emotions and pleasant feelings of relaxation and tension but also satisfaction from the ability to control gestures, also in cooperation with the others. Children can go through potentiality and limits of their own physical body, making them aware of the risks of uncontrolled movements

Children play with their body, communicate, mimic, dress up and test themselves, in these ways they perceive themselves as a whole, intensifying autonomy and emotional self-confidence.

The body has expressive and communicative potentialities, which are fulfilled in a language with its own structure and rules. The child learns them through specific way of learning: the motion experiences to join different languages, to alternate words and gestures, to play music, to accompany narrations, to support the creation of the self-image and the elaboration of the body image.

Informal activities of daily routine, outdoor life and games play are as important as the use of small tools. Free or guided movement in adapted spaces, such as psychomotor games, can give the opportunity to educate children also about healthy food and personal hygiene.

The kindergarten acts to gradually develop in the child the ability to read and to recognize messages from the own body and from other people's too, respecting and taken care of it.

The kindergarten also aims to gradually develop child's ability to read and interpret the messages of his/her body, to communicate through the body, to achieve and to improve perceptive skills and objects knowledge, to develop the ability to orient him/herself in the space, to move and to communicate according to imagination and creativity.

### **Goals for skill development**

The child fully lives his/her own corporeity, he/she perceives the communicative and expressive potential of the body, develops behaviours that allow a good autonomy in the management of school time.

The child recognizes the signs and the rhythms of his/her body, the sexual and developmental differences and adopts correct practices to care him/herself, to take attention to hygiene and to eat healthy.

Children enjoy moving and experiencing postural and motor skills to apply them in individual or group games, also using small objects and they are capable to adapt the tools for the environmental situations inside and outside the school.

The child checks the execution of gestures, evaluates the risk, interacts with the others in movement games, in music-based activities, dance, and experience the potentialities of non-verbal communication.

He/she recognizes his/her own body and its parts and is capable to represent the stationary and moving body.

**Ministero della salute (Ministry of Health), [www.salute.gov.it/portale/news/p3\\_2\\_3\\_1\\_1.jsp?menu=dossier&p=dadossier&id=16](http://www.salute.gov.it/portale/news/p3_2_3_1_1.jsp?menu=dossier&p=dadossier&id=16), issued on September 9<sup>th</sup>, 2013).**

In this informative web site, the Italian Ministry of Health reports synthetically some data about sedentary behaviours in children (from the Italian project OKKIO alla salute) and general recommendations regarding physical activity for health in children and young adolescents, mainly derived from WHO guidelines. No specific recommendations nor guidelines for pre-school children are presented

The following recommendations to improve cardiorespiratory, skeletal and muscular conditions in children and adolescents are presented:

- accumulate at least 60 minutes of physical activity/day, of moderate to high intensity;
- more than 1 hour/day of PA, increases well-being and health;
- most of exercise should be aerobic, vigorous PA, including those activities that strengthen muscles and bones, should be practiced at least 3 times a week.

The web site reports also not well identified (no references are cited) “paediatricians’ recommendations” regarding the importance of learning to swim for children in the first infancy, being swimming a “complete sport”, suitable to be practiced since the young age, as water is the most natural and congenial environment for young children. Moreover, recommendations for specific sports (e.g. athletic, swimming, gymnastic, fencing, tennis, soccer, volleyball and basketball) which should be appropriate for children up to the age of 7-8 years are presented.

## SECTION 2

### **Overview of research with the implementation of a program to develop young children's physical activity**

#### **Motor skill development in Italian pre-school children induced by structured activities in a specific playground (Tortella, Haga, Loras, Sigmundsson, & Fumagalli, 2016)**

This study examined the effects and specificity of structured and unstructured activities played at the playground Primo Sport 0246 in Northern Italy on motor skill competence in five years old children.

Seventy-one children from local kindergartens came to the park once a week for ten consecutive weeks and were exposed to 30 minutes of free play and 30 minutes of structured activities. Before and after the ten visits, each child completed nine tests to assess levels of motor skills, three for fine motor skills and six for gross motor skills. As control, motor skills were also assessed on 39 children from different kindergarten who did not come to the park.

Results show that children in the experimental group, who practiced gross-motor activities in the playground for 1 hour a week for 10 weeks improved significantly 4 out of the 6 gross-motor tasks and none of fine motor tasks. The data indicate that limited transfer occurred between tasks referring to different domains of motor competences while suggesting cross feeding for improvement of gross motor skills between different exercise when domains related to physical fitness and strength of specific muscle groups are involved. These results are relevant to issue of condition appropriate for maintaining and developing motor skills in this age group as well as for the planning of play and physical activity in kindergartens.

#### **Outdoor learning in-service training for teachers. A case study from Prato (Bortolotti, Crudeli, & Ritscher, 2014)**

Outdoor education is based on two main approaches:

- 1) learning methods that take place as the interface between experience and reflection, based on actual experiences in real-life situations;
- 2) an interdisciplinary conceptualization which implies learning spaces extended beyond the classroom and including natural environment and cultural heritage, emphasis on the relationship between sensory experience and knowledge.

The study aimed to train 40 teachers of some kindergartens in Prato, Italy, through a course, where they could work in an active way and outside. There were different activities:

I. "Recreation": the teachers were divided into small groups and invited to tell each other the principal characteristics of their service and how the children interact with the reality; the

educator can play an outstanding role in the garden, paying attentions to children curiosity and activities.

II. "What nature has to offer": the teachers compile a long list to work and to discuss.

In conclusion: it emerges that teachers perceive positively the usefulness and impact of training in Outdoor Education, as it tends to improve significantly the quality of relationship between themselves, children, families and the out-doors settings. The educator's role in the garden leads to basic guidelines: take the children outdoors in small groups, create different centres of interest, interact, participate with discretion, but not replacing the children's initiatives, stimulate and sustain children curiosity, encourage the discovery of natural elements, create safe conditions, share the project with families. Outdoor education (or learning) can be a positive educational approach, since it involves reflectivity and pragmatic points.

### **Outdoor motor play: analysis, speculations, research paths (Ceciliani & Bortolotti, 2013)**

The goal of this study was to first explore the continual drive of play educational growth and, secondly, the ways in which pre-school children play outdoors at school, in order to reap the developmental benefits of outdoor play in supportive context.

The educators observed the way children play outdoor in infant schools with a "Motor patterns check-lists" that includes handling, running, jumping, throwing, climbing, sliding, etc. and using video recordings. They focused on "spontaneous play".

The research involved eight centres: three kindergartens and five nursery schools, 170 children and 22 teachers.

Results showed the presence of all the 18 observed motor behaviours in children aged 5 and the absence of some of these in children aged 3: jumping, throwing, kicking, roughing and tumbling; children aged 4 presented three different situations: free play, the presence of toys and little tools, the absence of toys and little tools. It emerges the presence of a series of dominant behaviours (running, carrying, etc.) in comparison with a series of accessory behaviours (jumping, throwing, sliding, and swinging). Some psychomotor behaviours are dominant in motor development of children of this age. Functional play tends to decrease in the passage from the condition of free play to the condition presence/absence of tools/toys, the expressions of constructive and dramatic play increases.

In conclusion, changing the conditions of plays doesn't alter the typologies of psychomotor and socio-motor behaviours that are dominant at this age. Certainly, to modify the educational setting by adding/removing tools increases the manifestation of some behaviour over others, but this doesn't alter the balance existing between dominant and accessory behaviours.

### **Development and results of a new methodology to perform focus group with preschool children on their beliefs and attitudes on physical activity (Cammisa, Montrone, & Caroli, 2011)**

The aim of this study is to develop and test a method to perform focus groups (FGs) and to extract the subjective views of preschool-age children on physical activity and perceived kindergarten barriers to physical activity practice.

FGs have been held in three different kindergarten classes with 49 children who were 4-5 years old. Children were asked to draw themselves in their preferred way of playing and were asked few questions about their drawings to understand their behaviours and ideas.

Results: in class A and B, 67% and 75% of the children, respectively, drew sedentary plays (table and impersonation games). Children referred that the main obstacle to perform active games outside home/kindergarten was the parents' and teachers' perceived risk that they could be hurt or catch a cold. The children would like to have more table games in the kindergarten. 81% of children in class C drew active group games. All these children were well satisfied with their kindergarten environment and did not refer to any adults' fear regarding active play. This class teacher spent a lot of time to develop children's motor abilities through active games and often used the garden to let the children to play freely.

The use of drawings to understand children's habits on physical activity has turned out to be a reliable and easy tool in preschool children. The different results obtained in the two children groups show the need to change the beliefs and the behaviours of teachers and parents who seem to be non-architectural "invisible" barriers to be knocked down. This protocol has been developed by ASL Brindisi within the framework of PERISCOPE's objective to develop new methodologies.

