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Original article

Teaching Karate at Early Ages through Games

Mercy Alexandra La Torre Sanchez[1] https://orcid.org/0000-0003-4785-9640

Yuri Douglas Barrios Palacios[1*] https://orcid.org/0000-0001-6759-8076

[1]University of Guayaquil Ecuador

*Correspondence: mercy.latorres@ug.edu.ec

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ABSTRACT

Introduction: Games develop focus, imagination, training, and respect for the rules of sports. They also help karate-do athletes to become acquainted with the basic techniques (Tachi Waza) of this sport, which is the scope of this paper.
Aim: To accomplish the game level in training lessons of karate-do at the Tejar UEB athletes.
Method: The methods and techniques used contributed to the implementation of the proposal in the study sample.
Results: The favorable results helped back the proposal; the test results were interpreted and a games guide was designed to improve the Karate-Do techniques.
Conclusions: Ludic activities favor the active and flexible participation of children in early karate-do practice.
Keywords: Karate-Do, sports initiation, ludic activities

INTRODUCTION

Today, sports are considered a cultural and well-rooted phenomenon in society, which leads to feelings like competitiveness or the obsession to achieve better results. Sport activities constitute a reality in which athletes are immerse. This fact in education encourages researchers to find ways on how to introduce this social phenomenon in sports facilities, putting aside activities for large crowds.

With this perspective, the initiation of karate-do needs the application of a more positive approach. The basis of this rationale is encouraging children to take this sport at early ages, for the benefits it brings, and because it helps them to reflect and develop a critical attitude. Therefore, practitioners must feel active as part of the teaching-learning process, and deal with the problems they come across, creatively, making sports initiation an enriching learning process, a means of joy that helps them acquire a better self-concept and generate resources to cope with everyday issues appropriately.

Fierro (2016), (Balagué *et al*., 2019), (Pol, Balagué, Ric, Torrents, Kiely & Hristovski, 2020), and (Woods, McKeown, Rothwell, Araújo, Robertson & Davids, 2020), Leal, I., & Camacho, R. (2018), (Renshaw & Brendan, 2018), (Caldeira, Paulo, Infante & Araújo, 2019) noted that the culture of sports practice is widely rooted today. Particularly, the martial arts. These sports are included in the group of competitive sports, which create a feeling of rivalry and competitiveness, often encouraging aggressiveness when the early training stages have been misunderstood. Because of this attachment of society to competitive sport, this issue should be dealt with in sports facilities, not with the purpose of seeking sports specialization, but instead, it promotes the proper initiation of students, and a true feeling for the sport.

Karate-do contributes to the improvement of personality. It was created in a Japanese province, then developed fully and spread out all over the world in the following 400 years. Then it was improved for personal defense without any tools. Karate-do (the way of empty hands) is a traditional martial art from the Ryukyu Islands in Japan, today known as Okinawa. It originated from the ancient Indian martial arts and the Chinese kenpo. These martial art styles emerged from the need of the island's noble warriors (Pechin) to protect the last king of Okinawa, Sho Tai, and themselves from the Japanese armed warriors (samurais).

Over time, karate evolved in the kingdom of Ryukyu, and then it spread out, being taught in Japan systematically after the Taisho era, as a consequence of the cultural exchanges between the Japanese and the inhabitants of the Ryukyu islands. Bodhidharma used to teach it at the Shaolin temple as a Buddhist practice, with 12 movements (based on 12 animals), and 24 exercises. Each exercise and

technique was used to shape a solid body and a capacity of focus. The movements have an explosive power, which effectively applied, can kill a man easily.

This martial art became known when the Buddhist monks were forced to defend their monastery from outsiders, succeeding at it. Later, the popularity of karate (called *te* (hand) at the beginning), was so high that it was included in the physical education programs in Okinawa, and its name was changed to karate (empty handed), to distinguish from another Japanese martial art.

The basic and fundamental concept of Shotokan is that the body must be relaxed, the movements are soft, and the energy must be projected beyond the self, with a clear, clean, and receptive mind.

The appreciation of this martial art as a sport conditions the materialization of the techniques, along with the physical conditions of a karate-do athlete, which change according to the current demands of sport practice.

Combats are held according to the official rules approved in Germany (1966), which consist in the contending area (shiai-yo), which should be 8-10 m^2. The floor must be completely flat and without obstacles, as the athletes fight barefoot. The contenders should not carry any object that might hurt the opponents, and all their nails (finger and toe) must be properly clipped. Hitting is only represented as a symbolic mark, avoiding actual physical hitting whose strength might cause death.

