Latvijas Universitāte
Pedagoģijas, psiholoģijas un mākslas fakultāte
Izglītības zinātņu un pedagoģisko inovāciju nodaļa

Cooperative Learning as a Tool to Enhance Remembering of Capoeira Sequences Among 7-12 Years Old Children

Master Thesis

Author: **Jelena Gaikevica**
Student id: jg18032
Supervisor: Dr.paed., Assoc.prof. Ieva Margeviča- Grinberga

RĪGA 2020

Abstract

In this paper author studied whether cooperative learning enhances remembering of capoeira choreographies. Author organized 9 video observation sessions of 7-12 years old capoeira learners during *Capokids Capoeira* Latvia organized classes. Three kids groups worked each under three settings: individual, group, pair. In total 53 children participated in the research. Author analyzed all children achievements and behavior. Additional focus was made on high-achieving learners and children with diverse needs.

Author concluded that cooperative learning enhances remembering of capoeira choreographies and additionally provides kids with opportunity to learn social skills. Further tips were developed for capoeira trainers working with children.

Keywords: capoeira, cooperative learning, physical education, diversity needs

Table of contents

Introduction

In this paper author studies whether cooperative learning enhances remembering of capoeira sequences (choreographies). Capoeira is a Brazilian martial art, which combines elements of dance, acrobatics, game and music. Cooperative learning (CL) is a method, which provides students with the possibility to work together to achieve shared learning goals (Slavin, 1996).

Despite the myth of the successful individuals, who achieved great things alone, in isolation form others, unfortunately in a business industry, family, parenting communities and societies, there is nothing more productive that cooperation (Johnson & Johnson, 2004). It is groups that created computers, cartoons, managed to send first people to the moon or created a piece of art as Parisian Opera. The more diverse is the team and more skillful the participants are in their communication skills, the more talented people are able to solve problems that are more sophisticated. Global businesses, development of new pharmacies, development of new technologies it is not an effort of just one individual, it is rather a great success of a team with diverse needs. Furthermore, according to Wrahatnolo & Munoto (2018), who studied 21 centuries essential skills, collaboration, communication, leadership, flexibility, social and cultural interaction skills are among top 13 most wanted and required abilities for prosper career development. Therefore, it is vital to teach children working cooperatively and cooperative learning is known as an effective tool to put kids in situations where working together they achieve aims.

Capoeira itself is a cooperative and inclusive martial art, which leads to improved psychosocial well-being via active engagement of five key domains: playfulness, friendship, emotional stability, tolerance and inner strength (Prytherch & Kraft, 2015). Ordinary capoeira class is divided in the following blocks: warm-up (10 minutes), general athletics exercises specifically designed for each group (20 - 30 minutes), capoeira sequence learning (15 minutes), music/ capoeira game / acrobatics (5-15 minutes). In this paper author focuses on the analysis of capoeira sequence learning block, since this part is unique for capoeira classes only, while other blocks can be found in other kids activities. For example, warm-up and general athletics exercises are used in every sports related activity. Moreover, in the opinion of the author, capoeira sequence part is the most vital, since capoeira movement flow teaches students to move their body freely, they are learning to try and fail, learn to work hard and succeed together with their friends.

Background of the thesis

Author of the thesis has been learning capoeira art for almost 14 year and 9 of these years actively teaching. In 2012 author opened first in the Baltic States *Capokids Capoeira Academy*, which focuses exactly on the capoeira education for kids. *Capokids* Organization has been active on regional and international level and additionally to daily capoeira teaching author has organized various local projects, youth camps, international capoeira festivals. Author has participated in many capoeira workshops in Europe, Russia and Brazil. On the daily basis author works with 150 kids aged 5-18 years and is always in search for fresh ideas and methodologies.

For trainers it is always a tricky question how to organize classes, so they are effective, challenging, involving and educative for each learner. Practical experience of the author shows that majority of capoeira (and dance classes as well) are based on traditional teacher-led instruction, meaning, that teacher is showing and capoeira young learners are repeating after an adult. Learning of any movement is usually done via organizing many-many hours of repetition.

However, based on the experience of author traditional setting is not the most effective and in turn produces a huge gap between organized, motivated, physically fit students and children with diverse needs. Instead, the author in her job uses a lot of cooperative learning, where young "capoeiristas" learn in pairs or in groups. This idea is consistent with research on cooperative learning, which is found to be more effective compared to traditional teacher-led (Slavin & Lake, 2008).

Therefore, author thinks that studying individual, pair and group setting is vital to understand which structure fit best students and especially students with diverse needs. Knowing which structure leads to better acceptance and results is vital on physical education lessons as capoeira, since this knowledge can help to maximize integration of these learners.

Purpose of the research

Norton (2009) mentions that 'the fundamental purpose of pedagogical action research is to systematically investigate one's own teaching/learning facilitation practice, with the dual aim of improving that practice and contributing to theoretical knowledge in order to benefit student learning.' Therefore, first and main purpose of this research is to understand whether cooperative learning, which is actively used during author`s capoeira classes, is effective in terms of learning capoeira art.

Additionally, even though there are plenty of researches, for example, Slavin (1995), Johnson & Johnson (2004), made already on the cooperative learning, there still lack researches performed during sports related activities. Moreover, this research is the first attempt to study a link of cooperative learning and achievements during capoeira lesson. Thus, this research outcome will become a base for many capoeira kids' coaches and other physical education practitioners.

Based on the above-mentioned author defined:

Research object: capoeira training process

Research subject: cooperative learning influence on the development of capoeira young learner

Aim of research: analyze how cooperative learning enhances achievements during capoeira classes, observe behavior of different clusters under several learning structures, develop further working scheme for each group and propose teaching guidelines for capoeira teachers

Research questions and hypotheses

Research question

Author is particularly interested in a relationship of achievements and cooperative learning and its possible explanation. Therefore, author states the following research question:

How does cooperative learning enhance remembering of capoeira movements in kids 6-12 years age group?

Hypotheses

In order to answer the research question author defines 3 hypotheses, which help to study training process from various perspectives. Author focus on the achievements of the whole group, high achieving kids and kids with diverse learning needs.

1. Hypothesis 1: Kids remember capoeira movement choreography better when they are learning movements in groups or pairs and show lower results learning in individual setting
2. Hypothesis 2: High achieving young learners show equal results in any setting
3. Hypothesis 3: Little learners with diverse needs show best results in pair setting, and then follows group work and then individual work.

Objectives of the research

Tasks of the research include theoretical analysis, preparation of the scope of the research, organizing and video-recording the training processes, analyzing the material and drawing conclusions. More specifically about each point is provided below:

- Analyze transdisciplinary scientific literature on the topic of cooperative learning from the pedagogical, social, psychological and sports theories
- Develop sequences of movements and evaluating criteria
- Prepare step-by-step guide to the leading trainer under individual, pair work and group work settings
- Organize and video record training process
- Evaluate each kids performance based on recently developed criteria and present analysis of the scores
- Observe and analyze behavior of young learners during pre-recorded capoeira class to understand roots of their possible achievements. Analyze from three perspectives: all kids, high achieving kids and kids with diverse learning needs
- Draw conclusions and provide notes for capoeira trainers and further research

Methods

In order to answer the research question *How does cooperative learning enhances remembering of capoeira movements?* author uses combination of different methods.

First step was applying theoretical method. It included creating theoretical background of causalities between cooperative learning and achievement, since proper remembering of sequence is similar to high scores during mathematics tests. Author got acquainted with four theoretical perspectives which link achievement and cooperative learning: Motivational, Social Cohesion, Cognitive (Developmental, Elaboration). Additionally, author overviewed theories to understand who gets the most of cooperative learning, how cooperative learning influences achievements of young learners with diverse needs and whether cooperative learning was analyzed in physical education related fields. On this stage 3 hypotheses were developed.

Second step was getting an empirical data. Author organized observational data collection for the present study. Author run and video-recorded 9 observational sessions at *Capokids Capoeira Latvia* organization in January 2020.

Three different groups (elementary, intermediate, advanced) of kids aged 7-12 years participated in the study. In total 53 young capoeira learners were studied. Each group was observed three times: (1) learning capoeira choreographies individually (2) in pairs (3) in groups.

At the end of each session, learners shared their learning progress. Each observation session was video recorded and afterwards analyzed with the help of trainer.

Further analysis of observational data involved:

1. scoring each participant learning outcome, taking into account (1) correct movements used (2) ability to pay attention to details explained. Author did not score perfection of performance, since it would for sure differ among groups studied
2. Analysis of behavior which led to possible results

The structure of the thesis

First part of the thesis includes theoretical analysis. Author overviewed cooperative learning history, provided a model for successful cooperative learning organization in a class, mentioned several examples of possible cooperative learning methods. Author examined a big amount of data on relationship between cooperative learning and achievement. Afterwards, author studied cooperative learning from the perspective of kids with diverse needs and tried to understand whether high achieving students get more in cooperative setting or not. Furthermore, author studied physical education theories on cooperative learning and provided a model for successful integration of cooperative learning in a physical education lesson.

Next part of theoretical analysis was devoted to the representation of capoeira art. Author briefly mentioned capoeira routes, origins and then presented key teaching models used in capoeira. Additional analysis was based on kids capoeira education and its influence.

Conclusion were drawn for this part.

Empirical analysis follows straightly after theoretical background. Author overviewed the methods used in the research, provides logical structure of the data collection process and overviews participants involved into the study.

After empirical analysis starts. Author examined every hypothesis and provided discussion part for each of them. After each discussion follows sub-conclusions, which help reader to sum-up the information studied.

Final part summaries analysis of all hypotheses and states answers to them. Furthermore, author answers the research questions and concludes the work. Next, several thoughts for further research are provided. Finally, author provides concise tips and practical suggestions for capoeira and physical education trainers.

Theoretical analysis

In this section author presents theoretical background for the thesis. The section is divided into two bigs parts. First big part presents researches on the cooperative learning, cooperative learning and achievement, cooperative learning and achievement of kids with diverse needs and high achieving kids. Finally, physical education literature is studied and special shift on cooperative learning in physical education lessons is presented.

Next block presents capoeira, its origins, teaching methods and capoeira kids. Finally, conclusions are set for the part.

1. Cooperative learning

Cooperative learning is a teaching method that is organized via small groups working together to achieve aims and maximize the learning outcome of each participant (Johnson, Johnson, & Smith, 1991). Cooperative learning is not new and this teaching concept dates back to the nineteenth century. Colonel Francis Parker (1837 – 1902) while working at the Cook County Normal School felt that competitive structure of education kills children`s creativity. He was one of the first to propose shared learning methods and his main idea was that shared outcomes, rather than competitive grades, are critical to successful implementation of cooperative learning. (Greene, 1986).

According to Johnson brothers, it is natural to work in groups. Groups raise individual levels of ambition, help to achieve ones wildest expectations, provide insights that could never be achieved alone. Groups unlock creativity and the potential; change the perception of world and different people way of live. It is fun. If learners would be required to work alone all day, classroom life would be dull and boring. (Johnson & Johnson, 2004).

Ground idea of the cooperative learning is that students construct learning through constant collaboration and interaction with their peers (Johnson et al., 1991). Researches show that collaboration among learners is a fundamental value of success, which leads to high results, personal development, understanding the sciences, improving analytical skills and respecting art (Cabrera et al., 2002). Moreover, the effective structure is the one where all participants work together to achieve not only shared goals, but individual as well (Slavin, 2005). Tasks in

cooperative learning are designed that learners rely on each other to complete the work, thus interdependence of group members provide higher result, than just discussion approach.

According to Johnson & Johnson (2004) there are five basic elements required for collaborative learning:

(a) Positive interdependence

(b) Individual and group accountability

(c) Promotive interaction

(d) Demonstration of appropriate social skills by participants

(e) Group-processing discussions about achieving group goals

Individual accountability is an important aspect of social motivation theory, while promotive interaction, social skills, group processing and accountability are vital aspects of social cohesion theory. Interestingly, that qualities as accountability, feedback, trust are also overviewed as elements of learning organization. (Sessa & London, 2008).