### **Physical activity and play in kindergarten age children (Caroli , et al., 2011)**

"PERISCOPE" (Pilot European Regional Intervention for Smart Childhood Obesity Prevention in Early Age) is a project created for pre-school age children, to assess social, nutritional and lifestyle factors that can protect against or prevent obesity development in early age, and thereafter develop innovative preventive programs. One of the specific aims of the project is to assess the role of physical activity in promoting or inhibiting obesity development in kindergarten age children.

The aim of the paper was to assess preschool children's physical activity habits in three different European countries, Denmark, Italy and Poland.

In Italy the sample was from two different towns, in Denmark and Poland the samples were from kindergartens of the same city. The whole sample is composed of 1094 children in the age range of 3-6.5 years.

In May 2008 the parents of the children involved in the study were invited to fill a questionnaire regarding their own and their child's eating habits and lifestyle. It was

assessed the children's level of physical activity through a few questions related to the manner in which the children were brought to and from the kindergartens, the possibility and time spent playing outside and sport practice.

Results: regarding the overweight Italy showed the highest rate; when the distance between home and kindergarten was less than 1 km, the Italian families were in the middle with 55.3% of parents and children walking to kindergarten; when the distance was further than 1 km only 4.5% of the Italian families walked to and from the kindergarten. Concerning the possibility to play outside 50.1% of Italian parents answer that it was not possible for their children; regarding sport practice only 18.2% of the Italian children practicing sport.

Conclusions: Italian families used the car more frequently (60.4%) than the Danish (42.8%) and the Polish (38.1). The Italian children seem to be the group with the lowest presence of house yard and they play outside at a statistically significant lower rate as compared to Danish and Polish children. The Italian children are the least active with only 18% of them practicing a structured sport.

The very young age of the children could be a reason why the parents do not insist on them practicing sport. However, an active lifestyle beginning at kindergarten age could be a positive factor to increase PA levels.

### **Community projects in Modena (Italy): promote regular physical activity and healthy nutrition habits since childhood (Tripo, Severi, Midili, & Corradini, 2011)**

This study describes the interventions in various municipalities in the province of Modena to establish districts' task forces among schools and the local community to fight obesity and chronic diseases in population. This methodology is defined in the "Local Health Plan", a treaty between the stakeholders -institutions, citizens and enterprise- all the actors involved as partners in attaining the health targets.

After an assessment of children and their families' behaviours and attitudes as well as their nutritional status, they have been designed multi-faced interventions which are targeted to students from 3 to 14 years old: the interventions included teacher training, physical activity promotion, nutrition education, printed material distribution among children-adolescents and families, modification of school meals.

Results: 10000 children involved, 350 teachers trained.

Physical activity courses were organised in kindergartens and primary schools and the number of hours dedicated was progressively increased. The community experimented the "Pedi-bus" and the "Cycle-bus" to also increase the levels of routine physical activity, as walking and cycling as means of daily transport, can be a most effective strategy to achieve these purposes. It is established alliance with sport clubs to promote sports and physical activity both in school and outside school.

Conclusion: "Community Projects" are shared projects among schools and the local community that can stimulate healthy lifestyle in children, adolescents, families and citizens

and can promote a virtuous circle between school-family and community; so that the benefits can be sustained and enhanced.

### **The moving body: a sustainable project to improve children's physical activity at kindergarten(Serpentino, 2011)**

This case study presents the initiation of the project "The moving body" in order to improve children's physical abilities.

The researcher assesses gross motor physical abilities of 270 children, from 3 to 5 years of age, attending 5 different kindergartens belonging to the same institution.

Structured games and playing were alternated to free time, so that children could learn how to move within the group, how to explore available space, how to use tools and toys according their individual needs and desires.

All the activities were offered and introduced to children as games and play, as through different ways of playing (free and structured play, traditional games, games with small and big toys) children were capable to improve their body control, their self-perception and their moving body perception.

Results: all the children improved physical abilities as compared to the beginning of the project, and developed their creativity and fantasy. Through all these games children not only improved and reached a better control of their motor abilities, but also became more confident in their own capacities, and learn how to deal and overcome, with greater autonomy and difficult tasks.

During the two years project, the importance of physical activity and play in kindergarten activities was evidenced through the children's strong interest and enjoyment in participating in all these activities as well as the significant improvement of children's several specific motor and psychosocial competences. The improved abilities at the end of the project, for almost all the involved children, suggest the efficacy of the project and, consequently, of play and physical activity to support children's development in whole.

### **The IDEFICS cohort: design, characteristics and participation in the baseline survey (Ahrens, et al., 2011)**

The European IDEFICS (Identification and prevention of dietary- and lifestyle-induced health effects in children and infants) study was set up to determine the aetiology of overweight, obesity and related disorders in children, and to develop and evaluate a tailored primary prevention program. First, it analyses the complex interplay of factors acting at different levels to extricate the causal pathways leading to obesity and other health outcomes; secondly, the study develops and evaluates community-oriented intervention programs for primary prevention of obesity in a controlled study design. This part of the intervention examines the effectiveness and sustainability of a set of intervention modules addressing diet, physical activity and coping with stress.

The study was designed as a prospective cohort study that included three nested case-control studies (they are set up to address environmental questions regarding obesity) and a controlled intervention trial to explore the prevention of childhood obesity in a community-oriented approach. A cohort of 16224 children aged 2-9 years was recruited into a population-based baseline survey from eight European countries in 2007–2008 (Belgium, Cyprus, Estonia, Germany, Hungary, Italy, Spain and Sweden).

Parents, through questionnaires, reported sociodemographic, behavioural, medical, nutritional and other lifestyle data for their children and families; in addition the IDEFICS study collected data concerning children's anthropometric measures, blood pressure, fitness, accelerometry, DNA from saliva and physiological markers in blood and urine. The built environment, sensory taste perception and other mechanisms of children's food choices and consumer behaviour were studied in subgroups.

Results: between 1507 and 2567, children with a mean age of 6.0 years were recruited from each country. The distribution of standardised income levels differed by study sample, with low-income groups being strongly represented in Cyprus, Italy and Germany. At least one 24-hour dietary recall was obtained for two-thirds of the children. Blood pressure and anthropometry were assessed in more than 90%. A 3-day accelerometry was performed in 46%, motor fitness was assessed in 41%.

The IDEFICS cohort study produced a great number of comparable data on children below 10 years of age from eight European countries not only regard to the basic indicators of obesity but also concerning environmental, social, behavioural, lifestyle, genetic and physiological factors. These data could provide further insights into the causal mechanism and could help in identifying the main factors for the primary prevention of obesity.

### **Giocare con cura (Educational Care and Play) (Bortolotti & Ceciliani, *Giocare con cura, Educational Care and Play*, 2007)**

In this study the investigation of the relationship among educational care and the spontaneous motor game was developed through the ecological observation, that involved over 90 pre-school children, 3 to 5 years old, filmed and observed during the playful activities developed in the open spaces of their respective schools. The collected material, recorded through check-list, allowed to order the observed phenomena and to plan a comparison among different kindergartens realities.

This field research involved some kindergartens of the city of Modena, which presents appropriate outdoor areas for motor games.

The results pointed out a series of conditions capable to influence the performance of some motor games, above all in comparison to the following indicators: attitudes of the educators towards the conflicts and the physical risk, age and kind of the children, the use or non-use of the utensils / toys and the spaces available of the children. From such indicators it was possible to identify some actions of "educational care" that can influence, stimulate or inhibit the expression and the forms of motor game from the children: rhapsody play (a

phenomenon characterized by irregular rhythms), improvisation / divergence, authentic spontaneity, technical gestures (manipulation) in comparison to the natural motion.

### **SECTION 3**

#### **Overview of parental attitudes to children's physical activity**

##### **Physical activity and play in kindergarten age children". (Caroli , et al., 2011)**

[Mentioned above, nr. 5 in "Overview of research with the implementation of a program to develop children's physical activity"]

### **SECTION 4**

#### **Overview of motion inactivity research in relation to adherence to daily motion norms**

[No studies have been found, except the study by Caroli et al., 2011 (nr. 5 in the section B) that can also be included in this section]

### **SECTION 5**

#### **Overview of textbooks, methodical guidelines and games to develop children's physical activity**

##### **(When Municipalities promote physical activity, Regional Plan 2014-2018, Program 2, "Improve Health Piedmont - Community and living environment"). (Suglia & Dettoni, 2014)**

The guidebook aims to facilitate decision makers and professionals joining the "Toronto Charter for physical activity: a global call to action". It offers a review of international policy guidance documents for an active lifestyle, good Italian practices of the local governments adherence to the charter and a series of recommendations on how to join (ways, benefits, what to do and how to enhance what you do).

This guidebook is addressed to the municipal politicians and technicians to stress the importance of adhering to Toronto Charter and through this to invest and to promote the physical activity and the health.

Some local initiatives and projects are described, offering various relevant information, such as: the benefits for the public administrations derived by undersigning the Toronto Charter; an overview of the National and Regional projects implemented by the Public Health to promote physical activity and the potential of a cross-sectoral work; suggestions

on principles and actions; advantages and practical guidance; good practices for the promotion of physical activity.