According to several authors, such as, Argel M., (2019), Bayas, (2015); (Vargas & Salazar, 2015), Martínez, Leyva, Cuestas, and Reche (2018), Ontaneda, D. (2013). Karate-do is a merely technical sport; its practice demands basic knowledge mandatorily. It has two forms of competing: kata (imaginary combat of one or more contenders), and kumite or real combat, which is the most popular among fans. It is the main inspiration to start practicing karate. This sport was created due to the need to defend from soldiers and outlaws that oppressed the inhabitants of the Okinawa islands. This martial art only uses the body to face an armed person; the only goal is to destroy the opponent using quick and powerful techniques.

Bouzina (2015), said that the most outstanding values associated with the sport are cooperation, dialog, respect, responsibility, creativity, sincerity, etc. Like judo, other martial arts including karate or taekwondo, foster similar values, such as discipline, effort, focus, partnership, and respect.

On one hand, karate is a humble discipline that inculcates respect for the fellow. On the other, amidst evil and anger, which block the mind, it leads to quick and effective attacks. As the maxim goes: "in karate, you never make the first move". It is a code of honor that forbids the use of karate, unless it is required for legitimate defense. (Ontaneda, 2015)

Beyond the learning and repetition of techniques, the master (Funakoshi, 2014) stressed the spirit of karate as an art, and adds, the art does not make the man, the man makes the art. The students of any art, including karate-do, must not forget to nurture the mind and the body. The individual's goal in karate-do may be to improve health or train the body to work efficiently... Every objective is linked to self-development.

Therefore, the improvements derived from karate-do learning depend on every practitioner through a process that provides the skills and physical and emotional capacities. Karate-do emphasizes on comprehensive human development, considering body and mind equally important. "The true karate; that is, karate-do, is the internal effort to train the mind to get a clear consciousness, permitting the practitioners to face an opponent sincerely; karate is based on *Bushido*, an ethic code whose principles lie in loyalty and honor. Likewise, this sport consists in the personal defense of individuals, using the body as a tool. Etymologically, "*karate'* means "empty handed", it is fighting without any weapons

It has been considered that the conception of the sport stems when it becomes competitive, so sets of rules are created to prevent that such strong and powerful techniques hurt the contenders. Accordingly, the energy requirements and athlete's preparedness have a different perspective to accomplish the top potential that a person can have about a motor capacity; it requires proper initiation in due time.

Generally, sports are not associated with attack and defense, but as motor actions taken in a particular setting with a ludic trend. The sports entails attack and defense based on different situations that occur, and how to address them. The non-competitive aspect prevails over the rest, being considered as ludic, in which there are no interests outside the sports context. Therefore, the motor actions of attacking and/or defending are rather forms of addressing a situation or motor proposal through gestures and sports movements, than the decision to achieve a good result, or a rank, or victory or defeat.

MATERIALS AND METHODS

This research relied on a descriptive-correlational study with a non-probabilistic intentional sampling that included 12 children (11-13 years old) who practiced karate-do at the Tejar Bilingual Educational Unit in Guayaquil, the Republic of Ecuador. The Wilcoxon rank test was run for the two samples selected ($p \leq 0.05$), with a non-normal data distribution.

Upon the bibliographic review of the diversity of ludic activities, the game for karate-do, that can be developed to improve the movement, posture, and arm and leg techniques, a set of ludic activities including exercises and free games to help the children in their physical education classes or training with better technical knowledge and learning.

The design was done in the afternoon, preferably as an extracurricular activity, between 14:30 and 16:30, three times a week (Mondays, Wednesdays, and Fridays). Overall, a set of 14 ludic activities (games) were designed at first, thus ensuring significant learning of the children engaged in this after-school activity.

To know the current state of the children who practice karate-do, three tests were run, before the implementation of the proposal (before the practice and after implementation for two months). Finally, after the implementation of the alternative. The tests were the following:

1. Correct movements of arm techniques in karate-do.
2. Correct movements for the karate-do technique.
3. Correct movements of leg techniques in karate-do.

RESULTS AND DISCUSSION

Results of the pre-test and post-test (Tables 1 and 2).

Table 1. Test of the difficulty level of preparation in the basic practice of karate-do, avoiding playing through the discipline technique.

