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The Game Method in Teaching Swimming to Children of Pre-school age: Teaching Guide

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Abstract

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The preschool age is one of the most important periods in a person's life. Various teaching methods have been developed and justified for teaching preschool children swimming. In recent year, the game method has become the subject of close attention of researchers.

The purpose of the thesis was to develop a booklet for instructors related to the game method in teaching swimming of preschool children. It was assumed that the booklet would be a visual guide for swimming teachers. Thus, they would be able to diversify their swimming lessons, increase the motivation of pupils by including the proposed games in their traditional teaching system. The aim of the theoretical part was to scientifically substantiate the importance of the game method in teaching swimming to preschoolers. The additional objective of the practical part of the thesis was to observe and compare the individual teaching methods and didactic procedures that were used in the observed swimming lessons.

This thesis sought answers to the following questions: What is the importance of the game method in teaching swimming? What games can be used in teaching swimming to preschool children? The developed guide was based on a review of the literature. Various reliable sources such as: books, magazines, online articles were used to create the product. The information was selected using the following key topics: characteristics of pre-school age children; swimming teaching methods, the fundamentals of designing a swimming teaching guide.

The output of the thesis was a booklet of 10 pages containing several subheadings. When developing the booklet, the modern requirements of pedagogical standards were considered, as well as traditional models of teaching, to facilitates its use by instructors from different countries.

It is hoped that, instructors will use the developed booklet to conduct their classes in a more interesting and exciting way and thus increase the motivation of their pupils, resulting in a positive impact on their performance.

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1 Introduction

The bathing, aquatic games are one of the healthiest types of physical exercises improving children's health due to strengthening their nervous and muscular system, improving their musculoskeletal apertures (Pushkareva, Smetskaya & Korotkov 2015).

Swimming is one of the effective ways to implement the principles of health conservation. Regular swimming lessons allow you to get in good physical shape, have a beneficial effect on the nervous system, and teach to control the breath. Swimming also stimulates blood circulation, but it does not have significant loads on the joints and ligamentous apparatus. Particularly, children involved in swimming are markedly different from their peers who do not involved in physical activity. Such children have better physical development, more developed functional indicators of the cardiovascular and respiratory systems, as well as higher indicators of motor qualities. In addition, swimming is one of the most effective ways to strengthen the immune system and increase the body's resistance to temperature fluctuations, which is the prevention of cold. Studies have shown that swimming reduces the excitability and irritability of the child (Bíró, Fügedi & Révész 2007). A lot of studies in Russia and abroad justify the positive impact of swimming on the mental and physical condition of the child (Dudalskij & Marjanicheva 2005; Zatoń & Rejman 2008; Sigmundsson & Hopkins 2010)

Nowadays the game method is progressive among a wide variety of training programs and methods. Due to certain characteristics of the nervous system, researchers in this area have proven the effectiveness of the game method of training in swimming classes for children of pre-school age in comparison with traditional teaching methods. (Pushkareva, Smetskaya & Korotkov 2015). It is shown that children who learning swimming with the game method, subsequently quickly master the technique of swimming movements. When implementing this method, it is necessary to consider age-related characteristics of perception and thinking. (Nagornova & Volynkin 2014,74.)

The result of our thesis will be the developed teaching guide for swimming instructors with usage of the game method. For creating a pedagogically correct and effective guide, it is necessary to study the following areas of knowledge: the features of the psychophysical state of preschool children, the principles and methods used in swimming teaching, the fundamentals of design a swimming teaching guide.

The purpose of the thesis was to develop the teaching guide for instructors related to the game method for the initial swimming of preschool children. Practical significance of the research work is in the usage

and inclusion by instructors the aquatic games and lesson plans based on the game method in the traditional system of swimming teaching.

The theoretical part focuses mainly on the importance of the game method and aquatic games, on the characteristics of pre-school age and on the methodology of swimming training, particularly the game method in swimming teaching. The practical part deals with the course of swimming training of pre-school children in a swimming school, observes and compares individual teaching methods and didactic procedures, that were applied during the observed swimming lessons.

In authors' point of view, the relevance of the study lies in the fact that although the certain studies have already proved the effectiveness of the game method in swimming teaching to preschool children, at present time the traditional teaching model prevail. Thus, this thesis will contribute to the implementation of games and game method in the current schedule of swimming lessons. In addition, the instructors will be able to diversify and improve the efficiency of swimming lessons with children of preschool age.

On the other hand, this study work will be useful for us as authors. During selecting and analyzing scientific literature, we have studied more than 50 Russian and foreign sources related to the topic of the thesis. We have learned how to highlight the main thoughts of the author, to comprehend the information received. During the development of the product, we learned in practice how to draw up a semester plan. The acquired skills and knowledge will be useful in our future professional activities.

It should be mentioned that the issue is close to us and chosen not by chance. We studied on related program (adaptive physical education) at the Russian university in parallel and later we will continue in-depth study of this topic. Moreover, we assume that our future profession will be related to the swimming teaching to both ordinary children and disabled people. Thus, this research work will be the basis for our further studying.

2 Characteristics of pre-school age children

Each stage of ontogenesis is characterized by its specific anatomical and physiological features. Differences between age groups are determined not only by quantitative features of morphological structures, but also by functional characteristics of individual organs of systems and the whole organism. The development of the child's body proceeds unevenly periods of accelerated growth are replaced by periods of its slowdown, during which the differentiation of body tissues occurs. (Potapchuk 2007, 54.)

2.1 Physical characteristics

The preschool children grow at a rate of about 5-8 centimeters in height and about 2.5-3 kilograms in weight per year. At the same time, children developing motor skills, especially their large muscle (motor) skills. In addition, children have improved small-muscle (small-motor) skills, but in small-motor tasks they still need a lot of help from larger muscles. (Bee & Boyd 2002.) However, individual values of anthropometric indicators in one age group may be different. In this regard, Vorontsov and Tikhvinsky proposed the following classification of body types within the same age: mesosomatic, microsomatic and macrosomatic. (Vorontsov & Tikhvinsky 1991, 20-22.)

By the time of birth, the articular ligamentous apparatus is anatomically formed. In newborns, all anatomical elements of the joints are already present, but the epiphyses of the articulating bones consist of cartilage. (Smirnov & Zilov 2008, 576; Baranova 2009, 1008.) The development of joints is most intense at the age of 5 years due to a significant increase in motor activity of the child. Gradually, the amplitude of movements in the joints increases, the process of restructuring of the articular capsule and ligaments actively continues, their strength increases. At the time of birth, the number of muscles in a child is almost the same as in an adult, but there are significant differences in weight, size, structure, biochemistry, physiology of muscles and neuromuscular units. (Kholodov & Kuznetsov 2013, 480; Filippova, Kaminsky & Lukina 2014, 304.)

Skeletal muscles are anatomically formed and relatively well developed. In connection with the increase in motor activity of the child, the relative muscle mass increases. (Stepanenkova 2006, 368; Filippova & Ponomareva 2010, 656.) In General, the muscles in children 5-6 years are more tone and weak, and the muscle relief is smoothed and becomes distinct usually only by 6-7 years (Yakovlev 2006, 240). The nervous system of muscles at the time of birth is not fully formed, which is combined with the immaturity

of the contractile apparatus of skeletal muscles. As the child grows, motor innervation of phase skeletal muscle fibers improves and definitive neuromuscular units are formed. (Baranova 2009, 1008.)

The musculoskeletal system in preschool children has many anatomical and physiological features. The main functional core of the trunk is the spine, which performs motor, support and spring functions. The growth and development of the skeleton of the chest is closely related to the formation of the functions of the lungs, heart, liver, as well as the standing and sitting position. Ossification of the ribs begins at the end of the second month of life and continues until the age of 20. In the first years of life, the thorax has a conical shape with the base down. By 5-6 years, the upper part of the chest expands, and the whole of it shortens, taking the shape of the adult chest. Changing the position of the ribs increases the movements of the chest and allows more effective breathing movements. The shape of the chest is influenced by exercise, sitting at the table, previous diseases, such as rickets. (Paranicheva 2008, 23-42.)

In preschool children, the muscles quickly tire, but also quickly recover due to better blood supply. Therefore, the physical work of preschoolers should not be long in time and strictly correspond to their functional capabilities. Rational physical activity has a positive effect on the activity and formation of muscles and does not lead to their atrophy and loss of performance. Especially strongly develop the muscles of the trunk and limbs. The cortical parts of the motor analyzer approach the brain of adults in terms of maturity. Children 6-9 years can successfully master subtle and coordination complex movements, if they are moderate in amplitude and do not require much strength. In preschool age there is an intensive development of the respiratory system by increasing the vital capacity of the lungs, more perfect breath control. Breathing is significantly intensified during motor and muscle loads, interfaced with the work of the heart. Increased breathing during running, exercise is associated with increased heart rate. This complex of dynamic rearrangements provides oxygen to the tissues of the brain, heart and muscles. The volume of the lungs forms a certain margin of strength of the body. It is known that a person, including a child, can hold his breath on the inhale and exhale, while providing oxygen is due to the stock in the lungs. The greater the vital capacity of the lungs, the better a person manages breathing movements, the longer the breath can be held on the inhale and exhale. (Paranicheva 2008, 23-42; Baranova 2009, 1008.)

The value of breath retention is an indicator of the maturity of the respiratory system and the degree of functional resources. In this regard, respiratory delays are popular express methods of functional diagnosis in all age groups. However, this method is used only from the age of 5 because of the low state of their higher nervous activity, inability to withstand volitional tension and control their actions. (Tatochenko 2008, 272.)

In children 6-10 years, the heart muscle in its development is far behind the muscle of an adult. Increased cardiac activity is mainly due to increased heart rate (HR). At this age, resting heart rate is also increased. The small volume of the heart does not allow achieving maximum oxygen consumption (MOC), to develop and maintain a high capacity of muscle activity. The muscles of the child's heart due to the wide lumen of the coronary vessels and rapid blood circulation are abundantly supplied with blood. In young children, the heart is relatively large, accounting for 0.8% of body weight (about 22 g). Every year there is an increase in heart mass: by 5 years – triples. The left heart grows especially intensively due to the greater load on it. At the same time, tissue differentiation of the heart muscle occurs. (Bezrukikh, Sonkin & Farber 2003, 416; Kamenskaya & Melnikova 2013, 272.) Quite developed network of small arteries that provide good blood supply to the heart muscle. The capillary system in children is relatively and more developed than in adults, which causes difficulties in maintaining temperature homeostasis. (Smirnov & Zilov 2008.)

