MOVIMENTO
REVISTA DE EDUCAÇÃO FÍSICA DA UFRGS

ORIGINAL ARTICLE

TEACHING THE LOGIC OF VOLLEYBALL: A PROPOSAL FROM *TEACHING GAMES FOR UNDERSTANDING* AND THE USE OF TECHNOLOGIES

O ENSINO DA LÓGICA DO JOGO DE VOLEIBOL: UMA PROPOSTA A PARTIR DO TEACHING GAMES FOR UNDERSTANDING E DO USO DE TECNOLOGIAS

LA ENSEÑANZA DE LA LÓGICA DEL JUEGO DE VOLEIBOL: UNA PROPUESTA A PARTIR DEL TEACHING GAMES FOR UNDERSTANDING Y DEL USO DE TECNOLOGÍAS

https://doi.org/10.22456/1982-8918.90766

Carina Lara Sarruge* <ca_lara@yahoo.com.br>

Guy Ginciene** <guy.ginciene@ufrgs.br>

Fernanda Moreto Impolcetto* <fe_moreto@yahoo.com.br>

*Universidade Estadual Paulista Júlio de Mesquita Filho. São Paulo, SP, Brazil.

**Universidade Federal do Rio Grande do Sul. Porto Alegre, RS, Brazil.

Abstract: This research analyzed the use of *Teaching Games for Understanding* (TGfU) and Information and Communication Technologies (ICT) as teaching resources in the process of initiation in volleyball. It employed a two-step qualitative approach: a diagnostic survey with volleyball teachers to identify students' tactical challenges; designing and implementing a teaching unit in the initiation group. The results indicated that ICT – particularly the video recording aspect – together with the TGfU model contributed to achieve the teaching goals, especially to understand the tactical elements of the game. The study found that even with difficulties experienced during the lessons, many students acquired the ability to play intentionally according to the tactical principles taught.

Keywords: Volleyball. Information Technology. Teaching. Sports

Received: 13-03-2019
Accepted: 09-01-2020
Published: 30-09-2020

*e*ISSN: 1982-8918

1 INTRODUCTION

Volleyball has become a well-known and broadly practiced sport in Brazil since the 1980s. However, some of its characteristics stress the difficulty of teaching it, such as the impossibility of retaining the ball (HIRAMA *et al*., 2015; IMPOLCETTO; DARIDO, 2011). By not being able to hold the ball, the apprentice needs to make quick decisions about how (technical gesture) and where (tactical intention) to hit (GONZÁLEZ; BRACHT, 2012; MAHLO, 1980). In view of this challenge, the teaching process is often centered on and starts with technique (HIRAMA *et al*., 2015) in order to solve the main challenge experienced by students during initiation: the technical gesture.

Traditional volleyball teaching, therefore, is usually based on the fragmentation of its parts to facilitate memorization and promote movement repetition (BAYER, 1994; GALATTI *et al.*, 2014), even though such teaching is often out of the game purpose context (GALATTI *et al.*, 2014). Moreover, the process is also centered on knowledge transfer in which students are only performers of tasks assigned to them and aim to accumulate information demonstrated by the teacher (SCAGLIA; REVERDITO; GALATTI, 2014).

One of the problems with this teaching perspective is that the internal logic (GONZÁLEZ; BRACHT, 2012; PARLEBAS, 2001) of volleyball – sending the ball to the other side in order to hinder or prevent the opponent from returning it – ends up being disregarded during learning. Thus, the student learns 'how to' (execute the forearm passing, spiking and overhead passing) but does not necessarily learn 'what' to do with this set of movements during a match (KIRK; MACPHAIL, 2002; MITCHELL; OSLIN; GRIFFIN, 2013; THORPE; BUNKER; ALMOND, 1986).

It is worth mentioning that the technical gesture in volleyball is always accompanied by tactical intention (GONZÁLEZ; BRACHT, 2012), that is, more than spiking, it is necessary to understand the game and know how to execute it in a way that makes it difficult or prevents the opponent from returning the ball (BORGES; DINIZ, 2017). In order to overcome these problems of traditional education, many approaches have been developed and studied over the years (HARVEY; JARRETT, 2013; MITCHELL; OSLIN; GRIFFIN, 2013; REVERDITO; SCAGLIA; PAES, 2009).

These approaches include Teaching Games for Understanding (TGfU), with goals goals such as teaching through understanding (THORPE; BUNKER; ALMOND, 1986) and placing students in the center of the learning process (HARVEY; JARRETT, 2013; HARVEY; PILL; ALMOND, 2018; HASTIE; MARTINEZ DE OJEDA; CALDERÓN LUQUIN, 2011). In other words, whereas in traditional learning the only approach was 'how to,' e.g. the correct execution of a technique, in TGfU the idea is to teach 'what' to do in the game and 'when' to do it, so that teaching technique becomes more meaningful and contextualized.