Requirement							
Test of the technical difficulty level of karate-do	**f**	**errors**	**%**	**Post-test**	**f**	**errors**	**%**
Test. No. 1. Correct movements of arm techniques in karate-do	12	25	3		12	4	0.48
Test No. 2. Correct movements of karate-do technique	12	26	3.12		12	5	0.6
Test No. 3. Correct movements of leg techniques in karate-do.	12	30	3.6		12	11	1.32

Made by: Alexandra La Torre.

Alternative proposal: game-based karate-do teaching

Table 1 shows, in test No. 1, that the children made 25 errors, whereas only 4 errors were made in the post-test. In test No. 2, they made 26 errors, whereas in the post-test, they only made 5 errors total; and in test No. 3, they made 30 errors total in the pre-test, while they only made 11 errors were observed in the post-test. It demonstrated the effectiveness of the technical game proposal to enhance karate-do skills in the sample chosen.

Table 2 Alternative proposal: Physical ludic activities through competitive technical games for the karate-do practitioner

These games are part of the exercises used in methodological teaching during the trainings.				
Game name	**Objective**	**Organizational methodology**	**Development**	**Rules**
Name: The biting dog	Participants: Require physical exercise through the game. **Objective:** To learn to dodge	**Materials:** None **Organization:** Three squares will be drawn on the 4x4 m court, and each square will contain 20 children dispersed, one of them will be the biting dog.	**Game** The teacher will select a child from each square (the biting dog), and will bend to stand in four legs and run after the other kids and touch them with his hands, while the others will try to stay untouched, dodging.	The child who sets a foot out of the square will lose. The child touched will become the biting dog.
Name: The fighter's circle	**Objective:** To learn the hand punch (Tsuki).	**Materials:** Hanging bags full of rubber residues or foam. **Organization:** The group will be split into 6 teams and the children will stand behind an exit line on the court, in rows.	**Development** The teacher will number the children 1-10, when the whistle blows, the number 1 will run to a hanging bag at the edge of the court, and will punch it, then successively until number 10.	**Rules** The child who does the exercise correctly will score a point for their team. **Variant:** Punching can be using both hands.
Game name The riding dwarf	**Objective:** To learn the postures of karate (kiba dachi).	**Materials:** Chalk and hanging bag. **Organization:** The group will be split into 6 teams and will stand behind an exit line on the court, in rows.	**Development** The teacher will draw a straight line before every team to the end of the court, when the whistle blows, the first children from the teams will start running in a rider-like posture, moving to the edge of the court and above the line; the hanging bag will be hanging at the end of the line, then they will punch the bag laterally (jodo zubia).	**Rules:** The child who performs the technique correctly will score a point for their team **Variant:** The game can also be done with the front posture, using two lines.
Game name: The king of kicking	Objective: To learn to kick Materials: Hanging bags	Organization: The group will be split into 6 teams and will stand behind a start line on the court, in rows.	Development The teacher will split the group into six teams and number the children 1-10, when the whistle blows, the first children will run to a hanging bag at the edge of the court, and will kick it.	**Rules:** The child who performs the technique correctly will score a point for their team. **Variants:** Kicking could be done in circles
Name: Searching for a champ	**Objectives:** To combine several technical skills of karate-do, hitting, postures, and movements.	**Materials:** Red and blue ribbons **Organization:** Four 6 x 6-meter squares will be drawn and the 15 will be placed sparsely in them.	**Development** When the whistle blows, the children will start moving, hitting, kicking into the air, until the instructor tells them to stop.	**Rules:** The champion will be the child who performs these techniques correctly. **Variant:** The game could also be done by pairs.
Name: Pulling and pushing	**Objective**: To learn the rules of unbalancing	**Materials:** None **Organization:** The students will organize by pairs, squatting, holding the forearms or shoulder of the partner.	**Development** At the instructor's signal, the children will start fighting until one of them loses balance.	**Rules:** Giving the partner a shove is ruled out, bringing down the opponent will be accepted only using the shoulders or forearms; the students who fail to abide by the rules will lose a point. **Variants:** Bringing

				the opponent down can be done by holding the two legs.
Name: Breaking into the fortress	**Objective:** To learn blocks and defense	**Materials:** None **Organization:** Pairs are made and the children will squat.	**Development** At the teacher's signal, the children will have 10 seconds to try and touch the opponent's chest, while the other will react by defending using the two hands, avoiding being touched.	**Rules:** The children who are touched more than three times will be out of the game, and the game will continue until the partner that receives the fewest touches remains. **Variants:** Touching can be done using the head or feet.

Ludic activities through competitive technical games for the karate-do practitioner
The elements that make the competitive technical games are part of the exercises used in methodological teaching during the trainings.