Continuing with overviewing the five elements mentioned above, the positive interdependence is the degree to which group members are motivated to empower each other and help in order to cooperatively achieve the best result (Johnson et al., 1991). It leads to positive conflict management, which in turn improves group cohesiveness and effectiveness. This comes true if group members are able to focus on large, positive group goals and only task-related conflicts arise, rather than interpersonal. (Johnson&Johnson, 2004).

It is vital to assess that the group is accountable for achieving its goals and each member should do his fair share of the work to achieve the goal. No one can use others to get a good mark, but rather performance of individual and assessment of group work is needed. Everyone should be personally responsible to the other group members (Johnson&Johnson, 2004). Thus, it is recommended to score group success on a sum of scores of all participants, however in this case conflicts may arise if diversity of group in academic skills is very high (Wall & Nolan, 1986).

Promotive interaction takes place when students help, support, encourage each other`s effort to learn. Mainly, face-to face interaction helps to achieve effectiveness through constant members empowering, challenging each other to achieve best possible results, though also helping each other via constant feedback and support (Johnson & Johnson, 2004).

Demonstration of appropriate social skills by participants is vital in order to communicate efficiently and solve arised conflicts in the most professional way. Group members who are not

socially skilled in group collaboration process, may experience problems, just because they are less capable to communicate, ask for help or provide help to other participants. However, constant group work helps to tackle these issues and when group members with highly developed communication skills start to work together they are likely to achieve high results (Morgeson, Reider & Campion, 2005). This is vital to highlight, that not the smartest are able to achieve high results in the group work setting, but rather those who are able to communicate efficiently: provide constant feedback, ask questions, provide ideas.

Conflict within group members tackles the working attitude inside the group. However, groups which members are strongly connected socially are less likely to engage into personal conflict, but rather would solve task-related issues, which in turn result in better skills and knowledge (Curseau, Janssen & Raab, 2011). Thus, the more diverse, less communicative and tolerant group members are working together, the higher risk to get involved into personal conflict, which unfortunately, leads to low results.

Group-processing discussions about achieving group goals occurs when members are reflecting on the process, key results and provide constant feedback, which improve group functioning (Johnson & Johnson, 2004). Strong reflection takes place in groups, where members trust each other, understand shared goals, are responsible for their parts of the work, respect each other and empower each other to work efficiently. Group feedback stimulates growth, enhances effectiveness of the process and finally improves student learning outcomes.

Ways of cooperative learning

In this section author presents several ways of cooperative learning, which uses collaboration as a central part of process. Despite having this in common, each method has a different way of managing, learning and teaching. There is no good or bad method, rather any aim needs its tool, which suits best for the targets and characteristics of the group.

Jigsaw

Jigsaw method was proposed by Aronson et.al (1978) and is especially useful in areas, where content can be fragmented in several parts. Information is provided to students in parts – each member gets his piece of task/ knowledge. Similarly as if knowledge were jigsaw pieces.

Group member becomes an expert in his jigsaw piece or knowledge part. Every team member is responsible for getting in-depth knowledge of his part and then needs to teach it to the rest of the team. Works best if all groups are of the same size.

Jigsaw II

Jigsaw II method was proposed by Slavin (1986) and the main difference from Jigsaw I is that how the assessment is treated. In Jigsaw method participants are scored individually, while in Jigsaw II method participants are scored individually and then based on their group results average score is calculated. This adds competition among groups and encourages to help each other (Cult of Pedagogy, 2015).

TGT: Team method –games – tournament

TGT method was developed by DeVries & Edwards (1973). In this strategy learners are divided into 4 to 5 students and groups compete with the members of the other teams. During TGT method participant of each and every group compete amongst other learners of the same as they level.

STAD

STAD or Student Team-Achievement Divisions was developed by Slavin, 1986. In this settings teacher presents the topic to the class, with all explanations needed. Afterwards, students work in teams discussing, comparing, analyzing, etc. to make sure that all group members got the material.

Author mostly uses this type of the cooperative learning in her classes.

Group Investigation

Group Investigation method was developed by Sharan and Sharan (1976) and is mostly used for project works. Students make teams based on their interests within the given topic and cooperatively work on the topic. Each team is responsible for a different subtopic, thus each class works on the main topic, but from different perspectives. Students together with a teacher present a working schedule, analyze their work and present the results.

Of course, there are many more variations and examples, but author stated several for a reader to understand how cooperative structure can be organized and lead.

1.1 Cooperative learning and academic achievement

There are plenty of researches made on cooperative learning (see Johnsons and Johnsons (1994, 2004), Slavin, 2005) with a huge amount of it dating 1980s – 1990s and continues today. Different researches compared cooperative learning to various control methods and measures, but one of the frequent objectives was to check the effect of cooperative learning on student achievement. Results of studies conducted to check cooperative vs whole class instructions showed a positive effect in outcomes if teachers chose any of cooperative learning method instead of traditional (Slavin & Lake, 2008). Traditional setting employed that students worked in isolation from classmates, thus individual – to individual transfer of knowledge was organized.

In cooperative setting, groups – to individual transfer of learning appears. Thus, it is teachers` job to organize a process to ensure that all members learn and perform better thanks to their group experience (Johnson & Johnson, 2004). Picture 1.1. presents schematically way of interrelationship of instruction, learning and assessment under cooperative learning.

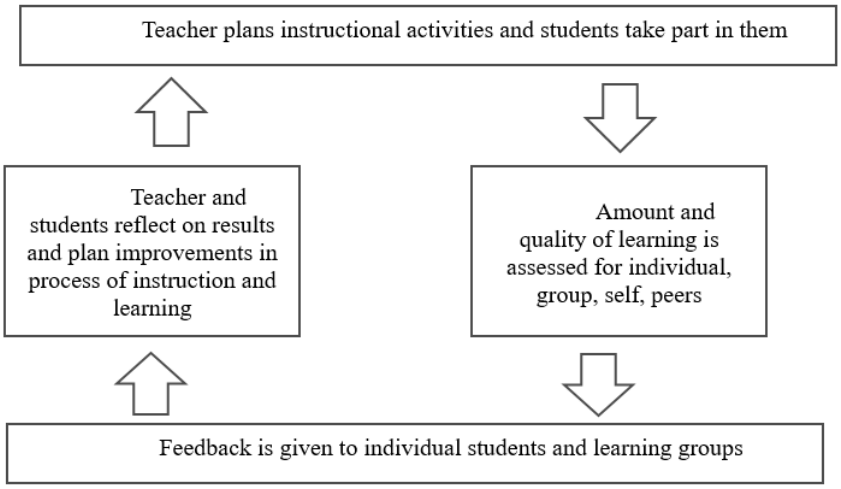

Figure 1.1.1 Interrelations of instruction, learning and assessment.
Retrieved: Johnson & Johnson (2004).

One of the most comprehensive analysis in the cooperative learning was done by Jonsons (1994), who analyzed statistical results of 575 experimental and 100 correlational studies, that were conducted by different researchers in different decades with different age groups in different

subject areas and in different settings. These studies showed a positive effect that cooperative learning brings on academic achievement and social development. Meaning, that learning in cooperative setting not only brings higher academic results to learning, but also influences their social development. Similarly, Maheady et. al (1991) after studying six literature reviews and meta analyses found a broad link that cooperative learning results in positive outcomes in achievement, interpersonal relations, personal and social development of students.

It is interesting to see teachers side and how do they rate cooperative learning. After studying teachers responses, Antil et al. (1998) found that 76% of the teachers-respondents noted that CL increases comprehension and knowledge, and it affects kids speed of learning.

Taking all of the facts into account, the author is particularly interested in the ground of causality between cooperation and achievement, or put simply why cooperation affects achievements. It turned out that there has never been a cohesive model of the important variables involved in cooperative learning. Presented above model by Johnson & Johnson (2004) overviewed rather elements which are needed for successful implementation of cooperative learning, nor presented answers to why cooperative learning influences achievements.

Author turned to Slavin, Hurley and Chamberlain (2003) historical review of the cooperative learning. Author proposed that there exist four theoretical perspectives, which links achievements and cooperative learning: Motivational, Social Cohesion, Cognitive (Developmental, Elaboration).

Author will briefly overview every perspective.

Motivational perspective

Within the motivational perspective, motivation is the most important part, which makes cooperation successful. Motivation, both subjective and objective, is extremely important in any kind of cooperation. Within this model researchers mostly focus on studying goal structures under which students work. According to Johnson & Johnson (1992), cooperative learning creates situations in which group members reach their goals if the group is successful. Therefore, in order to meet goals, group members need to (1) help their mates to do what is needed to achieve the best possible results, and what is more important (2) to motivate group members to exert maximum results (Slavin, 1995). This double work makes learners more engaged in the process and active engagement brings positive results.

In a traditional classroom setting (competitive, grading) students are likely to create norms opposing academic efforts, since one`s success decreases chances that others will succeed. As a result, it is likely to hear that high achievements are for "nerds". In these cases motivation within a group drastically drops. Otherwise is within cooperative setting, since working toward common goals reinforces one another for academic success (Slavin et al., 2003).

Social cohesion Perspective

A social cohesion perspective is somewhat similar to the motivational frame that cooperative learning and achievement are dependent on the cohesiveness of the group. It appears that students do the task and help each other because they identify with the group and want everyone of their group to be successful. Similarly to motivational perspective, it explains mostly motivational, nor cognitive effectiveness of cooperative learning. (Slavin et al., 2003)

While in motivational perspective students learn because it is in their interest, within social cohesion frame group mates learn because they care about the group. Researchers in this perspective stress that effects of cooperative learning and on results depend on the quality of group unity (Battisch et al., 1993). It also vital to add, that during the cooperative learning experience children learn to cooperate and to value cooperation (Antil et al., 1998).

Cognitive

Cognitive perspective is alternative to motivational and social cohesiveness models and focuses on the idea that social interaction enhances achievements due to mental processing of information, rather than motivation. Simply put, interactions lead to better learning and thus better achievement. Exchange and explanation of beliefs and ideas, working together on challenging tasks provide learners with an opportunity to work with high-level material (Bandura, 1986; Vygotsky, 1978).

There are two sub-perspectives: developmental and elaboration. Fundamental idea of the *developmental perspective* is that social interaction increase mastery, since work with more capable peers helps to be operating in more advanced settings. Vygotsky (1978, p.17) stated: "functions are formed in the collective in the form of relations among children and then become mental functions for the individual".

Cognitive *elaboration perspective* lays in the idea of information restructuring. If information needs to be retained in memory, the learner must engage in cognitive restructuring or elaboration (Wittrock, 1986). Peer tutoring has found benefits both for the tutor and tutee (Devin

- Sheehan, Feldman & Allen, 1976). For example, many teachers in Antil (1998) research acknowledged that kids learn much more from each other and they do not need a teacher that much: “They seem to have their own language. They are able to express their thoughts and ideas to each other in a way that I can't”. Another teacher shared similar idea: "I use teacher language, and kids explain in kid language.

Cognitive perspective can be viewed from neuroscience as well: amygdala, region of the brain associated with emotions plays a vital role when we learn. In moments of anxiety, amygdala can influence our learning and make it more difficult (Toga & Thompson, 2003). Thus working together can be beneficial to those groups who would otherwise stay in isolation and suffer. This is because for many students learning together brings positive emotions, which naturally help to make remembering easier.

Author studied 3 perspectives and found out that success in cooperative learning can be explained by:

- motivational prospective. Group members are motivated to learn better and help others to achieve the best possible personal results
- social cohesion perspective. Group members work harder because they are part of the group and want everyone in the group to be successful
- cognitive perspective. Social interactions lead to better learning and it affects achievements

Slavin et al. (2003) noted that, however, there is no single explanation to fully describe how cooperative learning is operating. It is rather interdependent relationships among all of the components. Simply put social interactions, motivation and peer practicing work all together to enhance high achievements.