The ability of the teacher/trainer to prompt students is also a key factor in TGfU. Therefore, planning relevant questions based on teaching goals, focusing on students' ability to solve tactical problems and encouraging them to reflect, analyze and verbalize solutions are key to the process (CLEMENTE, 2014; COSTA *et al*., 2010; PEARSON; WEBB, 2008).

To design a meaningful learning process, teaching has to be placed within pedagogy – to support knowledge building and promote interaction with information students already know – a process that must be intentionally mediated by a sports pedagogue (SCAGLIA; REVERDITO; GALATTI, 2014). Teachers and/or sports trainers, therefore, seem to play a key role, since they will build their own pedagogical practice in addition to developing tasks through methodological principles and educational resources that are more relevant and meaningful to their context.

Among these existing educational resources, Information and Communication Technologies (ICT) emerge as a current possibility, including for Physical Education and Sports. Several studies have been carried out to verify ICT barriers and potential (BIANCHI; PIRES, 2010; BODSWORTH; GOODYEAR, 2017; LUGUETTI; GOODYEAR; ANDRÉ, 2017). However, few studies sought to know and review the link between ICT and TGfU during the teaching process. Given the above, the goal of this research was to review the use of TGfU and ICT as teaching resources in the volleyball initiation process.

2 METHODOLOGICAL PATHWAYS

To achieve the proposed goal, a qualitative approach was chosen with a theoretical framework based on participant research (LAKATOS; MARCONI, 2003). Before selecting ICTs and TGfU elements to be used in the Didactic Unit (DU), an assessment survey was carried out with volleyball teachers from SESC São Paulo to define goals. As a result of the data gathered, we proceeded to (b) preparing and implementing a DU for introductory volleyball.

2.1 ASSESSMENT SURVEY

Initially, 12 SESC São Paulo teachers who work with Youth Sport volleyball classes (equivalent to the one who participated in this research) answered a semi-structured questionnaire comprised of questions on their perceptions about actions most and least performed by students. Questions were selected by researchers based on their pedagogical experiences with the actions that they considered the most difficult for students to perform. The questionnaire was validated by four doctoral professors who work with teaching methodologies for team sports in Higher Education and have publications in this field.

The questionnaire comprised five items whose responses follow a Likert-type scale used to measure people's agreement with certain statements (SILVA JÚNIOR; COSTA, 2014). Answer scores were: (1) Never; (2) Rarely; (3) Sometimes; (4) Always. Feedback was obtained from 12 teachers (T) out of 13.

The answer score was obtained by adding up the values of each of the five items. The sum of items that reached the lowest scores indicated the actions least performed by students and consequently the topics to be prepared in the DU (Table 1).

Table 1 – Teachers' answers related to actions performed by students.

Actions performed	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	Total
A - Occupying empty spaces	4	3	3	3	2	3	3	3	2	3	3	2	34
B - Observing empty spaces	3	2	2	2	2	1	3	2	3	2	2	3	27
C - Directing the ball in empty spaces	3	2	2	2	2	2	3	2	2	2	1	3	26
D - Rotation	4	4	4	4	3	4	4	4	4	4	3	4	46
E - Blocking and net relationship	3	3	3	3	2	3	3	2	2	3	1	3	31

Source: Prepared by the authors.

According to the teachers, 'observing empty spaces' and 'directing the ball to empty spaces' were the actions least performed by students during the volleyball match.

2.2 DEVELOPMENT AND IMPLEMENTATION OF THE DU

Ten class-hours (five two-hour meetings) were prepared with a focus on the previously highlighted tactical elements. The class comprised 24 students (13 boys and 11 girls) aged 13-17 who participated in the *Youth Sport Volleyball* Program.

Technological elements selected to support the development of the Teaching Unit were: Tablet (filming); Cell phone (video recording and communication with students); Windows Movie Maker (Video edition); projector (video display); Kahoot (game move analysis); Slow Motion FX app (shooting and sharing videos in slow motion); WhatsApp (sharing videos and photos).

Lessons were based on the TGfU model whose authors – Thorpe, Bunker and Almond (1986) – point out six stages:

The **Game Form**, based on four pedagogical principles: (1) sampling of selected matches to make students face the practice of games with varying problems; (2) modification by representation, with manipulation of the complexity of the formal game in order to make it simpler without changing tactical structures; (3) modification by exaggeration, to place students in a certain tactical problem; and (4) tactical complexity in which variables are added in game forms (THORPE; BUNKER; ALMOND, 1986).

Game enjoyment refers to students' understanding of rules and the nature of the game; in **tactical awareness**, students are challenged to understand the game in order to be able to practice or to observe it (CLEMENTE, 2014). Then they can proceed to **decision making**, which demands effective challenging by the teacher in order to improve their performance based on the decision on 'what to' and 'how to' do it (PEARSON; WEBB, 2008; SOUZA, 1996).

