

Discovering the leader of a volleyball team using the sociometric survey method

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Abstract

Background: Some specialists have said that leaders are born, some said that they are made, but regardless of what you believe, finding the right leader can be very important to a sport team performance. The leader can be chosen by the coach, but is not always accepted by the team. So, we believe that it is important for the leader of the team to be elected by the members of the group; knowing the relationships between the members of a group can help build strong connections and good group cohesion.

Aim: The present study evaluates the connections within a volleyball team, establishing the sympathy relationships, mutual choice or rejection between players. These relationships can reveal our group dynamics, structure and hierarchy, so after analyzing those factors we can determine the group leader, the marginalized individuals and group cohesion and status of each member in the team. We also tried to find out if the formal leader named by the coach matches the leader of the group and if improving the relationships within our volleyball team and finding the right leader can improve the performance of our team. The group included 12 mini volleyball players, aged 10-12, that play in the women's national youth championship.

Methods: We used the observational method, the survey method and the socio-metric test.

Results: The results of our research showed that the socio-metric test confirmed our presumptions and we can see that leaders of our group are DC (3), with a social index of 1, and GI (5), with a social index of 0.55. The cohesiveness of our group is good, with 7 mutual election and 5 mutual rejections, the coefficient of group cohesion is 0.11, and the Index of group cohesion is 0.03. **Conclusions:** The conclusions of our study showed that our group has the right leader and good cohesiveness.

Key words: team leader; group cohesion; volleyball.

Rezumat

Fundamentare: Unii specialiști afirmă că liderii sunt născuți, alții că sunt formați, dar indiferent de păreri, descoperirea adevăratului lider al grupului poate fi foarte importantă în performanța unei echipe sportive. Liderul poate fi ales de antrenor, dar nu întotdeauna este acceptat de restul echipei. Așadar, noi credem că este foarte important ca liderul echipei să fie ales de membrii grupului sportiv. De asemenea, cunoașterea relațiilor dintre membri grupului poate ajuta în construirea unor conexiuni puternice și a unei bune coeziuni de grup.

Scop: Prezentul studiu evaluează conexiunile din interiorul unei echipe de volei, stabilind relațiile de simpatie, alegerile reciproce sau respingerile reciproce dintre sportivi. Aceste relații pot dezvălui dinamica grupului nostru, structura și ierarhia în grup, așadar după analizarea acestor factori putem determina liderul grupului, indivizii marginalizați, coeziunea grupului și statutul fiecărui membru din echipă. De asemenea am încercat să descoperim dacă liderul formal numit de antrenor coincide cu liderul ales de grup și dacă îmbunătățind relațiile din cadrul echipei de volei și descoperirea adevăratului lider, poate îmbunătăți performanța echipei noastre. Grupul a fost format din 12 jucătoare de volei, cu vârsta cuprinsă între 10-12 ani, care joacă în campionatul de minivolei național. **Metode de cercetare:** metoda observației și metoda testului sociometric.

Rezultate: Rezultatele cercetării noastre au arătat că testul sociometric confirmă presupunerile noastre și putem observa că liderii grupului sunt DC (3), cu un index social de 1, și GI (5), cu un index social de 0.55. Coeziunea grupului este bună, având 7 alegeri reciproce și 5 respingeri reciproce, coeficientul de coeziune a fost 0.11, iar indicele de coeziune a fost de 0.03.

Concluzii: Concluziile studiului au arătat că avem un lider corespunzător grupului și o coeziune bună a grupului.

Cuvinte cheie: liderul echipei, coeziunea de grup, volei.

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Introduction

Successful teams are built around strong leaders and the importance of this role is growing in nowadays sport in all categories. The presence of leaders is mostly seen in interactive games and during matches, their performance influence other colleagues of the team. The effectiveness of leaders upon team performance is less important in co-active settings but not entirely absent.

The literature on leadership in sport is poor in contrast with the abundant literature on leadership in organizational settings [1].

Some researchers define leadership as a behavioral process that influences individuals and groups towards proposing and then achieving goals. Leaders have two main tasks: first to ensure players satisfaction and second to guide the individual or group to success. In another definition, leadership is reflected as „a process whereby an individual influences a group of individuals to achieve a common goal” [2]. Some said that „leadership processes should be similar in different contexts and their success and effectiveness should rely on similar factors” [3].

Group cohesion is very important in the evolution of performance as a group, therefore in groups where we can find positive relationships as sympathy, friendships and cooperation the work efficiency is greater [4].

Main attributes of an efficient leader are the capacity of being emphatic, motivational, ambitioning, charismatic, experienced and to understand the needs of others.