The work of the heart is activated in conditions of intense physical activity. At the same time, activation reserves in children are different. In some children, under the influence of exercise, the heart rate increases by 20%, in others under these conditions, especially in boys-by 40% or more. (Yuriev 2012, 719.) This difference during exercise indicates a different degree of influence of the sympathetic link of the autonomic nervous system. The stronger the pulse increases during exercise, the greater the impact of sympathetic activation. (Smirnov & Zilov 2008.) This process is called mobilization and plays an essential role in training the cardiovascular system. The more diverse the physical activity of the child, the more interesting physical games and exercises, the more significant the training effect. (Kapilevich, Kabachkova, & Dyakova 2009, 154.)

Pulse in children 5-6 years more often than in adults. This is explained by faster contractility of the heart muscle due to less influence of the vagus nerve and more intensive metabolism. Reserve capacity of the heart is limited due to severe rigidity of the heart muscle, short diastole, and high heart rate. The "advantage" of a child's heart is the absence of a negative impact on the heart muscle of chronic and acute infections, various intoxications. (Paranicheva 2008, 38.)

In primary school children improve their psychomotor skills mainly through play. Physical development of preschool children improving general motor skills can be considered as improving activities such as balance, walking, running and climbing. Children learn to dress themselves and eat without help. Developing a child's fine motor skills can be considered as improving control over the wrists, hands and fingers, allowing children to master skills such as drawing and cutting with scissors. Children's spatial

perception is also developing, where early experiences of physical activity play an important role. (Petrova & Baranov 2006, 72.)

During the preschool period children make an impressive gain in large muscles skills. By age of 5 or 6 they are running, jumping, hopping, galloping, climbing, and skipping. Some kids can already ride two-wheeled bike. Fine motor skills are not developing with the same speed and kids are not so accurate for example in writing and cutting with scissors. (Boyd & Bee 2009.)

Preschool age is an extremely sensitive period for motor abilities development in children, especially when it comes to learning and adopting extensive repertoire of motor skills. The importance of physical activity is particularly emphasized in the preschool age. Preschool children, unlike others, are still in the process of forming the habits that will continue to reflect on their quality of life. (Hardy, King, Farrell, MacNiven, & Howlett, 2010.)

The nervous system is involved in the interaction of the body with the environment, regulates all its internal processes and their constancy (body temperature, biochemical reactions, blood pressure, tissue nutrition, providing them with oxygen), or homeostasis. With the development of furrows and convolutions (their number increases, the shape and topography changes), the formation of different parts of the brain takes place. This is especially intense in the first 6 years of life. Gray matter cells conducting systems (pyramid pathway, etc.) are not yet formed, dendrites are short and poorly branched. It is believed that the number of nerve cells of the large hemispheres after birth does not increase, but only their differentiation and increase in size and volume. In children 5 – 6 years, the maturation of cells of the medulla oblongata and the differentiation of cellular elements of the gray matter of the hypothalamic region is not yet complete. An important indicator of maturation of nerve structures - myelination of nerve fibers. It develops in a centrifugal direction from the cell to the periphery. By the age of five, myelination of the spinal cord and spinal roots forming the "horse tail" is already complete, which leads to a gradual increase in the volume of movements and their accuracy. By 5 – 6 years, the final ratio of the brain and spine is established. (Kapilevich, Kabachkova & Dyakova 2009; Kamenskaya & Melnikova 2013.)

2.2 Psychological characteristics

The central nervous system regulates the mechanisms of physiological and psychological processes (Yakovlev 2006, 288; Vygotsky 2008, 352). All activity of the nervous system is based on such nervous processes as excitation and inhibition. These processes, both in the child and in the adult, are

characterized by three main properties: strength, balance and mobility. In a child aged 5-6 years, the strength of nervous processes increases, their mobility increases, inter-analytical connections and mechanisms of interaction of signal systems are improved (Bezrukikh, Sonkin & Farber 2003). It should be noted that for this age there is an improvement in the ability to accompany the speech of their activities. Improving the pronunciation of speech sounds occurs when using speech-motor exercises and specially organized health-correction games. (Kozyreva, 2007.)

The mechanism of comparing words with reality in children of 5 years is still underdeveloped. To perceive the world around them, children are guided mainly by the words of an adult. Already by the end of the fifth year of life in the comparison of words improved, growing independence of action, conclusions. (Glozman, Potanina & Soboleva 2008, 80.)

However, the nervous processes in a child of 5 years are still far from perfect: the processes of excitation prevail over the processes of inhibition. While maintaining a tendency to spread, this can lead to increased nervous excitability. At the same time, it is by the age of five that the effectiveness of the use of pedagogical influences, which are aimed at the concentration of nervous processes in children, increases. Therefore, in the classroom should improve the child's response to the signal. It is especially important for teaching children aged 5-6 years that conditioned reflex connections are formed quickly enough (after about 2-4 repetitions of the conditioned signal with reinforcement). However, these bonds become stable only after 15-70 combinations. (Potapchuk 2007, 154; Smirnov & Zilov 2008.) It should also be noted that for complex systems of connections to be strengthened it is necessary to repeat them on gradually complicated material. (Balandina 2005, 288; Serebryakova 2005, 64.)

The developing of children at this age is characterized by increasing arbitrariness, premeditation, purposefulness of mental processes. All this indicates an increase in the participation of the will in the processes of perception, attention and memory. (Pavlova & Rudenko 2008, 80.) Perception. At this age, the child actively learns the techniques of cognition of the properties of various objects. In the process of learning, children learn different properties of the environment. Firstly, the child learns how to distinguish a variety of shades, to master ways of detection, to remember various names. (Semago 2005, 384; Astaeva 2011, 22.) Thus, the child forms ideas about the basic geometric shapes; about the main colors of the spectrum; about the parameters of magnitude; about space time; about the special properties of objects and phenomena (Potapchuk 2007, 154; Pavlova & Rudenko 2008, 80).

Due to the increased stability of attention, the child can focus only for a short time (15-20 minutes). During the execution of any action, it can hold in memory a simple condition. In order to manage their attention,

a child aged 5-6 years should be asked to think more aloud. Currently, he can hold his attention for a long time on certain objects and their individual details. (Perveeva 2003, 25; Kozlov 2008, 271.)

At the age of five years, the child begins to develop the processes of arbitrary recall, which are later replaced by the processes of deliberate memorization. By the age of six there are independent attempts of elementary systematization of the material in order to memorize it. (Semago 2005, 384; Pavlova & Rudenko 2008, 80; Vygotsky 2008, 352.) To facilitate these processes, the child should always be clear and emotionally close to the motivation of actions (Serebryakova 2005, 64; Glozman, Potanina, & Soboleva 2008, 80). It is very important that the child comprehends what he learns, because meaningful material is remembered even in those conditions when the goal is not to remember it. Meaningless elements are easily remembered only when the material attracts with its rhythmic structure and colorfulness. (Kazakevich, Saikina & Firileva 2001, 104; Perveeva 2003, 25; Vasilyeva, Gerbova & Komarova 2005, 208.) The amount of memory gradually increases, and the child of the middle group is able to remember up to 7-8 names of objects. Compared with children of the younger group, children 5-6 years more clearly reproduce what they remember. It should be noted that in this age period begins to develop arbitrary memorization. Children develop the ability to accept the task of remember: they remember the instructions of adults and can learn a small poem. (Pavlova & Rudenko 2008, 80.)

At the age of 5 – 6 years, imaginative thinking begins to develop. Children can use simple schematic images to solve problems. (Vygotsky 2008.) Children can guess what will happen as a result of the interaction of several objects. However, it is still difficult for them to make a mental transformation of the image. Especially characteristic for children of five years of age are the well-known phenomena of J. Piage (preservation of quantity, volume and magnitude). (Vasilyeva, Gerbova & Komarova 2005, 208.) The solution of problems can occur in visual-figurative, visual-effective and verbal plans. Therefore, one of the main tasks facing the teacher is the formation of a variety of specific ideas, as well as the generalization of what has been said. (Balandina 2005, 288; Semago 2005.) Imagination in a child of five years of age continues to develop and improve. Originality and arbitrariness are formed. Therefore, children of this age are already able to independently come up with a short story on a given topic. (Lisina 2004, 21; Astaeva 2011, 22.)

In the middle preschool age, children's vocabulary is enriched, and, most importantly, the possibilities of using words are expanded. To this end, it is necessary to constantly draw the child's attention to the phenomena of nature, to its beauty, to consider with him landscapes. Thus, the pronunciation of sounds and diction will gradually improve and the grammatical side of speech will develop. (Perveeva 2003, 25.) Due to the frequent use of verbs, adjectives, adverbs, in children of the fifth year of life, the morphological

composition of statements also changes somewhat. This favors the appearance of simple and common sentences in speech. As they learn, they form many elements of coherent speech. (Perveeva 2003, 25; Vygotsky 2008; Piage 2008, 448; Dobrynina 2012, 22.) Periodization of the development of the child's body is important for pedagogical practice and child health. The growing organism develops individually, and biological age may not coincide with the calendar, ahead of him or noticeably behind. (Stepanenkova 2006, 358; Filippova & Ponomareva 2010, 656; Anisimova & Habarova 2014, 208.)

In conclusion, the authors note that based on the analysis of literature psychological and physiological characteristics may contribute to the development of flexibility, joint mobility, endurance, coordination, speed, agility and pre-school age is optimal to start teaching children to swim.

3. Role and significance of the game in development of pre-school age children

Children learn by playing, and this way of learning is the most innate and natural way to learn. According to Lev Vygotsky, play is the preeminent educational activity of early childhood. (Berk & Winsler 1995.) Games are their natural need and one of their primary activities. Now the question arises which games children love the most and why. Games that offer a role-playing game, a protagonist that allows self-affirmation and self-recognition. Games that are dynamic, the content of which has enough action (motor skills) and rapid intellectual reaction to the solution of the problem. Games that offer a spark of children's healthy humor and create a good mood. The most useful games are those that have a combination of the above qualities. There are numerous studies that point to the role and importance of play for the development of physical, moral, intellectual, social and emotional characteristics of the child. Through it, the interests of children and adults are met, especially in areas where traditional games have for centuries can be considered as a separate institution for organized communication and leisure. Numerous generations have grown up with these traditional games passed down from generation to generation, cherished, used and refined. (Obradovic 2012).