Only after understanding this process, students will they improve **motor execution**. The authors of the model do not accept that technique refinement comes before tactics understanding. Finally, students reach the stage of **performance**, qualified to play their best role in the game (THORPE; BUNKER; ALMOND, 1986).

As the TGfU is not a frozen model, the sequence of lessons was structured and adapted to class conditions and the DU goal (Chart 1), with specific purposes in each lesson (Chart 2).

Chart 1 – Structure of a lesson plan

Initial game and/or review of the previous lesson
Tactical Awareness
Tasks
Tactical Awareness/ Decision Making
Formal Game

Source: Prepared by the authors

Chart 2 – Goals of each lesson

1st lesson	Identifying the volleyball goals/Looking at the opponent's court at all times when passing the ball.
2nd lesson	Identifying and exploring spaces that show up in the opponent's court from the positioning of players when the team serves and receives the first ball.[1]
3rd lesson	Identifying and exploring spaces that show up in the opponent's court from the positioning of players on the 2nd ball.[2]
4th lesson	Identifying and exploring spaces that show up in the opponent's court from the positioning of players in the 3rd ball.[3]
5th lesson	Remembering all spaces that show up in the opponent's court in all balls and direct in those places.

Source: Prepared by the authors

Under this perspective, the first part of the lesson was always the **initial game and/or review of the previous lesson**. In the first DU lesson, students played a match, which was recorded and then displayed on screen. At the beginning of the following lessons (two, three and four), the group watched the footage from the last formal match held in previous lessons, edited on Windows Movie Maker.

In addition, in the third lesson, three gameplay sequences were recorded and converted to slow motion with the Slow Motion FX app, sent via WhatsApp and watched at the beginning of the following lesson. At the end of the fourth lesson, the Kahoot platform was used for a quiz, in order to assist in game move recognition and analysis.

All the initial matches watched as a group allowed students to observe themselves, which helped in the **tactical awareness**. Questions were asked in order to support discussions and reflections on the game. Most of them were previously prepared so that key elements would not be left out. The purpose was to lead

1 1st ball: This is the first time the team touches the ball when it comes from the opponent's side, which can be a passing, a hitting or counter-hitting defense. It is usually passed to the setter.

2 2nd ball: This is the second time the team touches the ball after receiving it. It is usually the ball that the setter shoots to an attacker.

3 3rd ball: This is the last time the team can touch the ball before sending it to the opponent's side. It usually happens as a hitting, after a pass and a setting.

students to critically analyze their performance during the match, fostering a broader understanding and knowledge about the game's logic (BOLONHINI; PAES, 2009).

As a result, lesson **tasks** were carried out. For that moment, matches were always modified and prepared with reference to pedagogical principles of TGfU (CLEMENTE, 2012; GRAÇA; MESQUITA, 2007; THORPE; BUNKER; ALMOND, 1986):

a) Sampling of selected matches: all proposed matches had different tasks for students to perform, in order to encourage them to solve multiple problems.

b) Modification by representation: some matches proposed were reduced while maintaining tactical principles of the formal game, with simple goals so that students could get in touch with specific situations.

c) Modification by exaggeration: rules were set in order to channel students' attention to solving a unique situation, such as only being able to score a point if they played the 2nd ball.

d) Tactical complexity: tactical problems posed were previously thought considering students' level of understanding and always increasing complexity over previous understanding.

At the end of each match or when it was clear that students were having difficulty in playing or performing the proposed task, there was a pause for questions and to resume **tactical awareness** in order to encourage them to find a suitable solution.

During this pause, there was also a **decision-making** process to lead students to know the ways to approach the problem and the methods to solve it (CLEMENTE, 2014). Questions on 'what to do' appeared throughout the DU, such as: Which spaces are the easiest to make the ball fall in? Is it possible to send the ball in a way that makes it difficult to pass it if they can look at the opponent's court? And questions related to 'how to do': What techniques for sending the ball to the opponent's side would make it difficult for them to pass/defend it? What is the best serving type someone can perform in this match?

After previous decisions, they reached the **motor execution** stage, that is, they resumed the match and tried to do what they had just discussed. Thus, they experimented with new ways of performing moves, this time intentionally, trying to match the technical gesture (how to do) with the individual tactics (what to do).

The last part of the lesson was aimed at the **formal game**. According to TGfU assumptions, this is one of the most important moments, when students – after realizing 'what' and 'how' to do – can execute what was previously thought and trained through more complex tactical challenges (SOUZA, 1996).

2.3 DATA COLLECTION AND ANALYSIS

During the lessons, participant notes were taken and the information was recorded in a field diary at the end of the lessons (SPARKES; SMITH, 2014). As indicated by Bogdan and Biklen (1994), what the researchers heard, saw and thought while collecting data was reported in writing, focused on the use of TGfU and ICT.

