

**EVALUATION OF FOOTBALL PLAYERS EFFICIENCY OPERATION
IN THE OFFENSIVE PERSONAL ACTION GAME (ON THE EXAMPLE
OF POLISH TEAM GAMES TOURNAMENT EURO-2012)****Henryk DUDA¹, Aleksander STUŁA²**¹*Academy of Physical Education in Kraków, Kraków, Poland,*²*Opole University of Technology, Opole, Poland, e-mail: a.stula@po.opole.pl*

ОЦІНЮВАННЯ ЕФЕКТИВНОСТІ РОБОТИ ФУТБОЛІСТІВ ПІД ЧАС ГРИ (НА ПРИКЛАДІ ПОЛЬСЬКИХ ІГОР У ТУРНІРІ ЄВРО-2012). Генрік ДУДА¹, Олександр СТУЛА². ¹*Академія фізичної культури в Кракові, м. Краків, Польща,* ²*Опольський технологічний університет, м. Ополь, Польща, e-mail: a.stula@po.opole.pl*

Анотація. У статті розглянуто проблеми моделювання індивідуальних тактичних дій футболістів. Оскільки ці дії футболістів є основою командної гри, у роботі представлено праксеологічну оцінку індивідуальних дій в умовах спортивної боротьби висококваліфікованих футболістів (152 гравці – учасники фінальної частини Євро-2012).

З точки зору специфіки виконання тактичних дій у спортивній грі (для прикладу, виконання пресингу), складності їх реалізації (при елементах протидії суперника), підкреслює те, що в сучасному футболі такий підхід є однією з необхідних умов організації навчання цього важливого елемента гри футболістів.

Ключові слова: індивідуальні дії, ефективність, праксеологія гри.

Admission. Activities in the sports game for the most part are implemented through collaborative action, but the main games are the individual actions which largely determine the effectiveness of the game (Naglak 2010).

In the game footballers variety and perfection of individual technique determines the effectiveness of individual players and the flexibility to play the game individually by the players (Williams 2013). If the resource elements of technique players are too limited and at the same time accompanied by more bad its performance in the end usually leads to one-sided and poor form of conducting these activities, which significantly reduces the efficiency of the game. On the other hand, the wealth of motor habits enables the use of multiple solutions and allows not only a moment of surprise and speed, but also his a kind of.

So rationalization training of players is a comprehensive improvement of individual and group activities that should result from an objective analysis of sports games.

Monitoring of the individual and group player in a variety of situations of attack and defense is a valuable resource for training. It is known that a process for a reliable evaluation of players will make that achieved in the game results will be measurable values, which in turn will permit a significant rationalization of the training process.

Observation allows job training to assign quantitative and qualitative requirements of the game. Training is reasonable when applied training measures are similar to the actual conditions of the game. Taking this into account it seems that such operations should also provide systematic monitoring of the content of player evaluation, which is one of the elements of a structured training cycle, which is the starting point in a rational player preparation of to play.

To evaluate the efficiency of the athlete, it is necessary praxiological ratings in the categories of utilitarian ratings (Łasiński 1988). According to Panfil (2012) introducing praxiological ratings for sports activities will further investigate the mechanism of success and failure in sport and consequently enable the streamlining and rationalization of this important are a of social life.

Using the Rankings utilitarian is especially important in the case of sports games, in which the impact of the partial players on the team result is varied. Thus, evaluating the contribution of individual players in the result will objectified control. Taking this into account, Panfil (2006) defines

the efficiency of a team sports game as the total assets conscious and practical action in the game, which is assessed positively characteristics of this action, including: rationality, activity, efficiency and reliability of the player.

Observation games involving athletes with the highest competence sports, indicating that the results of actions in situations in close contact with the enemy show a pronounced changes in the game of individual players, hence the comparison game in terms of praxeological best teams will select the model trends and directions of these changes (Duda 2008, Vilar et al 2012). Taking this into account, the study sought to quantify the research activities of professional players in the game equipment, which take into account the game one against one. An analysis of game players in these activities against the Polish national team (Greece, Czech Republic and Russia) in the rivalry group-the final phase of EURO-2012. These studies are utilitarian in nature, as they enable the model to find solutions that will outline the direction in organized football training.

