



# Methodology for evaluating the social intelligence of a coach

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## Abstract

**Objective of the study** was the development and psychometric analysis of the "Social intelligence of a coach" methodology.

**Methods and structure of the study.** The sample consisted of 120 coaches (78 men and 42 women, aged from 21 to 65 years), various sports; 98 students of 8 specializations of SSUS in Smolensk and 45 sports psychologists. A correlation analysis, confirmatory factor analysis, and testing of psychometric indicators were carried out: representativeness, reliability, convergent and divergent validity. Competitive validity was determined using tests: verbal intelligence (J. Barrett), non-verbal intelligence (Ravena), multiple intelligence: spatial-visual, interpersonal, intrapersonal (G. Gardner).

**Results and conclusions.** 4 subscales of the trainer's social intelligence were empirically verified, and norms for the expression of each ability were determined. Examples of the content of the methodology tasks are illustrated. The developed methodology "Social intelligence of a coach" is reliable and valid, and can be proposed for scientific and practical use in sports practice with the possibility of extrapolation for the diagnosis of athletes, judges, and parents.

**Keywords:** social intelligence, interaction, coach, sports activity.

**Introduction.** The success of professional activity and the effectiveness of interpersonal interaction of a coach depends on the level of his social intelligence, expressed in the ability to understand correctly the feelings and emotional states experienced by verbal and non-verbal manifestations, predict the most likely behavioral reactions, recognize the social context of situations and navigate them. The need to develop a methodology for assessing social intelligence is dictated by the lack of modern standardized methods that allow quantifying and qualitatively measuring the social intelligence of a coach in sports, as an intellectual ability associated with social interaction, but not as a combination of his personal traits.

The methodological basis of the development was: the theory of Ch. Spearman, who put forward general, verbal and psychological (social) intelligence; J. Guilford's theory, reflecting: information about feelings, motives, thoughts, intentions, attitudes or other

mental qualities that can influence an individual's social behavior; cognition, memory, ways of performing actions, generating one correct decision, comparison with a given criterion; transformation of information, extrapolation in the form of assumptions; the activity approach of S.L. Rubenstein, where the initial analysis is the reflexive transformations of mental reality in the process of activity. The conceptual model for practical development was the method of J. Guilford (1959), where social intelligence is a system of intellectual abilities independent of the factor of general intelligence and related to the cognition of behavioral information.

**Objective of the study** was to develop and conduct a psychometric analysis of the "Social Intelligence of a Trainer" method.

**Methods and structure of the study.** The study has involved 120 coaches of various sports (78 men and 42 women, aged 21 to 65 years); 98

students of the Smolensk State University and 45 sports psychologists-experts participating in a preliminary test experiment. The survey results have been collected online by using Google Forms. Stages of the study:

1) the content has been developed (55 cards with test tasks, 154 drawings have been drawn, 36 interaction situations and 105 photographs have been developed); standardized response scales have been established;

2) standardized psychodiagnostic techniques have been selected to verify the theoretical validity of the developed scales, assuming that the developed scales correspond to the studied ability;

3) an empirical verification of the diagnostic suitability of the technique has been carried out by using initial and subsequent testing;

4) the verification of psychometric indicators of the normality of distribution, representativeness, reliability, convergent and divergent validity has been determined. The methodology is represented by 4 subscales (Table 1).

The content of the methodology is presented with single examples from a series of tasks in the figure.

The total duration of the diagnosis is 28 minutes.

Scale norms were calculated by using linear standardization of results on a 5-point scale with the boundaries of the norm of average indicators, which allows

you to expand the range of indicators deviating from the norm (Table 2).

In order to verify the theoretical validity of the developed scales, standardized psychodiagnostic methods were used: verbal intelligence (J.Barrett), non-verbal intelligence (Raven), multiple intelligence: spatial-visual, interpersonal, intrapersonal (G.Gardner).

The methods of mathematical statistics were carried out with a help of statistical programs SPSS-22 and EQS 6.2 for Windows by using stable statistics (correlation analysis of nonparametric criteria, confirmatory factor analysis, verification of psychometric indicators of representativeness, reliability and convergent and divergent validity) [6]. The factors were isolated by the Varimax rotation method. The sample underwent a study on the normality of the distribution of the total value by using the Kolmagorov-Smirnov criterion.