In figure 1.1. author presents a graphical representation of major interaction components proposed by Slavin (1995) and retrieved from Slavin et al. (2003).

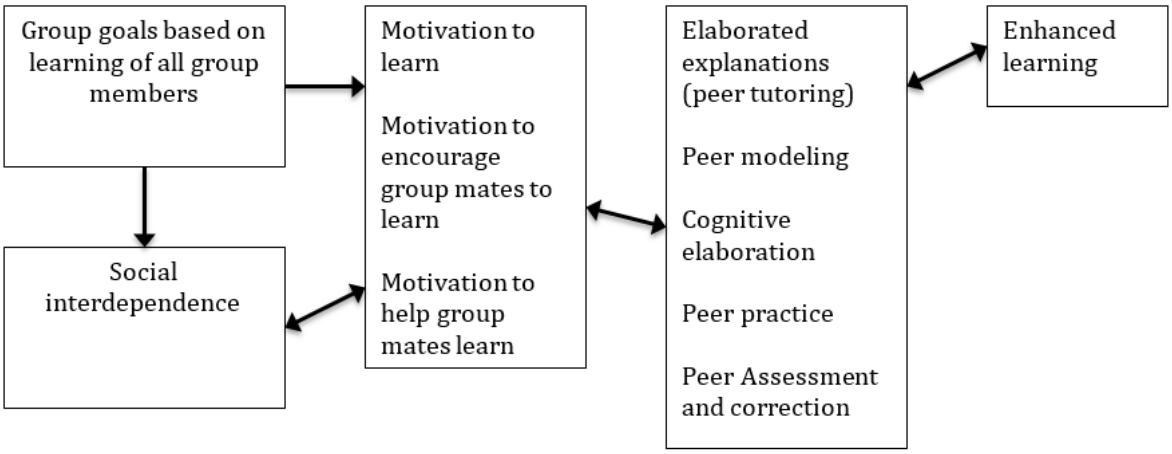

Figure 1.1.2 Achievement enhancing components
Retrieved: Slavin et al. (2003)

Next theoretical part to be analyzed concerns different clusters of learners. Author structured analysis into twogroups: who gets the most from cooperative learning, focused on analysis of learners with diverse needs.

High achievers and cooperative learning

Slavin (1995) tried to analyze whether high achievers or low achievers get the most from cooperative learning. On the one hand, low achievers get opportunity to work with high achievers and move towards their developmental phase. On the other hand, high achievers through constant explanation tend to better understand the material. Slavin (1995) concluded that he found no evidence to support any of the stated positions, since some of the researchers found more evidence in respect to high achievers, while others to low achievers and some found equal benefits for both groups.

Mulryan (1995) took it further in her research of fifth and sixth grade students' behavior and stated that behavior differed across high achievers and low achievers. She also noted that some students may learn best in other settings, for example, some low-achieving girls, may be losing in cooperative small group.

Kids with diverse needs and cooperative learning

It is also proved that cooperative learning leads to improved relations and acceptance of kids with diverse needs (Putnam, Rynders, Johnson, & Johnson, 1989). Cooperative learning positively affects social communication among regular learners and kids with physical or intellectual diversities (Lloyd, Crowley, Kohler, & Strain, 1988) and promotes positive interaction between regular learners and students with diverse needs (Putnam, Rynders, Johnson, & Johnson, 1989). According to researches, cooperative learning extremely increases acceptance of students with diverse needs compared to individual learning setting (Piercy, Wilton, & Townsend, 2002)

For example, Hoek, & Terwel (1997) analyzed behavior and interaction of Grade 6 students, who worked in small groups. They concluded, that students who work cooperatively are more respectful to each other needs and are ready to help.

Every class contains students with absolutely different range of skills and teachers may feel unable to help those who need help without stopping the progress of more skilled students. Providing students with opportunity to work cooperatively helps to keep every student focused and getting the material.

Since author is interested in physical education, next section provides overview of physical education literature with regards to cooperative learning.

1.2 Physical education and cooperative learning

In this section author analyzes physical education and cooperative learning.

The New York Yankees is known as one of the most powerful baseball team in history, however there was a small period when the team was losing (Johnson & Johnson, 2004). Interestingly, but this happened when the team`s owner spent a fortune to hire the best baseball players in the world. Unfortunately, prima donnas were not taught to play together, as each of them wanted to show off and be the hero of the game. Even though the team had the best baseball players, it was constantly loosing (Johnson & Johnson, 2004).

It happens in other teams, academic departments, and companies when superstars are hired and they are not able to work together, but prefer to work alone. Examples like this illustrate that effectiveness of a team, school, company is rather based on ability of teams working together to

motivate each other achievement. Success of individual cannot be separated from the success of the team, school, and company as a whole. Every team sports member knows that although individual achievements are highly valued, only collective contributions is the key to success (Johnson & Johnson, 2004).

While analyzing sports-related literature, author found out several authors who recommend using cooperative learning as an instructional base because it helps to reach social goals in addition to motor skills development (look Barrett (2005), Dyson & Casey (2016). Still there is not so many research conducted on the linkage of physical education and cooperative learning and as Barrett (2005) put it – it is just a beginning time for cooperative learning literature during physical education and sports-related classes.

Dyson and Casey (2016) after years of research presented five crucial elements, which they believe are guidelines for successful implementation of cooperative learning in physical education. Please, see Table 1.2. for it.

Positive interdependence	Students rely on each other to complete the pre-designed task. Success can only be achieved when students work together and rely on each other to complete the task.
Promotive face-to-face interaction	Students in their groups should be literally head-to-head, toe-to-toe and knee-to-knee, and provide positive comments and engage in positive and supportive dialogue.
Individual accountability	Students take responsibility for completing their part of their task for their group.
Interpersonal and small-group skills	These are student behaviours that allow comfortable and relaxed communication. These include listening, sharing decision-making, taking responsibility, giving and receiving feedback, leading, following and encouraging each other.
Group processing	A reflective, guided discussion that is student-centred, i.e. is guided by students rather than driven by the teacher.

Table 1.2. Elements of cooperative learning
Retrieved: Dyson & Casey (2016)

For successful implementation of cooperative learning into physical education five elements should be considered: positive interdependence (relying on each other), face-to-face communication (dialogue and communication), individual accountability (each is valued for their task, interpersonal skills (listening to each other), group processing (student-centered discussion). (Dyson & Casey, 2016). These settings are similar to Jonhson & Johnson (2004), who developed

5 elements of successful cooperative learning. Full analysis and overview of each element author presented under section Cooperative Learning.

Author also studied several works on cooperation during sports classes. For example, Ozbal & Eski (2019) studied peer to peer learning during ski lessons. They found that peer teachers improved their teaching and communication skills, while learners communicate more comfortably and found that their questions were answered more effectively. They also noted that skiing time were organized more efficiently and it was easier for teachers to manage class. Their results are consistent with research, which were previously done in other subjects and non-sports settings.

Casey (2004) analyzed primary school gymnastics lessons, which used Jigsaw Cooperative learning technique (every group member is learning one movement and then shares with others). He found that pupils performed practical skills they were afraid to perform before. Moreover, cooperative work in physical education helped to learn to listen to others, respect and encourage each other to learn (Casey and Dyson, 2009).

Polvi and Telama (2000) examined fifth-grade learner`s development of social helping behavior during physical education class, which is led under cooperative learning setting. The authors found that learners who were constantly randomly assigned to new partners learnt to help their teammates more effectively, than those who were constantly working with stable partners or worked individually.

It is also interesting to note, that higher athletic abilities are linked to social acceptance. For instance, Landers-Potts & Grant (1997) observed athletic ability of 5-8 years old kids playing soccer or basketball and concluded that athletic ability was a major indicator or higher status among peers. Same conclusion was drawn by Causgrove – Dunn et at. (2007) who analyzed kids 8 to 10 years and found that peer acceptance was linked to higher level of athletic abilities.

2. Description of Capoeira

Capoeira is an acrobatic, danced fight-game which is performed under sounds of vocal and instrumental music. Capoeira dance appeared in Africa and was brought to Brazil together with slaves. Through ages capoeira was shaped by slavery, urban gangs, official repressions in the 19th and 20th centuries in Brazil and today capoeira become a form of physical education (Downey, 2008). Currently, capoeira is known as a martial art, which is played worldwide.

Capoeira is recognized by UNESCO for its unique cultural heritage. Capoeira philosophy lays down in the idea of people`s struggle for freedom, where cooperation plays a vital role (Capoeira, 2003). Capoeira is open for everyone: anyone can be capoeirista. Children, adults, elderly people, people with diverse needs, women, men, and people of different cultures are playing capoeira. As a well-known master of Capoeira – Nestor Capoeira (2006, p. 163) wrote in his book: "*If you are an athlete, capoeira has a place for you. If you are a fighter, same thing. If you groove on the body's expression or the music scene, there is also a place for you. Same thing if you are a worker or bohemian and go to the academy only once or twice a week to play a bit. There is a place for everybody. And I don't think it's up to me or anybody else to discriminate between those who can or can't play the game."*

In a capoeira game (jogo), two players meet to strive, outsmart and put each other to the ground using wide range of kicks and body manners. The game is filled with acrobatic stunts, which takes ages to learn by capoeira players. However, there is no aggression in a game, but rather a mix of creativity and artistic flair (Downey, 2008). MacLennan (2011) viewed capoeira as a dialogue filled with contradiction: it values collaboration, partnership, inclusion and embraces conflict and difference.

Capoeira is cooperative by its nature and roots and only togetherness helped to make capoeira popular around the world.

2.1. Teaching capoeira

One of the first method (and still frequently used) to teach capoeira was creating conditions, rather than writing a structured class, as it is done in dance or sports classes. As Nestor Capoeira (2002) put it: students learnt by observing and repeating the trainer or advanced students. To learn capoeira techniques, beginners carefully observe advanced students, trying to copy their style and rehearsing movements until they become experts and are ready to share the knowledge with other beginners (Downey, 2008). Learners tend to get movements, rhythms by doing, rather by speaking about them. As Mestre Joao Pequeno put it: if watching was enough to learn capoeira, the stray dogs that lazed about his academy should have become mestres a long time ago. (Downey, 2008). Therefore, observing and repeating many times is still one of the frequently used teaching techniques in capoeira.

Mestre Bimba in 1930s changed this paradigm and decided to structure capoeira movements. As a result, "he created a new teaching method based on eight sequences of predetermined moves and kicks for two players and *cintura desprezada* – sequences of flips in which the capoeirista learns to fall on his feet" (Nestor Capoeira, 2003; p.14). He established capoeira academy, whose participants were people of completely different social class (not underprivileged Afro-Brazilians) and mixture of all this contributed to the creation of new capoeira style known Capoeira Regional.

Almost the same time Mestre Pastinha started to develop more traditional capoeira style, known as Capoeira Angola. He opened his academy just few years after Mestre Bimba and "due to his charisma and leadership as well as his friendly way of dealing with others, he was able to attract a devoted group of pupils and capoeiristas that made his academy a meeting point for artists and intellectuals" (Nestor Capoeira, 2003; p.15). Capoeira Angola style consist of more loose and flowing movements, compared to Capoeira Regional straight kicking style. Moreover, if Mestre Bimba valued ideal performance of sequences, Capoeira angola style is rather based on learning different situations and variations to perform under certain conditions.

Nowadays, capoeira emerged and many styles, methods are used by capoeira teachers. For example, author`s academy is a member of international capoeira organization – Cordao de Ouro, which uses both Capoeira Regional and Capoeira angola styles. Mestre Suassuna, owner of Cordao De Ouro club, proposed his own capoeira style and developed Miudinho. (Real Capoeira, n.d.) His main idea is that for proper development of capoeira learner both straightforward sequence

learning and loose situation based practice is needed. Therefore, capoeira classes during Cordao De Ouro classes are based on a mix of both styles. Capoeiristas study fundamental sequences, which help them to grasp basic capoeira movements and learn variations and strategies, which help to move freely and fully express themselves in a Capoeira game.