The chapter “The municipalities experiences” presents various projects involving the locals in municipalities programs to promote active and healthy lifestyle (for example the city of Biella realized walking tracks and organised days of group activities and the city of Treviso set up a cross-sector net to support policies and programs of physical activity).

The chapter “Guidelines” describes the procedures to sign up the Toronto Charter and the advantages for the public administration and the locals deriving from the accession.

**(Physical activity and executive tasks in the kindergarten. Advices to kindergarten teachers on how to encourage the health and the scholastic success of our children) (Tortella & Fumagalli, 2014).**

The handbook aims to spread key messages about the importance and the necessity of the practice of the physical activity in the kindergarten and the fundamental role of parents and teachers.

The book is divided into three parts: the first is dedicated to the relationship between physical activity and health as a precondition of health life style; the second part is about the executive function, what they are and their relationship with the environment of the individual and his school success; the recent researches show that such functions are trainable, and that physical activity can contribute to their expansion. The third part present some examples of planning of units of learning (4-5 meeting) that pursues the children’s motor development with particular methodological attention to the development of the executive functions.

The manual introduces interesting and easily affordable information with various tabs for single session with some proposals of activities to develop manual dexterity, gross-motor skills, balance and executive functions. Each tab concerning a specific ability introduces the general and specific objectives to achieve, a description of the times, the material and the game to be proposed, a child’s evaluation grid and a teacher’s self-assessment one.

**Favorire la pratica dell’attività motoria da 3 a 6 anni (Promoting physical activity practice from age 3 to 6) (Tortella, Calidoni, Tessaro, Borgogni, & Fumagalli, 2012)**

The handbook is understood as a tool of consultation that allows the kindergartens teachers to adopt the reasons of the usefulness to promoting the movement in their children through the construction of activities included in a didactic context. It consists in simple guidelines with example and indications for the planning which is based on the identification of motor objectives that satisfies the Indications for the national curriculum for the kindergarten and on the construction of grid of assessment. This manual describes the characteristics of the three principal motor areas (manual skill, mobility and equilibrium) and shows examples of activity to be developed in the planning. The working methods and the

examples enable the kindergartens' teachers to program activity for children from 3 to 6 years that are practicable in classroom.

The book explains principal rules and aims of the pre-school activities and games, how to plan and assessment physical activities and offers various tabs with activities to developing specific skills in children from 3 to 5 years and with examples of materials, spaces and possible changes.

## **SECTION 6**

### **Preschool teacher's education**

**(Physical activity and executive tasks in the kindergarten. Advices to the kindergartens teachers on how to encourage the health and the scholastic success of our children) (Tortella & Fumagalli, 2014)**

[Revised above, nr.2 in "Overview of textbooks, methodical guidelines and games to develop children's physical activity].

Favorire la pratica dell'attività motoria da 3 a 6 anni" (Promoting physical activity practice from age 3 to 6) (Tortella, Calidoni, Tessaro, Borgogni, & Fumagalli, 2012).

[Revised above, nr.3 in "Overview of textbooks, methodical guidelines and games to develop children's physical activity").

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## SUMMARY TABLES

### Policies and curricular documents

Ministry	Title	Target	Setting	Content	Suggestions
<b>MIUR [Italian Ministry of Education] (2012)</b>	National Guidelines for kindergarten and first cycle school curricula	School teachers and principals	Italy	National guidelines for pre-school/ school physical education	The aim of the kindergarten is to develop child's ability to understand the information coming from his/her own and other children's body; to develop the main motor skill (manual skills, mobility and balance); to enjoy moving, by experiencing motor skills; and to apply these skills in simple games
<b>Ministry of Health (2013)</b>	Guidelines	Families	Italy	General information about the importance of children PA for health promotion and pediatrician s' suggestions on suitable PA for pre-school and primary school children	Italian pediatricians suggest sports involving the different apparatuses in a balanced, symmetric way (e.g. swimming, athletic, gymnastic)

**Overview of research with the implementation of a program to develop young children's PA**

<b>Study</b>	<b>Experimental design</b>	<b>Participants</b>	<b>Setting</b>	<b>Type of intervention, procedure</b>	<b>Outcome measures and outcomes</b>
<b>Bortolotti et al. (2007)</b>	Ecological observation	90 children, aged 3 to 5 years	Modena city kindergartens	Ecological observation through check list and filming playful activities in the outdoor spaces	Some specific conditions can influence the performance of motor games: attitudes of the educators, presence of toys, spaces available to children
<b>Cammisa et al. (2011)</b>	Focus group	49 children, 4-5 years old	3 Italian kindergartens	Testing method to perform focus groups and to extract the subjective views of pre-school children on PA in the kindergarten	Using drawings to understand children's habits on PA seems a reliable instruments with pre-school children
<b>Serpentino (2011)</b>	Case study	270 children, 3 to 5 years old	5 Italian kindergartens	Project duration: 2 years. Improving children's physical abilities through structured activities introduced to children as games and play	Children's physical ability, creativity, fantasy and psychosocial competences were significantly improved

<b>Tripodi et al. (2011)</b>	Applied research	10.000 children aged 3 to 14 years and 350 trained teachers	Modena, Italy	Interventions in the province of Modena to promote healthy lifestyles in pre-school children	“Community projects” are shared projects among schools and communities which promote a healthy virtuous circle within school, family and community
<b>Cecilianini et al. (2013)</b>	Observational	120 pre-school children and 22 kindergarten teachers	8 Italian kindergartens	Comparison between different environmental conditions of play	Different environmental conditions of plays don't alter the typologies of psycho/socio-motor dominant behaviors
<b>Bortolotti et al. (2014)</b>	Case study	40 in-service kindergarten teachers	Italian kindergartens	Outdoor education training course	Teachers perceived outdoor education as a positive educational approach
<b>Tortella et al. (2016)</b>	Pre-post trial, with experimental and control group	71 pre-school children	Italian playgrounds	1 hour/week, 10 weeks, gross motor activities	Experimental group improved 4 of 6 gross motor abilities

## Overview of parental attitudes to children's play activity

Study	Experimental design	Participants	Setting	Type of intervention, procedures	Outcomes
<b>Ahrens et al. (2011)</b>	Cohort study	16224 children, aged 2 to 9 years  Between 1507 and 2567 children were recruited from each country	Belgium, Cyprus, Estonia, Germany, Hungary, Italy, Spain and Sweden	The study analyzed factors underlying obesity and evaluates community intervention programs for primary intervention	Data on children below 10 years of age from eight European countries concerning basic indicators of obesity associated to environmental, social, lifestyle and genetic factors. This multifactorial searching can find out the main factors that are inclined to primary prevention of obesity

<p><b>Caroli et al. (2011)</b></p>	<p>Cross sectional (PERISCOPE project)</p>	<p>1094 children, aged 3 to 6.5 years</p>	<p>Denmark, Italy and Poland</p>	<p>Assessing pre-school children's PA habits</p>	<p>Italy presents the highest rate of overweight children.</p> <p>Play outside: 50.1% of Italian parents answer that it is not possible.</p> <p>Sport: 18.2% of the Italian children practiced sport, they are the least active compared to Danish and Polish children.</p> <p>Difference in infrastructures (safety of walking streets, access to playgrounds/ parks, ...) can play an important role, in addition to cultural and social family characteristics , to the development of overweight.</p>
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**Overview of textbooks, methodical guidelines and games to develop children’s physical activity, and preschool teachers’ education**

<b>Author/s</b>	<b>Type of textbook</b>	<b>Target</b>	<b>Setting</b>	<b>Purpose</b>	<b>Contents</b>
<b>Tortella et al. (2012)</b>	Handbook	Kindergarten teachers/ educators	Italy	Creating a tool for kindergarten teachers to promote PA with pre-school children	Teaching methods and examples aimed to help teacher in planning activities to develop the main motor skills in children from 3 to 6 years old
<b>Suglia &amp; Dettoni (2014)</b>	Guidelines	Community members (children, adolescents, adults and seniors, physicians, teachers, ...) and public bodies	Piedmont region, Italy	Regional plan 2014-2018	Recommendations to encourage public bodies to adopt policies and programs to promote PA in the community, through good practices, programs and projects deriving from diverse geographical areas
<b>Tortella &amp; Fumagalli (2014)</b>	Handbook	Teachers and parents of pre-school children	Italy	Underling the importance of PA in pre-school age	Information on the importance of PA in pre-school age, suggestions and activities to develop specific motor skills with pre-school children

# Preliminary Research Report and National Literature Review

## Greece

### Daily timetable - Curriculum of Kindergarten Schools.

Ministry of Education, newspaper of the government, Volume A' 109/01.08.2017.

The hours that they theoretically have the possibility of engaging in physical activities are referenced below.