Aim, questions, and hypotheses. The aim of the research is to develop patterns of the efficiency of the players teams of effective sports in the game of football and to evaluate the effectiveness of actions taken in the game offensive in game situations individually – marked, $1 > 1$ (action within a radius of up to 2 meters, which for the modern game of football are significant situations (Duda 2012 Brzyski 2015).

Another purpose – so. Praxiologial application in the evaluation of individual game players was to evaluate the players that the Polish national team, against the dominant sports teams in Europe. Considering the fact declining level of football in Poland, these tests may be a significant pointer to the conceptsought training system (especially young players).

Research questions:

1. Can the winning teams have a higher level of indicators praxiologial in operation one against one ($1 > 1$)?
2. What are the differences in the levels of praxiologial game one against one player, highly qualified sport and the players played the Polish national team in the Euro-2012 tournament matches?

Hypotheses:

1. Measures game individual situations $1 > 1$ are acts significant for the game, and winning teams have a higher valueratios praxiologial of teams losing their matches. 2. Due to the low competence sports (ranking ME-2012) of the Polish national team have lowerratios praxiologicalin activities Games $1 > 1$ of teams – the so-called. Polish group leaders.

Material and methods. The evaluation of the efficiency of the so-called action teams. “Polish group” in game situations $1 > 1$ was made in the Euro-2012 tournament in this group included the team: Czech, Greek, Polishand Russian (Table 1).

Table 1

Summary of meetings and sport results teams' group of Polish' at Euro-2012

Nr.	Tourney	Match	Result	Analyzedteam	Phaserivalry
1	E Ch-2012	Poland–Greece	1:1	Poland–Greece	eliminations
2	E Ch-2012	Poland–Czech Republic	0:1	Poland–Czech Republic	eliminations
3	E Ch-2012	Russia–Poland	1:1	Russia–Poland	eliminations
4	E Ch-2012	Russia–Greece	0:1	Russia–Greece	eliminations
5	E Ch-2012	Czech Republic–Russia	1:4	Czech Republic–Russia	eliminations
6	E Ch-2012	Greece–Czech Republic	1:2	Greece –Czech Republic	eliminations

The data obtained in observation games were used to assess the performance indicators in situations of $1 > 1$, and the final classification in the preliminary round, the team leaders were the Czech Republic and Greece (up to a further matches) presents tabl. 2.

Table 2

Ranking sports teams, a group of Polish' in the tournament at Euro 2012

Nr.	Team	Number of matches	Points	Number of Goals
1	Czech Republic	3	6	4: 5
2	Greece	3	4	3: 3
3	Russia	3	4	5: 3
4	Poland	3	2	2: 3

In a study carried out independent monitoring praxiological 12 teams, with the participation of 152 players participating in the direct competitive sports.

The study used observation method listed (Panfil 2012), which is based on direct observation of the secondary, with the ability to play multiple events which are the subject of research. The analysis was based on research conducted foot age, recorded on DVD. The playback foot age was used to obtain detailed information about the game and the resulting data were recorded on specially prepared for this purpose cards observation (Table 3).

According to praxiological games for measures 1.1 calculated indicators of effectiveness, ineffectiveness, activity and reliability of (Panfil 2006, Szwarc 2008).

Table 3

Pattern card observation and data recording in activities Games 1 > 1
(Example match: Poland-Czech Republic)

W Ch – 2012– Polishgroup									
Teams		The Polish team offensive actions				Czech national team offensive actions			
Indicator		Perfor- mance Ind.	Ineffi- ciency Ind.	Activity Ind.	Reliabili- ty Ind.	Perfor- mance Ind.	Ineffi- ciency Ind.	Activity Ind.	Reliabili- ty Ind.
1	O1	0	0	0	0	0	0	0	0
2	O2	0	0	0	0	0	0	0	0
3	O3	0	1	1	0	0	0	0	0
4	O4	0	1	1	0	2	1	3	0,66
5	P1	0	0	0	0	3	1	4	0,75
6	P2	0	2	2	0	6	5	11	0,54
7	P3	0	0	0	0	1	1	2	0,5
8	P4	2	1	3	0,66	1	0	1	1
9	N1	2	0	2	1	2	3	5	0,4
10	N2	1	0	1	1	3	2	5	0,60
	Average value	0,50	0,50	1,00	0,27	1,80	1,30	3,10	0,45

Symbols: O – defender, P – midfielder, N –attacker.