References from sport psychology research analyzed leadership only from coaching point of view referring to „coaching leadership and effects on the performance of players” [5].

Many studies concentrated their attention on coach leadership and how they lead the team [6], though leadership can go further than coach leading the team, also players can take many of the leadership responsibilities that coaches have and fulfill important leadership functions [7]. Team player leadership has been defined by many researchers as „a player that occupies a formal or informal role within a team, who influences a group of team members to achieve a common goal” [8].

The relationship between cohesion and performance has been studied by many researchers,

the majority concluded that "the connection between performance and cohesion is mutual" [9]. Also, successful groups and teams are built around strong leaders and the importance of this role is growing in nowadays sports in all categories [10].

Researchers classified the player leadership function using role differentiation theory [11]. Leaders with an instrumental function are looking to accomplish group tasks, though leaders with expressive function are looking to maintain and upgrade interpersonal relationships. Though there are two distinct functions, some leaders can simultaneously provide both, can engage both in task and social behavior functions [12]. Although many scientific papers talk about two functions, some new theory identified function players leaders is an external function by which leaders represent the group at meetings and media gatherings [13].

Some new leadership theory identified new leadership classifications, other than the task leader, social leader and external leader presented above; they found some various functions on team leaders like social integration leader, defining it as „a leader who ensures teammates are involved and included in team events” and „offers support and is trusted by teammates” [14].

Also, group cohesion can promote socialization through sport that is a process of social integration through communication, understanding, and cooperation, an interactive role for conflict resolution. Therefore, it is structured on cognitive constructions, affective, and motivational, as well as representation, behaviors and performance of sports groups [15].

Situational factors are important for the cohesion of the group like living close to each other, sharing the same hobbies and activities, the same uniforms or clothing, group rituals etc. [16].

Also, many studies define as crucial the behavior characteristics of a good leader, skills like encouraging and motivating the teammates [17], [18], [19]. Some said that leaders without socio emotional involvement, that create positive relationships and good team atmosphere in and outside the field, can't lead the team and also can contribute to a collective collapse [20].

Another important contribution of group cohesion is their socializing role, demonstrated by many researchers from different fields saying that these

sport groups represent the perfect framework in the social development of young people [21]. Team captain is one of many main subjects nowadays studies focused on [22, 23, 24]; the captain fulfills both task and social behaviors, coaching, helping or providing social support. All the factors involved in team life, coaches, players and mass-media are supposing that the team captain takes charge both in and off the field. Though most studies were focused on the team captain, few researchers turned their attention on the impact of informal leadership [25]. Shared leadership is an important characteristic of highly resilient sport teams [26]. Even if players that are leaders within a team, often having the formal position of team captain, studies show that players within the team can also have a high influential position and can have the informal role of leaders of the team.

Some specialists, sport practitioners, scholars and organizations consider as integral components of sport psychology notions such as coach leadership style, motivating, team cohesion, and coach efficiency [27]. Also, many skills are learned by young people with the help of team sports, one of these is the competition. Nowadays we meet competition every day and in every area. As adults we meet competition when looking for a job or trying to find better jobs, students meet competition for better grades [28].

Many scientists reflect on the coach's efficiency and on the coach's heavy impact on a player's leadership, performance, behavior, psychological and socio-emotional characteristics. Though considering the influence of coaches on the captain's leadership, most researchers say that coach's behavior directly influences the motivation, team cohesiveness and success. Also, in many sports "the behavioral changes of the athletes are considered to be the direct result of coaching leadership" [29].

Seen as a social institution, sport has its own base in society, it has rules, laws, specific ways of sanctioning, binding friendships (both social and cultural), communication systems, principles, and ideologies [30].

Besides family, the first and most important social group, other groups contribute to the socialization of individuals: schoolmates, friends' group, and later professional staff. One of the ways that socialization

within the group of friends or colleagues is performed is sports. Individuals learn through sport to work together, to assume certain roles within the group and to define themselves within the group [31].

Socialization through sport is a complex process in which individuals learn skills, attitudes, values and ways of behavior that allows functioning in a particular culture. These modes of behavior are learned in institutions like school or family [32].

Aim of the study

The aim of the study consisted in analyzing the relationship between children from the group with whom we worked with, discovering the leader of the group and the hierarchy of every child using the sociometric test method discovered by Jacob L. Moreno (Borgatta, 2007).

Hypothesis of the study

Using the sociometric survey method we can discover and analyze the hierarchy of every child in the group and also the leaders of our group, and then we can improve the performance of the team and reintegrate the marginalized children.