At the end of implementation, six students were selected (who were present in most lessons, selected according to gender-equal division) to participate in a focus group session guided by a script of pre-established questions (DAMICO, 2006). The meeting was recorded on video and audio and moderated by one of the researchers, who encouraged participants to freely express their feelings, experiences and opinions about the DU.

Research data – field diary and focus group session – were transcribed and submitted to content analysis through the following steps: pre-analysis; exploration of the material or coding; and handling of results obtained/interpretation (MINAYO, 2007).

In the pre-analysis stage, a floating reading of the transcribed pages was performed, through which initial hypotheses and assumptions related to the study topic were established. In the second stage, common characteristics were highlighted, gathered in units, and listed based on common points. After this exploration, units with common characteristics were named. The last step included handling results, inference, and interpretation. We sought to highlight important information such as what appeared most frequently in the analysis, which resulted in two major categories: volleyball teaching based on the TGfU; video recording and ICT in volleyball teaching.

All students and their parents and/or legal guardians signed Informed Consent Forms to participate in the study. The project was submitted to the Research Ethics Committee on Human Beings and was approved through Report No. 1 815 367.

3 TEACHING VOLLEYBALL BASED ON TGfU

In the results of this category, two subcategories – related to characteristics of the approaches centered on the game and on the TGfU proposal – were identified and reviewed: activities with interaction between opponents; stimulating reflection and verbalization about 'what' to do (GONZÁLEZ; BRACHT, 2012).

3.1 ACTIVITIES WITH INTERACTION BETWEEN OPPONENTS

The change in the configuration of lessons, especially in the use of activities with interaction between opponents, caused estrangement in students. As an example, right at the beginning of the DU, in an activity that aimed to direct the ball to an opponent with a specific vest color, it was noted that: "*They were confused about whether they should pass it to whoever had the chosen color or whoever had the color should do the passing. At the beginning it was chaos, but it gradually got organized*" (Field diary, August 8, 2017).

In addition to being used for a different teaching model, the rules adopted in matches to emphasize some tactical elements required more time for experimentation and understanding of the proposed logic: "*I noticed that one explained it to the other in the queue [...] At times, some students stopped and said 'wait, let me understand it,' talking to themselves, looking at the court and seeming to mentally design the game*" (Field diary, August 8, 2017).

This reaction of estrangement may have been caused by the change in the configuration of the lessons. In the traditional model, students simply perform the

actions requested by teachers/coaches. In this new logic, the teacher offers problem situations, stimulating students to make a series of important adjustments in technical and tactical training, so they are protagonists of their actions (HIRAMA *et al*., 2015).

In this type of pedagogical strategy, proposed matches are adapted with different rules and spaces so that tactical problems lead to certain tactical and technical solutions. Explained: in a traditional volleyball teaching activity, students would perform repeated exercises of passing to a target (wall, colleague, or cone), without the unpredictability of the volleyball game. Thus, they would only need to concentrate to execute a movement and hit the ball in a certain location, without anyone disturbing this action (stable situation).

In the teaching model used in the DU (with an example in this activity of directing the ball), players should act in an unpredictable way, so the player in charge of passing/hitting should adjust his/her action according to the ball received from the setter; the setter depended on the type of passing received; and the passer depended on where the opponent had thrown the ball. That is, the ball did not always arrive at the same place and in the same way for the hitter. In addition, this hitter should observe the opponents – especially the one with the vest – before performing the movement to send the ball to the other side of the net. In addition to the existing technical demands to be able to perform these actions, students needed to solve individual and group tactical demands, always encouraged to build their own learning, valuing cognitive processes of perception, decision making and understanding of the game (COSTA *et al*., 2010; MOSQUE; PEREIRA; GRAÇA, 2009).

Over time, they got used to this lesson configuration, adapted and started to provide more feedback than usual, as observed in a student's suggestion: *"Teacher, it's very difficult, they pass the ball right away, three touches should be required"* (Student verbal information, 2017). This is a particularly important aspect of TGfU, which encourages students to participate critically in the development of activities, assessing their own performance and thus establishing rich and complex relationship networks in the lesson context (BOLONHINI; PAES, 2009).

3.2 STIMULATING REFLECTION AND VERBALIZATION ON 'WHAT' TO DO

Tactical awareness runs through the logic of volleyball and can be seen with two reference plans: at the ruling level, through the specifics of the rules; and in terms of relations between the team and the opponent (ROCHA, 2009).

In terms of rules, students were asked questions that may seem simple at first, but answers often required a collective approach. In one of the first questions, recorded in the field diary, it was observed: "[when the group were asked what the goal of the volleyball game was], "*some said it was to pass the ball to the other side of the court"* (Field diary, August 8, 2017). However, according to the logic of volleyball, in addition to passing the ball, the goal is to hinder the opponent's return (BORGES; DINIZ, 2017). The inquiry continued: *"But if you pass the ball to the other side and the other team also returns it, how will the game end?"* "*How can we score a point then?".* Answers appeared as reflection was encouraged: *"Throwing the ball on the opponent's ground, if someone misses, it if someone touches the ball twice or*

touches the net" (Field diary, August 8, 2017). A collective conclusion was reached that directing the ball at the least skilled player or in the empty spaces would increase the chances of scoring points.

