TEOSQ factorial exploration of youth Brazilian soccer players

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Published online: March 31, 2017

(Accepted for publication February 26, 2017)

DOI:10.7752/jpes.2017.01052

Abstract:

The aim of this research was test the Task and Ego Orientation in Sport Questionnaire, performing the translation, adaptation, reliability and exploratory factor analysis in 540 youth Brazilian's, male, soccer players (13.56±0.98 age). As a quantitative research, we applied the TEOSQ, and LSSPCI, following six steps: 1. Judgment of Referees; 2. Trial Undergraduates; 3. Pilot Study; 4. Instrument Implementation; 5. Concurrent Validation; 6. Test-retest. Reliability (Cronbach's Alpha coefficient), and exploratory factor analysis (rotated matrix-Varimax and Kaiser Normalization), over the descriptive analysis as statistical. The results shows Alpha's of 0.81 and 0.82 respectively to ego and task orientation; the factors analysis extracted two factors, in which the issues 01, 03, 04, 06, 09 and 11, has a high load factor related to the component 1, connected to ego, and issues 02, 05, 07, 08, 10, 12 and 13, are related to task orientation indicating that all the saturation values were above 0.40 for each factor. The average were 4.22 for task orientation and 2.39 for ego, most of the younger athletes are task oriented demonstrating a significant correlation among the orientations. We conclude that the instrument exhibits good stability and its internal factors relate in for each goal's orientation, and can be replicated across soccer players.

Key words: achievement motivation; goals orientation; evaluation; soccer; youth players.

Introduction

The studies of motivation has been a constant inside the sport settings, and following this way of cognitive social environment, has shown interest of many researchers across the achievement of motivation (Duda, 1992; Newton & Duda, 1993; Duda & Whithead, 1998; Hirota et al., 2006; Lopez-Walle et al., 2011; Klain et al., 2014; Anjos et al., 2015; Albuquerque et al., 2015).

Motivation refers to those personality factors, social variables, and/ or cognitions that come into play when a person undertakes at which he or she evaluates enters into competition with others or attempts to attain some standard of excellence (Roberts, 1992). Murray (1983) asserts that one motive is an internal factor that initiates, directs and integrates a person's behavior. Theories of motivation establish a differentiation between biological reasons, which were organized in bodily needs and the needs of social reasons, which are organized in social experiences, such as the need for achievement (Weiten, 2006). Achievement motivation to perform as successful needs to do better than others in activities and complete challenging tasks; the desire to overcome, especially when competing with others (Huffman et al., 2003).

Therefore, studies directed towards discussing the need of achievement and goals orientation has demonstrated efficacy in conerce determining athlete's behavior in their motivational orientations (Duda, 1992, 1993). There is a link between motivational orientation of an individual at any particular environment and the potential socialization inherent values in this environment. Therefore, when we say that an individual has guidance to ego some features are highlighted as individualism and tasks with less difficulty and that individual-oriented task has some features like a self-reference in relation to skills, team spirit and cooperation (Duda, 1992).

According to cognitive theory of motivation the behavior is directed by the possibility of anticipation, namely anticipate the purposes to be achieved, enhancing the internal aspects. This way the human can decide what you want or not do, according to your needs and/ or satisfaction. In this perspective two dimensions of student goal and beliefs emerge in studies: task and ego orientation (Nicholls, 1989). The direction of task orientation is associated with fostering the development of a perceived ability (Duda, 1992), and ego orientation are the ones whose propose in school is the egotistical, one of the establishing their superiority over others and who also tend to believe that, to do well in school, one most have more ability than others and attempt to beat then (Nicholls, 1992). Therefore the hypothesis of this research was to evaluate the goals orientation of Brazilians soccer players, and in this perspective and follow the need of new instruments to evaluate Brazilian's athletes this research aims to test the instrument Task and Ego Orientation in Sport Questionnaire (TEOSQ,

Duda, 1992), performing the translation, adaptation, reliability and exploratory factor analysis of the TEOSQ in youth Brazilian's soccer players.

Method

Mode of research

This study was based on a descriptive quantitative boarding. This type of research follows a formal process, objective, rigorous and systematic to generate information about the world, and should be conducted to describe new situations, events, or concepts, examine relationships between concepts and ideas and determine the effectiveness of treatments (Burns & Grove, 2003). Thus quantitative studies work with the concept of reliability (reliability and reproducibility) and strength of the method, namely the possibility of achieving the same result in a study re-test made under the same conditions by other researchers (Pope & Mays, 1995).