Materials and methods

Our study took place in Bucharest with our volleyball team, which activates in the National Mini Volleyball Women Romanian Championship between October 2015 and March 2016. The research sample was formed from our mini volleyball women's team, with 12 players, aged between 10 and 12 years old, with a volleyball experience of 2-4 years.

The research methods used in our study were: the observational method, which is one of the most commonly, used methods for psychosocial research. It can be applied and organized relatively easily, and can quickly be adapted to and used in various situations in analyzing the evolution of groups. In addition, it can also be used in varied forms depending not only on the objective of the investigation, but as well as the nature of the group. With this method, we can follow and record behavioral manifestations in various social situations individually or through psychosocial interaction and psychological analysis of the whole group or a particular individual.

Also, the main research method used in finding the leader of the group was the sociometric survey method, with the sociometric test, which measures relationships between people. This test can describe, discover and evaluate the social status and structure of the group, and also can measure the acceptance or rejection felt between peers. The conclusions after using the survey method and sociometric test can give verdicts on the group cohesion that we lead (weld group or split group), group preferences on team captain or other social problems of the group that we want to investigate. Analyzing these sympathy relationships, we can discover and improve group cohesion and can also stimulate positive relationships that can affect the evolution and the results of our team.

We applied the sociometric method on our research group, and we tried to respect the conditions and steps for a correct test administration [33]:

- The first step is to ensure that group members know each other very well, so that they will be able to express their real preferences, not randomly; in respect to this our students had some socialization sessions and background introduction.

- We ensured that their answers, known to be honest, will not be revealed to colleagues;

- We ensured that their preferences will be expressed hierarchically.

The study we applied to the support group tried to investigate the preferences of each of those students that would like to participate together in an activity, or to those they consider might be the team captain, or for carrying out activities.

As the author Chelcea et al., [34] said, the sociometric test indicators value of I_{ss} and I_{sp} are information about how to classify individuals according to how they are accepted, rejected or isolated in the group:

$$\text{Social status index of A: } I_{ss} = \frac{N(A)}{N-1} = \frac{\sum(A)}{N-1} \quad (1)$$

$$\text{Preferential status index of A: } I_{sp} = \frac{\sum A - \sum R}{N-1} \quad (2)$$

$$\text{Group cohesion index: } I_{ef} = \frac{N_s(A)}{N-1} \quad (3)$$

$$\text{Coefficient of group cohesion: } C_c = \frac{2 * \sum A_r}{N(N-1)} \quad (4)$$

$$\text{Group cohesion index: } I_c = \frac{2 * (\sum A_r - \sum R_r)}{N(N-1)} \quad (5)$$

Further we had to process the sociometric questionnaire responses and make the sociometric

matrix based on the summary table. In this table, we passed the subjects, the cast elections and their preferred order, scored points and rank classification. Based on the data from the sociometric matrix the mentioned statistical indicators were calculated and the sociogram was formed. This provided a global overview of the group structure, allowing direct intuition of group cohesion and the position of each member in it. The sociogram was composed by placing the subject that meets the highest number of points (with the highest index of social status) in the center of concentric circles, on the other orbits circles we then placed in score order the other subjects. We marked the preferences on the chart (choices or rejections) unilateral and mutual.

We asked our players to write on the paper the first 3 (numbered from 1 to 3) and the last 3 of their preferred colleagues:

A. List in order the first 3 team-mates that you prefer in the position of team captain

B. List in order the first 3 team-mates who you reject for the position of team captain

The next step of our research was to centralize the students' responses and build up the socio-matrix.

Results

In Table 1 we listed the subjects with their initials in the first column and gave them a number, and then we noted their preferences. In Table 2 we build up the socio-matrix that reflects all the rejections and elections in a matrix table.

Table 1. Elections and rejections cast table

Subjects	+3	+2	+1	-1	-2	-3
CI	3	6	8	4	12	9
BM	3	5	1	12	7	10
DC	1	6	5	12	10	4
GA	3	1	8	12	2	9
GI	1	3	11	7	12	4
MB	1	3	5	2	4	12
MM	3	8	11	1	9	4
MS	1	3	6	12	11	2
PA	6	11	3	1	12	4
RI	3	5	11	1	12	7
SB	5	3	7	2	1	12
VI	3	8	5	10	2	4

Table II. Socio-matrix

Subjects	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1			+3	-3		+2		+1	-1			-2
2	+1		+3		+2		-2			-1		-3
3	+3			-1	+1	+2				-2		-3
4	+2	-2	+3					+1	-1			-3
5	+3		+2	-1			-3				+1	-2
6	+3	-3	+2	-2	+1							-1
7	-3		+3	-1				+2	-2		+1	
8	+3	-1	+2			+1					-2	-3
9	-3		+1	-1		+3					+2	-2
10	-3		+3		+2		-1				+1	-2
11	-2	-3	+2		+3		+1					-1
12		-2	+3	-1	+1			+2		-3		

