

**FUTSAL DIDACTICS BY VIDEO ANALYSIS FOR TECHNICAL LEARNING AND EVALUATION TOOL**

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**ABSTRACT**

Futsal is a sport where the time to analyze, evaluate, elaborate and execute is limited when compared to other team sports (Schmidt et al., 2000). Futsal is particularly suitable for children in the period 9-10 years who are learning the specific techniques of play. In futsal, one of the most important variables to execute an effective action, it is the time needed by the athlete to complete his movement (Nicoletti and Borghi, 1992). In addition, motor imagery (Sanders et al., 2004 and Bandura, 1997) may be learned quality motor skills if they are included in the weekly instructional program. The purpose of the research is to verify if in a sample group, to which is subjected the vision of its movies and models executive engines, there are better learning of specific techniques as compared to a control group to which, however, is not subject to any view movies. The pilot study is carried out on 20 players (9-10 years old) of a team that is training two times a week for a year. Only 10 on 20 players, before a workout, is subjected watching video-analyzed movies, depicting a correct model of execution carried out by a high-level futsal player. Players are divided into 2 groups with similar technical characteristics; they are tested in the beginning, during and at the end of the study on three typical technical gestures chosen from the basic game (controlling the ball-stopping the ball with the sole of the foot; guiding the ball-movement of the ball; shot-kicking the ball with the toe). Significant increases in the execution of the technical gestures should be found in sample group. In case of a positive data we will assume the use of video analysis as well as teaching methodology as a valid instrument for the evaluation of motor skills.

**Keywords:** performance analysis, futsal, motor imagery, technical learning, young players

**INTRODUCTION**

Among the various team sports football to 5 (or futsal) is a sport suited to the development of motor skills in their technical, space and rules of the game where the time of analysis, evaluation, processing and execution is limited compared to other team sports (Schmidt et al. 2000) and may be particularly suitable in the period 9-10 years (Winter in Meinel and Schnabel, 1984) to acquire the specific techniques of the game. This sport originated in South America, where it is traditionally known as living de fútbol (soccer indoors). Is internationally known as futsal, from the merger of fútbol ("football") and living ("living room", understood as indoor sports facility).

Futsal was created in 1933, when a professor from ACM Montevideo, Juan Carlos Ceriani Gravier, needed his students to play soccer using hockey or basketball courts. His goal was to invent a team sport feasible for indoor and outdoor facilities, utilizing existing numerous basketball courts, which could resemble the traditional soccer that was very popular after Uruguay national team won the World Cup in 1930 and the Olympic games in 1924 and 1928.

Many samples of Brazilian football to 11 have started their careers as futsal players such as: Pele, Zico, Ronaldo, Kaka and Ronaldinho. In Europe, it spread around the 70s, was recognized by UEFA in 1982 while in 1984 the Italian Football Federation (FIGC) gave way to the National Committee of football 5.

The main rule that sets this sport compared to football is that there is no offside, throw-ins are done with your feet and you can operate an unlimited number of substitutions. Moreover, contrary to what happens in football, in each of the two periods of play each team may request a time-out for a minute.

In recent years, in Italy it is spreading the habit to use the word "futsal" to refer to "football 5" (FIFA). Instead, the "futbol de salon", sport run by the AMF, is referred to as "indoor football". In Futsal, one of the most important variables for the effectiveness of the game-play is the amount of time required by an athlete to make its move (Nicoletti and Borghi, 1992). In fact, Futsal is particularly suited to the development of motor skills in their technical, space and rules of the game where the time of analysis, evaluation, processing and execution is limited compared to other team-sports (Schmidt et al. 2000) and it may be particularly suited for children at age of 8-10 years (Winter in: Meinel and Schnabel 1984) to acquire game-specific techniques. Therefore, the Italian Football Federation (FIGC) has made it mandatory for their Serie A sport clubs, basic activities of Futsal by establishing schools of *Futsal*. In addition, motor imagery induced by playing futsal (Sanders et al., 2004 and Bandura, 1997) can enhance quality-motor learning if practiced on weekly basis.

The purpose of a pilot study is to establish whether a sample group of players, who are asked to regularly watch video recordings of their own games or motor performance patterns, can improve learning capabilities of specific techniques (Menichelli, 2010) compared to the control-group which has not been subjected to view such videos. Too often now, the new scientific discoveries do not translate into innovation in everyday life. This is even truer if you consider the motor-sport field, where rules and game-play are not based on scientific assumptions, but based on personal experiences or long standing practices. This gap, that we may call "post-discovery", is the space in which we're going to place our research work, which consists of translating recent neuro-cognitive-learning discoveries into practice-methodology for teaching sports in the juvenile context, also to provide an operational model to analyze and evaluate the quality of technical learning. In the world of youth football it is common to use some simple technical and tactical tests to make valid and reliable determinations to be included in the overall process of programming and allow proper monitoring of individual learning paths for those undergoing the evaluation.

In futsal, likewise other sports, the athlete's technical skills are considered mostly rely on innate capabilities and not easily modifiable by learning, especially in experienced players. Therefore, the work in the youth sector is very important because the play experience in children is still limited and evolving. From reviewing existing literature in this regard, there are no significant studies concerning the application of ideomotor training in children and the assessment through the performance analysis of the learning process in this age group.

