



Online Publication Date: 20 June, 2010

ORIGINAL RESEARCH

RESEARCH CONCERNING THE MOTIVATION'S QUATIFICATION FOR PERFORMANCE ATHLETES

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Summary: Motivation in sport performance is a key factor in achieving sporting performance, without which the athletes wouldn't be determined to face the sports training effort to refine the pshyhomotric capabilities. At the basis of motivation may be its own internal or external factors. International class athletes are characterized by a high performance motivation.

Key-Words: athletics, quantify, motivation, performance.

Introduction

The issue of the psychological training in performance athletic training, in Romania, has recently come out. Now, when the recorded sportive results are very good, we consider that the psychological training can get new valences and prospects and become a challenge in order to optimize the sportive performance.

The specialty literature considers that human performance can be explained as a multiplicative factor of the motivation and possibilities/abilities, $P = f(M \times A)$, [Bologa, M., 1994, p. 119 – 125].

In performance sport, motivation can have positive or negative effects over the athlete's behavior, depending in a large measure on the organization and management way of the whole sportive training process. Motivation is one of the important factors of the sportive performance. It can be named a sportive performance source.

The research's purpose is to elaborate, test and validate some instruments for motivation's evaluation on three components of motivation structure: valence (V), expectation (E) and instruments (I), all of these emphasizing the global motivation force (GMF) of the performance athletes and motivation instruments (MI), in order to optimize the psychological training and to make it efficient by achieving the optimum motivation level, a source of performance attitudes by aware directing or self-control.

Objective: working out a study concerning the identification of quantification instruments (GMF) and their components and their validation; elaborating the items for the evaluation of the motivation's valence, the motivation's expectation and the motivation's instruments; working out a questionnaire for the checking and conceptual of the settled items; the analysis of the inquiry's results and the elaboration of the study's conclusions concerning motivation quantification.

The research's hypothesis

1. We consider that in performance sport we can quantify the motivation level of the athletes by establishing/objectivation of GMF that can emphasize the essential sizes of motivation: valence, an emotional size (it expresses the appeal or rejection); expectation, the subjective possibility to obtain a result.

2. The establishment of the two levels of the motivation of performance athletes, the intrinsic and extrinsic level and, at the same time, the establishment of MI with the help of motivation valence and motivation instruments (that can express the degree a valence can or can't be reached at by self effort), sustain the scientific directing of the optimum motivation level for demonstrating the maximum performance level (performance maximum) in objective events, if in psychological training of athletes it is used a didactic strategy focused on objectives concerning the motivation directing.

Research methods

- Bibliographic study method (documentation method);
- Questionnaire method;
- Mathematics – Statistics method;
- Graphic method for results

The research's subjects and research organization:

In our research, we used athletes (males and females), participants in Track and Field University National Championship (indoor), 2009. For our research we drew up three questionnaires, each of them containing 14 items, motivation factors that observe the bifactorial concept (Herzeberg), 7 intrinsic factors and 7 extrinsic factors: the evaluation questionnaire of the motivation valence, the evaluation questionnaire of the motivation expectation and the evaluation questionnaire of the motivation instruments.

We established the questionnaires items by processing some models presented previously by Bologna, M., 1999 and Mihailescu, L., 2007 (tables 1, 2).

Table 1. Intrinsic motivation factors

No.	MOTIVATION ITEMS
1.	The contents of the sportive activity: training, contests, cantonaments
2.	Chance of utilization and development of the sportive capacities in a creative way
3.	Passion for the practised sport
4.	The level of sportive endeavor: promotions in superior categories, group selections
5.	The tendency of personal affirmation: integration and hierarchical promotion in the team
6.	The performance need: to be the best, to win
7.	Failure fear: failing, losing, injuries, opponents.