Play is the leading activity in preschool, it has a significant impact on the development of the child. In game activity mental qualities and personal features of the child are most intensively formed. In the game there are other activities that then become independent value. The game affects all aspects of mental development, which has been repeatedly emphasized by both teachers and psychologists. (Smirnova 2000, 65.) Makarenko (2013) noted: "one of the most important ways of education I consider the game".

Game activity influences formation of arbitrariness of mental processes. In the game, the child begins to develop arbitrary attention and arbitrary memory. In a game environment, children focus better and remember more. The conscious goal stands out for the child earlier and easier in the game. The very conditions of the game require the child to focus on the objects included in the game situation, on the content of the actions played and the plot. If the child does not want to be attentive to what the upcoming game situation requires from him, if he does not remember the conditions of the game, then he is simply expelled by his peers. At the same time experience of game and especially real relationship of the child in a role – playing game the basis of the special properties of thinking allows you to become on the point of view of others, to anticipate their future behavior and based on this to build their own behavior. Role-playing has a certain value for the development of imagination. The influence of the game on the development of the child's personality is that through it he gets acquainted with the behavior and relationships of adults, who become a model for his own behavior, and it acquires the basic

communication skills, qualities necessary for establishing contact with peers. (Smirnova & Gudareva 2005.)

Games are activities that reflect a person's attitude to the world that surrounds them. It is peace that causes the need to change the environment. When a person has a desire that cannot be realized at once, the prerequisites for gaming activity are being created. Child's independence in the middle of a gaming plot is limitless, it can go back in time, to look into the future, continuously repeat the same action that brings joy, gives opportunity to feel oneself important, almighty and wanted. (Krayg 2001, 218.)

While playing a child doesn't learn how to live but lives his true, independent life. A game is the most vivid emotional activity for preschoolers. The game activity begins to take shape and educational activities, which later becomes a leading activity. The teaching is introduced by the adult, it does not arise directly from the game. But the preschool child starts to study playing he to the doctrine treats as a peculiar roleplaying game with certain rules. However, by complying with these rules, the child imperceptibly for itself seizes elementary educational actions. The main line of progress for preschoolers lies in formation of non-object actions and the game appears as a floating process. Over the years, when these kinds of activities change places, the game becomes a leading, dominating form of custom world creation. (Volkova 2007, 239.)

The most important is impact of game on a child's motivational-demanding sphere. At the base of game transformation while shifting to preschool childhood lies the expansion of range of human object, mastering which is presented now as an objective and the world of which is understood by him during his further psychological development. The expansion of the object circle itself with which the child wants to interact is secondary. The game poses as an activity having the closest connection to the child's needs. The significance of the game is not limited to the fact that the child has new motives for activity and related tasks. Essentially important is that a new psychological form of motives arises in the game. (Elconin 2008, 274.)

At preschool age game becomes an independent activity of the child, he develops different kinds of games. Games preschooler is included in the various spheres of social reality, expanding the limits of knowledge in these areas. The game has a positive impact on the formation of interaction and relationships of children. Games remove psychological barriers, instill self-confidence, improve children's communication with peers and adults. The games attract and keep children's attention with their content which educates and creates good mood. Some of them offer various ways and solutions such as the ones that lead children towards creating new contents intended for the inventive children. The game is an

activity that dominates children's lives and has a special meaning in the development and education of children, especially in the pre-school period. That is why in children's educational process great attention is paid to the creation of conditions for spontaneous playing of games or directed games, and games with rules pre-established by adults for the purpose of accomplishing certain pedagogical effects. (Yadeshko 2008, 514-516.)

4 The value of swimming for children.

Childhood development is an important determinant of health over a person's lifetime (Halfon & Hochstein 2001). Early developmental opportunities can provide a foundation for children's academic success, health, and general well-being (Landeghem, Curtis & Abrams 2002). Preschool-aged children experience profound biological brain development and achieve 90 percent of their adult brain volume by age 6. This physiological growth allows children to develop functional skills related to information processing, comprehension, language, emotional regulation, and motor skills. Experiences during early childhood affect the structural development of the brain and the neurobiological pathways that determine a child's functional development. (Boyce & McEwen 2009.) Positive experiences support children's cognitive, social, emotional, and physical development, and conversely, adverse experiences can hinder it. Additionally, strong associations have been found between the biological effects of adverse early childhood experiences and numerous adult diseases, including coronary artery disease, chronic pulmonary disease, and cancer. (Boyce & Ellis 2005; Shonkoff, Boyce & McEwen 2009.)

Swimming is a unique type of physical activity. Specific features of the impact of swimming on the child's body are associated with active movements in the aquatic environment. In this case, the human body is exposed to a double impact: on the one hand – physical exercises, on the other-the unique properties of the aquatic environment in which these exercises are performed. We must not forget that water is of special importance for the human body, which is 80% water (and brain cells are 90% water), all vital processes occur in the aquatic environment of the body, and the first 9 months of human development occur in the aquatic environment. (Spock 1990.)

Swimming is a physical action, which is based on holding and moving a person in the water in the desired direction. During swimming, which is a means of massaging the skin and muscles, the child overcomes significant water resistance, constantly training the musculoskeletal system, i.e., a kind of gymnastics is carried out. During swimming, the sweat glands are cleaned, which helps to activate skin respiration and abundant blood flow to the peripheral organs. Horizontal position during swimming is a peculiar state of weightlessness, which activates the blood flow, developing and strengthening the cardiovascular system. (Glazyrina 1999.)

In the opinion of most authors, swimming as a means of improving health has a profound effect on the body of children, and contributes to their comprehensive physical development, the formation of posture, strengthening the nervous, cardiovascular, respiratory and muscular systems, and is also involved in the prevention of colds (Eremeeva 2005; Petrova & Baranov 2006).

From an early age, this is one of the strongest forms of influence on the developing body, the combination of water, air, temperature and motor activity of the child. Swimming hardens the body, improves the mechanism of thermoregulation, increases immunological properties, improves adaptation to various environmental conditions, instills the ability and skills of self-service, improves blood circulation and respiration, improves cardiac activity, chest mobility, breathing rhythm, increases the vital capacity of the lungs, strengthens the musculoskeletal system, correctly forms the spine, produces good posture, prevents the development of flat feet, increases performance and muscle strength, harmoniously develops strength, speed, agility, flexibility, coordination, endurance; improves movement, increases the overall tone of the body, strengthens the nervous system, sleep becomes stronger, appetite improves. (Brown & Jernigan 2012).

The musculoskeletal system of the child is in the stage of formation. The spine of the child is soft, elastic, its natural curvatures are not yet fixed and in the supine position are straightened and therefore it is easily subjected to abnormal bends, which can then be fixed, form a deformation. When swimming, the lifting force of the water supporting the child on the surface, as it were, facilitates the body, so the pressure on the supporting apparatus of the skeleton, especially on the spine, is reduced. In this regard, swimming is an effective means of strengthening the skeleton, is actively used as a corrective (correcting defects) means. Due to age-related weakness of the ligamentous-muscular apparatus and the accelerated process of ossification of the child's foot is easily deformed, as a result, flat feet often develop. It can be caused by excessive load on the feet or improper distribution of it on the inner and outer arches of the feet. A large dynamic work legs in the unsupported position under swimming exerts strengthening impact on the formation of the child's foot, helps prevent disease flat feet. (Vorotilkina 2004.)

Swimming has a beneficial effect on the cardiovascular system contributing to an increase in its power, efficiency, vitality. With systematic swimming improves thermoregulation, increases the intensity of blood flow, strengthens the heart muscles. Improves and gas exchange, which is very important for the full development of the growing organism. (But all this, of course, only with proper swimming technique and breathing). Moderate swimming loads have a beneficial effect on the nervous system, "removing" fatigue, improving sleep and improving performance. Swimming can be effectively used to prevent and even treat quite common among modern children and adolescents posture disorders and stooping. When swimming breaststroke is the straightening of the spine. Children who swim freestyle usually have high growth rates. (Glazyrina 1999.)

5 Principles in teaching swimming for children of pre-school age

Early childhood education interventions can improve children's development and act as a protective factor against the future onset of adult disease and disability (Blackman 2002, 11-19; Hahn, Barnett & Knopf 2016) and can counteract the disadvantage some children experience, improve their social and cognitive development, and provide them with an equal opportunity to achieve school readiness, and lifelong employment, income, and health (Halfon & Hochstein 2001). Additional studies have found that early childhood education is associated with other positive health effects, including healthier weight (such as fewer underweight, overweight, and obese children) (Lumeng, Kaciroti & Sturza 2015).

The organization of children's swimming training in preschool is carried out in conjunction with all the various forms of physical culture and health work, as only a combination of classes in the pool with a rational mode of activity and recreation of children can give a positive result in strengthening their health and hardening of the body. Proper organization of classes is of great importance in the formation of the foundations of a healthy lifestyle. (Bulgakova 2001.)

Principles for Teaching Preschoolers:
Children learn best through their senses; choose learning activities that stimulate many senses
Learning activities should be interesting and meaningful; select activities that create enthusiasm and interest;
The child's learning is enhanced by the use of concrete materials; teaching should move from the concrete to the abstract as appropriate;
Consider the child's developmental level, experiences, interests, and abilities;
When possible, give the child something to keep or to take home;
Activities such as games, role playing, showing items and objects, using puppets and artwork, and telling stories and reading books are appropriate for this age group. (Hooper 1998, 222-227.)

6 The game method in swimming teaching

In recent years, the game method has been the subject of close attention of researchers, since through the introduction of game elements it gives classes an attractive, emotional form. Among the motives that motivate children 5-6 years old to swimming, the main role is played by the desire and desire for play actions and their combination with water activities. The use of various game situations on land and in water contributes to the more rapid formation of swimming skills in children, therefore, in traditional methods of initial training in swimming a rather significant place is given to the study of games and entertainment on water. (Bulgakova 2001.)