How can we improve the learning process? How can we possibly measure the skills improvement? We will try to address these questions analyzing case-studies such as learning of basic technical gestures in the sport of futsal during the annual program for a group of 20 children in the age group 9-10 years-old, a category called "Chicks", with bi-weekly practice plan.

**HYPOTHESIS AND OBJECTIVES**

The assumptions and objectives of this research are the following:

- describe how a child's learning process is affected by practicing basic technical movements proposed with a mix of traditional training, based on repetition of gestures, as well as "ideo-motor" training, which is based on the observation of videos of technical gestures executed by a professional player (model).
- Identify when / how the ideomotor training impacts on the learning process, thus allowing studying the individual's technical skill enhancements, object of this research.
- The students' capability of self-assessment will be improved by the acquisition of skills of observation and self-observation of motor gestures, either online (immediately after an execution) and offline (by video recording and observing themselves while performing the gestures).

The tests proposed in this study are specifically structured to evaluate accuracy and/or correctness of gesture executions expressed by young athletes, in relation to the basic football skills such as "oriented sole control", driving the ball with the sole and shoot tip (typical gestures of this discipline).

In this research, another important aspect is the motivations provided to young athletes, aiming to achieve the maximum effort in terms of concentration, focus and short and intense commitment.

## METHODS

### Structure of the project

The research study is divided into three phases:

In the first phase (input), we conducted a pre-assessment of the habilitation capabilities through some basic technical tests on fundamentals (control of the ball with oriented sole, shooting the ball with the tip and run the ball with the sole), amongst pre-teens 9-10 years-old organized by the coach in two homogeneous groups (sample group n = 10, control group n = 10)

In the second phase, which lasts the entire tournament-year (nine months), the sample group (n = 10) is involved in watching video-recorded technical gestures executed by a professional futsal player (Italian National Under-21). During this phase, we will verify and assess the evolution of technical learning (ongoing).

In the last phase, will see the final evaluation of the two groups to describe the incisiveness of the learning methodology object of this study. This assessment will be done by the same professional player (model), through the compilation of prepared cards "ad hoc" in direct (on-line) during the observation of the students as they perform the three technical gestures predetermined.

### Tools used for the study

The analysis was carried out using mainly the following resources and software: Kinovea, CAMERAS PANASONIC SDR-H20 and SANYO CG20, WINDOWS MOVIE MAKER 2.6. The three softwares are easily available on-line on the internet.

Kinovea is an excellent program for video analysis that contains all the functions required for a project of detailed analysis. It 'completely free and the home provider updates the released versions on the web, this software is used for video-analysis of many sports due to its versatility and ease of use.

### Executive proceedings

The *sample* group will meet at the sports facility 30 minutes before the *control* group. The team will be exposed to the video projection of three technical gestures, chosen from the game fundamentals:

1. control of the ball: stop with the oriented foot (called "stop by sole");
2. Driving the ball, moving the ball with the sole;
3. shooting: tip shoot

The prearranged video clips are presented by the trainer, mainly focusing on the body segments relations and the most common execution mistakes. The first 5 minutes will be devoted to relaxation by listening to relaxing music and projected images, as the kids come to the field with a very high emotional charge that could adversely affect their ability to concentrate and focus. The next step is based on playing the video footage of the technical model in its entirety, inviting children to their highest attention while watching the video-clips in order to catch and learn as much information as possible. The last 5 minutes will be devoted to students. They will be asked to close their eyes and imagine themselves in executing the same gestures observed in the video. At the end of this phase, the *sample* group will begin the entire workout with the rest of the group, namely the *control* group, in such a way as not to jeopardize the technical-educational program of the entire team.

## EXPECTED RESULTS

The expected results are the following:

1. The use of ideo-motor learning as a methodology is more effective in the technical development of young players in the age group between 9-10 years old;
2. A more rapid and correct acquisition of technical gestures by the kids part of the *sample* group in relation to the *control* group;
3. Video recording and reviewing gestures is a suitable tool for evaluating of motor execution. It is also an analysis methodology that helps to identify the most common mistakes and their correction by a qualified trainer.
4. Improved ability in self-assessment and self-correction by the kids part of *sample* group, acquiring the tendency to imagine a point of observation outside in a dynamic form.

## CONCLUSIONS AND FUTURE PROSPECTS

Too often, the process of teaching and learning is taken for granted, inevitable and considered automatic when a person shows to another what he knows. The scientific evidence shows that this simplistic approach most of times undermines the efforts of educators, indeed it generates frustration in students, making both parties unhappy. Here, once again, the virtuous circle theory-practice-theory can prove to be a winning, making the learning process engaging and fascinating at the same time.

This research aims to provide a valuable tool and a starting point for coaches and scholars of learning process in the field of youth sports. The results show how this study can help the trainer with coaching the team in refining and analyzing their technical skills in a different and original way, by creating a set of methods that help improve consciously learning the technical fundamentals, specific to sports such as futsal.

The inclusion of video analysis, as a methodological approach for educational purposes, in the technical training program, can also stimulate the self-assessment of the young student, to be considered the true starting point for the correct construction of the technical-motor skills.

The small size of our sample/control group does not allow us to generalize the results in statistical terms. However, it certainly lays the foundation of observation for research development on a much larger scale and representative.

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