

A SHORTENED VERSION OF THE ACHIEVEMENT MOTIVE SCALE – MOP-20

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Abstract

This research was focused on reducing the scale measuring the general achievement motive MOP2002. The initial version of the instrument MOP2002 contains 55 items and is in the Likert-type scale format. The starting point of this research was based on the assumption about a four-factor structure of the general achievement motive established in our previous research. Both quantitative and qualitative studies were applied in the process of reduction. Each of these studies was conducted on a separate sample – exploratory factor analysis $N = 2846$, and confirmatory factor analysis $N = 294$ – and four focus groups, each including 15 respondents. Based on the obtained results, 20 items were selected, and they comprise a shortened version of the scale called MOP20. Designed in this way, the scale can also take the form of the observation protocol while assessing the general achievement motive. It was ascertained that the instrument had a unique object of measurement. The factor analyses results showed the stability of the four-factor structure of the achievement motive. The parameters of representativeness, reliability and homogeneity indicate that MOP20 possesses satisfactory psychometric properties. Instrument validity was checked by means of correlational analysis of the general achievement motive and dimensions of time perspective, self-efficacy and locus of control. The obtained correlation coefficients indicate a satisfactory validity of the scale MOP20, and are highly interpretable when explaining and considering the psychological space of the factors significant for achieving success in activities such as sports and entrepreneurship.

Key words: general achievement motive, MOP20 measuring instrument, factor analysis, successfulness, sports, entrepreneurship.

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СКРАЋЕНА ВЕРЗИЈА СКАЛЕ МОТИВА ПОСТИГНУЋА - МОП-20

Апстракт

Истраживање је посвећено редукцији скале за мерење општег мотива постигнућа МОП 2002. Почетна верзија инструмента МОП2002 садржи 55 ајтема и има форму скале Ликертовог типа. Пошло се од претпоставке о четворофакторској структури мотива општег постигнућа утврђеној у нашим ранијим истраживањима. У поступку редукције примењене су квантитативне и квалитативне студије. Свака од ових студија спроведена је на посебном узорку – експлоративна факторска анализа $N = 2846$, и конфирмативна факторска анализа $N = 294$ – и четири фокус групе од по 15 испитаника. На основу добијених резултата издвојено је 20 ајтема који чине скраћену верзију скале названу МОП20. Овако конципирана скала може имати и форму протокола посматрања при процени општег мотива постигнућа. Утврђено је да инструмент има јединствени предмет мерења. Резултати факторских анализа показали су стабилност четворофакторске структуре мотива постигнућа. Параметри репрезентативности, поузданости и хомогености указују да МОП20 има задовољавајуће психометријске карактеристике. Ваљаност инструмента проверавана је путем корелационе анализе мотива општег постигнућа и димензија временске перспективе, самоефикасности и локуса контроле. Добијени коефицијенти корелација указују на задовољавајућу ваљаност скале МОП20 и веома су интерпретабилни при објашњењу и сагледавању психолошког простора фактора значајних за постизање успеха у активностима као што су спорт и предузетништво.

Кључне речи: мотив општег постигнућа, мерни инструмент МОП20, факторска анализа, успешност, спорт, предузетништво.

INTRODUCTION

This paper represents a continuation to the research of the stability of the achievement motive as a construct, and the ways in which it is measured. A broader theoretical elaboration, the rationale for defining the achievement motive, and research results covering the period of 15 years in which the initial version of the instrument MOP2002 was used, are presented in the research of Franceško, Nedeljković, and Kosanović (2019).

The achievement motive is defined as a complex social motive directed at achieving success, determined either by achieving one's own goals or/and standing out in front of others.