In the system of physical education, the game method is used to solve educational, health and educational tasks. The essence of the game method is that the motor activity of the participants is organized on the base of the content, conditions and rules of the game. Water games are widely used in swimming training. The game method is basic in preschool and one of the basic in primary school age. Makarenko notes that the greatest stability of attention in primary education is observed in children with a playful form of learning movements. In the game, thanks to positive emotions, they quickly get used to the water, get rid of stiffness, tension, feel bolder. Games are used from the very first lessons for the development of children with water, which helps children to overcome feelings of uncertainty and fear, contributes to the rapid process of adaptation in the water. Games help to master all the preparatory actions for swimming. Games are used for repetition, fixing and improvement of separate movements of a sports way of swimming, for achievement of stability of skills. (Nagornova & Volynkin 2014, 160-164.)

The main methodological features of the game method are (Inyasevsky & Gordon 2005, 22-35): the game method provides a comprehensive, comprehensive development of physical qualities and improvement of motor skills, as during playing they are not isolated, but in close cooperation; in the case of pedagogical necessity with the help of the game method, you can selectively develop certain physical qualities (selecting the appropriate games); the presence of elements of rivalry in the game requires considerable physical effort, which makes it an effective method of education of physical abilities; a wide variety of ways to achieve the goal, improvisational nature of actions in the game contribute to the formation of human independence, initiative, creativity, commitment and other valuable personal qualities; the conditions and rules of the game in terms of confrontation enables the teacher purposefully shaping students moral qualities: sense of mutual aid and cooperation, conscious discipline, will, collectivism. (Parfenov 2008, 288.)

6.1 Strengths of the game method

The main strengths of the game method are (Inyasevsky & Gordon S. 2005, 22-35):

1) provides a comprehensive, comprehensive development of physical qualities and improvement of motor skills, as in the game they are manifested not in isolation, but in close cooperation; in the case of pedagogical necessity, with the help of the game method, you can selectively develop certain physical qualities (selecting the appropriate games);

2) the presence of elements of rivalry in the game requires considerable physical effort, which makes it an effective method of education of physical abilities;

3) a wide variety of ways to achieve the goal, improvisational nature of actions in the game contribute to the formation of human independence, initiative, creativity, commitment and other valuable personal qualities;

4) compliance with the conditions and rules of the game in the conditions of confrontation allows the teacher to purposefully form moral qualities in students: a sense of mutual help and cooperation, conscious discipline, will, collectivism, etc.;

5) the factor of pleasure, emotionality and attractiveness contributes to the formation of students.

6.2 Games in swimming

An integral part of learning to swim are holidays and entertainment on the water, which contribute to comprehensive development. Games elicit a sense of joy and develop emotions, make children feel better. During such events, preschoolers can show independence and gain self-confidence, faith in their abilities. Here their positive qualities are formed: goodwill, mutual help, kindness, empathy, cheerfulness. (Osokina T. I., Timofeeva E. A., Bogina T. L., 2011.)

Games can be team, non-team, plotless and role-play:

1. Team games-participants are divided into teams, and the actions of each player, his skills are aimed at winning the team.
2. Non-team games - participants are not divided into teams; each player independently solves the tasks.
3. Role-play games -based on a specific theme: for example, "Goldfish and carp", "Fishermen and fish", etc.
4. Plotless games - based on the exercises in a competitive form: "Who will be the first?" Who will be next? "Let's dive in and see who holds more?" etc.

Water games are divided into main groups according to different goals (Rheker 2004):

1. Games designed to get the children to experience their body and that they can carry out in water, learning about space and time. In general, they get familiar with the properties of water. Games for accustoming to the water.
2. Development of the basic characteristics of motor activity; stamina, strength, speed, coordination abilities
3. Training of special skills of movement: underwater diving, breathing, diving, floating, gliding, throwing and catching, forward movement in, into and under the water.
4. Games with the aim of experiencing social cooperation allow the children to develop social togetherness in small and large groups

Authors assume that by using games that require equipment, children learn to get used to equipment and personal things in their environment and adequately put them to use.

7 The fundamentals of designing a swimming teaching guide

The time of year, frequency and duration of classes can be determined at the local level. While there is no set number of lessons that should make up the curriculum for swimming, it is important that enough time is allocated to ensure that all students meet or exceed all the requirements of the national curriculum. Regardless of the physical activity program in which the child is involved, its development in a harmonious and integral way should always be guaranteed. In this way, aquatic activities in early childhood include three main objectives: social, cognitive and psychomotor. (Department of Education, 2007.)

In our opinion, to design a swimming teaching guide always necessary to follow scientific and proven principles: use only modern literature background (when designing a teaching guide, it is important to use the results of the latest research and editions of books, follow teaching trends. The information provided in the guide should be presented in an accurate and understandable language for instructors.

Obviously, The FINA (2018) declares the guide should include a variety of exercises or games (different forms of exercises and variations should be used in the lessons to achieve the target form). Games should be fun (children should be brought to the target form in a playful way and with a positive experience). Moreover, the authors believe that teaching swimming guide should be target group oriented and age-appropriate (the children should be encouraged and challenged according to their age).

7.1 The teaching program to children of pre-school age

The preschool age group is now divided between three levels. The three levels mirror the first three levels in the Learn to Swim Program. The main difference between the two sets of programming is found in the techniques that are used to teach the various classes. The preschool age group will be taught using games and toys, rather than straight instruction. (Langendorfer, German & Kral 1998.) According to the Aquatic class information (2012), all levels in the Preschool Program are designed to streamline the advancement between preschool (ages 3-5) and the Learn to Swim Program (Ages 6 and up). For example, if a child is 5 years old and passes Level Il Preschooler class, the next year they can transition into Level Ill of the Learn to Swim program, rather than starting back at Level ll Classes run 30 minutes each week. The descriptions of the three levels are below:

Level I: Preschools will learn how to enter and exit the water safely. Preschools will learn to submerge his/ her head and open their eyes under the water to see objects. The child will lean to float and glide on

his/her stomach and back while being supported and explore ways of changing position in the water using their arms and legs. Prior to enrollment in this class, child should have little in-water experience and may even be fearful of the water. (Aquatic class information, 2012.)

Level Il: This level builds of Level 1, In this level, preschools will learn to submerge their entire head under the water while learning breath control Preschools will learn to float on his /her stomach and back unassisted. Preschools will learn to move arms and legs in motions that will promote swimming on his/her own both on front and back. Prior to enrollment in this class, child should feel comfortable in the water and not be afraid to get their face and head wet. (Aquatic class information, 2012.)

Level Ill: Once the preschool can swim on his / her own, it is time to learn the fundamentals of different strokes. Level Ill offers an introduction to the elementary backstroke, increased endurance on front crawl and kicking action. The beginning stages of diving will also be taught. Prior to enrollment in this class, child should be able to float on their own (both front and back) as well as be able to swim on their own short distances. Preschools will also begin to learn how to tread effectively as well as kick. (Aquatic class information, 2012.)

7.2 Swimming lesson plan

Goals and Content of each swimming lesson and the form of organization are dependent on the aims. The aims determine the content and the content determines the form. For this reason, the aims of a swimming group should be formulated firstly. Consideration can be given later to which types of games and exercises best achieve these aims, Depending on the aims and content, the form of organization should be chosen that best suits the content, makes best use of the time available and guarantees learning success for ever helping to achieve the aims set. (Brenner, Saluja & Smith 2003.)

Based on the knowledge of the authors, regardless of whether lessons are supervised by teaching staff or swimming teachers, every pool-based lesson should be well-organized, structured and continuously monitored. Undoubtedly, each lesson is divided into three parts: introduction, main theme, conclusion. Warm up and contrasting activities should also be programmed, structured and controlled. “Free play” or unstructured swimming that lacks purpose and clarity will not help pupils reach the national curriculum standards.

In our opinion, the main purpose of the introduction should be to prepare the children for the lesson. That will also enable the instructor to assess the likely level of development of the group. At this stage, the instructor should observe the children in the water and, after, decide where the individuals may need special attention. In mixed-age classes, the introduction can also be used to group age and ability.

Based on STAnly manual (2008), the main themes, including teaching methods and training points, are the main part of the lesson and should last about two-thirds of the whole lesson time. Each lesson should focus on a new topic, and revise topics from previous lessons in less detail. It is very important that instructors always clearly demonstrate the skills they are taught. The instructor may need to prepare different schedules to teach a common core topic to children with varying degrees of ability during a single lesson, such as jumping. The contrasting activity may be a less formal activity, such as a song or group game, or it may be the introduction of a very different skill.

Conclusion. Children prefer routine and respond well to repetitive activities. The final activity of the lesson may be repeated or resemble a beginning. It supposed to be fun. This will create a good, positive atmosphere when the children leave. They will remember it fondly and will want to come back for the next time. (STAnly resourse manual 2008.)

The AquaFun (2004) states: an additional advantage of the little games is that they can also be properly and naturally included in every phase of swimming instruction:

Introduction (Warm-up): In the introductory part of the swimming session, little games can serve to cover a playful warm-up period on land. Particularly, movement intensive games, such as running and tagging games and little ball games, fulfill this task of warming up the body well. Little games, however, also lead up to the subject of the instruction, insofar that they can prepare the class for the main emphasis of that instruction.

Main Part: Little games can serve to provide variety or provide a special attention in the main part of swimming training session. For example, they can fulfill the following educational aims by using games: social togetherness cooperation, communication etc. The aims of motor system training can also be achieved by using little games: Games of catching and throwing teach the techniques involved in these actions, dribbling games, goal shooting games, jumping games etc., all prepare the student for learning the appropriate techniques in a playful manner. Little games can also be used to train for stamina, strengthening exercises, speed exercises, coordination abilities, agility and dexterity. (Rheker 2004.)

Conclusion (Cooling-off): Little games are often used at the end of a session so that a playful end or an emotional highpoint is reached (Rheker 2004).

7.3 Rules and recommendations for swimming lessons

Swimming compared to other high-active sports is, statistically, relatively injury free as water supports and protects the body. However, there are several hazards associated with swimming of preschool age children. Following the teacher's recommendations helps prevent some of them. The guidelines are not intended to specifically tell teachers how to conduct classes, as there are various suitable and effective techniques. They are used by swimming instructors as the basis for the development of safe, effective and positive programs, and as a guide to the selection of a suitable program for children (Department of Education. Science and Training, 2005):

- Preschoolers should be able to learn at their own pace and never be forced to participate in aquatic programs or activities
- All techniques and activities must be developmentally appropriate, non-traumatic and respect the rights and dignity of participating Preschoolers
- Teachers should have modern skills of pediatric resuscitation, as well as to be aware of signs of distress. It must be stressed that although accidents affecting child swimming classes are extremely rare, they demand skilled intervention.
- The aquatics instructor may choose to provide specific toys for each class rather than keep a supply of toys in the pool. Instructor should pay attention to remove toys from the pool after each lesson.
- In all groups should always be set achievable objectives – according to the children’s ages and abilities
- Length of indoor lessons, heated pool 30-45 minutes in the water is optimum to allow adequate time for warm-up, the main theme, a contrasting activity, and for activities to be explained and organized.