Essein (2008) wrote that currently capoeira trainers use basic pedagogical tools as repetition, observation, learning movements, still some trainers develop complex learning scenarios to study responses, movement sequence. The diversity if teaching capoeira is related to different ideas and philosophies, cultural identity of each capoeira group. Almeida (1986), known in Capoeira world as Mestre Accordeon, stated that even though there are might exist training methods that seems better or more efficient than others, nevertheless, it will be the individual self who defines which method suits him best.

Author really liked as Essein (2008) summarized the learning methods: in order to learn capoeira one should just do capoeira. Meaning, that any methodology is good in teaching capoeira and achieving changes.

2.2 Benefits of Capoeira for Children

Currently, capoeira is known and practiced worldwide. Capoeira kids classes and academies are opening worldwide. Capoeira is ideal way of bringing up a social, physically fit, tolerant kid. Dragunski (2013) observed capoeira kids classes in Norway and Spain. He stated that many classes varied and included diversity of games, kids played musical instruments, trainers tell philosophical stories, kids danced and learnt capoeira movements, learnt Portugues language and engaged into physical educative games.

Still, according to Almeida (1986) all these elements are just tools to achieve a big goal: development of martial art skills and acrobatic movements.

There are many projects, where capoeira is used as a tool to help kids coming from underprivileged families or areas. For many kids capoeira becomes a second family, where they are accepted and given a chance to shine.

For instance, Prytherch & Kraft (2015) analyzed the role of Capoeira4refugees project, which is organized in war areas such as Palestine and Syria. They stated that classes became a place where students feel free, express themselves and behave as children again. Moreover, self-discipline of the bodies lead to more self-awareness and control, thus parents and educators found

that participants of the project became more emotionally, socially and physically healthy (Prytherch & Kraft, 2015). Additionally, Burt and Butler (2011) analyzed capoeira and proposed it as therapeutical tool to decrease aggression in adolescents. They stated that capoeira creates a social environment and promotes teamwork.

Another social project was organized in Goma for kids coming from underprivileged societies. Trainer of the project shared his opinion that capoeira is a powerful psychosocial tool: "Throughout this month, we have seen not only improvements in the children's psychomotor skills but also in their behavior in class and in their life" (Cabanillas, 2014).

Capoeira provides kids not only with the ability to learn movements, get physically fit, but through sporting activity get understanding of themselves, connect to the lives of other people. The same ideas were found in Dragunski (2013): "Capoeira is observed as a leisure activity, a possibility to become a modern ritual to the children, a place for them to express themselves though body language. The practice is observed as embodied, this means, children take their practice within their bodies, and in time this can impact their habitus".

Coming to kids with diverse needs: Dos Santos (2010) in his master thesis researched kids 7-12 years old, who attended capoeira classes for 6 months. The researcher found that kids not only improved their physical skills, but also showed improvement in social skills.

Sub-conclusions

Author started her analysis with getting the reader understanding of the topic of cooperative learning. Author provided overview of the CL and methods used.

Since author is curious about enhancement of the result, author analyzed literature on the topic of achievements and cooperative learning. Author got acquainted with motivational, social cohesion and cognitive theories, which answer on the question how cooperative learning enhances higher achievements. For example, within cognitive perspective learner learn more effectively due to constant engagement and speaking on kids` language. Coming to kids with diverse needs cooperative learning leads to improved relations and acceptance. (Putnam, Rynders, Johnson, & Johnson, 1989).

Afterwards, author explored physical education and cooperative learning and studied five elements, which are needed for successful cooperative learning implementation on the physical education class: positive interdependence, face-to-face communication, individual accountability, group processing. (Dyson & Casey, 2016)

Author analyzed capoeira from the cooperative perspective and concludes that capoeira itself is cooperative and inclusive. There is a place for everyone in capoeira. Author also overviewed found in literature methods of teaching capoeira: observation + repetition, structured sequences as in Capoeira Regional style and situation teaching as in Angola. Author agrees with Essein (2008) that in order to learn capoeira learner must just start doing capoeira. Author also studied capoeira as a tool to teach kids and found out many social projects, used as a tool to empower, change behavior of kids.

Based on the theories studied author conclude that cooperative learning is effective not only in terms of getting higher achievements of learners, but also is a valuable tool to teach communication skills, tolerance, empowerment and inner strength.

Empirical background

In this section author provides information about the empirical results. It starts with presenting research methodology, where hypothesis are stated and data collection process is overviewed. Afterwards, analysis of each hypothesis is performed and sub conclusions are presented.

3. Research methodology

This chapter provides relevant information about the methodological part of the study, how the data was collected and analyzed. The main aim of this study is to analyze the influence of cooperative learning on the achievement of capoeira youngsters. Therefore, author states the following research question: *How does cooperative learning enhance remembering of capoeira movements in kids 6-12 years age group?*

In order to get in-depth understanding about the drivers of success author analyzes the research question from three perspectives: in all groups, from the perspective of high achieving kids and kids with diverse needs. In order to do so, author draws 3 hypotheses to check:

- Hypothesis 1: Kids remember capoeira movement choreography better when they are learning movements in groups or pairs and show lower results learning in individual setting
- Hypothesis 2: High achieving young learners show equal results in any setting
- Hypothesis 3: Little learners with diverse needs show best results in pair setting, and then follows group work and then individual work.

3.1 Qualitative research: video based observation

Author employs qualitative research, which according to Strauss and Corbin (1990, p.10) is a type of research that analyzes findings which cannot be produced by statistical findings. Qualitative research refers to studies about persons` lives, experiences, behaviors, emotions. Some of the data received will be quantified, since author will score remembering of sequences and

analyze their differences. However, author is more interested in behavioral patterns that led to the scores collected.

Data collection is organized via video recording. According to Kilburn (2014) despite the practical challenges of video recording, the resulting evidence is more detailed and accurate than notes or photos. It is hard enough to evaluate movement precision and rate focus points from the first time. In her practice, author usually records and analyzes kids performances to get deeper view on the mistakes.

Video recording analysis gives opportunity to concentrate on one individual continuously (Asan & Montague, 2014), which is beneficial in terms of analyzing training behavior of learners with diverse needs. Furthermore, being a trainer of the participant, in ordinary observation session data can have observer effect, while in video-based observation it is eliminated. Last, but not least, video recording provides huge amount of data and makes it possible to analyze behavior from various standpoints. Several aspects can be analyzed while watching the same video repeatedly as opposed to once in a lifetime event.

3.2 Data collection procedure

In this part data collection process is overviewed. As her first step, author developed a sequence of 9 capoeira movements and hide 12 focus points, which were taught in varied training setting orders (ABC, BCA, or CAB orders). The change of focus point was introduced to rate kids attention to small details of the movement. Afterwards, author instructed trainer how to lead training under each setting, explaining focus points and choreography. Main trainer of Capokids Capoeira Academy, Dmitrijs Rassohins, taught capoeira sequence under three settings: individual work, pair work and group work. Each learning session was observed for 10 minutes. After learning session capoeira learners were asked to “pass a test”, meaning to show the learnt sequences. Each group worked under each setting: individually, in pairs and in groups. In total 9 observation sessions with video recording were organized.

Training and kids performance were video recorded and afterwards analyzed. Please, turn to Table 3.2. for better understanding of the data collection process. In the table below author presents overview of each setting and choreographies.

Group A	Group B	Group C
Observation Date: 7 January Setting: A Choreography: 123	Date: 6 January Setting: B Choreography: 123	Date: 6 January Setting C Choreography: 123
Date: 14 January Setting: C Choreography: 231	Date: 13 January Setting: A Choreography: 231	Date: 13 January Setting B Choreography: 231
Date: 21 January Setting: B Choreography: 312	Date: 20 January Setting: C Choreography: 312	Date: 20 January Setting A Choreography: 312

Table 3.2 Timeline of the research

Training Settings

Setting A (pair work): Kids are given the task and afterwards randomly divided in pairs. Kids work in pairs for 5 minutes. Trainer assists when needed. After 5 minutes trainer gathers all kids and explains the given movement choreography again. Afterwards kids divide in pairs of their interest and train for 2,5 minutes, change pairs again and train for 2,5 minutes more. In total 10 minutes are given to learn a movement choreography. Kids are allowed to speak and help each other. Finally, each learner shows what he/she has learnt.

Setting B (group work): Kids are given the task and randomly assigned to groups of 3-4. Kids work in groups for 5 minutes. Trainer assists when needed. After 5 minutes trainer gathers all kids and explains the given movement choreography again. Afterwards kids divide in groups of their interest and train for 5 more minutes. In total 10 minutes are given to learn a movement choreography. Learners are allowed to speak, organize learning process in their group as they like and help each other. Finally, each learner shows what he/she has learnt.

Setting C (individual work): Kids are given the task and stand in rows. Trainer starts to move and kids follow and repeat every trainer`s step. They repeat after trainer for 5 minutes. After 5 minutes trainer gathers all kids and explains the given movement choreography again. Afterwards kids find a place and train the movement choreography individually. In total 10

minutes are given to learn a movement choreography. Finally, each learner shows what he/she has learnt.

Choreography

As it was already mentioned above, three movement choreographies were created from 9 movements (123, 231, 312 order) and 12 focus points. Kids are already familiar with the movements, but not with given choreographies. Based on the authors` experience even order changes of the same movements are perceived as new choreographies for majority of kids. It is also crucial to mention, that choreography did not change, but author challenged it a bit for more advanced kids. For example, on first day kids were asked to do cartwheel with two arms, on the second observational day with one arm, on the last day with no hands.

Measuring achievement

In order to link achievement with cooperative learning, author analyzed the choreographies learnt. As it was already stated, kids learnt 9 movements in different settings (individual, pair, group setting). With no importance of cooperation or setting after each learning session kids shared what they had learnt individually. It is similar to mathematics test, but in capoeira instead of solving mathematics equations, kids shared movements they learnt during the lesson.

For every correct movement and focus point a kid got 1 point. Maximum amount of points is 21. Each kid was evaluated based on performance. In total 53 kids were systematically evaluated.

3.3 Overview of the participants

In this section author presents an overview of the participants observed. All kids are members of Capokids Capoeira Latvia club and attend trainings for 2-3 times a week on a regular base. Capokids Capoeira Latvia clubs is situated in Riga suburbs Imanta. Researched kids were filmed during their ordinary trainings and groups in their ordinary training routine.

Group A (elementary)

Group A is a group of comparably new students, who train for 1-1,5 years. They know basic capoeira movements (used in choreography). This group is not lead by Dmitrijs on the regular basis, still he often attends and gives classes to this group. However, main trainer of this group is a student of Dmitrijs, who has been training capoeira for 6 years.

In total 16 kids participated in the research: 6 girls and 10 boys. Average age of the participants in this group is 9,8 years with lowest 6 years and oldest 12 years old youngster.

Eleven kids in this group attended all 3 classes. Three kids in this group are characterized as kids with diverse learning needs: one boy with light autistic spectrum disorder, onegirl with logopedic issues (hard to speak and communicate), one boy with hyper activeness. Two kids were analyzed as leaders and high achievers of the group.

Group B (intermediate):

Group B is a group of intermediate, passionate and dedicated capoeira kids. Majority of them are 8 years old and are eager to learn. They train for 2-3 years, are extremely friendly. This group is the most energetic and passionate. The author mostly worked with this group, but for the two month prior the research Dmitrijs took over the group due to health issues of the author.

In total 24 kids were observed: 8 girls and 16 boys. Average age of the participants in this group is 8,3, lowest 6 years, oldest kid is 10 years old.