Then, students were asked about the reasons for not looking at the other side of the court when passing the ball. One replied: "*Because we only care about passing the ball to the other side, kind of getting rid of it right away"* (Field diary, August 8, 2017). Colleagues agreed and presented other possible reasons, such as fear of making mistakes; fear of passing the ball incorrectly; lack of confidence; when in the setter's position, fear of hitters arguing for not having received the ball.

During the lesson in which one of the tasks implied that the serving point was worth three points, it was observed that students looked little at the other court before serving. Servers were asked which position they intended to serve to and why. Answers showed that they knew the place that would make it difficult for the opponent team to pass, but lack of habit of looking to the other side and incentive to do so prevented them to have that attitude. Upon intervention, points began to be scored using the tactical-technical solution found. It was noted that when encouraged, students became more tactically aware and were able to make better decisions in the match. So, when thinking strategically about the concepts of the game, they developed skills within the real context (PEARSON; WEBB, 2008).

Acquiring this awareness is a structuring factor in the way of playing, which allows students to be better players by developing their understanding of the game and being less dependent on the teacher in decision making (SOUZA; MÜLLER; COSTA, 2014). It is such a relevant resource that it was recorded with evidence many times in the field diary, as in a situation in which the students were asked about the best time to overtake the opponent with a ball passed on the team's 1st or 2nd touch. Some answered that it was when they were serving; others realized that there is a greater chance of overtaking the opponent during the rally.

This exercise of thinking and rethinking strategies was considered relevant as it allowed students to develop mental assumptions, which were gradually being verbalized and discussed with colleagues. There was also an increase in the number of students who provided feedback, because, in addition to being more comfortable talking, they began to understand more about the game and improve their tactical knowledge, which also favored their participation in lessons.

4 VIDEO RECORDING AND ICT IN VOLLEYBALL TEACHING

As one of the resources used in lessons, students were recorded during the formal game for later analysis and collective discussion of specific situations. The final match of the first lesson, for example, was recorded with the purpose of checking if someone had looked at the opponent's court before passing the ball. In the fourth lesson, the intention was to see if any player could effectively use the 1st and 2nd balls for hitting.

At the beginning of the video analysis, students provided many comments, except for the position they took on the court. As lessons went on, they began to focus more on the proposed goal. Slow-motion video helped with this process. Among the

comments provided, no one looked at the opponent's court before serving, except for a single student. In another instance, it was also possible to notice that, regarding the 1st ball, there was a lot of positioning mistakes during the defensive phase. Students evaluated that the use of filming and further group video sessions helped in learning several aspects, such as:

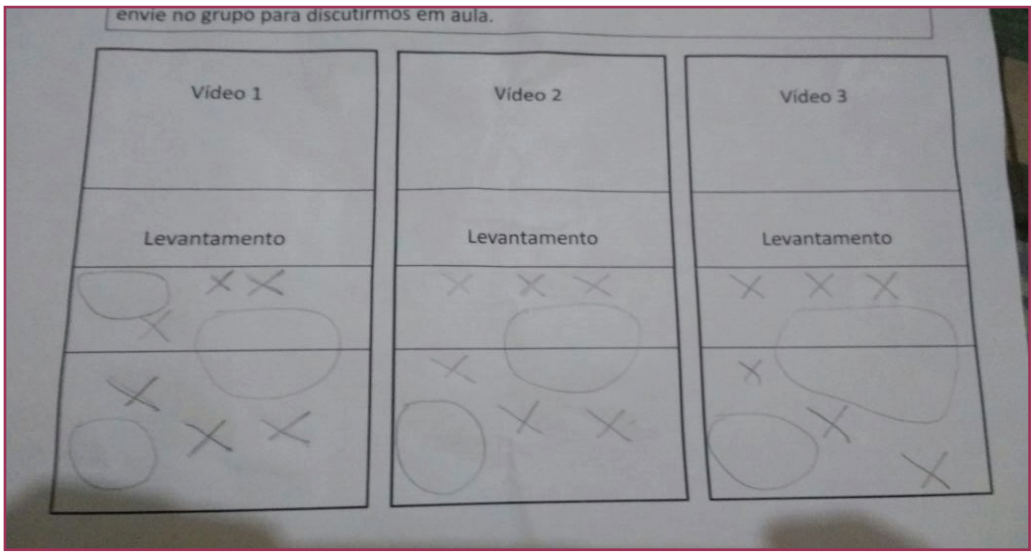
> I thought it was an easier way to visualize it, to understand the theory (Verbal information – student 5, 2017).
>
> By seeing it on the projector, I can better understand where there is space and where there is not (Verbal information – student 2, 2017).