Rules according to the STAnley Resource Manual (2008):
The pool should be of a suitable depth where the teacher and adult, if in the water, are able to stand comfortably. Shallow pools may be used, where the child is able to stand. The quality of the water and cleanliness should also be considered. The teacher must ensure the lifeguard. There should either be professional lifeguard(s) on duty, or the teacher must have a relevant, and in date, lifesaving qualification. The water temperature should ideally be 30°c. The air temperature in the pool is also important since the

child's and part of his/her body will be above the surface most of the time. Ideally, the air temperature should be 2 degrees higher than the water temperature. Instructors must avoid using any mains electrical appliances in the pool area. Only battery or low voltage equipment must be used if inbuilt sound is not available.

To get the most out of swimming sessions children should attend sessions regularly, preferably, if time and money allows, twice a week, but never less than weekly. It is usual for sessions to last for half an hour, longer sessions will tire young children and they will become irritable. Sessions should move quickly. (Department of Education and Training & Archdiocese of Canberra & Goulburn, 2007.)

8 Purpose, aims and methods

The purpose of the thesis was to develop teaching guide related to the game method for the initial swimming teaching to preschool children. Practical significance of the research work is in the usage and inclusion by instructors of the aquatic games, role-playing situations, developed lesson plan based on the game method in the traditional teaching methods.

The aim of the theoretical part was to scientifically substantiate the importance of the game method in swimming teaching to preschoolers. The additional objective of the practical part of the thesis was to observe and compare the individual teaching methods and didactic procedures that were used in the observed swimming lessons.

The theoretical part focuses mainly on characteristics of pre-school age children, swimming teaching methods, particularly the game method in swimming teaching. The practical part deals with the course of swimming training to pre-school children in a swimming school, observes and compares individual teaching methods and didactic procedures, that were applied during the observed swimming lessons.

The research methodology was divided into two parts: a literature review and its subsequent analysis. During selecting and analyzing scientific literature, we have studied more than 80 Russian and foreign sources related to the topic of the thesis (various reliable sources, books, magazines, online articles).

The product development process consists of five main stages: identification of the problem and demand for development, analysis of the idea, drafting, product development and finalizing the product. Drafting began with identifying the demand for the product, and then authors together with the supervisor analyzed the idea, and then proceeded directly to the creating and developing the booklet. The product development phase began after a decision was made to create a specific type of product, in this case a booklet. The product development process began with the project development phase, when the theory for the booklet had already been assembled. The authors studied more than 80 Russian and foreign literary sources, created a theoretical background on the basics of which the product was developed. After product development is complete, the teaching guide was printed and attached below in the appendices.

The result of our research work will be the development of the teaching guide for swimming instructors with usage of the game method. To create a pedagogically correct and effective guide, it is necessary to study the following areas of knowledge: the features of the psychophysical state of preschool children,

the principles and methods used in swimming teaching, the fundamentals of design a swimming teaching guide.

9. Product development process

New product development is a complex process that is usually performed by companies or R&D of universities. This process is resource-intensive and requires the processing of lists of marketing, engineering and financial specifications. Before start to developing a new product, it is necessary to consider what a «new product» is and what it means in today's environment. (Trott 2005, 293.) Product planning is the creating a product idea and following through on it until the product is introduced to the market. Product planning entails managing the product throughout its life using various marketing strategies, including product extensions or improvements, increased distribution, price changes and promotions (Ulrich & Eppinger 2004.) New product development typically exists in stages. Stage by stage product is analyzed if it needs to be developed further (Lehmann & Winer 1997, 244).

The success of a product is not only substantiated by the decision of customers to purchase it, but also by the satisfaction and pleasure gained through its ownership. In addition to requiring adequate task performance, products perform other functions based on cultural, social, and emotional needs and aspirations. The designer needs to be aware of these emotional reactions in order to create products with which users can identify and respond. Designers need to widen their empathy with customers and move beyond the ideas of existing solutions. This requires the consideration of user needs at the earliest possible stage of a product's development, before fixed ideas for solutions to the product's design problems have been established. The additional effort spent to research user needs in the early product development phases can pay off by eliminating errors before resources are spent, such as building working prototypes or production planning. (McDonagh-Philp & Bruseberg 2000).

9.1 Identification of problems and demand for development

The selection of one appropriate researchable problem out of the identified problems requires evaluation of those alternatives against certain criteria, which may be grouped into internal criteria. Internal criteria consist of researcher’s interest (the problem should interest the researcher and be a challenge to him); researcher’s own resource (in the case of a research to be done by a researcher on his own, consideration of his own financial resource is pertinent. If it is beyond his means, he will not be able to complete the work, unless he gets some external financial support); researcher’s competence (a mere interest in a problem will not do and the researcher must be competent to plan and carry out a study of the problem, he must possess adequate knowledge of the subject-matter, relevant methodology and statistical procedures). (Shoket 2014.)

The product development began with the identification of demand for the product, then the authors together with the supervisor conducted an analysis of the idea and then authors began directly the creating and developing a teaching quide. The idea came after visiting the large pool in Kajaani. After a few visits to the pool, the authors noticed that the younger swimming group did not pay much attention to the swimming lessons (some children were sitting in a warm pool and not listening to the instructor), the rest of the group didn't show a satisfaction from swimming sessions - children looked serious and hardly smiled. Further, the authors analyzed the similar ways of teaching children to swim in the nearest areas. It was planned that the developed booklet will be relevant and satisfy the demand not only in Kajaani, but also throughout Finland and other countries.

9.2 Idea analysis

The idea of the thesis appeared a long time ago, as the authors in Russia at Lesgaft National State University of Physical Education, Sport and Health study the swimming training and pedagogy for 3 years. Learning to swim, princes, methods and features have long interested the authors, which is why studying at Kajaani University of Applied Sciences the authors almost immediately decided on the main idea of the future thesis. Due to the coordinated and high-quality collaboration of the authors and the supervisor, the idea of the product was finalized and then began collecting information and searching for literary sources to continue creating the booklet.

During writing theory, it was determined that the product would be a booklet. It was agreed with Kajaani University of Applied Sciences that the most efficient way to begin implementing changes to coaching approaches in their organizations, would be a teaching guide that provides coaches with information about new games, their implementation in learning swimming to preschool children.

9.3 Drafting

The product development drafting stage began after the decision to create a certain type of product, in this case the booklet, had been made. The product development process started with the drafting stage when the theory for the booklet had already been collected. In addition, it was determined in a working conference meeting that the primary focus was on making a lesson plan based on the role-play games, recommendations, add games that can be included in the usual curriculum of swimming lesson. The authors studied more than 80 Russian and foreign literary sources, created a theoretical background on

the basics of which the product was developed. The literary background consists of six chapters, which cover all the topics necessary for designing the booklet: psychological and physical characteristics of preschool children; the importance of swimming for children; the game method and its use in teaching children to swim; the role and importance of games in teaching preschoolers; the principles in swimming teaching to preschool children, as well as recommendations and rules for drawing up a lesson in swimming for preschoolers.

9.4 Product development

The original text for teaching guide was created by using Microsoft Office Word 2007- program. Then all the text was transferred to Adobe Acrobat (PDF) to edit the text in the required A5 format for teaching guide. In this program all tables and text were formatted in the previously specified size. The font size was various visually to highlight important information. The font style Calibri. When designing the guide cover, the authors used the Corel Draw graphics editor. In this program, the authors have added the logo of Kajaani University of Applied Sciences (KAMK), created a double-sided cover and the style of teaching guide. All pages are numbered. The photo was taken from the official website of the pool of St. Petersburg. The color scheme of the product consists of different shades of blue and purple. The main color is blue, which is associated with the water environment and fits the main idea of the product. The color scheme of the picture is also in different shades of blue and therefore it suits well with the overall color scheme of the teaching guide. The font color varies from the blue font on the cover to the black text on a light background on next pages. Overall, the product design is very simple, and the authors considers of the product seems easy to approach and interesting to read.

In this guide, the format of information required a lot of attention. It was agreed that the appropriate way to provide new information to coaches was to provide comments, suggestions, and recommendations. Product development was the creation of a training teaching guide for coaches and instructors. When creating the booklet, we consider such data as general recommendations for swimming teaching the preschoolers, the advantages of the game method, scientific literature about creating own swimming lesson plans

9.5 Finalizing the product

After product development have been finished, the teaching guide was printed and attached below in the appendices. Everyone can be acquainted with this booklet visually, for more convenient acquaintance it was created and printed in several forms. This product is as a file on computer for subsequent Internet mailing to sports organizations. The authors achieved objective concerning the successful product development process and designing the teaching guide. In the future it could be used by trainers.Unfortunately, at the moment the product is more theoretical in nature, due to the fact that there has not yet been a implementation process and testing in practice, but the authors are very hope that will happen in the near future.

10 Discussion

In this chapter the authors described their own assessment of the product and results of the thesis. The authors also described the reliability and ethics of the thesis, their professional growth during the writing of the thesis and presents several points of view for the future.

10.1 Objectives and aims

The objective of the booklet was to increase the interest of children, to diversify swimming lessons and to demonstrate an example of a lesson with using of role-playing games. Achieving objective is not a short process. It is based on several separate, sequential stages, which are aims that act as small sub-objectives development of teaching guide. Currently, the authors have not reached the objective of the product, as teachers and coaches have not yet tested the teaching guide.

The objective and aims are formulated correctly and agreed with the supervisor. The authors noted that they are trying to achieve this objective in near future and hope the booklet will be in demand by coaches in many countries. Objective of the booklet motivates the authors to improve and develop the booklet for usage in practice.