#### ***Morning program (obligatory)***

8:15-8:30 Arrival

08:30 - 09:15 Free activities

10:00 - 10:45 Brake

11:30 - 12:10 free activities

13:00 Departure

#### ***Afternoon program (optional)***

13:00 Starts

13:50-14:20 Sleep, free activities

15:00-15:20 Break

15:20-16:00 free and organised activities

16:00 Departure

### **New school. Curriculum of physical education for pre-school children**

Institute of Educational Policy, 2007

#### ***Fundamentals***

#### ***Why is physical Education important for pre-school age children?***

The body is a “tool” of learning through which we build the physical performance and develop the social, mental, emotional and psychological profile of the child. The more opportunities that he/she has is participating in physical activity, the more he/she will develop his/her personality.

The contents of physical education are meaningful only if they:

- Encourage experimentation
- Promote creativity
- Develop imagination
- Activate thinking and learning
- Improve confidence
- Help in the expression of emotions
- Promote cooperation and understanding
- Contribute to comprehension and analysis of the environment
- Improve health and help to body grown and maturation

***Which are the goals of participation in physical education?***

The development of love for movement, the fun of playing, the establishment of routines, the development of communication and collaboration skills.

***More specific goals:***

1. Development of basic motor skills
2. Development of motor concepts (perception of space and body, of rhythm, of effort...)
3. Applying motor skills and motor concepts (gymnastics, dance...)
4. Activation of imagination and development of creativity
5. Strengthening of mental capacities through problem solving and facilitation of speech that is related with movement.
6. Learning simple health rules and establishing behavior related to health.
7. To built self confidence and courage.
8. Developing of social skills and cooperative skills.

***The six didactic goals that a child is expected to accomplish are:***

1. Development of motor skills and in a satisfying degree executing some of them.
2. Activation of creativity and critical thinking during the physical activity.

3. Development and sustain of the proper level of physical condition to promote health.
4. Having and overall positive experience from the physical activity and developing of self expression ability and social interaction.
5. Understand and respect of the unique of each individual and work with everyone.
6. Express responsible social behavior as a result of participation in physical activity.

***The purpose and the characteristics of the evaluation:***

- To evaluate the child in relation to the aforementioned goals.
- To investigate movement difficulties that some children may face. The goal is to early diagnose children that may need special support in order not to be excluded later from the bigger part of the school process.

***The evaluation contents consist:***

- Motor improvement in balance skills, movement skills and hand dexterity skills.
- Knowledge and perception regarding the didactical purposes of physical education.
- Social and emotional evaluation

***The evaluation is implemented through:***

- Practical tests.
- Evaluation in real scenarios of daily routine.
- Targeted questions of understanding.
- Alternative forms of evaluation (journals of recording daily activity, involving parents also, a) in specific activities, b) regarding emotions, c) behaviours...)

*Interdisciplinary approach. How is physical education connected with the other learning themes.*

Through physical activities there is an accommodation of learning basic pre-mathematical concepts and achieving skills that are related with writing and reading. This is facilitated through the experiential contact/learning with nature, identification of geometrical objects and estimation of physical sizes.

At the same time the development of skills that are related to gross and fine handling of organs, helps the child in to be sufficient in the demands of school and daily living in general.

## PAPERS

**Pilot program in the preschool kindergartens of municipalities of Kavala and Komotini. From Active Children-Active Schools-Research Group, Antonios Kambas Ekiolos (journal with scientific editorial board) April 2012, 9,13-16.**

Sedentary way of living is considered to be an important risk factor of heart disease. (U.S Department of Health and Human Services, 2001) and it appears to characterize children even from pre school age, since from the total time that they spend for playing 82% is non active (Hannon & Brown, 2008), while the «non active» percentage per hour, is 50%-60% (Daner et al,1991; Pate et al, 2004). (“Active School”) is an alternative school that aims to prevent children’s obesity and firstly appeared in Scotland([http://www.sportscotland.org.uk/Channel Navigation/Topics/ Topic Navigation/ Active+Schools/](http://www.sportscotland.org.uk/Channel%20Navigation/Topics/Topic%20Navigation/Active+Schools/)).

The program with the code name “WALK” is utilized at present as a pilot study at the nursery schools of the municipalities of Kavala and Komotini, introducing for the first time the idea of physical activity at the nursery schools.

Under this perspective children at the age of five will participate in a longitudinal study for 10 years. The program will be implemented at certain nursery schools (experimental group) while the rest of the children (control group) will be evaluated at the beginning and the end of every year.

The program has three kinds of actions.

- Education of tutors and parents.
- Continuous evaluation of experimental group and of the program.
- Implementation of alternative programs in the nursery schools.

The funding of the program is from the municipalities and for the moment it is only for the equipment and the facilities.

In order to meet the goals of the program:

- The environment of the school is changing from a center of development and learning, mostly in a sedentary manner to a center of physically active and constructive learning
- The facilities of the school and of the neighborhood are fully used in the direction of increasing the number of steps (walking activity)
- The active “come and go” to the school by foot is adopted under the motivation of the larger possible number of steps compared to the other schools
- Modern pedagogical methods are used in order for the kids to be active in daily basis “counting” steps.

- From the typical classroom we move to classes of activities where the kids walk during the whole day “writing” steps.
- A daily hour of “movement” education is adopted with a goal of 85% active time. The final goal for the experimental group during the week is:
  - To «write» more than 10.000 steps/day
  - To have from 30 to 60 min/day of physical activity, in the school.

The variables are collected randomly with step counter devices.

**Preliminary Study of Construct Validity for the Playfulness Assessment Scale in Preschool Children. Evridiki Zachopoulou, Inquires in Sport & Physical Education, 1 (2003), 1-7**

Contemporary researches about children’s play studies playfulness behavior as a personality characteristic. Barnett (1991a) proposed the Children’s Playfulness Scale (CPS) for the assessment of playfulness behavior. The present study examined the construct validity of the Greek version of the CPS. Back to back translation was used. The sample consisted of 200 preschool aged children, who attended kindergarten centers in Thessaloniki. The playfulness behavior of each child was assessed from its teacher, who completed the Greek version of CPS, one for each child. Eight teachers were participated as evaluators. Exploratory factor analysis indicated the existence of the five factors of CPS, which explained 70.58% of the total variance. Cronbach a coefficients for the questionnaire’s subscales were above .84. Correlation coefficients showed medium and high correlations between the factors of CPS. The results of the present study provided initial support for the use of the Greek version of CPS to determine playfulness level of preschool aged children.

**Effect of Age and Sex on the Coordination Abilities in Childhood, Antonis Kambas, John Fatouros, Nikos Aggeloussis, Vasilis Gourgoulis, & Kyriakos Taxildaris. Inquiries in Sport & Physical Education, Volume 1(2), 2003, 152 – 158.**

The influence of age and sex on the performance of children of preschool and school age at tests measuring coordination abilities was examined in the present study. The linearity of motor performance in childhood as also examined. The sample consisted of 64 preschoolers, 62 first graders, 65 second graders, 61 third graders and 61 fourth graders. The Bruininks-Oseretsky Tests of Motor Proficiency were used for measuring the coordination abilities. The results of the multivariate analysis of variance (MANOVA) showed no sex influence at children performance and an important impact of age factor. Finally, there is no linearity at the performance of children aged 8-10 years old. This is not the case for children aged 4-7 years old.

**Development of Motor Fluency – Flexibility and Originality through Motor Creativity in Kindergarten, Georgios Likesas. Evgenia Thomaidou, Theodora Tsompanaki, Sophia D. Papadopoulou, Aggeliki Tsapakidou, Inquires in Sport & Physical Education 1 (2003), 211 – 220**

The purpose of the study is to evaluate children's creativity and children's creative movement in pre school age as for kinetic flexibility, fluency and originality. For the evaluation of these specific parameters the Divergent movement ability test was used (Cleland & Gallahue, 1993). Participants were 73 children (38 girls 35 boys). The comparison was made between pre school children coming from the province, the cities and children from the city, who participated in out - of school kinetic activities at the gym. The results of the study have shown that the differences which have been ascertained regarding kinetic flexibility, fluency and originality, according to the accomplishment of skillfulness and manipulation concerned only the team that took part on the organised out – of school activities at the gym. No differences were shown between sexes, in order to create different levels of approach in kinetic flexibility, fluency and originality. Kinetic creativity acts as the motive of the development of a creative behavior on kindergarten aged children. As a result they become more creative, expressive and inventive. It is important to apply methods of education that develop creative thinking so they can consist an integral part of education process for school children in kindergarten.

**Basic Elements of General Gymnastics Routines that Contribute to the Multiple Development of Motor and Social Skills in Children of 4-8 Years Old. Elizana Pollatou. Inquires in Sport & Physical Education 1 (2003), 238 – 243**

The purpose of the present study was to refer basic elements of general gymnastics routines and analyse the multiple effect of systematic involvement with them in the development of gross and fine motor skills and social skills also, in boys and girls from four to eight years old. More specifically, there referred skills that contribute to the cultivation of kinesthesia, space awareness, and sense of rhythm while it is improved the performance in apparatus manipulation either they are pure gymnastic or usable objects or original products of creative fantasy. The musical accompaniment enhances the reaction ability in multiple sound stimuli, while exercising in collaboration with other members of the team develops relationships of respect and acceptance of each one's individual differences. That way it is attained an artful development of personality of children while it is establishing the lifetime involvement in physical activity.