Still on students' learning, it was possible to identify those who managed to observe the spaces in the opponent's court by watching the footage. Others also needed an explanation on the playing court. It is understood that these two resources complemented each other to learn the tactical elements. Betti and Mendes (2016) point out that the languages used during the teaching process are not suppressed by the learner but can be incorporated and sometimes hybridized to the new forms of languages. Therefore, using devices such as ICT and videos, associated with teaching models that are familiar to students, can be an efficient strategy.

Another teaching strategy stands out with the use of video recording. In the final match of the second lesson, three moves were recorded in which the ball reached the setter's hand, in order to identify the opponent's position when that player had the ball. Game moves were recorded using the Slow Motion FX app feature that shoots and saves at the desired speed and can be shared via WhatsApp. (Figure 1).

At home, students should watch and, if necessary, pause the video when the setter had the ball, draw the opponent's position on the courts on an assessment sheet and circle the largest spaces left over on the court. The three moves were sent via WhatsApp and the following task was requested: students should individually draw their answer on paper, take a photo and send it to the teacher only.

Figure 1 – Task sent via WhatsApp.



Source: Private collection.

All students who participated in the focus group submitted the task and reported that it was particularly useful. This strategy enabled them to observe and become aware of the tactical element.

Another resource used was an online quiz available on the Kahoot platform. The quiz was projected on screen with questions so that students – after reviewing certain game moves – indicated empty spaces on the court. Images from matches recorded during lessons were used, as well as game situations taken from YouTube and figures with positions drawn. This tool favored group learning as it ensured the learned content, fostered engagement and motivation, aspects indicated by students themselves in the focus group.

5 FINAL CONSIDERATIONS

Despite students' estrangement at the beginning of the DU, placing them in the center of the learning process – through activities that included interaction between opponents, continued search for reflection, and verbalization of tactical solutions – contributed greatly to achieve the established teaching goals.

ICT resources – especially video recording – together with the TGfU model also contributed to this process, especially for understanding tactical elements of the game. Videos, combined with hands-on experience, were key for students to understand the logic of volleyball, learn to recognize empty spaces in the opponent's court, identify the best moment (1st, 2nd and 3rd ball) and the best way to pass the ball (overhead passing, forearm passing, hitting).

Match footage made with cell phones or tablets, further watching them (projection on screen, slow motion recording sent via WhatsApp) and participation in the quiz were the key points of ICT, which helped to enhance one of the core elements of TGfU: the tactical awareness stage. These resources allowed better viewing of decision making, and students were able to watch and think about their own performance to make decisions about 'what to do' in the different game situations.

This learning could be observed in the last match of the DU, in which 43% of point disputes had students acting with a clear intention of directing the ball. Even with the difficulties and limitations presented during lessons, many students acquired the ability to play intentionally according to the tactical principles of volleyball.

It was observed that publications on planning and systematization for volleyball lessons, referenced in teaching based on that sport's logic, are scarce in the field. In this sense, it is worth mentioning the need for new studies and in other contexts, but also of approximation with pedagogical practice that reaches volleyball teachers and coaches through the publication of articles and books or other means of dissemination, such as websites and blogs.

REFERENCES

BAYER. Claude. **O ensino dos desportos colectivos.** Lisboa: Dinalivro, 1994.

BETTI, Mauro; MENDES, Diego de Sousa. Educação Física e Esporte: Perspectivas com as Novas Tecnologias de Informação e Comunicação. *In*: MOREIRA, W. W; NISTA-PICCOLO, V. L. (eds). **Educação Física e esporte no século XXI**. Campinas: Papirus, 2016.

BIANCHI, Paula; PIRES, Giovani De Lorenzi. Possibilidades Para O Ensino-Aprendizagem Com Tics Na Educação Física Escolar: **Caderno de Formação RBCE,** v. 1, p. 45-55, 2010.

BODSWORTH, Hannah; GOODYEAR, Victoria A. Barriers and facilitators to using digital technologies in the Cooperative Learning model in physical education. **Physical Education and Sport Pedagogy,** v. 22, Mar 2017. DOI: https://doi.org/10.1080/17408989.2017.1294672

BOGDAN, Roberto; BIKLEN, Sari Knopp. **Investigação qualitativa em educação:** uma introdução à teoria e aos métodos. Porto: Porto Editora, 1994.

BOLONHINI, Sabine Zink; PAES, Roberto Rodrigues. A proposta pedagógica do Teaching Games for Understanding: Reflexões sobre a iniciação esportiva. **Pensar a prática**, v. 12, no. 2, p. 1-4, May/Aug. 2009.

BORGES, Robson Machado; DINIZ, Irlla Karla Santos. Voleibol. *In*: GONZÁLEZ, Fernando Jaime; DARIDO, Suraya Cristina; OLIVEIRA, Amauri A. Bassóli de (eds.). **Esportes de marca e com rede divisória ou muro/parede de rebote**. Maringá: Eduem, 2017. p. 375-457.

