The quantification of the motivational level of the performance athletes

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Abstract

The purpose this research was to develop experiment and validate assessment and quantification tools of the global motivation and its three structural components: valence, expectancy and instrumentality in athletics, on formative stages. The infrastructural level of the motivation was calculated by determining the size of each of the motivation factors dimension and then the GMF and MI were calculated. The quantification was calculated by using indiscriminate responses obtained for the content and context factors. The results were appreciated on a motivational scale rated with three parameters: large, medium, small, elaborated based on he scores of the answers variants and the content of the formula for determining the GMF.

Keywords: motivation, motivation quantification, formative stages, track and field, performance.

1. Introduction

The effectiveness of sport activity decreases when there is a minimum level of motivation or an over-motivation and increases if an optimal level of motivation appears. Motivation is expressed by a special state of psychological tension based on the correlation between perception and thinking. The motivation is based on all the needs and interests for sport performance. Motivation determines the focus of the attention and will and supports in an energetic way the efforts regarding to the preparation and participation in contests.

Currently, the concept of motivation means the process by which human behaviour is oriented towards achieving objectives. Don Hellriegel says that motivation must be seen as "a function of the relationship between effort and perceived levels of performance - on the one hand - and the reward expectations (its size) – second hand [Hellriegel, et. al. 1992]. Motivation “is a state that energizes the behaviour and gives it a direction "[Atkinson, Hilgard, 2005]. Based on these characteristics, Mitchell defines motivation as" the way that an individual wants and chooses to engage in certain behaviour “[Mitchell, 1982].

The complexity of the concept of motivation as psychological phenomenon determined the interest of researchers from psychology [Mitchell, 1982; Hellriegel, et. al. 1992; Amici, et. al, 2009; Maslow, 2007]. It believes that external factors are internal factors intertwined determining self-adjustment and adaptation processes of the individual leading so that the individual acts spontaneously and self based on his reasons.

Starting from the premise that motivation has a function in regulating the conduct of the athlete, due to a conscious goal aimed for his work and that means "an inner strength by which an individual acts to achieve certain objectives for the fulfilment of needs or expectations [Coelho, Vasconcelos-Raposo, 2006; Cornianu, 2005; Crâciun, 2008; Aktop, et., al., 2006], the research was initiated in order to develop, experiment and validate assessment and quantifying tools measurement of the global motivation and of its three structural components: valence, expectations and instrumentality in athletics, on formative stages. Human performance, including the sportive one, can be explained as a multiplicative factor of motivation and opportunities / skills, [Epuran, et. al., 2008; Mamali, 1981; Duda, et. al., 1992] \( P = f (M \times A) \) [Bologa, Gherghisan, 1994]. The sources of the motivation are internal and external: internal motivation results from maintaining the active state of needs and interests change and are recomposed on the route of the performance capacity development; the external motivation of the environment is felt to a lesser extent by the high competitive value athlete [Mihailescu, Serban, 2006; Nepopaloov, Dmirty, 2004; Popa, et. al., 2006].

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2. Purpose of study

The research was initiated having the purpose to develop experiment and validate assessment and quantification tools of the global motivation and its three structural components: valence, expectancy and instrumentality in athletics, on formative stages.

3. Methods

The main research methods used were the questionnaire survey type and the statistical and mathematical analysis. Research subjects were 400 JIII, JII, JI athletes and seniors. The motivational indicators were calculated by experimentally validated formulas: [Mihailescu, Serban, 2006; Serban, 2006]

- The global motivational force, \( FMG = V \times E; V = \text{valence}; E = \text{expectancy} \).
- Motivational instrumentality, \( IM = V \times I; V = \text{valence}; I = \text{instrumentality} \).

4. Findings and Results

The infrastructural level of the motivation was calculated by determining the size of each of the motivation factors dimension and then the GMF and MI were calculated. The quantification was calculated by using indiscriminate responses obtained for the content and context factors, according to the Dunnett formula, 1972 (table 1, 2). The results were appreciated on a motivational scale rated with three parameters: large, medium, small, elaborated based on the scores of the answers variants and the content of the formula for determining the GMF.

<table>
<thead>
<tr>
<th>No.</th>
<th>Motivation Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The contents of the sportive activity: training, contests, cantonments</td>
</tr>
<tr>
<td>2.</td>
<td>Chance of utilization and development of the sportive capacities in a creative way</td>
</tr>
<tr>
<td>3.</td>
<td>Passion for the practised sport</td>
</tr>
<tr>
<td>4.</td>
<td>The level of sportive endeavour: promotions in superior categories, group selections</td>
</tr>
<tr>
<td>5.</td>
<td>The tendency of personal affirmation: integration and hierarchical promotion in the team</td>
</tr>
<tr>
<td>6.</td>
<td>The performance need: to be the best, to win</td>
</tr>
<tr>
<td>7.</td>
<td>Failure fear: failing, losing, injuries, opponents.</td>
</tr>
</tbody>
</table>

Table 1. Intrinsic motivation factors

<table>
<thead>
<tr>
<th>No.</th>
<th>Motivation Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The sporting activity standards: rules, statutes, regulations</td>
</tr>
<tr>
<td>2.</td>
<td>The material advantages and facilities: bonus, prizes, dwelling, official trips</td>
</tr>
<tr>
<td>3.</td>
<td>The special climate: family, club, audience, trainers, press, radio-TV</td>
</tr>
<tr>
<td>4.</td>
<td>The social prestige of the athlete, practiced sport, club and trainer</td>
</tr>
<tr>
<td>5.</td>
<td>The management style applied by the trainer, club, administration</td>
</tr>
<tr>
<td>6.</td>
<td>The relation between sport and school: the possibility to be a performance athlete and a pupil</td>
</tr>
<tr>
<td>7.</td>
<td>The material conditions: installations, equipment, material base, program – schedule</td>
</tr>
</tbody>
</table>

Table 2. Extrinsic motivation factors

In order to quantify and evaluate the infrastructural level of motivation and its global structural level we gave to each of the three answers the following score (table 3).