Numerous methods and instruments for measuring the achievement motive are mentioned in literature (Murreay, 1943; Atkinson, 1957; McClelland, 1961; Schmalt, 1999; Franceško, Nedeljković, & Kosanović, 2019). Some authors (Smith, 2015) point out the necessity for perfecting the methods for assessing motivation for achievement. Some modification guidelines can be regarded as general, while some stem from the specific areas in which the achievement motive is treated as a potential factor or predictor of successfulness. In this paper, the authors attempt to construct a scale of the achievement motive with a limited number of items, which will at the same time retain the complex structure of separate factors de-

terminated in our previous research (Franceško, Mihić, & Bala, 2002; Franceško, Kodžopeljić, & Mihić, 2002; Franceško, Nedeljković, & Kosanović, 2019), accompanied by the check of psychometric parameters. The MOP scale is of a general type, which means that its content is applicable in various areas of social life. Additional motivation for the authors to modify the initial MOP2002 instrument was provided by the fact that it was widely used in the research conducted in different areas in the region of former Yugoslavia. For example, it was applied in the research about the personality structure of adolescents and students (Bubulj, Arsenjević, & Simić, 2011), and the psychological foundations of entrepreneurship and characteristics of athletes (Franceško, Nedeljković, & Kosanović, 2019; Sindik, 2010; Ivanišević, Vlašić, & Čolakhodžić, 2017).

Studying the achievement motive has a particular significance for those social activities which are explicitly based on successfulness, such as sports and entrepreneurship. Researching the factors of these phenomena includes a number of psychological, social and economic predictors of successfulness, which inevitably imposes the necessity to apply the test battery. As a result, the authors' effort to create shorter versions of the instrument with satisfactory psychometric properties represents a certain kind of inevitability, and a specific research challenge.

The benefit of using the MOP2002 scale in the context of physical activity, sports in particular, is based on multiple assumptions. Certain authors (Franceško, Nedeljković, & Kosanović, 2019) think that, although it is not a sports-specific instrument, it can be used to monitor motivation in active athletes. But, due to the connection between the general and sports-related achievement motive (Havelka & Lazarević, 1981), it can also be used to monitor motivation for achievement in former athletes who have finished their sports careers and have started careers outside of sports. Previous research has confirmed these assumptions. In the context of using the MOP2002 scale to establish a connection between successful motoric performance and the achievement motive, research results indicate that there is a correlation between perseverance as an achievement motive component and successfulness in performing gymnastic elements (Srđić, Jovanović, & Mrđa, 2018), while the component of competition with others is associated with sports success in bowlers (Sindik, 2008). As for the possible indirect effect of the achievement motive on success in sports, by using this scale, it was determined that all achievement motive components on the subsample of less successful athletes were connected with avoidance strategies and emotion-focused stress coping strategies, whereas such a connection was not observed in more successful athletes (Mitić, 2016). The same research determined that the connection between the prominence of achievement motive and stress coping was the same in athletes and non-athletes. Furthermore, when it comes to the difference between athletes achieving different levels of success, it has been shown that all achievement motive components measured by MOP2002, except

for orientation towards planning, are more prominent in professional athletes than in amateur athletes (Vlašić & Ivanušević, 2022). The prominence of the achievement motive is connected with the choice of sport as well. Thus, research showed that athletes who opted for team sports possess a more prominent orientation towards competition compared to those who practise individual sports (Vlašić & Ivanušević, 2022). Researching the differences in the prominence of the achievement motive among athletes and non-athletes, different authors discovered that athletes possess more prominent achievement motivation compared to non-athletes as concerns a sample of people comprising the student population (Ivanušević, Vlašić, & Čolakhodžić, 2017), and a sample of people comprising the population of young footballers and non-athletes (Jelić, 2018).

Studying the differences in the prominence of the achievement motive and its domains on subsamples of students talented in various areas, statistically significant differences were found between students talented in sports, on the one hand, and students talented in arts and mathematics, on the other hand. These differences are in favour of athletes, especially regarding their competitiveness (Lungulov, 2020). Studies conducted on the population of female students showed that the female students of the Faculty of Sports and Physical Education have a more prominent achievement motive compared to the female students of the Teacher Training Faculty (Trebješanin & Lazarević, 2008).