CLEMENTE, Filipe Manuel. Princípios Pedagógicos dos Teaching Games for Understanding e da Pedagogia Não-Linear no Ensino da Educação Física. **Movimento**, v. 18, no. 2, p. 315-335, April/June 2012.

CLEMENTE, Filipe Manuel. Uma Visão Integrada do Modelo Teaching Games for Understanding: Adequando os estilos de ensino e questionamento à realidade da Educação Física. **Revista Brasileira de Ciências do Esporte**, v. 36, no. 2, p. 587-601, Apr./Jun. 2014.

COSTA, Israel Teoldo; GRECO, Pablo Juan; MESQUITA, Isabel; GRAÇA, Amândio; GARGANTA, Julio. O Teaching Games for Understanding (TGfU) como modelo de ensino dos jogos desportivos coletivos. **Revista Palestra**, v. 10, p. 69-77, 2010.

DAMICO, José. Corpo a corpo com as jovens: Grupos focais e análise de discurso na pesquisa em educação física. **Movimento**, v. 12, no. 2, p. 35-67, May/Aug. 2006.

GALATTI, Larissa Rafaela; REVERDITO, Riller Silva; SCAGLIA, Alcides José; PAES, Roberto Rodrigues; SEOANE, Antônio Montero. Pedagogia do Esporte: tensão na ciência e o ensino dos Jogos Esportivos Coletivos. **Revista da Educação Física/UEM,** v. 25, no. 1, p. 153-162, 2014.

GONZÁLEZ, Fernando Jaime; BRACHT, Valter. **Metodologia do Ensino dos Esportes Coletivos**. Vitória: UFES, 2012.

GRAÇA, Amândio; MESQUITA, Isabel. A investigação sobre os modelos de ensino dos jogos desportivos. **Revista Portuguesa de Ciências do Desporto,** v. 7, no. 3, p. 401-421, 2007.

HARVEY, Stephen; JARRETT, Kendall. A review of the game-centred approaches to teaching and coaching literature since 2006. **Physical Education & Sport Pedagogy**. v. 19, no. 3, p. 278-300, 2014. DOI: https://doi.org/10.1080/17408989.2012.754005

HARVEY, Stephen; PILL, Shane; ALMOND, Len. Old wine in new bottles: a response to claims that teaching games for understanding was not developed as a theoretically based pedagogical framework. **Physical Education and Sport Pedagogy**, v. 23, no. 2, p. 166-180, 2018. DOI: https://doi.org/10.1080/17408989.2017.1359526

HASTIE, Peter; MARTINEZ DE OJEDA, Diego; CALDERÓN LUQUIN, Antonio. A review of research on Sport Education: 2004 to the present. **Physical Education & Sport Pedagogy** v. 16, no. 2, p. 103-132, 2011.

HIRAMA, Leopoldo Katsuki; JOAQUIM, Cássia Santos; MATOS, José Arlen Beltrão; MONTAGNER, Paulo César. Construção tática no voleibol: ensino pela compreensão. **Conexões**, v. 13, no. 4, p. 165-177, Oct./Dec. 2015.

IMPOLCETTO, Fernanda; DARIDO Suraya Cristina. Sistematização dos conteúdos do voleibol: possibilidades para a Educação Física escolar. **Revista Brasileira de Ciências e Movimento**, v. 2, no. 19, p. 90-100, 2011.

KIRK, David; MACPHAIL, Ann. Teaching games for understanding and situated learning: rethinking the Bunker-Thorpe model. **Journal of Teaching in Physical Education**, v. 2, no. 21, p. 177-192, 2002.

LAKATOS, Eva Maria; MARCONI, Marina de Andrade. **Metodologia do trabalho científico**. 5. ed. São Paulo: Atlas, 2003.

LUGUETTI, Carla; GOODYEAR, Victoria Anne; ANDRÉ, Mauro Henrique. “That is like a 24 hours-day tournament!”: using social media to further an authentic sport experience within sport education. **Sport, Education and Society,** v. 24, no. 1, p. 78-91, 2017. DOI: https://doi.org/10.1080/13573322.2017.1292235

MAHLO, Friederich. **O acto** táctico no jogo. Lisboa: Compendium, 1980.

MESQUITA, Isabel M. R.; PEREIRA, Felismina Rosa Marques; GRAÇA, Amândio. Modelos de ensino dos jogos desportivos: investigação e ilações para a prática. **Motriz**, v. 15, no. 4, p. 944-954, 2009.

MINAYO, Maria Cecília Souza. **O desafio do conhecimento:** Pesquisa qualitativa em saúde. São Paulo: HUCITEC, 2007.

MITCHELL, Stephen A.; OSLIN, Judith L.; GRIFFIN, Linda L. **Teaching Sport Concepts and Skills**. 3. ed. Bethesda: Human Kinetics, 2013.