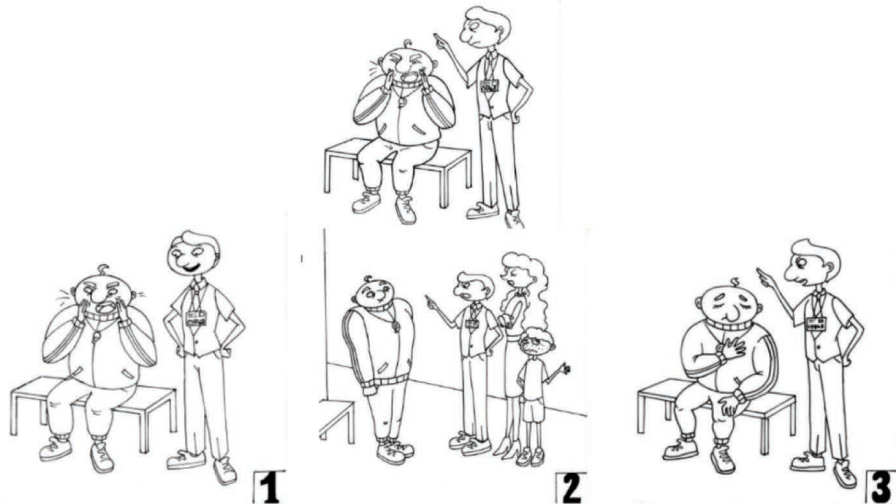
**Results of the study and discussion.** The first step in the psychometric verification of the “Coach’s Social Intelligence” methodology was to check the tasks we proposed for clarity of perception (97%), unambiguity of understanding (93%) and acceptability of situations in sports (100%). As a result of the results obtained and the opinions of experts, all drawings were corrected and brought to 100% compliance with the opinion of experts.

**Table 1.** Structure of the methodology “Social intelligence of a coach”

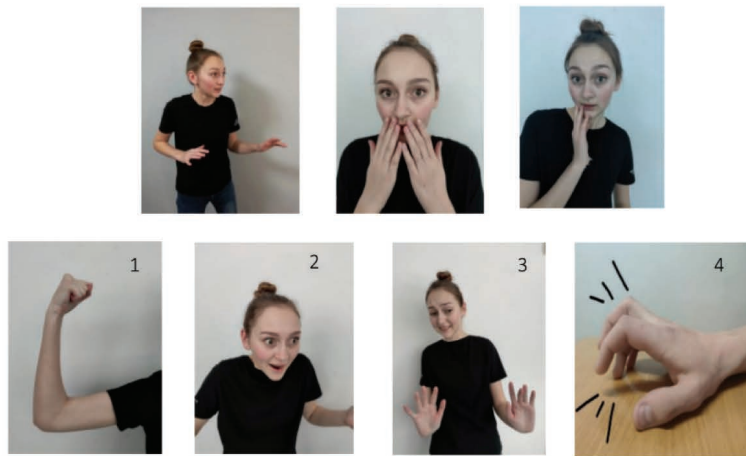
Subscales	The ability to cognize behavior	Instructions for the task
Stories with completion (it takes 6 minutes to complete 14 tasks)	. Understanding people’s feelings and intentions, their relationships, and the consequences of behavior based on available information	Use the upper drawing depicting the situation to determine people’s feelings. Choose among the three suggested lower figures the one that shows the most plausible option for the continuation (completion) of this situation.
Expression groups (it takes 7 minutes to complete 15 tasks)	. Understanding the human condition through expressive movements, postures, gestures, facial expressions.	. From the four drawings below, choose the one that fits the group of three drawings from above, illustrating the same human condition, the same thoughts, feelings, intentions.
Verbal expression (it takes 5 minutes to complete 12 tasks)	. Understanding the changing meaning of verbal and non-verbal behavior in different situational contexts.	From the proposed three phrases said by one person to another, who are in a certain role position, choose the one that will be associated with a different intention, acquire a different meaning than in the other two situations.
Stories with the supplement (it takes 10 minutes to complete 14 tasks)	. Understanding the logic of the development of holistic situations of human interaction, the meaning of their behavior in these situations	Clarify the meaning of the proposed story of the top row, consisting of four pictures, where one of them is missing. Identify the feelings and intentions of the people taking part in it. Choose among the four pictures in the bottom row the one that complements the missing picture and clarifies the situation as a whole



Example: «A story with a completion»



Example: «Expression»

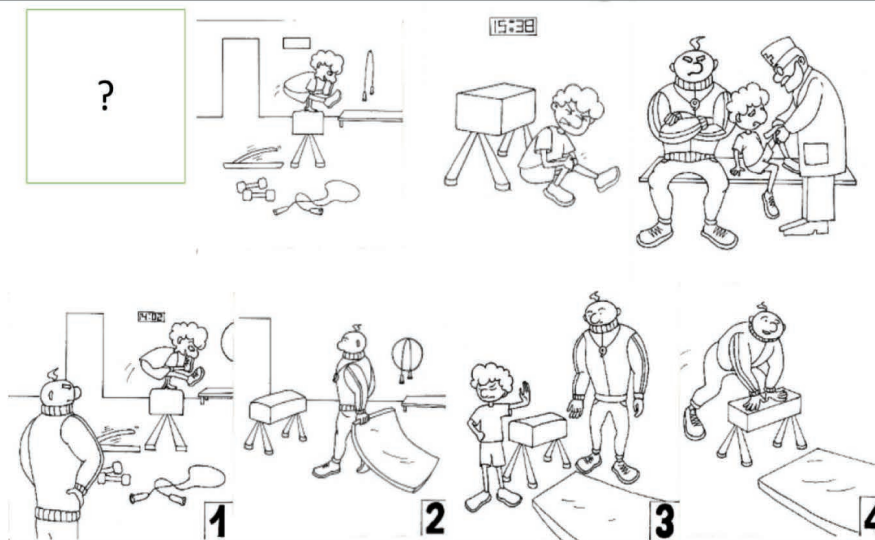


Example: «Verbal expression»