10.2 The product

During product development process, the final product evolved from an initial idea to a printed booklet, eventually leading to teaching guide for potential use. After collecting the theoretical background for the thesis, for development and designing the booklet the necessary information was collected. Despite the fact that writing the theory was difficult and time-consuming, it was quite nice to entire the information in the teaching guide; particularly because from the beginning the authors had a clear idea of what information they wanted to include and this idea was developed during writing the thesis. The authors were satisfied with the final product, its content and design. The authors are hope that teaching guide will be useful in swimming teaching to preschool children and appreciated by teachers and coaches.

The authors are planning to continue work with children in the future and current thesis helped to gain knowledge about children as well as an understanding of what it takes to be a good role model for them. When creating a product, the authors learned to select and structure information, and decorate the booklet, create the lesson plan based on the role-playing game.

10.3 Ethic and reliability

Ethics in scientific research refer to a set of principles governing morality and acceptable values, which in whatsoever way is not harmful to humans, animals and the environment. In this regard, each of the branches of science has a set of rules (ethics) governing its research. The ethics of scientific research is unique within professional ethics in the sense that good science requires the ethical practice of science. Ethics in scientific research refer to a set of principles governing morality and acceptable values, which in whatsoever way is not harmful to humans, animals and the environment. In this regard, each of the branches of science has a set of rules (ethics) governing its research. (Stern, J. E. & Elliott, D. 1997.)

The authors state that they meet almost all ethical competences presented on the official website of Kajaani University of Applied Sciences in the section "Bachelor's Degree in Sports and Leisure Management Bachelor of Sports", the authors are able to take responsibility for own actions and for the consequences of these actions; are able to work according to the ethical principles of the subject field; are able to take other people into account; able to apply the principles of equality; are able to apply the principles of sustainable development; are able to wield influence in society using acquired skills and basing all activity on ethical values. (Study Guide: Bachelor's Degree in Sports and Leisure Management Bachelor of Sports).

Reliability addresses the overall consistency of a research study's measure. If a research instrument, for example a survey or questionnaire, produces similar results under consistently applied conditions, it lessens the chance that the obtained scores are due to randomly occurring factors, like seasonality or current events, and measurement error. Measurement error can be reduced by standardizing the administration of the study, i.e. ensuring that all measurements be taken in the same manner among all the study participants; making certain the participants understand the purpose of the study and the instructions; and thoroughly training data collectors in the measurement strategy (Marczyk, Dematteo & Festinger, 2005). It is also important that reliability not be viewed as independent qualities. A measurement cannot be valid unless it is reliable; it must be both valid and reliable if it is to be depended upon as an accurate representation of a concept or attribute. (Wan, 2002.) A research study design that meets standards for validity and reliability produces results that are both accurate (validity) and consistent (reliability). The archery metaphor is often used to illustrate the relationship between validity and reliability. Knowledge reliability not only aids the researcher in designing and judging one’s own work, it makes one a better consumer of research through the ability to evaluate research literature and in choosing among alternative research designs and interventions. (Gliner & Morgan, 2000.)

In this thesis, reliability was considered throughout the writing process. The main sources of the thesis and the teaching guide itself are more than 90 literary sources from different countries. They confirm the reliability of the current thesis. All sources have been critically examined and evaluated. The significance of the current thesis is in improvement of the game method and creation of the visual booklet for teachers. It is intended to test the suitability and understandability of the final product in the future using the target group. During writing the thesis, authors sought to work consistently and responsibly at each stage.

10.4 Learning process

During writing the thesis has developed the ability to assess and develop their professional competencies and training methods, as well as the ability to extract and analyze information and critically evaluate it. The ability of the authors to critical thinking has progressed significantly in the process of work, having to consider the relevant and reliable information for the thesis. All acquired skills and abilities will undoubtedly be useful to authors in their further training and in the future work.

In the process of writing the thesis, the authors found new and usefull information, got acquainted with foreign sources and deepened their knowledge in the field of physical culture and pedagogy. The difficulty in the process of writing the thesis was the tight deadlines, so that the authors learned to persevere and overcome any difficulties.

The authors are planning to continue work with children in the future and this thesis helped to gain a lot of knowledge about characteristics of preschool age children, the game method in teaching swimming as well as an understanding of what qualities should have a good swimming instructor. The authors gained in-depth knowledge in the field of swimming teaching to preschool age children and plan to apply them in practice in the future.

11 Conclusion

During of writing the thesis, many literary sources raleted to the physical and psychological characteristics of preschool children, the use of games in the construction of the educational process, the application of the game method, as well as the principles and methodological features of the educational process, the fundamentals of designing a swimming teaching guide were analized. In the that process, the authors found answers to the questions raised earlier.

This thesis aimed to develop a booklet to instructors related to the game method in swimming teaching to preschool children. Based on a literature analysis of the game method in swimming teaching to preschoolers, it was justified that the aquatic games can be very useful tool for teaching swimming at the initial stage because they provide multiple execution of movements and help to reduce the psycho-emotional load of lessons, increase interest and motivation among pupils. However, it is important to mention that according to the goal the games are divided. In order to properly implement games, instructors must clearly understand the purpose of each game. Properly selected games will help children to accustom faster to water, consolidate existing skills. The result of our work was the creation of an attractive booklet for instructors called "aquatic games: teaching guide"

According to the literature background above, the authors have created a product that would be able to diversify and complement the swimming lessons, as well as help coaches in various sports centers in swimming teaching children of preschool age using the game method.

In the developed product, much attention was paid to the game method of swimming teaching to preschool children, to examples of games that correspond to age group and consider the previous experience are presented. Moreover, one visual lesson plan with the usage of games is presented. It should be noted that for each aquatic game the goal is mentioned. In this way, swimming instructors can control the theme and focus of the entire lesson. In accordance to the FINA and ARC assosiations the rules of implementing games into the swimming teaching program for children of preschool age are offered. The booklet is of interest to students of coaching faculties, future swimming coaches and would be useful to swimming instructors and teachers.

Lack of time was the biggest problem of this thesis writing process. In view of the busy schedule of the authors, it was very difficult to work every day, there was an acute lack of time to study the empirical part and write it in the report. The distribution of responsibilities was also quite problematic for us. However, despite all the challenges, writing a thesis helped authors to achieve such goals as: learned to highlight the main thoughts of the author, to comprehend the information received. During the product

development process, we learned how to develop a teaching guide and compose in practice a lesson plan based on the game method and a role-playing situation. In our opinion, the acquired skills and knowledge will be useful in our future professional activities.

For the future studies it is expected that an experiment and statistic research will be conducted in order to assess the effectiveness of the proposed booklet. In addition, it is possible to consider the other age groups. In conclusion, we would like to thank everyone who participated and provided assistance in the thesis writing process.

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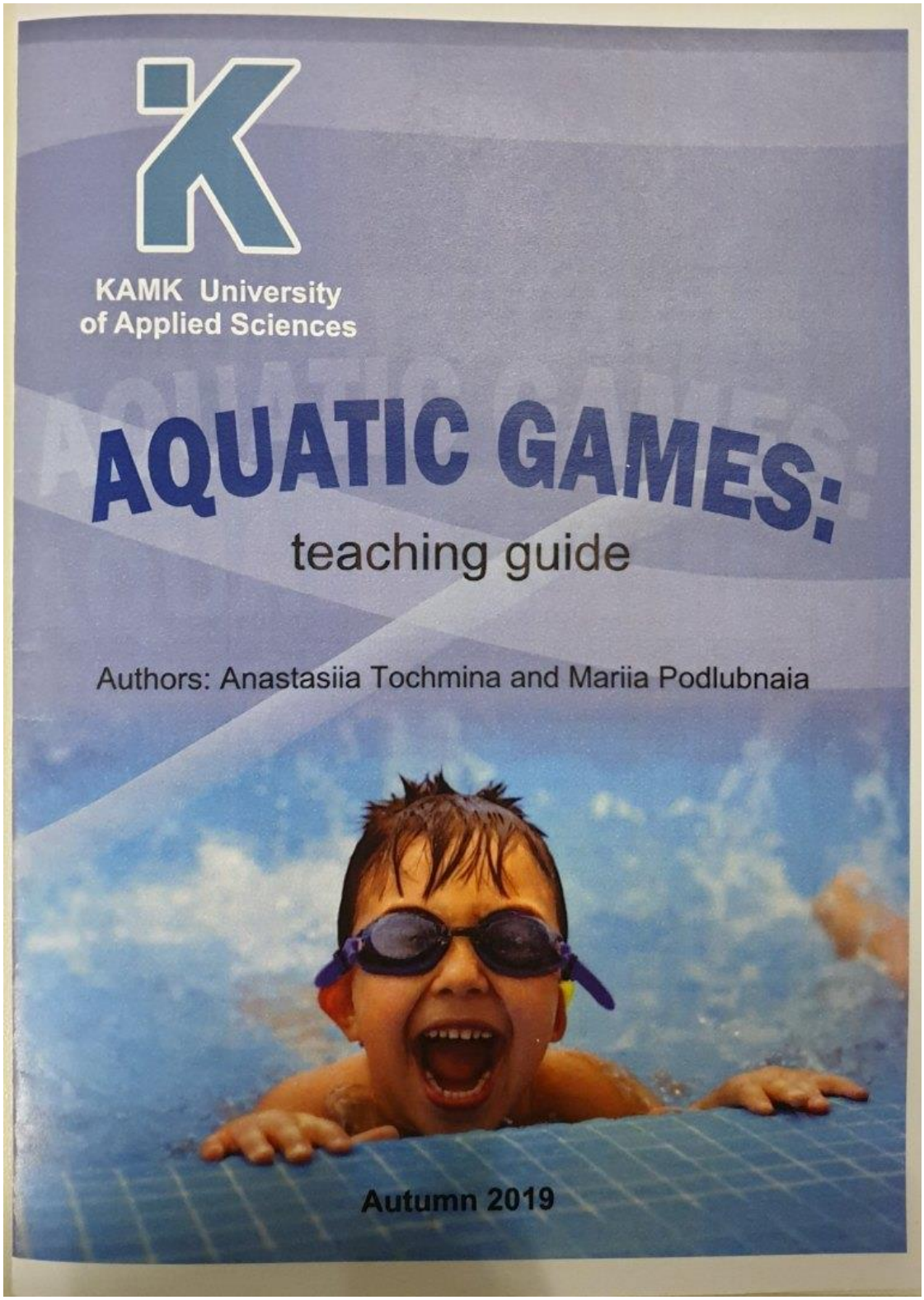
Appendix 1


KAMK University
of Applied Sciences
AQUATIC GAMES:
teaching guide
Authors: Anastasiia Tochmina and Mariia Podlubnaia
Autumn 2019

Appendix 2

KAMK University
of Applied Sciences

Lesson plan:
Based on the FINA (2018) and the ARC recommendations,
an approximate General swimming training program for preschoolers in most sections and pools was designed:

Lesson 1-2	Developing basic safety awareness, the 'class' scenario, basic movement skills and water confidence skills. Swimmers may use aids, e.g. arm bands, floats etc.
Lesson 3-4	Developing safe entries to the water, including jumping, basic floating, travel up to 5 meters and rotation unaided to regain upright positions. Swimmers may use aids, e.g. arm bands, floats etc.
Lesson 5-6	Developing safe entries including submersion, travel up to 10 meters on the front and back, progress rotation skills and water safety knowledge.
Lesson 7-8	Developing understanding of buoyancy through a range of skills, refining kicking technique for all strokes, and swimming 10 meters to a given standard.
Lesson 9-10	Developing 'waterman ship' through sculling and treading water skills, and complete rotation. Performing all strokes to the standard as directed and swimming up to 25 meters.
Lesson11-12	Developing effective swimming skills including coordinated breathing; developing the water safety aspects and understanding of preparation for exercise and swimming up to 50 meters.
Lesson13-14	Developing a quality stroke technique up to 100 meters, incorporating skills learnt and combining them to develop a linked routine and complete successfully an obstacle course that combines a variety of skills accomplished throughout Stages 1-7.