For the evaluation of validity and reliability of an observation sheet (validation) employed a competent referees-experts (Arška–Kotlińska, Bartz in 2002, Duda 2008).

The values obtained statistical reliability of data collection in the indicators in the test parallel correlation was 0.92. The reliability of data collection in the indices of correlation retestowej (after 2-week repetition) was 0.96.

Statistical analysis of the data collected in studies analyzing the game uses basic statistical methods. In order to investigate the significance of differences in the levels of efficiency measures have been applied basic statistical calculation: the arithmetic mean, standard deviation and t-test-Student has a certain level of significance of differences (Arška–Kotlińska, Bartz 2002).

Presentation and discussion of the results.

1. Assessment of diversity values of efficiency in the investigated actions of individual-Game 1 > 1 in the aspect of the result of sports.

The data obtained praxiological indicators that will be presented in this section should indicate that team sports have a greater value (teams winning their matches in the tournament championship) had higher ratios efficiency of the activities of individual Game 1 > 1. Confirmation of such a relationship might be interesting for tasks in application activities, because the research analysis in this section will be aimed towards determining the degree of differentiation of praxiological in the tested individual action game for the result of sports (matches winning – games losers).

Analysis of the data contained in Table 4 shows that almost all indicators of the efficiency of the Game 1 > 1 show higher values for teams that have achieved a better result sport (won their matches). The diversity of these values was the highest for indicators of effectiveness and reliability ($p < 0.05$).

Table 4

Assessment of diversity indicators of efficiency in game 1 > 1 in the aspect of the result sport, a group of Polish players' tournament Euro-2012 (p- an indicator for the team losing, in-pointer for the winning team)

Statistical parameters	Group Poland					
	Sp	Sw	Ap	Aw	Rp	Rw
Arithmetic average	0,83	1,68	1,58	2,38	0,31	0,54
Standard deviation	0,22	0,19	0,45	0,57	0,03	0,13
The coefficient of variation	26,88	11,30	28,57	24,16	10,57	24,06
The significance of differences between groups	0,0006***		0,036*		0,018*	

Indicators praxiological: Sp – effectiveness for losing teams, Sw – the effectiveness of the teams wins, Ap – activity for the teams losers, Aw – activity for the teams wins, Nzp – reliability for teams losers, Nz – the reliability of the teams wins; * $p < 0,05$.

These facts indicate that these indicator shave the highest value information for its effect on the outcome of sports. These results are consistent with the results Duda and Brzyski (2012) and Brzyski (2015), who in their studies in the tournament the 2006 World Cup and 2008 European Championship tournaments have demonstrated similar differentiation in favor of more advanced sports teams.

2. Determination of the efficiency of the operations being examined Polish team playing individual matches Euro-2012

Stressing the importance of utilitarian value of measure able in dicators praxiological in activities play equipment – 1 > 1, in the further part of the study assessed the Polish national players (in the above action) against other representations (teams: Czech Republic, Greece and Russia).

The research results will help not only to assess there presentation of Polish sports players in these tournaments, but also will help define a model of climbing frames for game 1 > 1, the same will to find a way to effectively prepare the player in organized training.

Based on the analysis of performance indicators game (performance, activity, reliability) for action 1 > 1 was achieved statistical calculations and assessed the degree of difference for the teams: Polish, Greece, Russia and the Czech Republic (Table 5–7).