Table 2. Extrinsic motivation factors

No.	MOTIVATION ITEMS
1.	The sportive activity standards: rules, statutes, regulations
2.	The material advantages and facilities: bonus, prizes, dwelling, official trips
3.	The special climate: family, club, audience, trainers, press, radio-TV
4.	The social prestige of the athlete, practiced sport, club and trainer
5.	The management style applied by the trainer, club, administration
6.	The relation between sport and school: the possibility to be a performance athlete and a pupil
7.	The material conditions: instalations, equipment, material base, program - schedule

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:

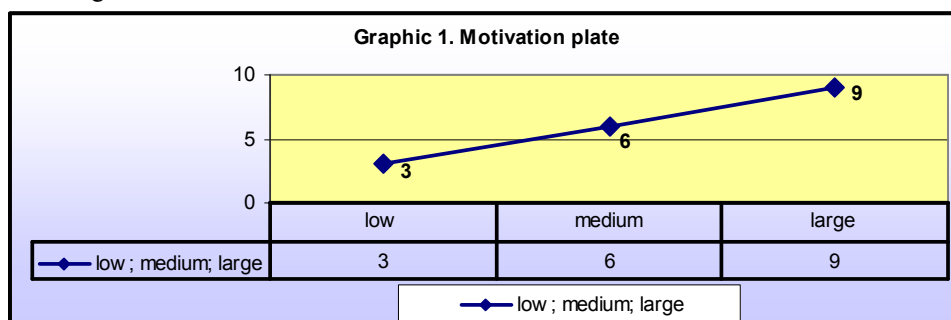
Table 3. The score of the answers

Answers				
Score		3	2	1
Motivation instruments	Valence	very important	Medium importance	Insignificant
	Expectation	Always suits the expectations	Sometimes suits the expectations	Doesn't suit the expectations at all
	Instrumentality	Totally depends on you	Depends on you and others	Totally depends on others

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 M.I. the quantification was calculated by the non-differential utilization of the answers for the content and context factors, according to Dunnett's formula, 1972.

- $GMF = V \times E$
- $MI = V \times I$

The graphic of the data for GMF is presented using the motivation plate (graphic 1), established on the base of the sources given to the answers and the contents of the establishment formula of GMF.



The analysis and interpretation of the research's results

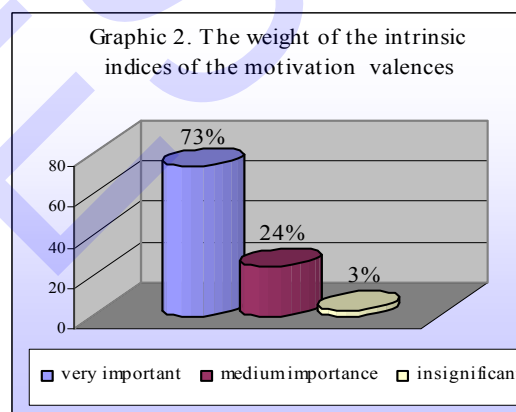
By processing the questionnaires we established the valence and weight of the intrinsic and extrinsic indices of the structural elements of motivation for athletes, participants in Track and Field University Nation Championship (TFUNC – indoor, 2009). The value of the motivation indices is presented in tables as motivation factors, and the weight of the motivation indices is presented in the below graphics.

The analysis and interpretation of the answers to the evaluation questionnaire of motivation valence

From graphic 2, we see that the seven questions that correspond to intrinsic motivation, 73 % of the subject chose the first variant of answer, 24 % the second and 3 % the third. This shows that the athletes pay a lot of attention to the intrinsic factors of the motivation valence.