**Underlying structure and internal consistency of the Bruininks-Oseretsky Test of Motor Proficiency-Long Form, in Greek preschool and primary school children. Antonios Kambas, Nikolaos Aggelousis, Hereni Proviadaki, George Mavromatis & Kyriakos Taxildaris. Inquires in Sport & Physical Education 2 (2004), 163-172.**

The purpose of the current study was to examine the underlying structure and the internal consistency of the Bruininks-Oseretsky Test of Motor Proficiency-Long Form in Greek preschool and primary school aged children. The participants were 403 children (222

preschoolers and 181 primary school students) from Macedonia and Thrace. The data were analysed via the principal factor analysis. The factor analysis produced four factors: coordination with emphasis in precision of movement ( $\alpha=.68$ ), upper-limb speed and accuracy ( $\alpha=.45$ ), speed of movement and response ability ( $\alpha=.62$ ) and upper-limb accuracy ( $\alpha=.73$ ). All Pearson correlation coefficients between single-item scores and total scores were statistically significant except the tests standing on preferred leg on balance beam and tapping foot and finger on same side synchronized. The Cohen's effect size indices were small only for five out of twenty six variables. In conclusion the BOTMP-Long Form presents validity problems at preschool and primary school age in Greece. On the other hand its internal consistency is satisfactory. Further research using different types of experimental designs and statistical analyses is needed, in order to arrive to safe conclusions.

**The Effectiveness of a Music-Movement Program on Manipulative Skills Performance of Six Years Old Children. Athanasia Chatzipanteli, Elizana Pollatou, Nikolaos Diggelidis & Thomas Kourtesis. Inquires in Sport & Physical Education 5 (2007), 19-26.**

The aim of the study was to investigate the effect of a music-movement program on the performance of manipulative skills in six-year-old children. Seventy-five children (34 girls and 41 boys:  $M=6.3$  years,  $SD= 0.2$ months) were the participants in this study. Forty of them participated in the music-movement program twice a week, while the rest participated in the same movement program without the music. The study lasted eight weeks with two teaching sessions per week. The Test of Gross Motor Development (Ulrich, 2000) was used for the assessment of manipulative skills (catching, throwing, dribbling, kicking, striking and underhand roll). Two-way repeated measures ANOVA was used for the data analysis. According to the results the experimental group (music-movement) exhibited larger improvement on catching, throwing, dribbling, kicking, striking and underhand roll than the control group. Conclusively, it seems that a music movement program might improve significantly the performance of manipulative skills.

**A Comparative Study of the Motor Proficiency of Preschool Children in Greece and Germany through the Application of the Battery "Karlsruher Motorik-Screening" (KMS 3-6) Dimitrios Papadopoulos, Antonios Kambas, Christos Christoforidis, Ioannis Fatouros, & Kyriakos Taxildaris. Inquires in Sport & Physical Education 5 (2007), 72-81.**

The purpose of the study was to compare the motor proficiency of 65 preschool children from Greece and 54 of the same age from Germany. The motor proficiency of the children was evaluated by using the Karlsruhe Motorik-Screening" (KMS 3-6) test battery, consisting of the following four items: one foot standing, lateral springs, long jump from the stance position and the test "stand and reach". Multivariate analysis of variance (MANOVA) revealed that, compared to their German mates, Greek children: 1) exhibited significantly lower scores in lateral springs and long jump from the stance position, 2) exhibited significantly higher scores in one foot standing Balance and 3) were similar in the test "stand and reach". Furthermore, there was no "sex" influence on the children's performance at any age, except of the performance in long jump from the stance position

and that one in lateral springs at the age of four years, in which boys exhibited better performance. On the contrary, the performance in the test battery differentiated among the three aged groups, with the exception of the "stand and reach" test, in which the differences were no significant. In conclusion, the level of motor proficiency in Greek children appeared to be lower, compared to that of the German children, which reveals a necessity for more effective development of the motor proficiency in the Greek nursery school.

# SURVEY RESULTS

## Early Childhood Physical Activity Questionnaire Results

**Table 1:** Frequencies characteristics of included studies.

Variables	Birth of year	Bulgaria	Greece	Italy	Slovakia	Turkey	General
Birth of date	2012	10	26	-	8	3	47 (%13,4)
	2013	9	21	23	21	14	88 (%25,1)
	2014	10	8	13	25	11	67 (%19,1)
	2015	10	11	12	8	4	45 (%12,8)
	2016	19	5	31	3	17	75 (%21,4)
	2017	0	4	21	-	3	28 (%8)
	Total		58 (%16,6)	75 (21,4)	100 (%28,6)	65 (%18,6)	52 (14,6)
Relation with children	Mother	48	56	81	37	35	257 (%73,42)
	Father	10	16	19	18	9	72 (%20,5)
	Grandparent	-	3	-	8	-	11 (%3,1)
	Other	-	-	-	2	9	10 (%2,8)
Age	20-29	14	3	9	7	4	37 (%10,5)
	30-39	35	45	63	35	37	215 (%61,4)
	40-49	9	22	27	15	10	83 (%23,7)
	50-59	-	2	1	3	1	7 (%2)
	60-69	-	1	-	3	-	4 (%1,1)
	70 up	-	2	-	2	-	4 (%1,1)
Education level	High school	23	24	67	29	6	149 (%42,5)
	University	35	49	33	36	46	199 (%57,5)
Spoken language at home	Bulgarian	56	2	-	-	-	58
	Greek	1	73	-	1	-	75

	Italian	-	-	100	-	-	100
	Slovak	-	1	-	64	-	65
	Turkish	-	-	-	-	52	52
Other language	English	1	2	1	2		6
	Russian		3				3
	German		2				2
	Romani an			3			3
	French			1			1
	Albanian			1			1
	Veneto dialect			2			2
	Czech				1		1
	Dutch	1					1
	Spanish	1					1
	Turkish	1					1
Living aged under 18 years live in your house	0						101 (%41,2)
		32	12		27	30	
	1	24	43		32	18	117 (%47,7)
	2	2	13		6	3	24 (%9,7)
	3		3				3 (%1,2)
Total		58	71		65	51	245

As shown in Table 1, the distribution of the ages of the children of the parents who surveyed are as follows; 13.4% were 6 years old, 25.1% were 5 years old, 19.1% were 4 years old, 12.8% were 3 years old, 21.4% were 2 years old, 8% were 1 years old. These data indicate that the targeted age group of the study was reached.

The relationship of these children with their parents is as follows; 73.4% their mother, 20.5% their father, 3.1% their grandfather-mother, 2.8% other relationship by affinity. Information about the level of physical activity of these children and the families is mostly reported by mothers.

The age distribution of the parents is as follows; 10.5% in the 20-29 age range, 61.4% in the 30-39 age range, 23.7% in the 40-49 age range, 2% in the 50-59 age range, % 1.1 is in the age range of 60-69 and 1.1% is above the age of 70 years. This data shows that about 71.9% of the parents of children between the ages of 1-6 years old are young.

When the education level of the respondents is examined, it is seen that 42.5% are high school graduates and 57.5% are university graduates. This data shows that families have a high level of education.

When the rates of language spoken at home are examined, it is seen that every child speaks the mother tongue in their country.

When the number of children living at home under the age of 18 is examined; 41.2% did not have children, 47.7% had one child, 9.7% had two children, 1.2% had 3 children. This information shows us that children are generally single children at their home and that majority have only one sibling.

**Table 2:** Mean and standard deviation of the parent physical activity & parent habits

Variables	Bulgaria	Greece	Italy	Slovakia	Turkey	General
	±SD	±SD	±SD	±SD	±SD	±SD
Total walking weekdays times	5.53 ± 4.4	3.04 ± 2.2	3.91±6.3	7.18±6.6	3.73±2.7	4.83±5.29
Total walking weekdays min	<b>158.6 ± 137.7</b>	88.38 ± 92.40	85.93±86.87	<b>47.85±46.12</b>	56.21±68.84	<b>89.32±100.72</b>
Total walking weekends times	2.45 ± 2.2	1.18 ± 0.79	1.54 ± 1.03	3.38 ± 5.35	1.77 ± 0.95	2.21 ± 3.11
Total walking weekends min	<b>105 ±104.74</b>	40.53±31.83	80±60.4	<b>72.62±64.19</b>	50.58±55.26	<b>77.58±75.69</b>
Total moderate exercise weekdays times	0.91±1.72	1.47±1.60	1.66±0.97	1.63±2.49	1.73±0.78	1.40±1.88
Total moderate exercise weekdays min	35.19±85.85	<b>96.85±91.14</b>	<b>116.79±63.41</b>	43.31±48.89	40.45±18.76	59.19±76
Total moderate exercise weekends times	0.60±1.16	0.36±0.63	1.20±0.44	0.71±1.15	73.60±160.10	2.94±28.6
Total moderate exercise weekends min.	25.86±53.47	49.29±65.65	84±32.86	31.54±40.78	50±24.49	33.29±49.31
Total vigorous exercise weekdays times	1.83±2.5	1.24±1.71	2.55±1.46	1.62±2.37	2.58±0.99	1.76±2.17
Total vigorous exercise weekdays min	71.9±1	<b>95.38±103.12</b>	<b>144.47±113.05</b>	47.85±55.52	87.92±95.33	75.33±99.3
Total vigorous exercise weekends times	1±1.29	0.22±0.42	1±0.0	0.66±0.81	1.83±0.4	0.79±0.99
Total vigorous exercise weekends min	58.79±92.56	53.61±73.60	77.14±41.03	42.08±61.43	55.83±21.54	52.95±73.49

The physical activity habits of the parents were classified as low, medium, high level and weekday, weekend. According to this, while Bulgarian parents spend 4 hours in total on weekday and weekend for low activity level, they also spend 1 hour for medium activity level and 2.5 hours for high activity level. This data shows us that Bulgarian parents spend more time for low activity level.