A deaf man to his friend:  
«Repeat, please»  
(a polite request)

1. 1. A person writing down another person's phone number
2. 2. Student to teacher.
3. 3. The losing athlete to his opponent
- 4.
- 5.

Example: "A story with an addition"



The content of the tasks for assessing the social intelligence of the coach

**Table 2.** Standardization of test norms of the “Social intelligence of a coach” methodology

Evaluation criterion SI subtests	Scores for subtests				General SI development level scores	Assessment of the level of development SI
	Stories with completion	Expression groups	Verbal expression	Stories with the supplement		
1 very low	0-2	0-2	0-2	0-1	0-12	1 very low
2 low	3-5	3-5	3-5	2-4	13-26	2 low
3 average	6-9	6-9	6-9	5—8	27-37	3 average
4 high	10-12	10-12	10-11	9-11	38-46	4 high
5 very high	13-14	13-15	12	12-14	47-55	5 very high

**Table 3.** Indicators of convergent validity of the assessment of the coach’s social intelligence

Criteria of social intelligence				
Stories with completion	Expression	Verbal expression	Stories with supplement	
«Spatial and visual intelligence»	0,882	0,835	0,907	0,781
«Verbal abilities»	0,794	0,848	0,833	0,799
«Expression control»	0,425	0,689	0,348	0,421
«Managing your emotions»	0,341	0,217	0,412	0,114
«Managing other people’s emotions»	0,347	0,427	0,285	0,247
«Understanding your emotions»	0,541	0,542	0,321	0,258
«Understanding other people’s emotions»	0,782	0,658	0,542	0,875
«Managing emotions»	0,325	0,289	0,478	0,423
«Understanding emotions»	0,892	0,985	0,758	0,788
«Intrapersonal intelligence»	0,347	0,673	0,458	0,458
«Interpersonal intelligence»	0,741	0,685	0,852	0,872

**Table 4.** Matrix of factor loads after rotation (absolute values greater than 0.4)

Variables	Factors				
	1	2	3	4	5
Stories with completion	0,569				0,781
Expression	0,542	-0,517	0,825		
Verbal expression	0,787	0,498		-0,759	
Stories with the supplement		0,621			
Compositional assessment	0,652		0,914		0,818

As a result of checking the compliance of the developed tasks with the studied criterion of social intelligence of the coach, high correlation coefficients of constructive validity were revealed, where indicators of spatial and visual intelligence, verbal abilities, understanding of emotions, interpersonal intelligence have the greatest degree of correlation from 0.542 to 0.985, at a significance level ( $p < 0.05$ ) (Table 3), which says on the sufficient reliability and compliance of the results of psychodiagnostics.

The stability of the diagnosed indicators was established after three months, which indicates adequate retest reliability in a preliminary sample of subjects by

using the Spearman correlation coefficient within the framework of nonparametric statistics.

The correlation results have shown that the scales associated with the control and management of emotions have no connection with the tasks of the methodology, while the scales associated with spatial and visual intelligence ( $r=0.907$ ), verbal abilities ( $r=0.847$ ), understanding of other people’s emotions ( $r=0.975$ ) have a significant correlation with each other ( $p \leq 0.01$ ), which is explained by the general psychological mechanism of manifestation of these criteria of social intelligence and their interdependence. The results obtained have confirmed the hypothesis of the validity



of the technique.

To study the internal structure of the methodology and its compliance with the proposed tasks, a series of factor-analytical procedures was carried out to identify five stable factors that generally correspond to the proposed structure by using the Varimax method (Table 4.).

It was revealed that the internal structure of the tasks corresponds to the a priori structure of the methodology, and most tasks have high loads on the factor indicated by it, which indicates a fairly high consistency of the subtests of the methodology.

**Conclusion.** The developed methodology “Social intelligence of a coach” is reliable and valid. The technique allows not only to assess the overall level of social intelligence, but also to characterize the results of individual abilities.

The technique can be proposed for scientific and practical use in sports practice with the possibility of extrapolation for the diagnosis of athletes, judges. The possibility of diagnosing the coach’s social intelligence will allow him to study more deeply the ability to understand behavior when interacting with all subjects of sports activity, to make adjustments to interpersonal and business communication in professional activities, which will contribute to social adaptation and the success of professional activities.

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