Table 4. The valences of intrinsic indices of the motivation valences

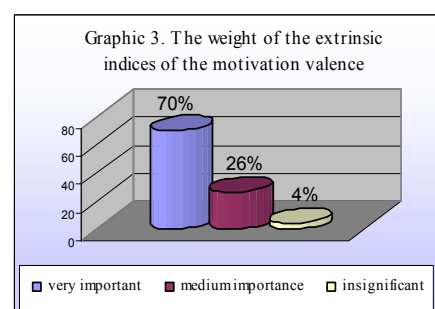
Questions no.	Subjects no.			Points no.			Average of answers
	3	2	1	3	2	1	
1	86	12	2	258	24	2	2.84
2	61	37	2	183	74	2	2.59
3	66	31	3	198	62	3	2.63
4	66	27	7	198	54	7	2.59
5	52	40	8	156	80	8	2.44
6	81	16	3	243	32	3	2.78
7	25	55	20	75	110	20	2.05



As it concerns the extrinsic factors of the motivation valence, the processed data were recorded in the following table. From the graphic 3, we can see that 70 % of the subjects chose the first variant of answer, 26 % the second and 4 % the third. This shows that the athletes are highly motivated in the sportive activity by the extrinsic factors of the motivation valences, too (material advantages, social climate, material conditions, etc.).

Table 5. The values of the extrinsic indices of motivation valence

Questions no.	Subjects no.			Points no.			Average of answers
	3	2	1	3	2	1	
8	44	46	10	132	92	10	2.34
9	73	21	6	219	42	6	2.77
10	60	29	11	180	58	11	2.49
11	51	43	6	153	86	6	2.45
12	65	26	9	195	52	9	2.56
13	48	40	12	144	80	12	2.36
14	67	22	11	201	44	11	2.56

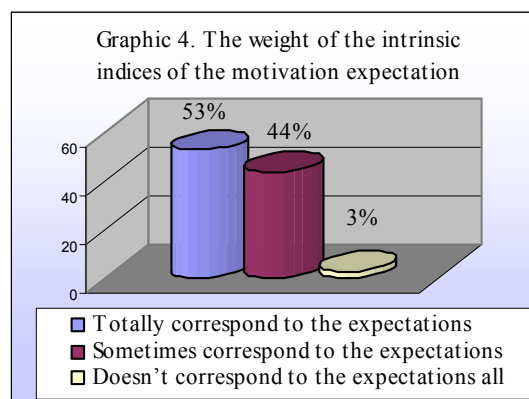


The analysis and interpretation of the answers to the evaluation questionnaire of motivation expectation

Graphic 4, shows that 53% of the subjects say that the difficulty of the aimed objectives, the affirmation possibility, the intensity of needs, the chance of improvement of self capacities and the contents of the sportive activity are in total concordance with the athletes' expectations, 44 % consider that these intrinsic factors sometimes correspond to their expectations and 3 % say that these factors never correspond to their expectations.

Table 6. The values of the intrinsic indices of the motivation expectation

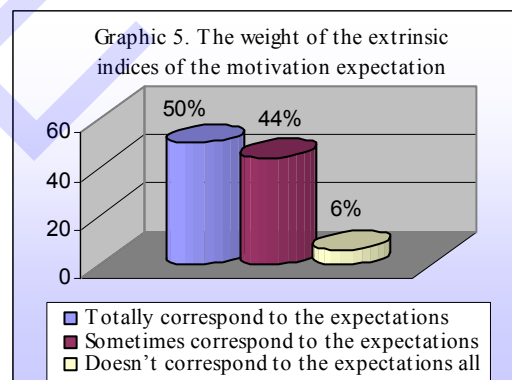
Questions no.	Subjects no.			Points no.			Average of answers
	3	2	1	3	2	1	
1	38	56	6	114	102	6	2.22
2	38	56	6	114	102	6	2.22
3	63	33	5	189	66	5	2.60
4	40	53	7	120	106	7	2.33
5	29	66	5	87	132	5	2.24
6	48	47	5	144	94	5	2.43
7	29	57	14	87	104	14	2.05



The answer of the questionnaires concerning the extrinsic indices of the motivation expectations are recorded in the table 7. From graphic 5, we see that 50 % of the inquiry's subjects chose the first variant of answer, 44 % the second saying that the extrinsic factors correspond to their expectation only sometimes, and 6 % of the athletes say that the material advantages, the facilities, the material conditions, the social prestige, the management style of the trainers don't correspond to their expectations at all.