Greek parents spend 2 hours in total on weekday and weekend for low activity level, they also spend 3 hours for medium activity level and 3 hours for high activity level. Greek parents stated that they spend a similar time regardless of the physical activity level.

Italian parents spend 3 hours in total on weekday and weekend for low activity level, they also spend 3 hours 30 minutes for medium activity level and 4 hours 10 minutes for high

activity level. Italian parents stated that they spend a similar time regardless of the physical activity level.

Slovak parents spend 2 hours in total on weekday and weekend for low activity level, they also spend 2 hours for medium activity level and 2 hours for high activity level.

Turkish parents spend 1 hours in total on weekday and weekend for low activity level, they also spend 1 hours for medium activity level and 2 hours for high activity level.

Based on these data, Bulgarian and Turkish parents spend more time on weekdays for low activity level, while Greek and Italian parents spend more time on weekdays at all levels. Slovak families spend the same time on weekdays and weekends for physical activity.

**Table 3:** Frequencies of the agreement to the statements

Variables	Options	Bulgaria	Greece	Italy	Slovakia	Turkey	General
I encourage my child to play outside when the weather permits it	Never	-	-	-	-	-	-
	Rarely	-	-	-	-	10	10 (%2,9)
	Occasionally		3	8	1	17	30 (%8,4)
	Frequently	23	32	52	23	10	140 (%40,6)
	All the time	35	40	40	41	14	170 (%48,1)
I am physically active with or in front of my child	Never	-	5	-	1	-	6 (%1,7)
	Rarely	5	12	3	3	7	30 (8,7)
	Occasionally	12	21	20	19	19	91 (26,1)
	Frequently	30	32	58	28	16	164 (%47,7)
	All the time	11	5	19	14	9	58 (%15,8)
I limit what my child does as I worry that he/she may get injury	Never	10	18	9	23	18	78 (%21,6)
	Rarely	25	31	36	32	31	155 (%44,9)
	Occasionally	10	18	50	6	2	86 (%25,1)
	Frequently	7	7	5	3	-	22 (%6,4)
	All the time	6	-	-	1	-	7 (%2)
I focus my child basic learning skills development such as numbers and letters	Never	3	-	2	1	7	13 (%3,2)
	Rarely	10	1	9	1	12	33 (%9,0)

	Occasionally	17	12	37	10	22	98 (29,4)
	Frequently	14	32	39	40	5	130 (37,7)
	All the time	14	29	13	13	2	71 (%20,7)
My work schedule or other commitments limit the time I devote to my child	Never	12	8	3	4	18	45 (%11,9)
	Rarely	18	17	23	20	23	101 (%29)
	Occasionally	14	24	43	19	5	105 (%30,4)
	Frequently	12	20	30	16	5	83 (%24,1)
	All the time	2	5	1	6	-	14 (%14,1)

Distribution of the percentages of the parents who indicate "I encourage my child to play on the street no matter what the weather conditions are" are as follows: 2.9% rarely, 8.4% generally, 40.6% frequently, 48.1% always.

Distribution of the percentages of the parents who indicate "My child always sees me as active" are as follows: 1.7% never, 8.7% rarely, 26.1% usually, 47.7% frequently, 15.9% always.

Distribution of the percentages of the parents who indicate "I worry that my child is injured while moving, so I limit his/her movement." are as follows: 21.6% never, 44.9% rarely, 25.1% usually, 6.4% frequently, 2% always.

Distribution of the percentages of the parents who indicate "I focus on developing basic learning skills such as numbers and letters to my child." are as follows: 3.2% never, 9% rarely, 29.4% usually, 37.7% frequently, 20.7% always.

Distribution of the percentages of the parents who indicate "My working program prevents me to spend time with my child." are as follows: 11.9% never, 29% rarely, 30.4% usually, 24.1% often, 14.1% always.

**Table 4:** Frequencies of the facilities within backyard or home environment

Variables	Options	Bulgaria	Greece	Italy	Slovakia	Turkey	General
Planning equipment (e.g. swing set, slide, climbing)	Yes	45	50	67	62	51	275 (%79,7)
	No	13	21	33	3	-	70 (%20,3)
Swimming Pool	Yes	3	45	91	46	15	200 (%57,7)
	No	55	17	9	19	31	131 (% 42,3)
Area suitable to ride a tricycle, bike or scooter etc.	Yes	43	58	45	58	41	245 (%69,6)
	No	15	12	54	7	7	95 (20,4)

The answers to the three choice questions to collect information about the easy access of the parents to the facilities -including their backyards- close to their homes are as follows:

- 79.7% yes, there are walking and children's parks.
- 57.7% yes, there is a swimming pool.
- 69.6% yes, there are areas for cycling, skateboarding.

**Table 5:** Frequencies of the where child plays and physically active

Variables	Options	Bulgaria	Greece	Italy	Slovakia	Turkey	General
Outdoors activities such as beaches, rivers, natural reserves	Yes	26	34	62	40	15	177 (%51)
	No	32	29	36	17	35	149 (%42)
	Not Sure	-	2	1	8	-	26 (%7)
Public park	Yes	49	57	77	52	42	277 (%78,8)
	No	9	12	22	11	8	62 (%18)
	Not Sure	-	-	1	2	-	11 (%3,2)
Playground	Yes	44	68	92	63	47	314 (%89,6)
	No	12	6	8	2	3	31 (%9)
	Not Sure	2	-	-	-	-	5 (%1,5)
Public swimming pool	Yes	9	17	16	47	15	104 (%29,9)
	No	47	38	83	14	25	207 (%58,8)
	Not Sure	2	3	1	4	2	39 (%11,3)
Gym that offers programs for young children e.g. kinder gym, play gym etc.	Yes	6	25	38	23	21	113 (%31,9)
	No	42	36	34	24	17	153 (%44,4)
	Not Sure	10	6	27	18	5	82 (%23,7)

Club that offers activities/sports for young children e.g. soccer, dance etc.	Yes	17	53	72	57	22	221 (%63,3)
	No	32	12	16	4	19	83 (%23,8)
	Not Sure	9	3	12	4	6	46 (%12,9)

When the questions asked to gather information about whether the child has a space or facility to play and to be physically active in their neighbourhood, the following answers are reached:

Outdoors activities such as beaches, rivers, natural reserves: 51% yes, there are; 42% no, there aren't; 7% I'm not sure.

City parks: 78.8% yes, there are; 18% no, there aren't 3.2% I'm not sure.

Playgrounds for children: 89.6% yes, there are; 9% no, there aren't; 1.5% I'm not sure.

Swimming Pool: 29.9% yes, there are; 58.8% no, there aren't; 11.3% I'm not sure.

Gym that offers programs for young children e.g. kinder gym, play gym etc.: 31.9% yes, there are; 44.4% no, there aren't; 23.7% I'm not sure.

Club that offers activities/sports for young children e.g. soccer, dance etc.: 63.3% yes, there are; 23.8% no, there aren't; 12.9% I'm not sure.

**Table 6:** Frequencies of the activity of the child compared to other children

Variables	Options	Bulgaria	Greece	Italy	Slovakia	Turkey	General
How active would you rank your child compared with other children your child's age?	A lot less active	2	-	-	-	-	2 (%0,6)
	Less active	-	3	5	4	2	14 (%3,8)
	Same	34	35	64	29	11	173 (%54,3)
	More active	11	27	19	24	26	109 (%30,7)
	A lot more active	11	8	12	8	12	51 (%14,8)

The following answers were given to the question of "How active would you rank your child compared with other children your child's age": 0.6% not active; 3.8% less active; 54.3% active; 14.8% very active (Table 6).