Thirteen kids were researched 3 times. Four kids were characterized as kids with diverse needs. Two kids have visual diversities: one-eye blinded boy and 7 years old girl with a very low vision. Two boys have ADHD. Three kids were analyzed as high achievers.

Group C (advanced kids)

Group C is advanced group of pre-teenergs, who has been training capoeira for 2-6 years. This group is the hardest in energetic level, since, as ordinary teenagers this group is mostly in upset mood. This group is fully run by Dmitrijs for ages.

In total 13 kids were observed: 5 girls and 7 boys. Average age of the participants in this group is 10,85, with 9 the lowest age and 12 the oldest kid.

Eleven kids attended all three research days. Only one girl was characterized as a girl with diverse needs (light autistic spectrum disorder). Two girls were analyzed as high achieving, one of whom is a talented learner.

Author presented a table 3.3. for better understanding of the group characteristics.

Name	Group A	Group B	Group C	Total
Number of participants	16	24	13	53
Number of girls	6	8	5	19
Number of boys	10	16	8	34
Average age	9,8	8,3	10,85	-
Attended all 3 days	11	13	11	35
Kids with diverse learning needs	3	4	1	8
High achieving kids	2	3	2	7

Table 3.3 Overview of the participants

4. Results and discussion

In this section author presents results and discussion of the empirical and theoretical analysis. The main purpose of this study is to analyze how does cooperative learning enhance remembering of capoeira sequences among 6-12 years old kids. Author developed three hypothesis to check the whole group, focus on kids with diverse learning needs and focus on high achieving kids. Below author presents analysis of each hypothesis and at the end of this section conclusion is drawn about the research question.

4.1 Hypothesis 1

Kids remember capoeira movement choreography better when they are learning movements in groups or pairs and show lower results learning in individual setting

Author analyzed 3 different group of capoeira kids aged 6-12 years old. In total 53 kids took part in the research. Each group was filmed 3 times, while learning choreography in groups, in pairs or individually. The total number of 9 observation sessions were organized. At the end of each observation session kids showed the sequence they learnt and it was rated based on correct movement usage and applying focus points by the group members.

Measuring achievements

In the tables 4.1.1 mean, median and standard deviation is presented for each group. Mean is used to analyze average results for the group, median shows middle value for the set of results, while standard deviation shows the dispersion of set values (the smaller it is, the lower is the range of dispersion among numbers). Results turned out to be quite interesting – see table 5.1.1 for numeric representation.

Kids in group A with elementary level of training got the best results in individual setting with mean 16,35 (out of 21) and median 17. Compared to pair or group setting the mean and median were XX which corresponds to less successful results. However, standard deviation was also highest in this case, meaning that there was disproportion of the results: some showed very good results, but many kids showed very low results. Still, individual setting is more preferred for this group.

Group B showed almost equal results in all settings in terms of mean. The numbers show 16,7 for pair or teamwork and 16,2 for individual work. Median and standard deviation again were

higher for individual, showing that there was a big amount of kids who showed higher results, but at the same time there was a big amount of kids who showed very low results. These results provide interesting food for thought. If teacher is starting up a new movement it could be recommended to give individual setting, since high achievers got the most in these setting. But then the teacher can turn to group and pair scenario, which gives lower standard deviation and almost equal average result.

In group C kids did slightly better in pair setting (mean=18,3) compared to team setting and individual setting, 17,95 and 17,5 accordingly. Median was equal in pair and team setting. There is no difference between a group and pair or group and team setting in terms of successful presentation of capoeira movement choreography. In the case of this group median, mean and standard deviation were the lowest in individual setting, which can be perceived as "all did equally bad" in individual setting. Team and pair is more preferred for this group to achieve better results and improve the skills of the kids.

When it comes to the analysis of the whole groups – mean turned out to be almost equal in all scenarios, meaning that on average there is no difference of the teaching setting provided.

All observations

	Team	Individual	Pair
		Group A	
mean	15,08	16,35	13,57
median	15,50	17,00	14,00
stdv	2,79	3,45	2,01
		Group B	
mean	16,72	16,22	16,74
median	16,25	17,75	17,00
stdv	2,01	3,04	2,75
		Group C	
mean	17,95	17,54	18,32
median	19,00	18,00	19,00
stdv	3,15	2,15	2,59
		All groups	
mean	16,54	16,63	16,10
median	16,50	18,00	16,00
stdv	2,82	3,01	3,10

3 times participants

	Team	Individual	Pair
		Group A	
mean	14,68	16,55	13,73
median	14,50	17,50	14,00
stdv	2,86	3,64	2,00
		Group B	
mean	16,96	16,62	16,88
median	17,50	18,00	18,50
stdv	1,92	3,04	3,05
		Group C	
mean	18,55	17,65	18,30
median	19,50	18,00	19,00
stdv	2,65	1,91	2,71
		All groups	
mean	16,69	16,90	16,28
median	16,75	18,00	16,50
stdv	2,91	3,02	3,23

Table 4.1.1 Means, Medians and standard deviation

Author also analyzed only those kids, who participated 3 times and trained under every setting. Even though in this case we lose majority of observations but these numbers really

represent achievements of selected kids in all 3 settings. The present results depict only 34 out of 53 participated in all classes.

Group A showed similar results to those, where all participants were observed. Mean and median and standard deviation is still highest for individual setting, meaning that there were equal amount of good results, but unfortunately big amount of low results. However, in pair and team setting mean was drastically lower, meaning that there were almost no good results. It seems that individual setting worked the best for Group A.

Group B showed almost equally high results in pair and team setting. Even though median is 1 point (18,5 vs 17,5) higher for pair result, standard deviation (3) is also high. Meaning that there were many good and many bad results. In the opinion of author, team setting worked better for this group with highest average results, high enough median and very low (1,9) standard deviation.

Group C showed best results under team setting with highest mean and median. In their case team setting also worked the best.

When it comes to analysis of the whole group, due to high difference in numbers of Group A it is actually hard to make generalization for all groups. Author thinks it is more valuable to overview each group and go deep into the analysis of bottom of such results. More about this in the following discussion part.

Discussion

Analyzing achievements author got the following results:

- Group A showed best results in individual setting, but this best results were mostly thanks to big amount of high-achievers. Still, Group A showed drastically low results in other settings
- Group B worked the best in team setting, since this setting brings equally high results for all learners. However, individual setting is effective if teacher needs to fastly teach high achievers and then turn to any cooperative learning technique.
- Group C got the best results in team settings, it brought higher results with comparably low dispersion.

After receiving such numerical results, author turned to video analysis. Since, group A showed very low results under cooperative learning setting, while group B and C did comparably better in these setting author was particularly interested why this took place.

Author turned to Dyson and Casey (2016) five elements of cooperative learning and performed a video observation of each group working under team and pair group setting. The results are given in the table 4.1.2

Five elements	Group A	Group B+C
Positive interdependence	In group work kids do not feel themselves as part of the group. They are like standing together doing the same thing	In every small group automatically one takes leading role and structures the group work
Promotive face-to-face interaction	Almost silence and no communication among group members	Very loud, energetic and emotional work. Commenting, correcting each other
Individual accountability	Task is the same for all groups: everyone is responsible for his own success	
Interpersonal and small group skills	Silence: no feedback, no encouraging, no dialogue at all	One takes leader role, encourage others to help and try, listen and help
Group processing	No discussion at all	Helping each other, restructuring the group work if needed: started doing all together, than leader took someone, who needs help leaving others working together, than again back to working together. Group work is very live and flexible.

Table 4.1.2 Analysis of group behavior using five elements model

Based on the video analysis author found out that, unfortunately, Group A just does not know how to work cooperatively. If groups B and C fully engaged into the process, commented, provided feedback, took leadership, restructured work setting if needed, group A learners just continue being individuals, but in groups.

This is a very vital findings, which can be interpreted as in order for cooperative learning to be successfull kids needs to be taught to cooperate.

Next step is turning to groups B and C and try to understand what makes their group work effective. In order to analyze it, author turns to Slavin, Hurley and Chamberlain (2003) proposed theoretical perspectives, which link achievement and cooperative learning: Motivational, Social Cohesion, Cognitive.

From the **motivational perspecitve** group members are motivated to learn better and help others to achieve the best possible personal results (Slavin, 1995). In case of this research, motivational perspective is not a case. Motivational perspective could be seen if, for example, little learners were given a task to come up with a performance with given movements and trainers would rate each involvement in the performance.

Let`s continue with **social cohesion perspective** in which group members work harder because they are part of the group and want everyone in the group to be successful (Slavin, 1995). While in motivational perspective students learn because it is in their interest, within social cohesion frame group mates learn because they care about the group.

For this example let`s consider group work of Andrey, Amir and Klim. Andrey is a boy with visual diversities, but he trains for 3 years already. Amir has just started capoeira classes, but learns very fast and was upgraded to attend this group instead of beginner group. Klim had been training for 3 years in a different capoeira school and moved to capokids classes 2 month prior the research. Here is a step-by-step learning process of this group:

- Amir took a role of a leader
- Amir showed a sequence
- Amir asked Klim to show and corrected his mistakes. Andrey was observing and repeating
- Klim + Andrey were doing, Amir corrected
- All three boys were doing sequence together face-to-face. Amir was constantly commenting and helping.

Author thinks this example of a group work shows exactly how a boy, who trains less than others, but is a good leader immediately turns to his skills to help others to excerpt their best possible results. Amir`s goal as a leader was to make everyone`s result high as possible.

Continuing with **cognitive perspective,** according to which social interactions lead to better learning and it affects achievements. As Vygotsky (1978) put it exchange and explanation of beliefs and ideas, working together on challenging tasks provide learners with an opportunity to work with high-level material.

For this perspective author saw an example of a 10-years old boy Egor from group C, who during pair work setting managed to work with 3 strong students and as a result pair setting for him showed the best result he scored 21 (19 and 13 in other settings). However, since he twice worked with 2 high level girls, author proposes that maybe in this option his will to look strong in eyes of girls, rather than ability to work someone who can lift to their level was determinant.

Furthermore, author observed pair work, where high-achievers worked with low-achievers and unfortunately this work did not bring any major change in the achievements of low-achievers. Though author saw another trend with girl Varya, who participated in the research just twice and showed 15/21 in group work and 17/21 in pair work. However, during group work and pair work she took the leading role and helped Daria to get 16/21 (other settings 9 and 11) in pair work and helped Jakovs to score 19 (other settings 14, 16).

These results show that social interaction among different genders in pre-teens group, especially if boy is working with a girl, who has slightly better scores and when medium level achiever works with low level achiever – these settings lead to higher results.

Sub-conclusions for hypothesis 1

Author studied three groups under three different settings, scored their achievements and observed their behavior during training. Author found out, that Group A scored highest in the individual setting just because, most probably, they are not taught to train under cooperative setting learning. Their group and pair work lacked positive interdependence, face-to-face interaction, interpersonal skills and group processing. These kids continue to train as individuals, but standing closer to each other.

These lead to a vital conclusion that kids in order to perform well in cooperative learning – need to know how to be trained.

Afterwards author studied what made cooperative learning successful in Group B and Group C settings. Unfortunately, motivational perspective could not be checked, but author provided justification for social cohesion perspective, overviewing a group work of 3 boys.

Cognitive perspective was also observed at capokids trainings. This aspect defines social interaction that improves performance of kids while their development. Setting demanding goals with the support of a team or a trainer must lead to further advances in the area.

Author supports hypothesis 1 and states that kids remember capoeira movement choreography better when they are learning movements in groups or pairs and show lower results learning in individual setting, but in order to do so they need adult to teach them basics of cooperative learning.

4.2 Hypothesis 2

High achieving young learners show equal results in any setting

Discussion

In this section author analyzes hypothesis 2 and tries to understand how leaders of the group performed under each setting. It is vital to mention, that high-achieving kids were not selected based on the results, but author contacted main trainer Dmitrijs, who named kids who are formal or non-formal leaders of the group. Dmitrijs named 3-5 names, but unfortunately, not all kids participated in the research for all three settings.