Game name	Objective	Organizational methodology	Development	Rules
Name: The biting dog	Participants: Require physical exercise through the game. **Objective:** To learn to dodge	**Materials:** None **Organization:** Three squares will be drawn on the 4x4 m court, and each square will contain 20 children dispersed, one of them will be the biting dog.	**Game** The teacher will select a child from each square (the biting dog), and will bend to stand in four legs and run after the other kids and touch them with his hands, while the others will try to stay untouched, dodging.	1 The child who sets a foot out of the square will lose. 2-The child touched will become the biting dog.
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Name: Searching for a champ	**Objectives:** To combine several technical skills of karate-do, hitting, postures, and movements.	**Materials:** Read and blue ribbons **Organization:** Four 6 x 6-meter squares will be drawn and the 15 will be placed sparsely in them.	**Development** When the whistle blows, the children will start moving, hitting, kicking into the air, until the instructor tells them to stop.	**Rules:** The champion will be the child who performs these techniques correctly. **Variant:** The game could also be done by pairs.
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Name: Breaking into the fortress	**Objective:** To learn blocks and defense	**Materials:** None **Organization:** Pairs are made and the children will squat.	**Development** At the teacher's signal, the children will have 10 seconds to try and touch the opponent's chest, while the other will react by defending using the two hands, avoiding being touched.	**Rules:** The children who are touched more than three times will be out of the game, and the game will continue until the partner that receives the fewest touches remains. **Variants:** Touching can be done using the head or feet.

Made by: Alexandra La Torre.

Upon checking the current state of the children in the study, an alternative was suggested: to teach karate-do through games, to ensure the acquisition of several technical elements of the sport. It was based on the teaching methodology as a key element of the games proposed, as well as a combined execution of techniques with exercises that develop the basic physical capacities, seeking a comprehensive education during the initiation stage; accordingly, several statistical methods were used to tackle the technical errors observed, as shown in Table 3.

Table 3 Athlete's errors by tests

ATHLETES	TEST 1 PRE-TEST	TEST 2 PRE-TEST	TEST 3 PRE-TEST	TEST 1 POST-TEST	TEST 2 POST-TEST	TEST 3 POST-TEST
1	4	3	3	1	0	1
2	1	2	2	0	1	0
3	3	2	3	1	1	1
4	4	1	4	1	0	2
5	2	3	2	0	0	1
6	2	3	3	0	1	1
7	2	1	2	1	1	0
8	3	2	4	1	0	2
9	1	3	2	0	0	1
10	2	2	1	1	0	1
11	1	2	2	0	0	0
12	2	1	2	1	0	1

Made by: Alexandra La Torre.

The data normality test was run to assess the different results of the pre-test and post-test (Shapiro Will test), based on the following hypothesis:

- Ho: If P > α=0.05, there is a normal distribution of data.
- Hi: If P < α=0.05, there is no normal distribution of data.
- The Shapiro Will test run to check the variable movement errors of the karate-do techniques, showed the following results (Table 4):

Table 4. Normality tests

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistics	gl	Sig.	Statistics	gl	Sig.
Movement errors associated with the arm techniques in karate-do	.260	12	.024	.872	12	.069

a. Lilliefors significance correction

If P = 0.069 > α=0.05, the null hypothesis related to the normal distribution of data was accepted.

The Shapiro Will test run to check the variable movement of the karate-do techniques, showed the following results (Table 5):

Table 5. Normality tests

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistics	gl	Sig.	Statistics	gl	Sig.
Movement errors associated with the arm techniques in karate-do	.374	12	.000	.640	12	.000

a. Lilliefors significance correction

P = 0.00 ≤ α=0.05. The null hypothesis related to the normal distribution of data was rejected, whereas the alternative hypothesis stating that the data were not normal.

The Shapiro Will test run to check the variable movement in karate-do techniques, showed the following results (Table 6):

Table 6. Normality tests

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistics	gl	Sig.	Statistics	gl	Sig.
Movements errors of karate-do technique	.209	12	.153	.824	12	.018

a. Lilliefors significance correction

P = 0.18 ≥ α=0.05. The null hypothesis related to the normal distribution of data was accepted, whereas the alternative hypothesis was rejected due to the normal data distribution.

The Shapiro Will test was run to check the variable movements in karate-do and it showed the following results (Table 7):

Table 7. Normality tests

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistics	gl	Sig.	Statistics	gl	Sig.
Movement errors of karate-do techniques	.417	12	.000	.608	12	.000

a. Lilliefors significance correction

P = 0.00 ≤ α=0.05. The null hypothesis related to the normal distribution of data was rejected, whereas the alternative hypothesis stating that the data were not normal.