Calculating the social status and preferential status indices:

Table III. Indicators of social status and status indicators preferential

Indices/ Students	CI (1)	BM (2)	DC (3)	GA (4)	GI (5)	MB (6)	MM (7)	MS (8)	PA (9)	RI (10)	SB (11)	VI (12)
I _{ss}	6/11 0,55	0	11/11 1	0	6/11 0,55	4/11 0,36	1/11 0,09	4/11 0,36	0	0	4/11 0,36	0
I _{sp}	2/11 0,18	-5/11 -0,45	11/11 1	-7/11 -0,65	6/11 0,55	4/11 0,36	-2/11 -0,18	4/11 0,36	-3/11 -0,27	-3/11 -0,27	3/11 0,27	-10/11 -0,90

Calculating the social status and preferential status indices:

- The index of social status:

$$I_{ss} = \frac{N(A)}{N-1} = \frac{\sum(A)}{N-1} \quad (6)$$

- Preferential status index of A:

$$I_{sp} = \frac{\sum A - \sum R}{N-1} \quad (7)$$

- Group cohesion index calculation:

$$A_r = 7 \quad 1-3 \quad 1-6 \quad 1-8 \quad 3-5 \quad 3-6 \quad 5-11 \quad 7-11$$

$$A_r - \text{mutual elections} \quad (8)$$

$$R_r = 5 \quad 1-9 \quad 4-12 \quad 4-9 \quad 4-8 \quad 10-12 \quad 2-12$$

$$R_r - \text{mutual rejections} \quad (9)$$

- Coefficient of group cohesion:

$$C_c = \frac{2 * \sum A_r}{N(N-1)} = 14/132 = 0.11 \quad (10)$$

Index of group cohesion:

$$I_c = \frac{2 * (\sum A_r - \sum R_r)}{N(N-1)} = 4/132 = 0.03 \quad (11)$$

Socio-grams preparation
Socio-gram elections and expressed mutual rejection: Type socio-gram: Target
Vectors used: - reject each other $\longleftrightarrow$ - mutual choice $\longleftrightarrow$

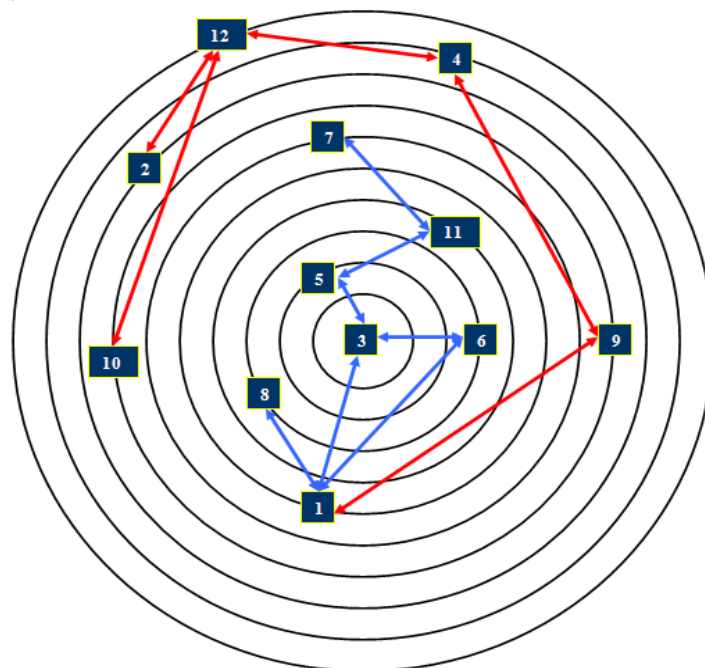


Figure 1. Socio-gram elections and mutual rejection

Discussions and conclusions

Finding the right leader is a hard and longtime process reflected in the results of any professional team. Specialists confirm that having a good leader can improve the performance of any team so our study focused on finding the right leader for our volleyball team. We used the sociometric survey method in finding the leader and analyzing the relationships between colleagues.

Socio-metric test confirmed our presumptions and we can see by analyzing the Socio-gram (Fig. 1), Table 3 with formulas (6) and (7), that leaders of our group are DC (3), with a social index of 1, and GI (5), with a social index of 0.55.

The cohesiveness of our group is good, with 7 mutual choices for a leader (8) and 5 mutual rejections (9), the coefficient of group cohesion (10) is 0.11, and also the index of group cohesion (11) is 0.03.

Thus, we can conclude that our group has the right leader and good cohesiveness.

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