Table 7. The valences of the extrinsic indices of the motivation expectation

Questions no.	Subjects no.			Points no.			Average of answers
	3	2	1	3	2	1	
8	33	55	12	99	110	12	2.21
9	35	47	18	105	94	18	2.17
10	34	50	16	102	100	16	2.18
11	28	55	17	84	110	17	2.11
12	41	43	16	123	86	16	2.25
13	47	47	6	141	94	6	2.41
14	41	49	10	123	98	10	2.31

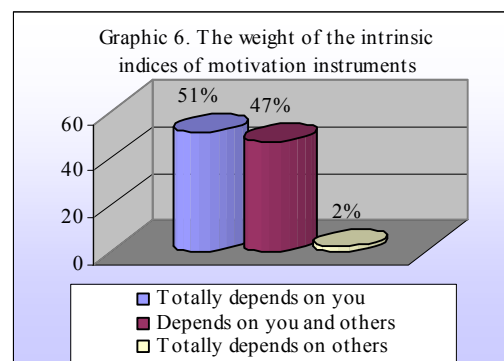


The analysis and interpretation of the answers to the evaluation questionnaire of motivation instruments

From the data concerning the intrinsic indices of the motivation instruments, recorded in table 8 and represented in graphic 6, we see that 51 % of the track and field performance athletes chose the first variant, 47 % - the second and 2 % - the third. This shows that the athletes assume significant responsibilities in training and consider that their active and aware participation in sportive planning and training is very important in getting sportive performance.

Table 8. The values of the intrinsic indices of the motivation instruments

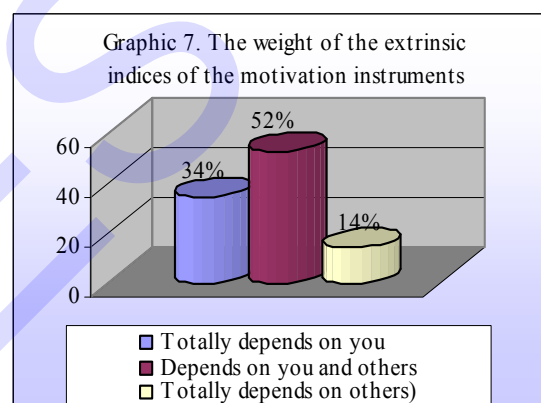
Questions no.	Subjects no.			Points no.			Average of answers
	3	2	1	3	2	1	
1	18	77	5	54	154	5	2.13
2	43	53	4	129	159	4	2.92
3	53	42	5	159	126	5	2.90
4	34	57	9	102	114	9	2.25
5	39	57	4	117	114	4	2.35
6	57	39	4	171	78	4	2.53
7	51	44	5	171	88	5	2.64



In the following table there are presented the data concerning the value of the extrinsic indices of the motivation instruments. From graphic 7 we see that 34 % of the subjects say that, in the sportive activity, some extrinsic factors depend totally by them, 52 % say that the extrinsic motivation depends on them and others and 14 % chose the third variant. These data show that the persons used in our questionnaire see the need of their contribution in achieving the sportive training in optimum conditions.

Table 9. The value of the extrinsic indices of the motivation instruments

Questions no.	Subjects no.			Points no.			Average of answers
	3	2	1	3	2	1	
8	17	33	50	51	66	50	1.67
9	15	59	26	45	118	26	1.89
10	26	52	22	78	104	22	2.04
11	30	62	8	90	124	8	2.22
12	12	49	39	36	98	39	1.73
13	43	52	5	129	104	5	2.38
14	10	47	43	30	94	43	1.67



The establishment of the M.F. on motivation factors and of the G.M.F.'s value

The establishment of the M.F. on motivation factors was achieved by using the values adequate to the motivation instruments V and E. After the processing of these data we established a rank hierarchy of M.F., achieved in a decreasing order of the motivations factors' values. From the table 10 we can see the importance of the intrinsic motivation in sportive training of the athletes' participants in T.F.U.N.C.