Instruments

Instrument 01: In the collection of research, data was used a Likert-type motivation scale of five points - TEOSQ developed by Duda (1992), which identified the motivational orientation to the sport. This instrument was developed through studies conducted in the classroom, containing four different areas: the purpose of the guidelines, the causes of success, intrinsic satisfaction and skill. In Brazil (Portuguese Brazilian language) too many studies was designed using TEOSQ only with the internal consistency calculation, demonstrating stability (Hirota et al., 2006; Hirota et al., 2009; Hirota et al., 2013; Hirota et al., 2014; Costa et al., 2015). With this purpose, the TEOSQ aims to assess individual differences in perspective the set objective in sport, by detecting if the subjects are oriented to task or ego; this instrument is requested to research participant stating their concordance with respect to the way each one applies the issues on a Likert scale of 5 points (Duda, 1992). the choice of this instrument took it limits itself the aspects of the motivation, orientation for task or ego; presented high internal consistency; Stability in the reliability coefficient; construct validity and content; Presented an adequate number of issues that added aces identification questionnaire does not produce fatigue participants; It turned out to be suitable for individuals of all ages.

Instrument 02: To accomplish the concurrent Validation We Adopted the LSSPCI Scale – List of Symptoms of Stress Pre-Competitive – validated by De Rose Jr. (1998). The choice of instrument has relation due to the fact that the scale is free, validated and show off been efficient and reliable, besides being in Portuguese - Brazil. This instrument constitutes a Likert scale of 5 points where the answers can vary from: 1. never / 2. rarely / 3. Sometimes / 4. Often / 5. Always. The instrument of the approach provides that it be applied in the 24-hour period prior to the competition, and can be administered to athletes aged 10 to 14 years, and athletes from older age groups, since the language is properly adequate thereto (De Rose, Jr., 1998); both instrument are self-applicable and has an average duration of answer within 10 minutes.

Participants

The study included 540 (n=540) youth athletes participants, aged 10 to 17 years (age average 13.56±0.98, coefficient of variation=22.7%), who play soccer in the city of São Bernardo do Campo, São Paulo, Brazil. The soccer schools are public and maintained by the municipal office, so students have no cost in order to train and play soccer. Routine class of football schools, it follows that students must maintain weekly frequencies of three times, and participate in the championships systematized by the municipality on the weekend. The municipality provides lunch and transportation for participants.

Methodological procedures

First, we performed the translation, adaptation of the instrument (TEOSQ) to the Portuguese language (Neri, 1986; Brito, 1998), by following these steps:

Step 01: judgment of referees, counting with 10 professors doctors in the area of physical education and psychology and bilingual (Portuguese – Brazil and English), in order to give them perform the review and consideration of the constructs of the scale, weaving assessments and comments about it, pointing out all the aspects thought merit considerations such as the degree of difficulty of the questions, and thus performing the back-translation;

Step 02: trial undergraduates, in relation to TEOSQ instrument in its final form, the pilot study was distributed to 20 subjects are undergraduate students of Physical Education and Psychology where it was asked them to answer and analyze the instrument; the choice of students in these two areas was due to the fact that the instrument in question meets both aspects of psychology, motivation, and in Physical Education;

Step 03: We have structured and conducted a pilot study with 100 participants (n=100) in order to check the understanding and the degree of difficulty facing the vocabulary and ace proposals presented; according to the difficulty of understanding of some word, some words and expressions pray replaced or adapted to facilitate understanding of the subject, and adopted a closer vocabulary that commonly used. According to Marconi & Lakatos (2007), this procedure must be performed in a small population, drafted after the instrument and must be used before their final use; the analysis of possible flaws will highlight data, inconsistency and

complexity of the issues, and therefore the pilot study has three important elements: reliability, validity and operability; therefore we can get an estimate of future results;

Step 04: we operationalized the instrument implementation in the 440 (n = 440) participants aged 10 to 17 who train and play football, taking into account that for the validation of a scale must have at least ten (10) individuals for each item, that is, for each issue of scale, the number of subjects was chosen following the steps of Pasquali (1999), which are required for setting the sample 10 subjects for each item of the instrument. Thus, an instrument with 13 items would require 130 subjects, and within this proportion are working with the triple;

Step 05: Drawing on the use of another scale already validated and reliable, we chose also put to test the concurrent validation process (Instrument 02) thus confirming the validity and reliability of the proposed scale - TEOSQ. According Polit & Hungler (1995) to concurrent validation refers to the degree to which an instrument was related to some external criteria, measured at the same time. This step of study count with 318 youth soccer players (n=318) of the same total group, all of them was included in the total of the step 04 of this study;

Step 06: We performed the test-retest as well as in the study by Duda (1992), with an interval of 4 to 5 weeks after the execution of data collection (step 04), the test - retest with the participation of 85 young athletes the same group (n=85) which were randomly selected, the participants respond again to the instrument (TEOSQ).