According to this score, we calculated the infrastructural level of motivation by establishing the size of each factors of motivation, defined previously. After that we quantified the GMF and GMI. The quantification was calculated by the non-differential utilization of the answers for the content and context factors, according to Dunnett’s formula, 1972.

The results are rated on a motivational scale with three parameters: large, medium, small, (figure 1) data compiled from the scores of answer variants and formula content for determining the GMF.

<table>
<thead>
<tr>
<th>Answers</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence</td>
<td>3</td>
</tr>
<tr>
<td>Expectation</td>
<td>2</td>
</tr>
<tr>
<td>Instrumentality</td>
<td>1</td>
</tr>
</tbody>
</table>
5. Results. Discussions

Research subjects were 400 JIII, JII, JI athletes and seniors. Determination GMF (global motivational force) on the formative stages and identifying its value was achieved by using conceptually validated questionnaires. Investigation to quantify motivation was achieved on three of the four phases of education in athletics and included athletes as part of junior and senior categories. The samples were composed of 100 athletes for each research.

Research on formative stages has allowed us to determine / identify and the value of motivational level indices evaluated and quantified in the dynamic J III (14-15 years) to seniors. Following centralization and statistical-mathematical data processing were developed etalons in training stages in athletics. In table 4 are presented the standards (etalons) of the three structural components of motivation on the four training stages from research and the following table illustrates the results achieved for each benchmark, on the motivational dimensions.

From the graphic representation of the GMF (Figure 1) on formative stages we can see that at the second formative level, JIII case, is recorded the lowest value of the GMF 6.21. This recorded motivational level can be explained by the fact that at this age (14 – 15 years) the motivational support of the athletes is poor, they are not aware of the motivational resources. By MF orientated on the motivational factors we can see an intrinsic accentuate motivation at this level, probably because of the age; young people are influenced by well known athletes performances and, by the desire to become like their idols, they want to obtain good performances in track and field. The extrinsic motivation is at a low level with a little influence to the medium level.

For the JII (16-17 years) the GMF value is medium, what emphasizes the appearance of the motivational support to obtain sportive performance in track and field. The sportive training of the athletes is supported by the passion for track and field, the wish of winning, need to become someone and to obtain some advantages and facilities in order to practice performance track and field. In this formative stage we can see the willing for a medium motivational level, a fact that is obtained from the athletes answers concerning the MF.
From graphic we can see that at the third level of track and field training (J1, 18-19 years), is recorded the highest value of the GMF - 6.76. We can say that this thing is correct if we have in view the fact that at this level, the sportive results that have been obtained are remarkable: O. A. first place in 100m event, P. B. first place in hammer throw, L. M. first place in 800 m event, S. C. third place in triple jump, at the Track and Field European Championship from Novi Sad in 2009. This group has major aspirations for sportive performance and that is noticed from the recorded and processed data concerning to GMF as well as from the sportive results.

Regarding GMI we found, as shown in Figure 3, which provides a dynamic formative stages of this indicator on the basis of the value of 6.69 J III level amounting to 7.25 in the seniors. This data highlights the motivational environment of athletes for the proposed performance in 2010 competition year and offers the possibility to drive on some motivational items in order to establish strategies for optimizing the psychic training of athletes in terms of raising the motivational level.

If we corroborate the data obtained in this research and the results of the Romanian track and field from the last 5 years at the senior athletes, we can say that it has to be made a more careful approach of the sportive training from the psychic training perspective too. The value of GMF recorded for this performance group, on a motivational scale, is recorded to as a medium level with low trend to a superior motivational level and that confirms, in some way the performance regress of the high performance athletes obtained lately. This performance regress is emphasized by the fact that at the last edition of the World Track and Field Championships from 2009, Romania obtained only one medal in Discuss event by G.N.

![Figure 2. GMF value on different formative stages in track and filed](image)

![Figure 3. GMI value on different formative stages in track and filed](image)
6. Conclusions

- The critical phenomenon affecting human behaviour and personality, motivation can be treated in terms of specific activities and situations taking place.
- The first hypothesis that GMF can be quantified to the performance athletes is confirmed. This provides an opportunity to determine the motivation level of performance athletes during sports activity.
- Following the centralization of results is apparent that prior research subjects, deemed highly important intrinsic motivational factors, which propelled them on top of the hierarchy of motivational factors. From these, passion for sport takes first place, need performance second place, and other intrinsic motivators found on rank IV, VIII, X and XIV. From the extrinsic motivational factors, the best occupied positions are taken by: the material benefits rank V, material conditions rank VI and the type of management style adopted by the coach, the club. The other extrinsic motivators are in the following ranks: IX, XI, XII and XIII.
- Motivational hierarchy is summarized in five models, that corresponds to the motivational factors dimensions (V, E, I, MF GMF), presents clear differences between models, winding trails and a permanent restructuring of the hierarchy.
- By knowing the two levels of motivation (GMF and GMI), it may direct the preparation of athletes from the perspective of psychological training by determining the level of athletes motivation, making their drive motivational strategies counting on it.

References