Table 5

**Evaluation of diversity values of efficiency measures effective game 1 > 1 player teams
“Polish group” in the tournament Euro-2012**

Group tested	W Ch – 2012		W Ch – 2012		W Ch – 2012		W Ch – 2012		W Ch – 2012		W Ch – 2012	
	Poland	Greece	Poland	Russia	Poland	Czech Republic	Czech Republic	Russia	Russia	Greece	Czech Republic	Greece
Arithmetic average	0,30	0,60	0,20	0,60	0,30	1,00	0,50	0,80	0,50	1,00	1,00	0,40
Standard deviation	0,48	0,70	0,42	0,70	0,48	1,05	0,71	0,79	0,71	0,94	0,94	0,52
The coefficient of variation	161,02	116,53	210,82	116,53	161,02	105,41	141,42	98,60	141,42	94,28	94,28	129,10
The significance of differences between groups	0,1404		0,0712		0,0396 *		0,1912		0,0988		0,0497*	

* $p < 0,05$

Analysis of the data in Table 5 contains the characteristics of indicators praxiological diversity of effective offensive game 1 > 1. The data show that the players of each team presented similar values. However, the Czech team (leader of the “group of Polish”) in ME-2012, significantly exceeded this parameter of players Polish and Greek.

Analysis of the data in Table 6 contains the characteristics of indicators praxiological diversity of active offensive operations in game 1 > 1. The data show that the players of each team presented similar values. However, the Czech team (the group leader) significantly exceeded in this parameter Polish team players.

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Table 6

**Evaluation of variation values of efficiency measures active game 1 > 1 team players
“Polish group” in the tournament Euro-2012**

Group tested	W Ch – 2012		W Ch – 2012		W Ch – 2012		W Ch – 2012		W Ch – 2012		W Ch – 2012	
	Poland	Greece	Poland	Russia	Poland	Czech Republic	Czech Republic	Russia	Russia	Greece	Czech Republic	Greece
Arithmetic average	1,40	2,10	1,40	2,20	1,00	3,10	1,60	1,70	1,60	2,40	2,30	2,10
Standard deviation	1,58	2,08	1,43	3,08	1,05	3,41	1,35	1,25	1,71	2,67	1,95	1,20
The coefficient of variation	112,69	99,00	102,13	140,18	105,41	110,13	84,37	73,63	107,04	111,46	84,63	57,01
The significance of differences between groups	0,2041		0,2351		0,0454*		0,4328		0,2190		0,3929	

* $p < 0,05$.

Analysis of the data in Table 7 describes the nature of differentiation of reliable indicators praxiological offensive action in Game 1 > 1. The data indicate that the Polish team players against individual teams presented worse results but insignificant values.

Differentiation (at the level of statistical significance) in this indicator was recorded in the match Czech Republic–Russia and the Czech Republic–Greece. The analysis of data shows that the rate could affect the outcome of sports teams competing in matches (played, the Czech Republic became the leader of the group).

Table 7

Evaluation of differentiation of reliable indicators of performance measures game 1 > 1 player teams, a group of Polish “in the tournament Euro-2012

Group tested	W Ch – 2012		W Ch – 2012		W Ch – 2012		W Ch – 2012		W Ch – 2012		W Ch – 2012	
	Poland	Greece	Poland	Russia	Poland	Czech Republic	Czech Republic	Russia	Russia	Greece	Czech Republic	Greece
Arithmetic average	0,35	0,55	0,47	0,54	0,27	0,45	0,32	0,64	0,31	0,40	0,65	0,35
Standard deviation	0,42	0,46	0,44	0,47	0,44	0,35	0,34	0,46	0,36	0,38	0,38	0,27
The coefficient of variation	119,92	82,45	95,01	87,55	164,73	77,56	106,88	71,48	117,29	94,27	58,28	76,78
The significance of differences between groups	0,1565		0,3661		0,1556		0,0440*		0,2858		0,0291*	

* $p < 0,05$.

Based on the above analysis it can be seen that the degree of differentiation indicators praxiological action in game 1 > 1 for the competing teams took on varying levels of value, and the team Poland against the leader of the group (Czech Republic) had worse performance in an effective and active action.

This indicates that these actions could decide the value of rival sports teams. However, to confirm this thesis attempts to characterize the degree of variation in performance indicators praxiological game in action 1 > 1, assessing these indicators on a global scale (summed ratios of all the matches played – Table 8–10).