Author studied results of selected kids. Their achievements are presented in the table 4.2.

group	Group A	Group A	Group B	Group B	Group B	Group C	Group C
age	12	12	9	7	9	11	10
age	Damian	Geogre	Veronique	Gregory	Anzey	Sonya	Sofija
team	19	16	19	18	20	21	19
pair	16	15	19	19	20	20	17
individual	21	20	18	19	19	17	19

Table 4.2 Achievements of high-performing learners

Group A leaders scored best under individual setting. Author observed their training routine: they trained almost non-stop for entire 10 minutes in individual setting. In pair setting they trained as individuals, but together with a partner, not making much correction. However, author was interested why Damian`s team achievements were much higher than George`s.

It turned out, that during teamwork Damian worked with others as it should be under cooperative learning setting. Unfortunately, he was the only one to work like this in Group A. He commented, explained, corrected and his students got comparably high scores, while he was the one with highest score.

Author suspects that because of the comparably high age (they are oldest in their group) and inner motivation they were able to do so many repetitions in individual setting, which led them to ideal result. This findings are consistent with Mulryan (1995), who stated that some learners may lose in cooperative settings and with as Essein (2008) who said that in order to learn capoeira one should just do capoeira.

Group B leaders did not show any major changes in scores. However, if under individual setting they worked alone, while other group members scored comparably low, in case of cooperative learning settings they helped others. For example, during group work all of them took leader`s role in teams and actively helped others as a result standard deviation is the smallest during team work.

Group C leader Sofija showed almost similar results in all settings, but Sonya seemed to be overstressed during individual setting. Author supposes that it was a result of non-stop repetition on a very high speed and she just got tired and thus did not focus good enough.

It was also interesting to observe that during individual learning session both Group A and Group C leaders chose positions next to each other. Author thinks that standing next to one who is as work-dedicated as you kept them motivated to train non-stop.

Sub-conclusion for hypothesis 2

Author studied 7 mentioned by the trainer Dmitrijs Rassohins high achieving students. Leaders of group A managed to get best results under individual setting. Author considers this high result is a consequence of big amount of repetition made by them. Group B kids results did not differ under observed settings, but in case of cooperative learning they helped others and eliminated high dispersion. Group C kids almost showed no difference, however talented girl Sonya seems to be over trained during individual session and thus showed lower results.

Author partly agrees with hypothesis 2, since some high achieving young leaders (as group B) showed equal results in any setting. Some kids (as in group A) showed higher results during individual setting due to ability to get extra time to train, while Sonya (group D) showed lowest results because of being over trained and made mistakes due to tiredness.

4.3 Hypothesis 3

Little learners with diverse needs show best results in pair setting, and then follows group work and then individual work.

Discussion

In this section author analyzes kids with diverse needs under cooperative learning setting. In total 8 kids with diverse needs participated in all 3 days of the research. There are two kids with autistic spectrum disorder, one girl with hearing, language and coordination problems, two kids with visual disabilities, three kids with ADHD. Author grouped kids by diversities and presents further analysis based on the diversities.

Table 4.3 presents summary of their age, diversities and achievements under each setting provided. All names are changed.

group	Group A	Group A	Group A	Group B	Group B	Group B	Group B	Group C
age	11	11	9	11	7	8	7	12
diversity	autistic spectrum	hearing, language, coordination	ADHD	blind in one eye	visual disability	ADHD	ADHD	autistic spectrum
name	Ilgvars	Milana	Leon	Andrey	Maria	Marcis	Jakovs	Amanda
team	14	8	17	14	16	19	14	19
pair	15	10	14	13	14	21	19	18
individual	20	14	18	14	12	18	17	19

Table 4.3 Achievements of kids with diverse needs

Autistic spectrum disorder

Children with autistic spectrum disorder (ASD) have several difficulties in speech, language and communication, responses to sensory stimuli, developmental lags. Games and physical activity not only develop motor skills of kids with ASD, but also improve vital social skills (Yilmaz et al. 2010). However, it is not as easy for majority of ASD kids to join a sports club. It is emotionally and socially difficult for them to follow complex rules, interact with other kids, wait for their turn, they feel tired. As a result they prefer more sedentary behavior and do not engage in any games and physical activities.

Amanda started capokids classes 5 years ago and it was often very difficult for her to communicate with others. Sometimes she preferred just to sit and observe, but situation changed when her friend Madara started to attend classes. They usually work together and she finds

comfortable and safe training with her. Analyzing videos author found that when Amanda had to choose a partner or a team she started with Madara and her friend collected others for team.

During her work with a random boy she was just staying and observing him doing. Trainer approached and asked her to speak and then she commented partner`s mistakes. It was difficult for her, but she tried. In random group setting she was lucky to get Madara in team, so their team actually divided into 2 pairs. In chosen group setting she was together with Madara and other girls and worked all together. Even during individual task Amanda chose a place close to her friend. According to Johnson & Johnson (2004) whether teachers encourage or not, students do groups. It is natural and it is what humans biologically would do and that`s what Amanda did: she was always trying to group herself with Madara.

Amanda did not have any changes in results (19,18,19) and author thinks that this is because of Madara, who really helps her to feel comfortable and accepted.

It was interesting to observe Ilgvars as well. In pair setting while he was training with a random girl – they did not correct any mistakes to each other. When he needed to find a new partner – he asked permission to train alone. Surprisingly, in a team setting he was able even to lead a team of very low-achievers and he felt remarkably confident.

According to author`s experience with this boy – he often winds himself into a ball and sits. Author found surprisingly that during research trainings this behavior was not observed at all. The only what was changed – there were no music playing. Author supposes that he is distracted by a music, which freaks him out, because usually trainer plays music instruments while kids train, but now for sake of research trainer did not play music, so author could hear comments and dialogs of participants. This is consistent with research and many individuals with autistic disorder have an enhanced perception of sound (Grandin, 1992)

After observing Amanda and Ilgvars, both kids with some kind of autistic spectrum disorder author found out that it is easier for them to work alone, however, cooperative learning helps them to learn communication, believe that they can help, suggest and even lead. Thus, a mix of individual and cooperative learning structures should be organized on a training with kids with autistic spectrum disorder.

Hearing and language disorder

Milana is 11-years old girl with logopedic issues. She barely speaks and it is very difficult to understand her speech. Since speech is connected to movements it is enormously hard for Milana

to remember long sequences, where coordination skills are needed. She showed low results not because she does not know the movements, she just cannot remember them in a right order.

During pair work she got a high-achiever girl, who did a great job explaining and correcting Milana`s mistakes, but they worked together only for 5 minutes (partner went to the toilet). Thus, Milana did not train enough to make sequence automatic.

Unfortunately, her experience in team work was appalling. Milana did not get any help, "stronger" students did not correct other group members as well. She looked completely lost trying to understand who is actually doing right.

In her case individual setting, when she many-many times automatically repeated after the trainer worked the best. Enough time to try, good and correct explanation. That`s played a vital role in her results.

Author conclude, that in order for Milana to succeed individual setting, or repetition after a trainer worked best because she got very straightforward explanation and ability to repeat many times.

ADHD

The Attention Deficit Hyperactivity Disorder (ADHD) is a genetic and neurological condition that compromises the academic performance since the early literacy by persistent symptoms of inattention, hyperactivity and impulsivity (Capellini, 2016). Recent research by Watson et al. (2019) showed that physical activity, with no sex differences, is associated with less inattention and hyperactivity in kids with diagnosed ADHD. Therefore, any physical activity for kids with ADHD is recommended by teachers and doctors.

Capoeira is adored by kids with ADHD, since this is the place where they can get ability to spend their energy and expose themselves. According to Han et.al (2019) symptoms of ADHD enhance athletic performance and they naturally excel in sports, which require quick movements and reactive decision-making. These qualities are highly valued in capoeira.

Leon showed one of the best results among his peers in team settings and is the only one who showed almost equal results in team and individual setting. Leon was lucky to get leader Damian to work in a team twice. Damian was the only one leader in group A who really helped, corrected and explained. It was interesting to observe that in pair setting Leon twice selected low-achieving capoeiristas and was one of the rare few who tried to explain and correct.

Jakovs and Marcis scored best in pair settings. Jakovs managed to work with Varya – a girl who author already mentioned before as a one to be gifted in teaching. Marcis was lucky to get randomly his ordinary partner (who also scored high). Afterwards, both Marcis and Jakovs chose partners to teach. Marcis continued focused work till the end, while Jakovs for the last 2 minutes played with his partner. Furthermore, both of them comparatively good enough trained during individual setting.

Author conclude that kids for kids with ADHD cooperative setting is preferred. In case kids with ADHD is a medium level, pair and group work with someone who explains and corrects (group work of Leon with Damian and Jakovs work with Varya) helps them to eliminate mistakes, which occur due to inattention to details. For high-achieving kid as Marcis cooperative learning provides opportunity to get recognition as a leader additionally to high performance.

Visual disability

Andrey has been training capoeira for 3 years already and it is challenging for him to write a picture inside his head. Similarly to Milana, a girl with logopedic issues it is enormously hard for him to learn long movement sequences. In his case almost no changes observed within setting change, but he looked worried during individual setting (gnaw his nails). In case of pair setting, he was not lucky to get good partners: first partner did not want to explain to him, while second was from high-achieving, who seemed to explain too much. His teamwork with Amir was already overviewed under first hypothesis, where Amir did his best to help him to learn. It was a focused and dedicated work of the whole team.

Maria trains only for 1 year and she has 20% of vision. Maria scored the highest during teamwork, where she really got explanation and empowerment from girls working with her. During pair work she trained with high achieving boy, who explained her every detail. Unfortunately, afterwards she chose to work with a girl of her level and both scored equally low.

During individual setting she also looked very nervous and as Andrey gnaw her nails. After 8 minutes of training, she went to the toilet and came back to evaluation only.

Author conlcude that for kids with visual disability it is preferred to work under cooperative settings. First of all, if they get knowlageble and helpful partner (as Maria got during teamwork) their results improve or as in case of Andrey they become part of environment for other kids to develop their leading skills. Moreover, when left alone both showed nervous behavior – grawning nails, which were not seen in cooperative learning settings.

Sub-conclusion for Hypothesis 3

Author analyzed 8 kids with diverse needs, who participated in 3 settings: two kids with autistic spectrum disorder, 1 with hearing and speaking problems, two with visual disabilities, three kids with ADHD.

Author found out that mix of cooperative and individual learning structures work best for kids with autistic disorder, since they prefer and feel more comfortable to work alone, however, cooperative learning brings them possibility to learn communication. In case of Milana, a girl with speaking and hearing diversities, individual setting worked much better. Author supposes that structured explanation and ability to repeat many times after a trainer works best for her.

Cooperative setting is more preferred for kids with ADHD. If they are medium level and are put in pair/team with someone who explains well, they get ability to correct mistakes due to their inattention. In case of being high-achievers, as Marcis, they get recognition as a leader additionally to high performance.

Similarly with kids with visual diversities. Peer-to-peer learning helps them to grasp material, which their brain could not systematize. Additionally, they play a vital role in group settings, since provide opportunity for other kids to develop their leading skills.

Author nor agree, nor disagree with the statement, since every case is individual. For example, kids with visual diversities, ADHD show better results under any of cooperative setting. However, kids with autistic spectrum and hearing and speaking problems show better results in individual work.

Conclusion

In this section author presents conclusions and answers the research question *how does cooperative learning enhance remembering of capoeira sequences among 6-12 years old kid.*

In this research author analyzed literature on the cooperative learning and achievements, cooperative learning and kids with diverse needs, CL and sports. Additionally author studied capoeira as a cooperative tool and observed previously performed research. Author found out that previous studies (see Maheady et al., 1999) on cooperative learning results in positive outcomes in achievement, interpersonal relations, personal and social development of students. Author empirical part involved score analysis and video observation. Ordinary training routine of 3 different groups were organized under 3 different settings: individual, pair and teamwork. At the end of each session young capoeiristas showed the sequence they have been learning.