Entrepreneurship is the second social-economic-psychological activity which we use as an example, and whose main traits are permeated with the significance of achieving success. The achievement motive is regarded as one of the psychological potentials necessary for successful entrepreneurship (Franceško, Nedeljković, & Njegomir, 2022). This assumption is based on the analogy between the nature of entrepreneurship and a separate achievement motive structure. Entrepreneurship involves setting goals, competing in the market, making business plans, and persevering in overcoming the problems and obstacles on the road to success.

METHOD

The aim of this paper was to construct and validate a shortened version of the achievement motive scale. The initial basis was the MOP2002 instrument (Franceško, Mihić, & Bala, 2002), which contains 55 items. Starting from the aforementioned aim, three studies were conducted, the results of which formed the basis for selecting the items comprising a shortened scale called MOP20. Also, the aim was to check the validity of the shortened version of the instrument, or MOP20, by means of correlations with relevant psychological constructs – time perspective, self-efficacy (Kostić and Nedeljković, 2012), and locus of control.

Sample

The research created in this way required analyses on three different samples of respondents.

The first study sample consisted of 2,846 respondents of both genders, of which 36.3% are male, and 63.75% are female. The respondents were ages 17 through 44, with the average age being around 30 years. Of that, 25% of the respondents are from Vojvodina, 21% of the respondents are from Montenegro, and 54% of the respondents are from Central Serbia. As for their educational structure, 47% of the respondents finished elementary or secondary school, and 53% had a higher, or a university education. Of the total sample, 75% of the respondents are of Serbian nationality.

The second study was conducted on the data obtained on a sample of 294 respondents, all of whom are athletes. The average age was 24.30 years. The research was carried out in 2015 in Niš, Novi Sad, and Belgrade.

The data in the third study was collected within several focus groups consisting of senior students of Psychology in Novi Sad. Each of the four focus groups consisted of 15 members, whose task was to select four items which they considered the most relevant indicators of each of the four factors of MOP2002.

Instruments

The data was collected and analysed using the self-assessment scale MOP2002, which is a Likert-type scale and consists of 55 items. The task of the respondents was to indicate to what extent the statements applied to them. The offered answers were: 5 – completely true; 4 – mostly true; 3 – not sure; 2 – mostly false; and 1 – completely false.

The four-factor structure of MOP consists of: (1) **competition with others**; (2) **attainment of goals as a source of satisfaction**; (3) **perseverance in goal accomplishment**; and (4) **orientation towards planning**.

MOP 2002 measures the general achievement motive applicable in different spheres of life and work.

The following tests were used in the studies examining the connection between the achievement motive and certain psychological constructs: time perspective, self-efficacy, and locus of control in adolescents.

Time perspective was operationalised by means of a shortened version of the Zimbardo Time Perspective Inventory (Košťál, Klicperová-Baker, Lukavská, & Lukavský, 2016). The shorter version has 18 items measuring six time perspective dimensions – *Positive and Negative Past, Hedonistic and Fatalistic Present, and Positive and Negative Future*.

Self-efficacy was measured using the General Self-Efficacy Scale (SGSE; Schwarzer & Jerusalem, 1995). The questionnaire is uni-factorial and has 10 items expressed by a five-point response scale.

Locus of control in adolescents was measured by the Croatian adapted version (LKA; Ljubotina, 2018) of the Multidimensional Locus of Control Scale (IPC, 1973). The scale consists of 3 independent dimensions. The dimension of internal locus (I – *Internal*), the dimension of belief in the power of the importance of other people (P – *Power of Others*), and the dimension of belief in chance, fate or God (C – *Chance*). Additionally, higher scores on the overall value of the locus of control indicate a higher internal locus, whereas lower values indicate external locus of control.

Statistical Data Processing

Different procedures were carried out in the process of shortening the scale: exploratory factor analysis (EFA) $N = 2.846$; confirmatory factor analysis (CFA) $N = 292$; selection based on the frequency of item choice within the focus groups; content (qualitative) analysis of items; comparison of items isolated in three studies, conducted in order to choose the final shortened version correlation analysis, in order to check the validity of MOP20.