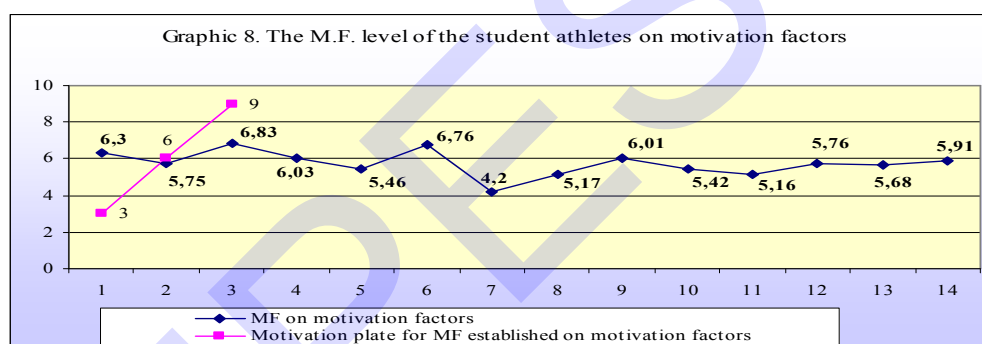
The intrinsic motivation factors (passion for the sport; the need of performance: to be the best, to win; the content of the sportive activity: trainings, contests, cantonments, recovery; the level of sportive endeavor: promotions in superior categories, group selections) occupy the first places in the rank hierarchy of M.F., and they are followed by the extrinsic motivation factors such as: material advantages and facilities got in the sportive activity and the material conditions, too. So, the athletes consider that in the practiced sportive activity, intrinsic motivation has an important role.

They also consider important the obtained benefits, the conditions for the training and the management style applied by the trainer. In table 10 the data of the inquiry are presented by a rank hierarchy of the motivation factors that show the importance of the M.F. on motivation factors and GMF's value.

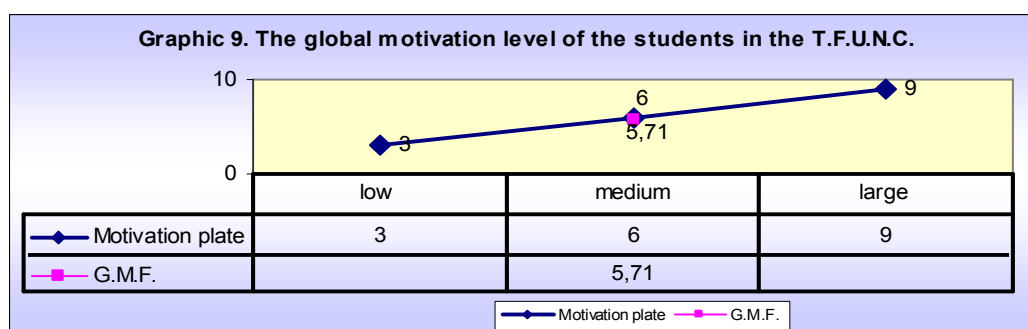
Table 10. The rank hierarchy of the M.F. on motivation factors GMF's value

No.	MOTIVATION FACTORS	MF	
		points	rank
1.	The sportive activity content: trainings, contests, cantonments, recovery.	6.30	III
2.	The chances of utilization and development of the sportive capacities in a creative way	5.75	VIII
3.	The passion for the practiced sport	6.83	I
4.	The level of the sportive endeavor: promotion in superior categories, group selection	6.03	IV
5.	The tendency of personal affirmation: integration and hierarchical promotion in the team	5.46	X
6.	The performance need: to be the best, to win	6.76	II
7.	The failure fear: failing, losing, injuries, opponents, security tendency	4.20	XIV
8.	The sportive activity standards: rules, statutes, regulations	5.17	XII
9.	Material advantages and facilities: bonus, prizes, dwelling, official trips, etc	6.01	V
10.	The social climate: family, club, audience, trainers, pres, radio, TV	5.42	XI
11.	The social prestige of the athlete, practiced sport, club and trainer	5.16	XIII
12.	The management style applied: by the trainer, club administration	5.76	VII
13.	The relation between sport – school: the possibility to be a performance athlete and pupil/student	5.68	IX
14.	The material conditions: installations, equipment, material base, program - schedule	5.91	VI
	GFM	5.71	