PARLEBAS, Pierre. **Juegos, Deporte y Sociedades**: Léxico de praxeología motriz. Barcelona: Paidotribo, 2001.

PEARSON, Paul; WEBB, Paul. Developing effective questioning in Teaching Games for Understanding (TGfU). **Asia Pacific Sport in Education Conference.** 1st. Adelaide, 2008. Available on: https://ro.uow.edu.au/cgi/viewcontent.cgi?article=1054&context=edupapers. Accessed on: Jan. 30, 2020.

ROCHA, Marcos Augusto. **Estudo das habilidades técnicas do ataque na posição quatro do voleibo**l. 2009. Thesis (Doctorate) – School of Physical Education and Sports, Universidade de São Paulo, 2009.

REVERDITO, Riller Silva; SCAGLIA, Alcides José; PAES, Roberto Rodrigues. Pedagogia do esporte: panorama e análise conceitual das principais abordagens. **Motriz,** v. 15, p. 600-610, 2009.

SCAGLIA, Alcides José; REVERDITO, Riller Silva; GALATTI, Larissa Rafaela. A contribuição da pedagogia do esporte ao ensino do esporte na escola: Tensões e reflexões metodológicas. *In*: MARINHO, Alcyane; NASCIMENTO, Juarez Vieira; OLIVEIRA, Amauri Aparecido Bássoli. (ed.). **Legados do esporte brasileiro**. Florianópolis: UDESC, 2014. p. 45-86.

SILVA JUNIOR, Severino Domingos; COSTA, Francisco José. Mensuração e Escalas de Verificação: uma Análise Comparativa das Escalas de Likert e Phrase Completion. **Revista Brasileira de Pesquisas de Marketing, Opinião e Mídia**, v. 15, p. 1-16, Oct. 2014. Available on: http://sistema.semead.com.br/17semead/resultado/trabalhosPDF/1012.pdf. Accessed on: Jan. 22, 2019.

SOUZA, Adriano José. **Ensinando e desenvolvendo o esporte na escola:** o caso do voleibol. (Dissertation) – School of Physical Education, Universidade Estadual de Campinas. Campinas, 1996.

SOUZA, Carlos Raphael Braga Corrêa; MÜLLER, Ezequiel Steckling; COSTA, Israel Teoldo. Quais comportamentos táticos de jogadores de futebol da categoria sub-14 podem melhorar após 20 sessões de treino? **Revista Brasileira de Ciências do Esporte**, v. 36, no. 1, p. 71-86, Jan./Mar. 2014.

SPARKES, Andrew C; SMITH, Brett. **Qualitative research methods in Sport, Exercise and Health**. London: Routledge, 2014.

THORPE, Rod; BUNKER, D; ALMOND, L. **Rethinking games teaching**. Leicstershire: University of Loughborough, 1986.

Sponsored by:

Serviço Social do Comércio (SESC SP)

Resumo: Esta pesquisa teve por objetivo analisar a utilização do *Teaching Games for Understanding (TGfU)* e das Tecnologias da Informação e Comunicação (TIC) como recursos didáticos no processo de iniciação esportiva do voleibol. Optou-se por uma abordagem qualitativa e a realização de duas etapas: um levantamento diagnóstico com professores de voleibol para identificar as dificuldades táticas dos alunos; elaboração e implementação de uma Unidade Didática em turma de iniciação. Os resultados indicaram que as TIC – em especial a filmagem – em conjunto com o modelo *TGfU* contribuíram para alcançar os objetivos de ensino, em especial para a compreensão dos elementos táticos do jogo. Concluiu-se que mesmo com dificuldades vivenciadas no decorrer das aulas, muitos alunos adquiriram capacidade de jogar intencionalmente de acordo com os princípios táticos ensinados.

Palavras chave: Voleibol. Tecnologia da Informação. Ensino. Esportes.

Resumen: Esta investigación tuvo por objetivo analizar la utilización del *Teaching Games for Understand* (TGfU) y de las Tecnologías de la Información y Comunicación (TIC) como recursos didácticos en el proceso de iniciación deportiva del voleibol. Se optó por un enfoque cualitativo y la realización de dos etapas: un levantamiento diagnóstico con profesores de voleibol para identificar las dificultades tácticas de los alumnos; la elaboración e implementación de una Unidad Didáctica en clase de iniciación. Los resultados indicaron que las TIC - en especial las filmaciones- en conjunto con el modelo TGfU contribuyeron a alcanzar los objetivos de enseñanza, en especial para la comprensión de los elementos tácticos del juego. Se concluyó que incluso con dificultades vivenciadas en el curso de las clases, muchos alumnos adquirieron capacidad de jugar intencionalmente de acuerdo con los principios tácticos enseñados.

Palabras clave: Voleibol. Tecnología de la Información. Enseñanza. Deportes.