Statistical data Analysis

The adopted statistical method was the calculation of "Cronbach's Alpha Coefficient" in which internal scale validity analysis was performed; Alpha is a coefficient of reliability based on internal consistency of the items within the test will be given continuity to the statistical analysis of the scale, where statistics are processed for total items; therefore, we analyze all items taking as its premise the possibility of exclusion of any. This is a general reliability coefficient that is more versatile than the other methods and a feature of this coefficient is that it may be used for items that have multiple measures of values, such as writing test and attitude scales to score as strongly agree, I agree, etc. Furthermore, the Alpha's coefficient is probably the best to estimate the reliability most commonly used in standard test (Thomas & Nelson, 2002). It was performed exploratory factor analysis (rotated matrix (VARIMAX / Kaiser Normalization) as an alternative measurement process is to identify variables that "go together", ie, variables that have the same underlying structure; according to Figueiredo Filho & Silva Jr. (2010) the main function of the different factor analysis techniques is to reduce a large amount of observed variables to a few factors. So we will perform the Exploratory Factor Analysis (Tabachinick & Fidell, 2007), as we have done in the studies of Fonseca & Brito (2001) and Lopez-Walle et al. (2011) with the same instrument in other languages. We also used to complement the statistic processing calculation of the Spearman correlation ("rho", $p \leq 0.05$), since the psychometric non-parametric data, It was also calculated the mean, median and standard deviation of each output separately in each direction of TEOSQ instrument, namely task and ego. In order to verify possible significant differences between the means of task and ego goals, we decided to conduct the Mann Whitney test ($p \leq 0.05$). For the analysis done using the SPSS software - Data Editor Version 20.0 for Windows.

Ethics in Research

This study included the signing of the term sheet by the director of sport schools of the City hall and signed the consent form and information, or by the parents or guardians of the study participants by paying attention to research ethics September by the Declaration of Helsinki, 1964, Resolution no. 466, 2012 (WHO, 2001). Signatures were collected from parents and guardians, in meetings held in order to explain the purpose of the study and its contribution to the community and the possible evolution of learning and performance of young athletes. Study finds with opinion approved by the Research Ethics Committee with number: 1.116.194.

Results and Discussion

Table 1. Total results of Cronbach's Alpha, median, average, standard deviation, difference (Mann-Whitney) and correlation (Spearman) between task and ego goals orientation

STEPS	α		median		Average ($\pm$)		"p"	"rho"
	task	ego	task	ego	task	ego		
Pilot (n:100)	0.81	0.82	4	2	4.23(0.95)	2.93(1.07)	0.000	0.062
full group (n:440)	0.81	0.82	4	2	4.22(0.96)	2.39(1.07)	0.000	-0.057*
Reteste (n: 85)	0.77	0.67	4	2	4.24(0.91)	2.33(1.13)	0.000	0.052

*($p=0.004$)

Correlation operationalized the instrument implementation (n: 440) was negative, weak but significant; correlation the task with ego orientation of the total group (n: 540) we can conclude that each orientation run in the opposite direction showing a negative and poor correlation, however a significant way ($s = -0.223$; $p=0.000$).

In this case, studied most of the younger athlete's are task oriented, so they used to training hard and more, they have reference of their competence, and used to have the expectations of success.

Table 2. Alpha coefficient results if each issue was deleted and variance of each issue

ORIENTATION	ISSUE	α	VARIANCE
EGO	1	0.80	0.860
	3	0.77	1.007
	4	0.80	0.915
	6	0.84	1.182
	9	0.81	1.588
	11	0.74	1.275
TASK	2	0.82	0.902
	5	0.79	1.116
	7	0.77	0.858
	8	0.81	0.980
	10	0.78	0.769
	12	0.78	0.908
	13	0.77	0.861
TOTAL α		0.81	0.82

According to the results of Cronbach alpha coefficient obtained for each issue of the different ways of motivational orientation, when viewed ego issues, the only issue that could raise the total result is the number 06 (issue 06: Others mess up and I don't), so it would be possible to increase the result in three points, however the total result of the instrument performs well. Regarding the task of issues all present themselves well prepared, therefore none of that makes up this orientation could be deleted.

Duda (1989) established a count, representing an Alpha coefficient of 0.82 for task and ego 0.89 in the first sample. In the second sample, the factors were task 0.62 and 0.85 EGO. Duda (1992) obtained an alpha coefficient of 0.72 and ego task 0.82. In his retest after three weeks obtained alphas of 0.68 to 0.75 for task and ego. Newton & Duda (1993) used a sample of sportsman of elite teenagers, and obtained Alphas task 0.78, and ego 0.81.