From the graphic presentation of the values for M.F. on motivation factors we can see a medium level of its value for the all motivation factors. We can observe small value differences, but it is obvious the strong tendency to a medium motivation level of this sample.



The G.M.F. of student athletes records a value of 5.71. We can say that their motivation level has a strong tendency to a medium value of the motivation. Perhaps this value is caused by the fact that our subjects were both performance student athletes and students who won the right to participate in the T.F.U.N.C. by achieving the participation standard; the track and field not being an activity practiced by them in order to achieve maximum performance.



As it concerns the M.I. we can talk about a value of 5.65. From the below table (table 11) we can observe that we can act especially to increase the extrinsic motivation level which records low values, but there is a possibility to improve some intrinsic motivation factors

Table 11. Rank hierarchic of M.I. on motivation factors and M.I.'s values

FACTORI MOTIVATIONALI	IM	
	Pct	Rang
1. Sportive activity content: trainings, contests, cantonments, recovery	6.04	IV
2. The utilization and development chances of the sportive capacities in development way	7.56	II
3. Pasion for the practiced sport	7.62	I
4. Sportive endeavor level: superior categories promotions, team selection	5.82	V
5. Personal affirmation trend: team hierarchal integration and promotion	5.73	VI
6. Performance need: to be the best, to win, to overtake	7.03	III
7. Failure fear: missing, defeats, accidents, opponents, security trend	5.41	X
8. Sportive activity normative: lows, statutes, regulations	3.90	XIV
9. Material advantages and facilities: bonus, prizes, dwelling, official trips, etc	5.23	XI
10. The social climate: family, club, audience, trainers, pres, radio, TV	5.07	XII
11. The social prestige of the athlete, practiced sport, club and trainer	5.43	VIII
12. The management style applied: by the trainer, club administration	4.42	IX
13. The relation between sport – school: the possibility to be a performance athlete and pupil/student	5.61	VII
14. The material conditions: installations, equipment, material base, program – schedule	4.27	XIII
MI	5.65	

Conclusions

Based on the analysis of the questionnaire results realized at the National University Track and Field Championship, 2009, we can say the following:

1. The first hypothesis concerning the G.M.F. of the performance athletes can be quantifiable is confirmed. This thing gives the possibility to determine the motivational level of the performance athletes during sportive activity.

2. From this research we established that by determining the G.M.F. and M.I. the psychological training of the athletes can be optimized, in generally, and the motivation, especially, offering the possibility to use a didactic strategy focused on objectives concerning the motivation directing in order to achieve the optimum motivational level specific to the achievement of the maximum performance level (maximum performance), in the objective competitions.

3. After the centralization of the results we can observe that the research subjects consider the intrinsic motivation factors very important and that put these factors in the first places of the motivation factors hierarchy. From all of these the passion for sport occupies the I place, the performance need the II place, the content of the sportive activity the III place and the other intrinsic motivation factors are placed on the IV, VIII, X and XIV place. From the extrinsic motivation factors the best positions are occupied by: the material advantages rank V, material conditions rank VI and the manager style adopted by the coach and club.

4. The motivation hierarchy that is synthesized in 6 models, corresponding to the motivational factors (valence I, expectance II, instrumentality III, M.F. IV and M.G.F. V, M. I. VI), presents the real differences between models, sinuous trajectories and a permanent restructuration of hierarchy.

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