Also, the measures of reliability, representativeness and homogeneity of the instrument were checked.

THE FIRST STUDY – THE RESULTS OF EXPLORATORY FACTOR ANALYSIS (EFA)

Within the first study, explorative factor analysis with Promax factor rotation was conducted on the previously standardised and normalised data, assuming that the factors correlate with each other. The parameter value of sample adequacy ($KMO = .90$) and a significant Bartlett's sphericity test ($\chi^2(190) = 17902.31$; $p < .01$) indicate the factorability of the intercorrelation matrix.

Based on the Guttman-Kaiser Criterion, a total of four factors with a characteristic square root higher than 1 were isolated. These factors account for 55.79% of the total system variability, with the first factor accounting for 29.06% of the total variance (Table 1).

In the continuation of the analysis, five items with the highest correlations with each factor were retained. Correlations of manifest items with the isolated factors are shown in Table 2.

Table 1. Values of characteristic square roots and percentage of the variance accounted for

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings |
|-------------------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | |
| F1 - Competition | 5.81 | 29.06 | 29.06 | 5.81 | 29.06 | 29.06 | 3.46 |
| F2 - Planning | 2.38 | 11.90 | 40.95 | 2.38 | 11.90 | 40.95 | 4.09 |
| F3 - Perseverance | 1.66 | 8.31 | 49.26 | 1.66 | 8.31 | 49.26 | 3.99 |
| F4 - Goal | 1.30 | 6.52 | 55.79 | 1.30 | 6.52 | 55.79 | 4.06 |

Table 2. Matrix of the factor structure of the MOP20 scale

| Items | F1 – Competition | F2 – Planning | F3 – Perseverance | F4 – Goal |
|--------|------------------|---------------|-------------------|-----------|
| Mop31 | 0.80 | | | |
| Mop30 | 0.80 | | | |
| Mop6 | 0.73 | | | |
| Mop24 | 0.72 | | | |
| Mop25 | 0.71 | | | |
| Mop33 | | 0.82 | | |
| Mop35 | | 0.77 | | |
| Mop11 | | 0.76 | | |
| Mop27 | | 0.70 | | |
| Mop39 | | 0.66 | | |
| Mop4 | | | 0.76 | |
| Mop1 | | | 0.74 | |
| Mop22 | | | 0.72 | |
| Mop32 | | | 0.76 | |
| Mop45 | | | 0.65 | |
| Mop50 | | | | 0.63 |
| Mop13 | | | | 0.68 |
| Mop17 | | | | 0.72 |
| Mop 42 | | | | 0.73 |
| Mop 26 | | | | 0.67 |

By looking into the content of the items grouped around the first factor, such as *I invest a lot of energy to stand out in front of others* and *I strive to be ahead of others in everything*, we defined this factor as **orientation towards COMPETITION with other people**.

The second factor, defined as **orientation towards PLANNING**, consists of items such as *I plan every activity of mine*, and *Every activity needs to be well-planned beforehand*.

PERSEVERANCE in achieving goals is the name of the third factor, which is composed of highly correlated items such as: *Even when things are not going easy for me, I finish the job*, and *If I do something difficult, I usually persevere*.

The fourth factor, defined as **orientation towards ACHIEVING GOALS**, groups items such as: *The mere thought of achieving a goal brings positive feelings to me*, and *At any given moment, one should have a clearly defined goal*.

By cross-correlating the isolated factors (Table 3), it was found, in accordance with the initial assumption, that all factors are correlated – coefficients are significant and positive, and correlations range between $r=.20$ and $r=.50$. The highest degree of correlation ($r=.50$) was registered between the factors of **perseverance** and **orientation towards achieving goals**.