**Table 7:** Frequencies of attending physical activity

Variables	Options	Bulgaria	Greece	Italy	Slovakia	Turkey	General
Does your child attend any organized PHYSICAL ACTIVITY (e.g. swimming, gymnastics, dance) during the week?	Yes	11	70	43	44	32	202 (%57,7)
	No	47	4	57	21	19	148 (%42,3)

The following answers were given to the question of "Does your child attend any organized PHYSICAL ACTIVITY (e.g. swimming, gymnastics, dance) during the week?": 57.7% yes; 42.3% no (Table 7).

**Table 8:** Mean and standard deviation of the organized physical activity

Variables	Bulgaria	Greece	Italy	Slovakia	Turkey	General
	±SD	±SD	±SD	±SD	±SD	±SD
Swimming	-	87.46±33.35	58.39±36.4	49.69±	67.5±37.74	62.68±70.16
Gym-type program	-	80±69.28	78.89±24.21	18±38.53	92.86±51.05	40.34±53.09
Dance/ Physical culture	-	95.53±59.41	120	54.69±72.44	58.57±54.18	56.85±68.03

In the previous question, 57.7% of the participants answered "Yes". The participants who answered Yes to this question gave the following answer to the question about how many hours their children spent in these activities in one week:

1 hour in the swimming, 40 minutes in the gymnastics type activity and 1 hour in the type of dance physical activity (Table 8). As other activities, children were involved in sports such as football, karate, dance and rhythmic gymnastics (Table 9).

**Table 9:** Name of sports that children attend

Sports	Bulgaria	Greece	Italy	Slovakia	Turkey	General
Karate	2	8				8
Kick Boxing		1				1
Athletics		2		2		4
Football		6		4		10
Basketball		1	1		1	2
Wrestling		1				1
Climbing		3				3
Tae Kwon Do		2				2
Ballet		1			1	2
Rhythmic Gymnastics			6			6
Skateboard			1			1
Judo			1			1
Volleyball			2			2
Wingchun			1			1
Running				1	1	2
Tennis				3		3
Skating				2		2
Ice Hockey				1		1
Floorball				1		1
Cycling				2		2
Free Moving Games				1		1
Rollers	1					1
Dance	9					9

**Table 10:** Mean and standard deviation of sports that children attend (minutes)

Variables	Bulgaria	Greece	Italy	Slovakia	Turkey	General
	±SD	±SD	±SD	±SD	±SD	±SD
Total time usually spent to that activity each week	111.67±70.56	140.87±38.83	86.23±40.51	34.62±81.68	100±34.64	71±81.59

Parents stated that their children spent physically active time on average 71 minutes per week. It can be said that children are engaged in different kinds of activities such as music, art, fishing, street games, rugby, Zumba, walking, athletics, ballet, tennis karate, cycling. Children spend an average of 2 hours per week for these activities.

## RESULT

Considering the common answers from the five partner countries, the recommendations for the sport based fun oriented physical activity program for children between 1 and 6 years are as follows:

1. Activities should be planned for the children to perform together with their mothers.
2. Activities that children can do with their parents in times other than school should be planned.
3. Because most of the children are an only child in their family, activities to be done in common environments with their peers should be planned.
4. Activity period should be between 45-75 minutes maximum every two days.
5. Events should be activities that can be applied in places such as city parks or playgrounds.
6. Outdoor activities should be planned for children who participate in sporting activities including sports programs and structured programs.

## INTERVIEW RESULTS

### Interview coding

#### Italy

Italy	Q1(enough PA)	Q2 (Who responsible)	Q3 (barriers)	Q4 (be supported)	Q5 (increase PA)
School Manager-I Woman	No	Kindergarten	The age of teachers  Graduated did not had this type of preparation  A few center outside of school  Economic point	Family	Projects
School Manager-II Woman	Yes	Family	Fears of parents that child gets hurt  Apprehensive	Trying to give more possibilities to move (school)	Psychomotricity project
Parent I Father	No	Parents and structure	Economic costs and adequacy of facilities	Parents and school	School -initiatives
Parent II Mother	No		Adequacy of facilities and parents who do not have time	To bring the child to do sports education	Opening more playgrounds
Preschool teacher Woman	Yes (in the school time)	Teachers and parents	In school there is no barriers because of architectural good design	Municipality and expert in psychomotor activity	School programs

Preschool teacher Woman	No	Parents	Furniture too high, ideas of parents	Outdoor activities and playground	Design furniture for kids Designs of materials that children use while doing their activities  Activity program in school (bring them to the outside etc)
Preschool teacher Woman	No	Parents and teachers	Life style, time	Building physical spaces where free physical activity will take place in the city and motivation for families to go outside	Activities program
Sport Educator Man	No	Parents and professionals	Fear of parents that the child can be hurt (is not suitable for that kind of activity or sport)  The child gets too sick	After school activity, game groups	Encouraged to involve children in activities,  Post-school game groups
Sport Educator Man	No	Parents	Lack of time, lack of infrastructure adequate facilities for sport	Increase of hours motor activity in school and help to teacher by experts doing activities	School program, contributions from municipality and without increasing the cost of families
School Manager-III Woman 0-35 monthly	No	School and family	No barriers	Ministry organize	Outside of school that you come to propose to do something  Swimming lesson taking child to the pool

School Manager-II 0-35 monthly	Yes	Family and then school	No barriers/the parent a little bit they don't know how to lead their child	Parent and school	A project (psychomotricity)
Parent I Mother 0-35 monthly	Yes	Parents and teachers	I do not think there are any/ economic –not all free cost	No free time to do something because of school time long	A school program
Parent II Mother 0-35 monthly	Yes	Parents, school kindergarten and municipality	Willingness	Kindergarten and parents	Organizations outside the house
Preschool teacher 0-35 monthly Woman	Yes (in the school time)	Educators	Cost of activities (price), time	School program	Municipality could organize, activity courses at low cost
Preschool teacher 0-35 monthly Woman	Yes (in the school time)	Parents, nursery educators	Cultural level in the practice of activity	The family environment, outdoor facilitates	Project (psychomotricity)
Sport Educator (36-72 monthly) woman	Yes but the quality of movement insufficient	Parents	The child gets sick the lack of time for parents	To promote more activities (vary activities)	a closer collaboration between structures that can be public or private in activity programs
Sport Educator (36-72 monthly) woman	No	School and parents	Lack of time, spend more time in school	School, game activities in village	Collaboration between teachers municipality organized physical activities

## Slovakia

Slovakia	Q1(enough PA)	Q2 (Who responsible)	Q3 (barriers)	Q4 (be supported)	Q5 (increase PA)
School Manager-I  Woman	Yes (in the school time)	Parents	Parents style of sport life (lazy and do not care about moving)	To build playgrounds and centers for the development of movement  Guidance of a specialized trainer ( preschool teachers do not have knowledge about PA.	To build playgrounds  Develop project for supporting exercise children with their parents
School Manager-II  Woman	Yes (in the school time)	Mainly teachers and parents	No barriers ( in school)	Having school facility	No idea
Parent I Father 36-72 monthly	Mostly yes	Parents and school	Lack of facilities  Easy access to a sedentary way of leisure time  Insufficient qualified coaches  Lack of adult supervision when carrying out children with a positive approach to preschool age children	Realized of organized sporting activities in the evening  Qualified trainers with a positive approach  Make school facilities (playgrounds)	No idea

Parent II Father 36-72 monthly	Yes it depends on parents	Parents	Mobile device (tablet etc) sedentary games at home	Motived by fun  Regular organized activities several times in a week	Increasing activity in the preschool facilities
Preschool teacher Woman 36-72 monthly	Outdoor s yes indoors no	Parents	Comfort and laziness parent	Teachers support in school	Visit the playground
Preschool teacher Woman 36-72 monthly	Rural child more active	Family and school	Busyness, mobile device, children lazy and obese	Competitions with the right motivation, motion entertainment, built playground baby gyms.	Musical movement competitions, vist playground teach children to ride a bicycle
School Manager- Woman nursery	No	Parents and nursery	Busyness parents, comfort, mobile devices	Movement program should designed for children	Programs should do for children which includes joy of movement, motion games and outdoors games.
School Manager Man nursery	No	Parents and teachers	Watch TV, play games on tablets	Encourage children to move through games	Programs focused on collective sports games
Parent Father 12-35 monthly	It depends on parents ( financial , time and logistics)	Parents , state of education system	Teachers inexperience to perform PA.  Digital technologies	Open motion courses for parents with children during weekends	No idea
Parent Mother 12-35 monthly	Yes (in the school time)	Parents nursery	Facilities are not built as physical activity	More courses of developing motor skills	Projects created for parents with children how to practice PA.