Table 8 shows the total assessment of the diversity of effective action in the game 1 > 1 team players “Polish group”. The table shows that the Polish team players had the worst performance in the values of this action effective. This fact largely the result achieved corresponds with the sport, where the Polish team in the analyzed matches took the last place in the group (see Table 2).

Table 8

The over all assessment of the diversity of activities that are effective in game 1 > 1 team players “Polish group” in Euro-2012

Team statistical parameters		Poland	Greece	Russia	Czech Republic
Arithmetic average		0,27	0,67	0,63	0,83
Standard deviation		0,45	0,76	0,72	0,91
The coefficient of variation		168,67	113,71	113,43	109,54
The significance of differences	Poland–Greece	0,008**			
	Poland–Russia	0,010*			
	Poland–Czech Republic	0,002**			

* $p < 0,05$, ** $p < 0,01$.

The analyzed statistical parameters (Table 9) reveal that the total assessment of the diversity of actions active in the game 1 > 1, players Polish team in the Euro-2012 tournament in the observed matches reached the lowest value of this indicator.

In a poole evaluation of the level of differentiation of these activities were found statistical significance of differences in matches: Poland–Greece and Poland–Czech Republic. In other matches, there was no significant difference.

Table 9

**The over all assessment of the diversity of actions active in the game 1 > 1 team players
“Polish group” Euro-2012**

Team statistical parameters		Poland	Greece	Russia	Czech Republic
Arithmetic average			1,27	2,20	2,10
Standard deviation			1,34	2,01	2,40
The coefficient of variation			105,58	91,22	114,17
The significance of differences	Poland – Greece	0,019*			
	Poland–Russia	0,049*			
	Poland–Czech Republic	0,020*			

* $p < 0,05$, ** $p < 0,01$.

The last parameter analyzed (Table 10) is a total evaluation of reliability of measures of differentiation of the game 1 > 1 competing players. From the data obtained it shows that the observed Euro matches in the tournament – in 2012 the average players Czech Republic, Russia and Greece was estimated at a similar level. In contrast, the Polish national team players to watch matches recorded the lowest indicators of operational reliability in game 1 > 1.

Table 10

**The over all assessment of the diversity reliability of in operations Game 1 > 1 team players
“Polish group” Euro-2012**

Team statistical parameters		Poland	Greece	Russia	Czech Republic
Arithmetic average		0,18	0,32	0,33	0,34
Standard deviation		0,33	0,37	0,38	0,38
The coefficient of variation		185,85	118,42	115,33	111,58
The significance of differences	0, 023				
	0,049*				
	0,042*				

* $p < 0,05$.

The global dimension praxiological indicators defined trends rival for the action game 1 > 1. Based on the analysis of these data can be again noted that the team with the highest level of sports (in the rivalry group: the Czech Republic) has obtained the highest values for effectiveness, activity and reliability, and the Polish team had the worst values and significantly (statistically) different from the level of activity in the game 1 > 1 of teams leader (Czech Republic and Greece), which gained promotion to the next phase of the Euro-2012 tournament.

In the summary presented research problem can be stated that the assessment of individual offensive game in action 1 > 1 substantially corresponds to the obtained result of the sport. Teams above classified sports praxeological achieved better performance in this action. Considering the fact that similar relations (in the analysis of game 1 > 1) were obtained in other tournaments championship (World Cup – 2006 and ME – 2008) – Duda, Brzyski 2012 Brzyski 2015 it can be considered that the activities are significant for the effectiveness of the game and can affect the result a sports team. Also, the obtained values of indicators of fitness can be a determinant in modeling praxeological sports game, thereby defining the rational direction in organized training.

Conclusions:

1. Actions in the individual game ($1 > 1$) are significant for the effectiveness of the actions of the game. Team winning the tournament analyzed had higher ratios praxiological games of teams losing their matches.

2. Evaluation of Game $1 > 1$ differentiates players in terms of level indicators of the efficiency of the offensive game, which in turn can decide about the outcome of sports.

3. Due to the low competence sports (ranking tournament of Euro-2012) of the Polish national team have low erratios in the observed effects praxiological games $1 > 1$ from the team champion ships.