Table 3. Cross-correlations of the isolated factors

| Factors | F1 Competition | F2 Planning | F3 Perseverance | F4 Goal |
|-------------------|----------------|-------------|-----------------|---------|
| F1 – Competition | 1.00 | .32 | .20 | .25 |
| F2 – Planning | | 1.00 | .40 | .40 |
| F3 – Perseverance | | | 1.00 | .50 |
| F4 – Goal | | | | 1.00 |

The internal consistency of the scale, measured by Cronbach's alpha coefficient, is .86, so it can be concluded that the MOP20 scale has a very good reliability (Table 4). Looking at the coefficients for individual dimensions (Table 5), we can notice that they range between .62 and .72, which, given the number of items (5), can be considered acceptable or satisfactory.

Table 4. Cronbach's alpha coefficient of the MOP20 scale

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .86 | 20 |

Table 5. Cronbach's alpha coefficients of the individual dimensions of the MOP20 scale

| | Cronbach's alpha | N of Items |
|-------------------|------------------|------------|
| F1 – Competition | .68 | 5 |
| F2 – Planning | .72 | 5 |
| F3 – Perseverance | .62 | 5 |
| F4 – Goal | .67 | 5 |

Also, the measures of reliability, representativeness and homogeneity of the instrument were checked, and they are presented in Table 6.

Table 6. Measures of reliability, representativeness and homogeneity of the instrument

| | MOP20 |
|--|-------|
| Measures of test representativeness: | |
| Kaiser, Mayer, Olkin, representativeness measure, PSI 1 | .96 |
| Kaiser, Rice, representativeness measure, PSI 2 | .97 |
| Reliability measures in classic summational model: | |
| Spearman-Brown-Kuder-Richardson-Guttman-Cronbach, ALFA | .86 |
| Reliability measures of the first main component: | |
| Lord-Kaiser-Caffrey, BETA | .87 |
| Momirovic-Dobric-Gredelj, lower reliability limit, BETA 1 | .68 |
| Momirovic-Dobric-Gredelj, upper reliability limit, BETA 2 | .97 |
| Reliability measures in Guttman measurement model | |
| Guttman-Nicewander, RHO | .89 |
| Momirovic-Dobric, lower reliability limit, RHO 1 | .80 |
| Zakrajsek-Momirovic-Dobric, upper reliability limit, RHO 2 | .99 |
| Measures of test homogeneity: | |
| Average correlation of variables, H 1 | .24 |
| Momirovic, measure of homogeneity, H 2 | .65 |

All indicators can be regarded as satisfactory considering the number of items and the fact that the scale's number of constituents was reduced by 60%.

THE SECOND STUDY – THE RESULTS OF CONFIRMATORY FACTOR ANALYSIS (CFA)

Two models were tested in the second study. The basic assumption in the first model was that there was a correlation between factors, while the initial assumption in the second model was that the factors were not correlated. The models with the best fit indices depending on the basic assumptions are presented in the results.

Model 1

The first model consisted of four mutually correlated factors, and CFA identified 19 items that met the necessary criteria for model fitting and factor saturation. The CFA results identified the following factors with corresponding items: **competition** – items 6 (.65), 20 (.66), 21 (.79), 24 (.68), 25 (.61) and 28 (.64); **persistence** – items 1 (.68), 2 (.65), 40 (.67) and 41 (.73); **goal** – items 17 (.63), 23 (.70), 42 (.63), 50 (.63) and 51 (.62); and **planning** – items 11 (.78), 27 (.67), 33 (.90) and 35 (.76). It was also found that there were positively directed correlations between all factors, ranging in intensity from weak (.28) to very strong (.84) connections. Besides this, modification indices suggested that items 6 and 20, as

well as items 50 and 51 were in a certain relation, of a statistically very weak and weak intensity, respectively. Item analysis showed that these statements were very similar in content. For this reason, the modification index suggestion was adopted. Figure 1 (*Model with mutually correlated factors*) graphically shows the factor saturation of all items, as well as the values of the mutual correlations of all four factors.