Preschool teacher 12-35 monthly  Woman	Some child yes some child no	Family and school	They are active but they need to develop motor skills	Building playgrounds  And baby gym	-
Preschool teacher 12-35 monthly  Woman	Yes (in the school time)	Family and school	Life style family ( children do not have good behavior from family about PA)	Creating regular sports habit, motivated children to play outdoors	Organized sport activities with parents

### Greece

Greece	Q1(enough PA)	Q2 (Who responsible)	Q3 (barriers)	Q4 (be supported)	Q5 (increase PA)
School Manager  Woman 0-35 monthly	No	Parents teachers	Lack of time, excessive protectiveness	Organized programs	It should take children to organized program
School Manager  Woman	It depends on family culture	The state	No enough time, kids spends their time with grandparents or baby sitters	School educators work on practicing physical activity	Programs that promotes their monitory skills
Parent Mother 36-72 monthly	No	Parent, school	Not enough options	If there where options concerning PA things would have been easier.	Option on sport
Parent Mother 36-72 monthly	If parents want to -yes	Parents	Parents mood and free time	Elder brothers and organized activities by school.	Organized excursion by school and sport club

Preschool teacher Woman 0-35 monthly	No	State	No infrastructure for children to do physical activity	State should help by giving the funds to construct playground.	Programs with different sports the kids could do some PA.
Preschool teacher Woman 0-35 monthly	No	Physical education administration and program developers	Lack of facilities	There should be parks and playgrounds	Musical and theatrical activities
Preschool teacher Woman 36-72 monthly	No	Parents , school	The fear of parents, financial conditions	Sports clubs or safe places to play	School and private clubs could organized PA
School Manager- Woman 36-72 monthly	Yes	Nursery school	Adverse weather conditions  Small space	Organizes indoors outdoors activity and extracurricular activities	Various sport club programs
School Manager 36-72 monthly	It depends on teacher	In school teacher  Afternoon on parents	Children have not been good mind movement coordination	Through games and coordination activities	Programs adapted to this age.
Parent I Mother 0-35 monthly	No	Parents	Lack of participation of the parents	At school	Swimming
Parent II Mother 0-35 monthly	No	Parents , school	No specialized professionals	It should be a program for children	Swimming some of kind of games dancing exercise through games

Preschool teacher 36-72 monthly  Woman	No	Parents school	Limited time, insecurity environment, lack of appropriate accessible space	Coordinated school, family, state and local authorities to promote PA	Have programs for kids organized by sports club or private gym.
Sport Educator (36-72 monthly) male	No	Parents guidelin es school	Lack of time	School promote lifelong exercises. Parents also should continue promoting exercise.	Programs that are based on playing and simple basic movement skills.
Sport Educator (36-72 monthly) male	No	School teacher	No curriculum	Encourage children to move through games	Program should develop social profile and promote the motor skills
Sport Educator (0-35 monthly) woman	Yes	Parents school	Lack of self- confidence a kid	Through information children get from other children who practice some sports	Various program which are organized by school
Sport Educator (0-35 monthly) woman	No	At school teacher s , the rest of the day parents	The school premises are not satisfactory.	Outdoor activities organized by the family.	Programs organized by the local authorities

## Bulgaria

Bulgaria	Q1(enough PA)	Q2 (Who responsible)	Q3 (barriers)	Q4 (be supported)	Q5 (increase PA)
School Manager-I Woman 36-72 monthly	Yes (in the school time)	School time teachers weekends parents	Prevent children playing outdoors by teachers or school manager	Suitable setting enough sport equipment, instruments  Have competent teachers and trainers to encourage children to engage in sports	There is no well prepared or motivated to conduct effective sports training( it should be a program)
School Manager-II Woman	No	parents	Society parents and educators are barriers for children. We have to help and teach them to be physically	Be additional staff in school.	A project to create appropriate for young children
Parent I Mother	Yes (in the school time)  Weekends family yes	Parents	No limitation	Just let the kids play enough	A program which is force parents to do sport.
Parent II Mother	Yes in school	Workers in nursery	Children do not move willing	Have more equipment bicycle, balls etc.	No idea

Preschool teacher Woman 36-72 monthly	Yes	In school time teachers	Lack of modern facilities and children's facilities	Hiring a special teacher of PE teacher	School organized activities because parents do not want to pay for the activity  To find or organize external funding for the coaches that children do activities
Sport Educator (36-72 monthly) woman	No	Family and relatives , other kindergarten classes	Lack of facilities, qualified trainers and coaches.	Encourage doing physical activity	Present different activities to children

## Turkey

Turkey	Q1(enough PA)	Q2 (Who responsible)	Q3 (barriers)	Q4 (be supported)	Q5 (increase PA)
School Manager-I Woman 36-72 monthly	Some children yes some of them are not. It depends on mainly family	Parents , teachers	Lack of facilities and the age of teachers	Outside school it can be organized something that attracts children.	Organized physical activities in our school program.

School Manager-II Woman 36-72 monthly	No	the parent, teacher's sports educators	Lack of time, the fear of parents that children get hurt.	Children should be motivated to join sports club. It is that to engage them in sports.	Extra activities are offered as yoga, gym, swimming.
Parent Father 36-72	No	Parent	Economic costs and adequacy of facilities	Municipalities is built facilities and invest more in outdoor facilities so that the areas where children can move to increase physical activity level.	School programs should be for physical activity.
Parent Mother 36-72	No	Parents and grandparents	cost of physical activity, logistics	No ideas	Organized outdoor activities facilities by school or municipality
Preschool teacher Woman 36-72	No	Teachers and parents are equally	Lack of facilities, equipment	After-school youth programs can occur inside a school building, organized sporting activities by municipality	There should be a program that includes simple movements for young children.

Preschool teacher Woman 36-72 monthly	Yes	Parents and teacher s, grandp arents.	No qualified trainers for young children	We advise to parents that their children to encourage participatio n in sports and physical activity	To construct facilities that are accessible to everyone
School Manager-III Woman 0-35 monthly	No	Parents	Lack of facilities and time	Families can take their children to picnic areas in outdoors at the weekend time	Natural playground or forest where children can play games outside the city should be built by state.
School Manager-II 0-35 monthly	No	Teacher , family.	The family is scared that the child is injured. Lack of facilities, children get sick especially in winter time.	Constructin g facilities supports movement.	to prepare a program for families
Parent Mother 0-35 monthly	Yes	Parents , relative s	No facilities to enable children	I would not know how to support. I think the school can be supported.	A school program increases physical activity.
Parent Father 0-35 monthly	Yes	Parents	Logistics and time	Children should be motivated by teachers to join physical activities.	Increasing activity in the preschool facilities.

Preschool teacher 0-35 monthly  Woman	Children are more active in school but in their home no active	Teachers, parents and ministry of education	no sports culture  no time to go sports club	Families should be encouraged to take their children to sports clubs.	Programmed activities organized by sports clubs or school.
Sport Educator (36-72 monthly) Man	No	Parents	Lack of time parents have to spend with their children.	After school programs and collaboration with school and sport club.	Programs that are based on game approaches method.
Sport Educator (36-72 monthly) woman	No	Parents	lack of time and no adequate facilities	increase of hours of physical activity	With the increase of hours of sports activity and the improvement of the preschool curriculum

### The Results of the Face-to-Face Interviews

The common opinion of school administrators, teachers, sport educators and parents in the partner countries for the first question is that children aged between 1 and 6 years (60%) do not have adequate physical activity opportunities. They stated that the parents of children, who are considered to have sufficient opportunities for physical activity (40%), have a sport culture and that physical conditions in their schools have the opportunity to make physical activity.

The common opinion of the school administrators, teachers, sport educators and parents in the partner countries for the second question indicated that both parents and schools were responsible for regular physical activity activities of children between 1-6 years of age. In second place, only parents were responsible for and then governments, local authorities, relatives and sport educators were responsible for regular physical activity activities of these children.

The common opinion of school administrators, teachers, sports trainers and parents in the partner countries for their third question is as follows:

1. The lack of adequate number of facilities for children between 1-6 age group,
2. The lack of competence of persons who are carried out activities and the limited number of people with sufficient competence for this age group,
3. Additional cost to the family budget and high fees arising from participation in sporting events or physical activities,
4. Logistics issues,
5. Time management issues,
6. The lack of willingness of the children to move,
7. Inappropriate equipment and materials for the children's physical characteristics,
8. Parents' fears towards the risk of physical injury of their children,
9. Children who often get sick,
10. The existence of technological devices and tools,
11. Lazy parents and families without sport culture,
12. Issues arising from the lack of pre-school physical activity training program.

The common opinion of school administrators, teachers, sports trainers and parents in the partner countries for fourth question is as follows:

1. Constructing the play centers,
2. Designing the gardens of the preschools so that children can play,
3. Motivating children,
4. Ensuring that children receive training from sports trainers with high competencies,
5. Increasing children's participation in outdoor activities
6. Supporting the increase of physical activity level of children with after-school activities.

The common opinion of school administrators, teachers, sports trainers and parents in the partner countries for fifth question is as follows:

1. Building more play areas for the physical characteristics of children
2. Enriching the preschool programs in physical activity
3. Designing the equipment and play tools for children

4. Building the activity areas for after-school playing groups
5. Psychomotricity project
6. Developing programs or projects to increase the physical activity levels of children through further cooperation between sports clubs and schools