Author analyzed 53 kids who took part in the research: 7 kids were chosen as high-achieving kids, 8 kids as kids with diverse needs: among them 2 kids with visual disability, 2 kids with autistic spectrum disorder, 1 girl with logopedic issues, 3 kids with ADHD.

Each group was video-recorded 3 times, points were calculated for correct movements and focus points. After means were calculated, analyzed and video observation followed to understand the source of the results received.

Based on the theoretical and empirical analysis author supports *hypothesis 1* and states that kids remember capoeira movement choreography better when they are learning movements in groups or pairs and show lower results learning in individual setting. However, in order to do so, kids need to be trained to work under cooperative learning. For successful implementation of cooperative learning into physical education author suggest using five elements developed by Dyson & Casey (2016): positive interdependence (relying on each other), face-to-face communication (dialogue and communication), individual accountability (each is valued for their task, interpersonal skills (listening to each other), group processing (student-centered discussion).

When cooperative learning is working efficiently, kids additionally to high achievements get valuable skills, needed for their future education and work. For example, positive interdependence leads to positive conflict management skills and teaches to manage group conflict efficiently. Face-to face interaction helps to achieve effectiveness through constant members empowering, challenging each other to achieve best possible results, though also helping each other via constant feedback and support (Johnson & Johnson, 2004). Therefore, kids learn

supporting, helping each other and working together – qualities, which they cannot learn while working individually.

Moreover, working together, step-by-step, kids come to understanding of a fact that not the groups with high-achievers are able to achieve high results in the group work setting, but rather those who are able to communicate efficiently: provide constant feedback, ask questions, provide ideas. Therefore, in group settings kids learn not only movements, but also social and communication skills, needed for their personal development.

Continuing with high-achieving kids author partly agreed with *hypothesis 2,* which stated that high achieving kids show equal results in any setting. Group B leaders showed no difference in the results, but working in team setting helped to eliminate dispersion of the results, meaning that all kids showed equally good results (median 17,5, stdv 1,9 in team setting compared to median 18 and stdv 3 in individual setting). Therefore, working in groups high achieving kids of group B managed to understand the task and disseminate successfully knowledge among all participants. Group A leaders showed perfect results within individual setting, but leader Damian working under team setting managed to get top-score for this particular session. After observing his training behavior, author found out that Damian worked similar to leaders from Group B explaining, empowering and constantly helping kids in his team. It was also interesting to observe that leader of the group C Sonya showed lowest results during individual setting. Author observer her training and found out that most probably she was overtrained, since she trained non-stop for 10 minutes and when it was time to show the movement sequence she looked tired and forgot several focus points.

Based on these results author suggests educating high performers to take leadership, to teach, help, because engagement helps them to get deeper understanding and still good marks, while in turn helps other to get higher achievements.

Author nor agree, nor disagree with *hypothesis 3,* since little learners with diverse needs showed different results under different setting and each case should rather be considered individually.

For kids with communication problems as autistic spectrum disorder, speaking problems, individual settings is more preferred, since they fully focus on the task. These kids should be provided with opportunity to work alone, especially if they ask for this. However, through constant and positive engagement they learn to work with others, while others learn acceptance and

tolerance. This idea was found in literature and researchers proved that cooperative learning leads to improved relations and acceptance of kids with diverse needs (Putnam, Rynders, Johnson, & Johnson, 1989), positively affects social communication among regular learners and kids with physical or intellectual diversities (Lloyd, Crowley, Kohler, & Strain, 1988) and promotes positive interaction between regular learners and students with diverse needs (Putnam, Rynders, Johnson, & Johnson, 1989).

Kids with visual disabilities looked stressed under individual setting and fully engaged during the cooperative setting. However, result of Andrey did not change, while Maria show a strong improvement during team work (16 vs 12 vs 9). For kids with visual disabilities cooperative setting is preferred to reduce stress level and in some cases get better results.

Cooperative setting is advisable for kids with ADHD: medium – level students get opportunity to clean and correct movement by peer tutoring of more advanced teacher. Moreover, via peer-tutoring kids with ADHD engage in teaching and leading less capable students.

Based on the analysis of hypothesis from theoretical and empirical research, author concluded that *cooperative learning enhances remembering of capoeira sequences among 6-12 years old kid :*

- only if kids are familiar and constantly taught to work cooperatively. For this case author suggests implementing Dyson & Casey (2016) five elements of successful CL application on physical education class.
- when high achievers easily grasp information in any setting and through peer-to-peer learning are able to transfer it to others. This could be achieved through constantly engaging kids in cooperative setting and teaching to help, empower and accept others.
- if kids with diverse needs are accepted and partners or team-mates provide them valuable advice and needed help.

Author concludes that cooperative learning is a valuable tool, which leads to high achievements in physical education and additionally gives kids opportunity to develop personal skills, such as communication, empowering, respect and helping.

Possible limitations and biases

In this section author provides possible limitations and biases, which could influence the results of the research. According to Trost&Sautter (n.d.) the perception is not objective and static image of reality, but a process of an active collection of information. Thus, there is no prior, objective and unfiltered information concerning behavioral observations, but each observer adopts his or her own assessment and interpretation of the observed persons (Trost&Sautter, n.d.).

Possible bias can come from observational error, however video analysis helps to reduce them. Author has been working with majority of kids on a daily basis, lived together for many days in camps and travelled to other countries. Author may rely on personal information and judgements regarding these kids. As a result, this may influence the quality of observation. Moreover, since the interactions of observer and observed person is prolonged, an interdependence of behaviors may take place. Author tried to be as distant as possible when performing observation.

Assessment errors may occur while interpreting the results. Author could be influenced by her specialization and assume naïve everyday theories and interpret the observed behaviors with the basis of these ideas. (Trost&Sautter, n.d.). Author tried to support her ideas by theoretical framework in order not to use stereotypes.

Thoughts for further research

In this section author provides several ideas for further research. First of all, a long-term study is needed to be performed to see the difference of learning under each setting. Author would suggest at least 2-3 months research with 3 beginner kids and teach under 3 setting: (1) only observation and repetition after the trainer; (2) cooperative setting; (3) mix of cooperative and individual.

Another idea would be studying emotional state of learners under each setting. It could be interesting to check how different clusters of kids feel under each condition by questionnaires or interviews.

Finally, a more comprehensive research could be made including more participants, different sports/dance classes and trainers.

Practical suggestions for physical education and capoeira trainers

In this section author provides suggestions for physical education and especially capoeira trainers who work with kids. These suggestions are based on the research and video observation.

Organizing the class

- Focusing only on achievements of high achieving students brings disproportion of results. Results of this research showed that in individual setting some kids learn better, but many kids stay outside (see standard deviations). In long-term setting this gap, most probably, enlarges, as a result lower achieving kids stop practicing. Author would suggest organizing classes, so that all kids cooperatively and equally develop
- Mixing individual setting (repetition) with cooperative learning should bring the best results. In the individual setting some high-achieving kids and kids with communication problems can fast get element/movement sequence. Afterwards, working in teams/pairs high-achieving kids will disseminate material among others. As a result, group is growing equally and the gap among learners reduces. High-achieving kids are not bored with doing the same movements, but rather feel power to motivate others doing.
- In order for cooperative learning setting to work kids need to constantly be educated to speak, to encourage, to help. Kids need someone to show them settings of group work (one shows – all repeats, one shows – all corrects mistakes, all are working face-to-face, etc). Author suggests using daily phrases: “speak to each other”, “help each other”, “show and explain”. Kids will not teach each other if they do not know how to do it practically. Group work is a skill, that needs to be taught similarly to capoeira movements.
- Putting kids once in cooperative setting will not bring results, it is rather a long-term journey, but it is worth trying. Set long-term goals, constantly use cooperative setting and help kids to help others. When they understand these setting – the result will flourish.
- Author suggests applying Dyson & Casey (2016) five elements of cooperative learning to the best outcome during physical education training: positive

interdependence (relying on each other), face-to-face communication (dialogue and communication), individual accountability (each is valued for their task, interpersonal skills (listening to each other), group processing (student-centered discussion).

Working with high achieving kids

- Leaders learn as good as they learn individually in any setting if they are trained to lead, explain and help. Still, working in groups they additionally learn to cooperate, motivate others, communicate and lead, explain, create cooperatively, feel tolerant to other learning process.
- High-achieving kids should rather work with medium kids, not low-achieving kids. It is because the gap between them is rather high. Author recommends putting high-achieving kids with medium level kids and afterwards put medium level kids to work with low-achieving kids. In this case, high-achievers bring medium – achievers to their level, while medium achievers bring to their level. As a result, group fastly disseminate knowledge and groups.

Working with kids with communication problems

- Author suggests being careful with music instruments and load sounds if you have autistic spectrum disorder kid on the training. Kids with ASD are very sensitive to sounds and it can make their practicing unbearable.
- Some kids with communication problems must be allowed to work alone if they wish it. Staying alone helps them to fully focus on the task and movements, not trying to communicate
- Integration of kids with communication problems should be organized very gently into cooperative structure, since they must have experienced negative experience of group work. Teach other kids to tolerate, wait for these kids to share their view. If any negative situation appears – speak it, explain and provide feedback.

Working with kids with visual disabilities

- Allow these kids to find a best spot in the gym to see you explaining the task. Their seeing differs from ordinary and they might not grasp the movements as trainer explained
- Working into individual setting is hard for kids with visual disabilities, since they feel nervous.
- Tolerate and accept the fact that their movements will rarely be made correct from the first attempt. They really do not see minor details, which hide in the movement.
- Kids with visual disabilities show good results working in a team, if the team is ready to help and works efficiently towards motivating and empowering.

Working with kids with attention deficit and hyperactivity disorder

- Kids with ADHD should be always given a chance to work with someone more focused in order to correct mistakes which they skipped due to inattentiveness. Similar to kids with visual disabilities they skip minor details, seeing the big picture of the movement and not seeing small issues. Working in pair with someone very focused and attentive helps them to eliminate mistakes
- Kids with ADHD should be given opportunity to lead and teach to learn more. They need to explore their leading potential, feel valued and powerful.
- Kids with ADHD feel tired of routine work, sitting, and listening. Allowing them to move, run not bothering others helps them to reduce stress levels and in several seconds be back to attentive work.

Acknowledgement

Author would like to thank Mestre Chicote, who inspired and motivated author to start teaching capoeira to kids. His unique style of teaching, high level of tolerance, acceptance and desire to help everyone to feel valued and progress in capoeira made author fell in love with pedagogy and capoeira art.

Capokids Capoeira Kids Latvia has become a place for author`s experiments. Author would like to thank all students who have ever attended capokids classes, since they provided for the author opportunity to teach and learn about learning style of each of the learner. Special acknowledgement comes to kids, who participated in the research and parents, who are always there to help their capoeiristas to grow.

Author is thankful to Dmitrijs Rassohins, who helped to elaborate the methodology of this research, lead trainings and helped in evaluation of kids achievements under the scope of this research.

Author expresses gratitude to all professors working in Latvian University and teaching diversity in pedagogy. This program helped author to find theoretical explanation of all her practical scrutiny.