Table 3. Rotated matrix (VARIMAX / Kaiser Normalization - Factor 01 and Factor 02), extracting the values of each question,% of variance, median, mean and standard deviation.

ISSUE	FACTOR 1 (EGO)*	FACTOR 2 (TASK)**	Extraction	% of Variance	MEDIAN	AVERAGE ($\pm$)
01 (Ego)	0.75*	0.06	0.57	30,383	2	2.22($\pm$ 0.89)
02 (Task)	0.12	0.52**	0.28	23,176	4	4.24($\pm$ 0.94)
03 (Ego)	0.83*	-0.18	0.72	8,760	3	2.30($\pm$ 0.99)
04 (Ego)	0.69*	0.03	0.47	7,573	2	2.40($\pm$ 0.95)
05 (Task)	-0.08	0.67**	0.46	6,278	5	4.22($\pm$ 1.05)
06 (Ego)	0.47*	-0.04	0.22	5,915	3	2.58($\pm$ 1.08)
07 (Task)	-0.12	0.75**	0.58	4,681	4	4.15($\pm$ 0.92)
08 (Task)	0.37	0.58**	0.47	4,158	4	4.09($\pm$ 0.99)
09 (Ego)	0.68*	-0.19	0.50	3,138	2	2.64($\pm$ 1.26)
10 (Task)	-0.26	0.5**	0.64	2,545	4	4.27($\pm$ 0.87)
11 (Ego)	0.91*	0.00	0.83	1,498	2	2.22($\pm$ 1.12)
12 (Task)	-0.04	0.76**	0.58	,988	4	4.15($\pm$ 0.95)
13 (Task)	-0.17	0.78**	0.63	,909	5	4.47($\pm$ 0.92)
Eigenvalues	3.01	3.95				
% Variance	23.17	30.38				

The result of Kaiser-Meyer-Olkin (KMO) showed us suitability and significant (0.655, $p=0.000$), thus enabling be done factor analysis. Higher the better, and 0.50 as the minimum suitability level (Hair et al, 2006).

Analyzing the results, Table 04 shows us calculation results of the exploratory factor analysis, so you can see that the values related to Factor 1 (ego) present the issues 01, 03, 04, 06, 09 and issue 11, has a high load factor related to the component 1, connected to ego; all of the issues are related to ego orientation, and the values are higher then the factor 2. The same situation applies to the questions related factor 2, so the values of issues 02, 05, 07, 08, 10, 12 and 13 are higher than the factor 1, therefore, are related to task orientation. Thus due to the high similarity studies Duda (1989), two factors were determined (task and ego), and were considered only the saturation values above 0.40 (Pedhazur, 1982) in this study were all above. Psychometric tests on the scores gathered by TEOSQ across various populations have shown the instrument is supported by evidence of reliability and validity and characterized by a two-dimensional factor structure (Castillo et al., 2009). The

median and the average of each issue are competitors with literature of the Brazilian testing (Duda, 1992; Hirota et al., 2006; Camargo et al., 2008; Hirota et al., 2011; Hirota et al., 2013; Hirota et al., 2014; Hirota et al., 2015; Costa et al., 2015; Anjos et al., 2015). The results of step 05 shows that the concurrent scale presents results of reliability based on the Alphas coefficient of 0.92. The average of the instrument was 2.48 (± 1.31 , median of 2), so by the results we can observe that the level of stress pre competitive was low, so for evidence the hypothesis the correlation with each orientation of the TEOSQ (task and ego) was done, so the results of correlation done by task orientation and stress was poor and significant ($s=0.112$; $p=0.02$) so players oriented task are more stressed. The results of correlation by ego orientation and stress was negative, poor and not significant ($s=-0.039$; $p=0.486$), showing no correlation.

We can conclude that in accordance with the rotated matrix, the values of the factors 1 and 2 show the instrument questions were grouped within each motivational orientation, i.e. task and ego with good self and saturation values for this population. The average and median values for each motivational orientation were found suitable as regards the literature, and the performance of the instrument's internal consistency.

Perspectives

The results presented in referring to a wide universe, since soccer is one of the most popular sports in the Brazilian universe, but still this instrument should be tested in other sports, both collective as individual, in which the balance indexes found in task orientation, that aspects of cooperation and teamwork are emphasized, and characteristics related to ego orientation are suppressed for the team. These results lead us to believe that the opportunity to work with validated instruments enrich the discussion in behavioral area and sports medicine which can result in favorable results boosting the sports performance.

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