1

Appendix 3

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Example of a lesson plan based on the game method and a role-playing situation (fairytale - Red Riding Hood): LESSON PLAN № ...

Time:	Location:	Target group: preschoolers	Instructors:
Theme of the lesson: The Little Red Riding Hood fairytale Goal: accustoming children to water The psychomotor goal (PM): get to know water specific features, move in it homely The cognitive goal (C): understanding the importance of aquatic activities and develop the imagination and spatial thinking skills The socioemotional goal (SE): develop communication skills in different game situations in the water. Get familiar with fairytale «The Little Red Riding Hood"			
Introduction part			
Goals:	**Content/Activities:**	**Teaching methods, grouping, equipment:**	**Timing:**
1. Organize the group for conducting swimming lesson	Form a group on land	-Instructor: "Hello kids! Today we will make a journey into a fairy tale. How many of you know the fairy tale "little Red riding hood"? Check your swimsuits, caps and get started" -Introduce the poolside safety, tell children about the benefits of swimming	5 minutes
2. Warm up the body for aquatic activities	Dry land exercises: - shoulders rotations - torso turns - feet rotations - jumps: on one leg, together, in pairs - Sit on poolside, splash water	Instructor: "Every morning Little Red Riding Hood does exercises. Today will be a long day, because grandmother asked us to bring her a few pies. So we have to be in a good shape!" The instructor shows and explains the movements for the group.	10 minutes

2

Appendix 4

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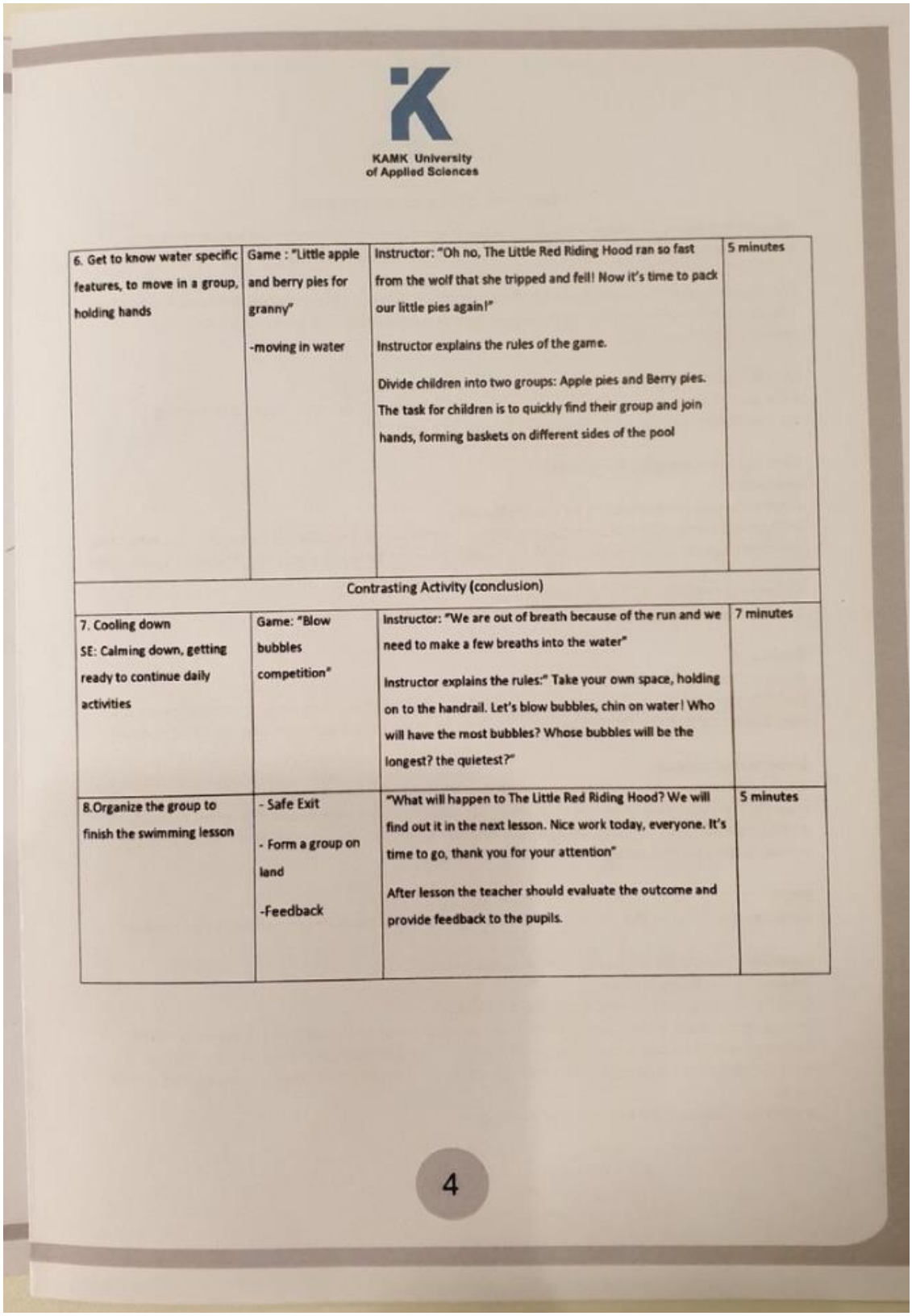
Main Theme			
3. practice safe water entry and exit	- Safe entries and exits - Competition "Basement"	"We need Apple jam for the pie filling. The Little Red Riding Hood has never went down to the basement. So we have to learn and then teach her how to do that" Equipment: pool ladder The instructor shows and explains the correct technique of entering and exiting the pool, paying special attention to how to hold on to the ladder The competition rules: Each child in turn demonstrates the technique of entering and exiting the pool. The best preschooler will get a prize.	10 minutes
4. Use arms and legs to move and grasp ball/toy in water	- circular or scoop movements of hands and legs in the water (holding on to the handrail) - Game "Picking berries"	Instructor: "The Little Red Riding Hood need berries for the pie filling as well. Try to find berries in the garden as many as you can" Equipment: balls or toys as berries Instructor throw balls or toys into the water and explains the rules of the game. Divide children into two groups. One team should collect all toys faster than the other team.	10 minutes
5. Move independently in the water in different directions	- Game " escape from the wolf"	Instructor: "Finally, Little Red Riding Hood came out and went to grandmother. However, her way laid through the forest. Suddenly Red Riding Hood saw a wolf! She was so frightened that she ran to her grandmother as fast as she could!" Equipment: pool handrail Instructor explains the rules. For a first time for the role of a wolf, choose the most experienced (well swim) child. The rest of the children must move in the pool holding on to the handrail and hiding from the wolf	5 minutes