A special thanks goes to Ieva Margevica – Grinberga who took care and was helpful and responded quickly to every questions arose during development of this thesis.;

References

1. Almeida, U. (1986). *Capoeira, A Brazilian Art Form.* Berkeley, CA: North Atlantic Books.
2. Antil, L., Jenkins, J., Wayne, S., & Vadasy, P. (1998). Cooperative Learning: Prevalence, Conceptualizations, and the Relation between Research and Practice. *American Educational Research Journal, 35*(3), 419-454. Retrieved from www.jstor.org/stable/1163443
3. Aronson, E. i col (1978). The jigsaw classroom. Beverly Hills: CA Sage
4. Asan, O., & Montague, E. (2014). Using video-based observation research methods in primary care health encounters to evaluate complex interactions. *Informatics in primary care*, *21*(4), 161–170. Retrieved: https://doi.org/10.14236/jhi.v21i4.72
5. Bandura, A. (1986*). Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice- Hall, Inc.
6. Barrett, T. (2005). Effects of cooperative learning on the performance of sixth-grade physical education students. *Journal of Teaching in Physical Education, 24,* 88–102.
7. Battisch, V., Solomon, D., & Delucci, K. (1993). Interaction process and student outcomes in cooperative learning groups. *The Elementary School Journal, 94*(1), 19–32.
8. Boivin,M., & Begin, G. (1989). Peer status and self-perception among early elementary school children: The case of the rejected children. *Child Development, 60,* 591–596.
9. Burt, I. & Butler, S. (2011). Capoeira as a Clinical Intervention: Addressing Adolescent Aggression With Brazilian Martial Arts. Journal of Multicultural Counseling and Development. 39. 10.1002/j.2161-1912.2011.tb00139.x.
10. Cabanillas R. (2014). *In Goma, Capoeira Brings Peace to Children.* Retrived: https://reliefweb.int/report/democratic-republic-congo/goma-capoeira-brings-peace-children
11. Cabrera, A. F., Crissman, J. L., Bernal, E. M., Nora, A., Terenzini, P. T., & Pascarella, E. T. (2002). Collaborative learning: Its impact on college students' development and diversity. *Journal of College Student Development, 43*(1), 20–34.
12. CAPELLINI, S. A. (2016). *A Handbook of Attention Deficit Hyperactivity Disorder (ADHD) in the Interdisciplinary Perspective*. [S.l.]: Bentham Science Publishers Ltd.
13. Capoeira N. (2003). *The little Capoeira Book*. Berkeley, CA: North Atlantic Books.

14. Capoeira, N. (2002). *Capoeira: Roots of the dance-fight-game*. Berkeley, CA: North Atlantic Books.
15. Capoeira, N. (2006). *A street-smart song: Capoeira philosophy and inner life*. Blue Snake.
16. Casey, A (2004) Piece-by-piece cooperation: Pedagogical change and jigsaw learning. British Journal of Teaching Physical Education 35(4): 11–12.
17. Casey, A, Dyson, B (2009) The implementation of models-based practice in physical education through action research. *European Physical Education Review* 15(2): 175–199.
18. Causgrove-Dunn, J., Dunn, J. G., & Bayduza, A. (2007). Perceived athletic competence, sociometric status and loneliness in elementary school children. *Journal of Sport Behavior*, *30*, 249–264.
19. Cult of Pedagogy (2015, April 15). The Jigsaw Method [Video]. Youtube. https://youtu.be/euhtXUgBEts
20. Curşeau, P. L., Janssen, D. E., & Raab, J. (2012). Connecting the dots: Social network structure, conflict, and group cognitive complexity. Higher Education, 63(5), 621-629.
21. Devin-Sheehan, L., Feldman, R., and Allen, V. (1976). Research on children tutoring children: A critical review. *Review of Educational Research, 46*(3), 355–385.
22. Devries, D. i Edwards, K. (1973). Learning games and student teams: Their effect on classroom process. *American Educational Research Journal,* 10, pp. 307-318
23. Dos Santos, S. R. (2010). Capoeira for children with special educational needs: The case study (Master's Thesis).
24. Downey, G. (2008). Scaffolding Imitation in Capoeira: Physical Education and Enculturation in an Afro-Brazilian Art. *American Anthropologist, 110*(2), new series, 204-213. Retrieved May 11, 2020, from www.jstor.org/stable/27563983
25. Dragunski M.K. (2013). Children Play Capoeira. *Master`s thesis of Philosophy in Childhood Studies*. Retrieved: https://core.ac.uk/download/pdf/52110107.pdf
26. Dyson B and Casey A (2016) *Cooperative Learning in Physical Education: A Practical Introduction*. London: Routledge.
27. Essien, A. (2008). *Capoeria beyond Brazil: From a slave tradition to an international way of life.* Berkeley: Blue Snake.

28. Frigerio, A., Montali, L., & Fine, M. (2013). Attention deficit/hyperactivity disorder blame game: A study on the positioning of professionals, teachers and parents. *Health, 17*(6), 584-604. Retrieved May 3, 2020, from www.jstor.org/stable/26650385
29. Grandin T. (1992). An inside view of autism.
30. Greene, R. L. (1986). A common basis for recency effects in immediate and delayed recall. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 12*(3), 413–418. https://doi.org/10.1037/0278-7393.12.3.413
31. Han DH, McDuff D, Thompson D, et al. (2019). Attention-deficit/hyperactivity disorder in elite athletes: a narrative review. *British Journal of Sports Medicine* 2019;53:741-745.
32. Hoek, & Terwel (1997). Effects of training in the Use of Social and Cognitive Strategies: An Intervention Study in Secondary Mathematics in Co-Operative Groups. *Educational Research and Evaluation*. 3. 364-389. 10.1080/1380361970030405
33. Igel, C., & Urquhort, V. (2012). Generation Z, meet cooperative learning. *Middle School Journal, 43*(4), 16-21. Retrieved January 8, 2020, from www.jstor.org/stable/41432109
34. Johnson, D. W., & Johnson, R. T. (1994). *Learning together and alone: Cooperative, competitive, and individualistic learning* (4th ed.). Boston: Allyn & Bacon.
35. Johnson, D. W., & Johnson, R. T. (2004). *Experts in assessment. Assessing students in groups: Promoting group responsibility and individual accountability.* Corwin Press.
36. Johnson, D. W., & Johnson, R. T. (2009). An Educational Psychology Success Story: Social Interdependence Theory and Cooperative Learning. *Educational Researcher*, *38*(5), 365–379. https://doi.org/10.3102/0013189X09339057
37. Johnson, D. W., Johnson, R. T., & Smith, K. A. (1991). *Active learning: cooperation in the college classroom*. Edina, MN: Interaction Book Company.
38. Johnson, Roger T.; Johnson, David W.; Holubec Edythe, J. (1999): El aprendizaje cooperativo en el aula. Barcelona: Paidós Educador.
39. Kilburn D. (2014). *Methods for Recording Video in the Classroom: Producing Single and Multi-Camera Videos for Researh into Teaching and Learning*. National Centre for Research Methods Working Paper 10/14
40. Landers-Potts, M., & Grant, L. (1997). Competitive climates, athletic skill and children's status in after-shool recreational sports programs. *Social Psychology of Education*, *2*, 297–313

41. Lloyd, J. W., Crowley, P., Kohler, F. W., & Strain, P. S. (1988). Redefining the applied research agenda: Cooperative-learning, prereferral teacher consultation, and peer mediated interventions. *Journal of Learning Disabilities*, *21*, 43–52.
42. MacLennan, J. (2011). To build a beautiful dialogue: Capoeira as contradiction. *Journal of International & Intercultural Communication, 4*(2), 146-162.
43. Maheady, L., Mallette, B., Harper, G. F., & Sacca, K. (1991). Heads Together: A Peer-Mediated Option for Improving the Academic Achievement of Heterogeneous Learning Groups. *Remedial and Special Education*, *12*(2), 25–33. https://doi.org/10.1177/074193259101200206
44. McEwen, B. S., Sc Sapolsky, R. M. (1995). Stress and cognitive function. Current Opinion in Neurobiology , 5, 205-216
45. Morgeson, F. P., Reider, M. H., & Campion, M. A. (2005). Selecting individuals in team settings: The importance of social skills, personality characteristics, and teamwork knowledge. Personnel Psychology, 58, 583-611.
46. Mulryan, C. (1995). Fifth and Sixth Graders' Involvement and Participation in Cooperative Small Groups in Mathematics. *The Elementary School Journal, 95*(4), 297-310. Retrieved from http://www.jstor.org/stable/1002083
47. Norton L.S. , (2009). *Action Research in Teaching and Learning: A Practical Guide to Conducting Pedagogical Research in Universities*. Abingdon: Routledge
48. Piercy, M., Wilton, K., & Townsend, M. (2002). Promoting the social acceptance of young children with moderate-severe intellectual disabilities using cooperative techniques. *American Journal of Mental Retardation*, *5*, 352–360.
49. Polvi, S., & Telama, R. (2000). The Use of Cooperative Learning as a Social Enhancer in Physical Education. *Scandinavian Journal of Educational Research*, *44*, 105–115.
50. Prytherch H., Kraft K. (2015). The psychosocial impact of capoeira for refugee children and youth. Retrieved April 29, 2020 from https://capoeira4refugees.org/wpcontent/uploads/2016/04/C4R_Psychosocial_Impact_of_Capoeira_4_refugee_children_and_youth.pdf
51. Putnam, J. W., Rynders, J. E., Johnson, R. T., & Johnson, D. W. (1989). Collaborative Skill Instruction for Promoting Positive Interactions between Mentally Handicapped and

Nonhandicapped Children. *Exceptional Children*, *55*(6), 550–557. Retrieved from: https://doi.org/10.1177/001440298905500609

52. Putnam, J.W., Markovchick, K., Johnson, D.W., & Johnson, R. T. (1996). Cooperative learning and peer acceptance of students with learning disabilities. *The Journal of Social Psychology*, *136*, 741–752.
53. Putnam, J.W., Rynders, J. E., Johnson, R. T., & Johnson, D.W. (1989). Collaborative skill for promoting interactions between mentally handicapped and non handicapped children. *Exceptional Children*, *55*, 550–557.
54. Sessa V.I. & London M. (2008). Work Group Learning: Understendg improving and assesing how groups learn in organizations. New York: Taylor & Francis Group / Lawrence Erlbaum Associates
55. Sharan, S i Sharan, I. (1976). *Small group teaching*. Englewood Cliffs, NJ, Educational Technology Publications.
56. Slavin, R. (1996). Cooperative Learning in Middle and Secondary Schools. *The Clearing House, 69*(4), 200-204. Retrieved from http://www.jstor.org/stable/30189163
57. Slavin, R. E. (1995). Cooperative learning: Theory, research, and practice (2nd ed.). Boston: Allyn & Bacon.
58. Slavin, R. i cols. (1984). Combining cooperative learning and individualized instruction: Effects on student mathematics achievement, attitudes, and behaviours. Elementary School J., 84, pp. 409-422.
59. Slavin, R., & Lake, C. (2008). Effective Programs in Elementary Mathematics: A Best-Evidence Synthesis. *Review of Educational Research, 78*(3), 427-515. Retrieved from: http://www.jstor.org/stable/4007113
60. Slavin, Robert & Hurley, Eric & Chamberlain, Anne. (2003). Cooperative Learning and Achievement: Theory and Research. 10.1002/0471264385.wei0709.
61. Strauss, A., & Corbin, J. (1990). Basics of qualitative research(Vol. 15): Newbury Park, CA: Sage.
62. Toga, A., & Thompson, P. (2003). Mapping brain asymmetry. *Nature reviews. Neuroscience*. 4. 37-48. 10.1038/nrn1009.
63. Vygotsky, L. S. (1978). *Mind in society* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds.). Cambridge, MA: Harvard University Press.

64. Watson, A., Timperio, A., Brown, H., Hinkley, T., & Hesketh, K. D. (2019). Associations between organised sport participation and classroom behaviour outcomes among primary school-aged children. *PLoS ONE*, *14*(01), 1–12.

65. Wittrock, M. C. (1986). Students' thought processes. In M. C.Wittrock (Ed.), *Handbook of research on teaching* (3rd ed.) (pp. 297–314). New York: Macmillan.

66. Wrahatnolo, T & Munoto (2018). *21 st centuries skill implication on educational system*. IOP Conference Series: Materials Science and Engineering. 296. 012036. 10.1088/1757-899X/296/1/012036.