The Shapiro Will test run to check the variable leg movements in karate-do, showed the following results (Table 8):

Table 8. Normality tests

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistics	gl	Sig.	Statistics	gl	Sig.
Movement errors of the leg technique in karate-do.	.293	12	.005	.867	12	.060

a. Lilliefors significance correction

P = 0.60 ≥ α=0.05. The null hypothesis related to the normal distribution of data was accepted, whereas the alternative hypothesis was rejected due to the normal data distribution.

The Shapiro Will test was run to check the variable movements in karate-do, and showed the following results (Table 9):

Table 9. Normality tests

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistics	gl	Sig.	Statistics	gl	Sig.
Leg technique movement errors in karate-do	.300	12	.004	.809	12	.012

a. Lilliefors significance correction

P = 0.12 ≥ α=0.05. The null hypothesis related to the normal distribution of data was accepted, whereas the alternative hypothesis was rejected due to the normal data distribution.

Upon the application of hypothesis tests and the termination of the experimental process, the Wilcoxon rank test was run, as most data came from a non-normal distribution. The following hypotheses were determined for the process:

- Ho: If P ≥ α=0.05, there is no significant difference between the pre-test and post-test.
- Hi: If P < α=0.05, there is a significant difference between the pre-test and post-test.

The Wilcoxon rank test to test No. 1 arm technique movements in karate-do to compare the differences between the pre-test and the post-test showed the following results:

Table 10 Test[a] statistics

	Arm technique movement errors
EZ	-3.115[b]
Asymptotic sig. (two-sided)	.002

a. Wilcoxon rank test

As P 0.02 < 0.05, the null hypothesis was rejected, while the alternative hypothesis was accepted, thus suggesting a little significant difference between the pre-test and post-test in test 1, related to the arm technique movements, evidencing a remarkable decline of errors upon the implementation of the ludic activities.

The Wilcoxon rank test performed to test No. 2 to check the differences between the pre-test and the post-test showed the following results (Table 11).

Table 11 Test[a] statistics

	Pre-test movement errors Post-test movement errors
Z	-2.969[b]
Asymptotic sig. (two-sided)	.003

a. Wilcoxon rank test

b. Se basa en rangos positivos.

As P 0.03 < 0.05, the null hypothesis was rejected, while the alternative hypothesis was accepted, thus suggesting a significant difference between the pre-test and post-test in the movement test, evidencing a remarkable reduction of errors upon the implementation of the ludic activities.

The Wilcoxon rank test performed to test No. 3 related to leg movements in karate-do to check the differences between the pre-test and the post-test showed the following results (Table 12).

Table 12 Test[a] statistics

	Errors in leg movement technique in karate-do- leg movement technique errors
Z	-3.071[b]
Asymptotic sig. (two-sided)	.002

a. Wilcoxon rank test

b. Se basa en rangos positivos.

As P 0.02 < 0.05, the null hypothesis was rejected, while the alternative hypothesis was accepted, thus suggesting a significant difference between the errors in the

pre-test and post-test in the leg movement test, evidencing a remarkable reduction of errors upon the implementation of the ludic activities.

Quite a few people think that games are only appropriate for children's fun. However, games are tools that can be used to reach any objective. One of the main advantages of games is that they entail higher student motivation, especially the children who practice karate-do, enhancing their sports performance.

According to Argel M., (2019), it is necessary to avoid repeating games or activities, and to execute activities that meet the necessary requirements depending on the ages and needs of athletes, and to know when games will be included, at the beginning and end of the lesson.

Therefore, technical games in karate-do should be associated with the training contents and objectives. This way, games will contribute a great deal to the athletes to be; in the psycho-motor area, it means a combination of technical exercises and technical games, including movements, postures, arm and leg movements, etc., which will enhance coordination, and eventually the work of karate-do.

Another aspect related to the lesson setting is fundamental, since games will contribute to karate-do learning, along with values (cooperation, amicable competition, respect for the partners, opponents and referees, and to accept the rules of the game. This proposal will provide the children with a position technique or their names, according to the coache's view.

CONCLUSIONS

The alternative proposal ludic activities through technical competitive games to be included in the practice of karate-do, contributed to reducing the technical errors of karate-do junior athletes, as well as the arm technique movements in karate-do, and the arm technique movements in the sport.

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