4. Analysis of the individual games ($1 > 1$) Polish national team players

5. to watch tournament matches of EURO-2012 revealed a low level of fitness activities, which may suggest their low competence of individual sports games. This may be due to errors in directing the player or the mentality of training in the existing system.

Literature

1. *Arska-Kotlińska M.* Wybrane zagadnienia statystyki dla studiujących wychowanie fizyczne, / *Arska-Kotlińska M., Bartz M.* – Poznań, 2002.

2. *Duda H.* 2008: Intelktualizacja procesu nauczania a rozwój dyspozycji do gry sportowej (na przykładzie piłki nożnej). *Studia i monografie nr 50.* Wyd. AWF Kraków.

3. *Duda H, Brzyski J.* 2012: Identyfikacja sprawności działania graczy w grze indywidualnej wysoko kwalifikowanych drużyn w piłce nożnej (na przykładzie meczu Polska : Niemcy w turnieju EURO 2008). / *Duda N., Brzyski J.* // *Monografia : Wybrane zagadnienia szkolenia i analizy gry piłkarzy nożnych / Stula A. (red.)* – Opole : Politechnika Opolska, 2012. – S. 9–29.

4. *Brzyski J.* Analiza przebiegu gry indywidualnej graczy wysoko kwalifikowanych w piłce nożnej w aspekcie uzyskiwanych rezultatów sportowych : dys. d-ra / *Brzyski J.* – Kraków, 2015.

5. *Łasiński G.* Prakseologiczno-systemowe podstawy badania i usprawniania treningu sportowego / *Łasiński G.* – Katowice : AWF, 2000.

6. *Naglak Z.* Kształcenie gracza na podstawowym etapie / *Naglak Z.* – Wrocław : AWF, 2010.

7. *Panfil R.* Prakseologia gier zespołowych / *Panfil R.* – Wrocław : AWF, 2006.

8. *Panfil R.* Pragmatyka współdziałania w grach sportowych / *Panfil R.* – Wrocław, 2012

9. *Szwarc* Modele poznawcze odwzorowujące sprawność działania w grach w piłkę nożną / *Szwarc.* – Gdańsk : AWFis6 2008.

10. *Williams A.M.* Game intelligence': anticipation and decision making / *Williams A.M., Ford P.R.* // *Science and soccer : developing elite performers.* – 3 ed. – Routledge, Oxon. – P.105–121.

11. The role of ecological dynamics in analysing performance in team sports / *Vilar L., Araújo D., Davids K., Button C.* // *Sports Medicine.* – 2012. – Vol. 42 (1) – P. 1–10. <http://dx.doi.org/10.2165/11596520-000000000-00000>

OCENA SPRAWNOŚCI DZIAŁANIA GRACZY PIŁKI NOŻNEJ W OFENSYWNYCH DZIAŁANIACH GRY INDYWIDUALNEJ (NA PRZYKŁADZIE GRY REPREZENTACJI POLSKI W TURNIEJU EURO-2012)

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Streszczenie. Artykuł ma charakter wdrożeniowy (aplikacyjny), porusza problemy związane z modelowaniem gry indywidualnej. Wychodząc z założenia iż działania indywidualne stanowią podstawę gry zespołowej, w pracy dokonano prakseologicznej oceny gry indywidualnej w sytuacjach walki sportowej piłkarzy nożnych wysokiego formatu (152 graczy – finalistów Euro-2012).

Działania te ze względu na specyfikę gry sportowej (pressing), dużą trudność w wykonaniu (czynność w dyskomforcie) stanowią znaczący element, który we współczesnej grze staje się koniecznością w zorganizowanym szkoleniu piłkarzy nożnych.

Słowa kluczowe: gra indywidualna, sprawność działania, prakseologia gry

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Abstract. Article is a deployment (application), tackles the problems associated with the modeling game equipment. Assuming that individual actions are the basis for team play, work has been praxiological-rated individual in situations of sportsman ship soccer players of high format (152 players – finalists of Euro-2012). These activities due to the specificity of sports game (pressing), a big difficulty in execution (action in discomfort) constitute a significant element, which in the modern game becomes a necessity in an organized training of soccer players.

Keywords: efficiency of the actions, individual game, praxiology game.