Appendix 5



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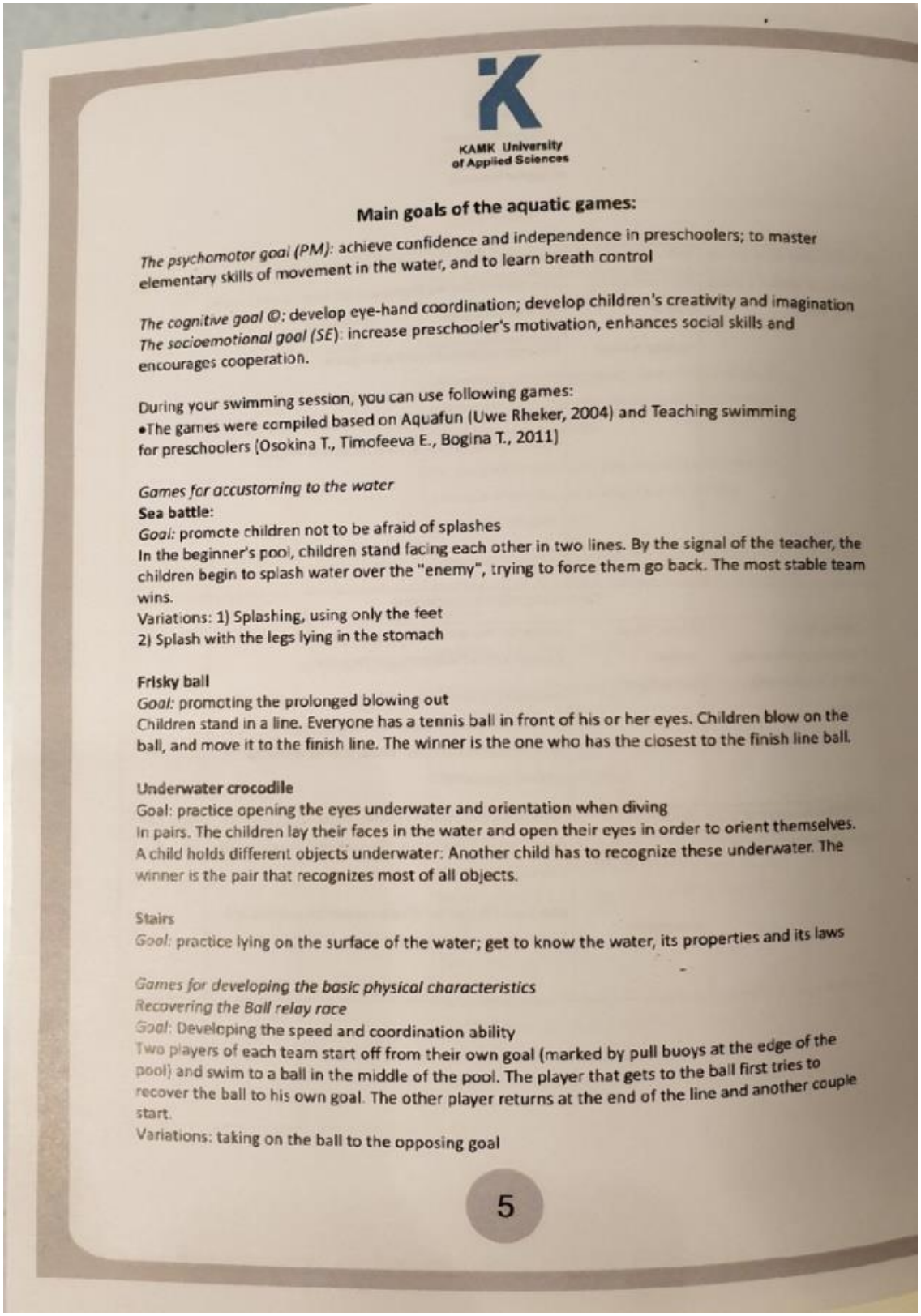
6. Get to know water specific features, to move in a group, holding hands	Game : "Little apple and berry pies for granny" -moving in water	Instructor: "Oh no, The Little Red Riding Hood ran so fast from the wolf that she tripped and fell! Now it's time to pack our little pies again!" Instructor explains the rules of the game. Divide children into two groups: Apple pies and Berry pies. The task for children is to quickly find their group and join hands, forming baskets on different sides of the pool	5 minutes
Contrasting Activity (conclusion)			
7. Cooling down SE: Calming down, getting ready to continue daily activities	Game: "Blow bubbles competition"	Instructor: "We are out of breath because of the run and we need to make a few breaths into the water" Instructor explains the rules:" Take your own space, holding on to the handrail. Let's blow bubbles, chin on water! Who will have the most bubbles? Whose bubbles will be the longest? the quietest?"	7 minutes
8.Organize the group to finish the swimming lesson	- Safe Exit - Form a group on land -Feedback	"What will happen to The Little Red Riding Hood? We will find out it in the next lesson. Nice work today, everyone. It's time to go, thank you for your attention" After lesson the teacher should evaluate the outcome and provide feedback to the pupils.	5 minutes

4

Appendix 6



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Main goals of the aquatic games:

The psychomotor goal (PM): achieve confidence and independence in preschoolers; to master elementary skills of movement in the water, and to learn breath control

The cognitive goal ©: develop eye-hand coordination; develop children's creativity and imagination
The socioemotional goal (SE): increase preschooler's motivation, enhances social skills and encourages cooperation.

During your swimming session, you can use following games:
•The games were compiled based on Aquafun (Uwe Rheker, 2004) and Teaching swimming for preschoolers (Osokina T., Timofeeva E., Bogina T., 2011)

Games for accustoming to the water

Sea battle:
Goal: promote children not to be afraid of splashes
In the beginner's pool, children stand facing each other in two lines. By the signal of the teacher, the children begin to splash water over the "enemy", trying to force them go back. The most stable team wins.
Variations: 1) Splashing, using only the feet
2) Splash with the legs lying in the stomach

Frisky ball
Goal: promoting the prolonged blowing out
Children stand in a line. Everyone has a tennis ball in front of his or her eyes. Children blow on the ball, and move it to the finish line. The winner is the one who has the closest to the finish line ball.

Underwater crocodile
Goal: practice opening the eyes underwater and orientation when diving
In pairs. The children lay their faces in the water and open their eyes in order to orient themselves. A child holds different objects underwater: Another child has to recognize these underwater. The winner is the pair that recognizes most of all objects.

Stairs
Goal: practice lying on the surface of the water; get to know the water, its properties and its laws

Games for developing the basic physical characteristics
Recovering the Ball relay race
Goal: Developing the speed and coordination ability
Two players of each team start off from their own goal (marked by pull buoys at the edge of the pool) and swim to a ball in the middle of the pool. The player that gets to the ball first tries to recover the ball to his own goal. The other player returns at the end of the line and another couple start.
Variations: taking on the ball to the opposing goal

5

Appendix 7

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Copy-Cat Friends

Goal: developing the general endurance

One of the partners dives and swims with a lead of 15m. The second partner dives along after him and tries to catch him.

Variations: 1) The first diver thinks up different diving and swimming techniques he can do: the crawl leg kick on the tummy and on the bock, butterfly leg kick, other leg kicks and arm movements etc.). The person following has to copy these techniques.

2) Move along in different ways, change direction, after the depth at which they are diving

Funny Jumps

Goal: developing coordination abilities

Children jump into the water in different manners. It is important to do the jumping in order, in a line to prevent injuries. Who can do the funniest jump?

Variations: 1) Funny jumps in pairs.

Reaction swimming

Goal: developing the reaction rate, practicing the speed swimming

All the players swim around with a water polo ball. On the first acoustic signal (whistle, clapping the hands) the swimmers have to speed up, on two acoustic signals each child should exchange the balls with a neighbor and continue swimming. The one who made a mistake-is out of the game.

Games for training the special swimming skills

Creative Diving

Goal: developing diving skills and imaginary

In turn, the children are dive underwater in a different imaginary manner. Who was the funniest?

Variations: 1) Who can dive underwater in the most individual creative manner?

2) Who has the most imaginative style?

Passing the ball

Goal: practice the catching and throwing

All the players stand in a circle. Now, a ball is passed round between players. The ball cannot be passed to a neighbor.

Variations: 1) Different types of ball are passed (small and large); two balls are passed

2) The ball is passed using only one hand

3) The distance to the neighbor is increased

Blind diving

Specific goal: learn to submerge into the water without fear, and be able to perform tasks there; developing the cooperative skill

One partner swims underwater for a certain, straight distance with closed eyes. The other partner along with him

Variations: 1) The "blind partner" swims underwater collecting "treasures" (toys)

2) The "blind partner" swims underwater wearing blacked-out googles

Appendix 8

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Funny Jumps
Goal: developing coordination abilities
Children jump into the water in different manners. It is important to do the jumping in order, in a line to prevent injuries. Who can do the funniest jump?
Variations: 1) Funny jumps in pairs.

Reaction swimming
Goal: developing the reaction rate, practicing the speed swimming
All the players swim around with a water polo ball. On the first acoustic signal (whistle, clapping the hands) the swimmers have to speed up, on two acoustic signals each child should exchange the balls with a neighbor and continue swimming. The one who made a mistake-is out of the game.

Games for training the special swimming skills

Creative Diving
Goal: developing diving skills and imaginary
In turn, the children are dive underwater in a different imaginary manner. Who was the funniest?
Variations: 1) Who can dive underwater in the most individual creative manner?
2) Who has the most imaginative style?

Passing the ball
Goal: practice the catching and throwing
All the players stand in a circle. Now, a ball is passed round between players. The ball cannot be passed to a neighbor.
Variations: 1) Different types of ball are passed (small and large); two balls are passed
2) The ball is passed using only one hand
3) The distance to the neighbor is increased

Blind diving
Specific goal: learn to submerge into the water without fear, and be able to perform tasks there; developing the cooperative skill
One partner swims underwater for a certain, straight distance with closed eyes. The other partner along with him
Variations: 1) The "blind partner" swims underwater collecting "treasures" (toys)
2) The "blind partner" swims underwater wearing blacked-out googles

Appendix 9

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Games for developing the social skills

The Ball Drive
Specific goal: developing the social togetherness
A team is in each half of the playing area. Each player has a ball. In the center of the pool there is a large hollow ball on the surface. Now the players have to drive the large ball into the opponent's half by hitting it with balls thrown by them. As soon as the large ball has crossed a specific mark in the opponent's half, a point is awarded to that team and the game begins again

Hunter Ball vs. Animal Rights Supporters
Specific goal: developing the team support and empathy
One or more hunters (indicated by the bathing cap they are wearing) tries to hit the hares. But there are 3-5 animal rights supporters, who protect the hares and may deflect the balls.

Mounting the Airbed
Goal: developing the team support and empathy
Each team has an airbed mattress in the center of the pool. Each group has to climb onto their own mattress. The team to accomplish this first are the winners.
Variations: 1) Once on the mattress, the team has to cover a distance.

Lost little fish
Goal: developing the responsible and careful attitude to a friend
One of the partners dives with a blacked-out mask and is lead by the seeing partner round the pool. Variations: 1) swim around obstacles.
2) Collecting underwater 'treasures' by partners voice.

Submarine Sweep
Goal: developing the cooperative skills
In pairs, players stand next to each other, holding hands.
When it's time to start, players will dive under the water and swim as further as possible. Players float or come up to breathe together. The winner is the team that reached the finish line first

Appendix 10

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Lost little fish

Goal: developing the responsible and careful attitude to a friend

One of the partners dives with a blacked-out mask and is lead by the seeing partner round the pool. Variations:

1) swim around obstacles.

2) Collecting underwater 'treasures' by partners voice.

Submarine Sweep

Goal: developing the cooperative skills

In pairs, players stand next to each other, holding hands.

When it's time to start, players will dive under the water and swim as further as possible.

Players float or come up to breathe together. The winner is the team that reached the finish line first

Appendix 11

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Recommendations for games according FINA manual (2018):

-Accordingly, it is essential to match the game to the stage of cognitive development and the aquatic experience of the child.

-Any elementary movement in the water becomes more interesting if it is associated with any familiar way (submerging of "divers", role-playing situations)

-Start with simple and easy games and move to the games that are more complex. Moreover, if the game is too difficult, it is recommended to explain the rules at the beginning of the lesson.

-Chosen games must be adapted to the level and age of swimmers

-Games should contribute to achieving the main goal of the lesson

-Games should be interesting and fun for the kids

-It is not recommended to play the same game too often

And remember, games can be included in any part of the lesson!

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