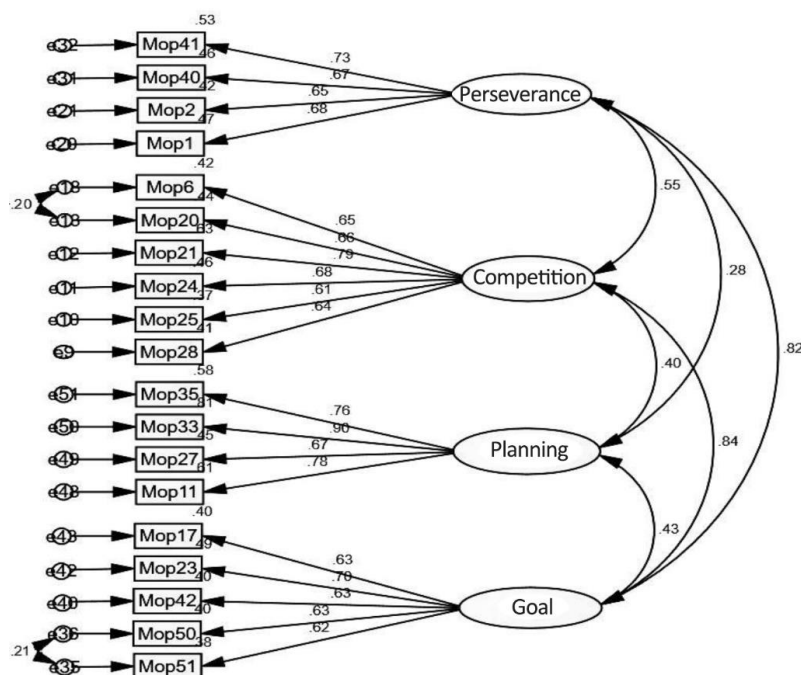


Figure 1. Model with mutually correlated factors

The continuation of the analysis focused on testing the fit of the proposed model. The value of the basic parameter – chi-square was $\chi^2 (144, N = 292) = 314.991$, and the data showed that such a value of chi-square was statistically significant ($p = .000$), which did not indicate a good fit. However, the value of the ratio of chi-square and the number of freedom degrees indicated that there was a basis for stating a good fit of the model ($\chi^2 / df = 2.187$). The fit indices were then checked. The values of GFI (.90), CFI (.92), IFI (.92), and TLI (.91) indicated a good fit of the model, as did the values of RMR (.04), SRMR (.05), and RMSEA (.06, with confidence intervals of .05 and .07). The fit indices that did not indicate an ideal fit were NFI (.87), which did not meet the criterion $> .90$, and PCFI (.78), whose desirable value is $> .80$. The aforementioned data is also presented in Tables 7 and 8. Taking into account all the conditions and characteristics of this research, such as the fit indices, factor saturations and sample size, it can be stated that the proposed model fits the collected data.

Table 7. Value χ^2 and χ^2/df in the model with correlated factors

| χ^2 | df | P | χ^2/df |
|----------|-----|------|-------------|
| 314.991 | 144 | .000 | .000 |

Table 8. Fit indices in the model with correlated factors

| GFI | IFI | TLI | CFI | PCFI | NFI | RMSEA | LO90 | HI90 | RMR | SRMR |
|-----|-----|-----|-----|------|-----|-------|------|------|-----|------|
| .90 | .92 | .91 | .92 | .78 | .87 | .06 | .05 | .07 | .04 | .05 |

Model 2

The second examined model also consisted of four factors. However, in this case, the factors were not inter correlated, and CFA showed that the model with 16 items was the best solution. The CFA results identified the following factors with their respective items: **competition** – items 6 (.67), 21 (.79), 24 (.69), and 25 (.64); **perseverance** – items 1 (.66), 2 (.61), 40 (.68), and 41 (.78); **goal** – items 12 (.60), 17 (.62), 23 (.74), and 26 (.74); and **planning** – items 11 (.77), 27 (.66), 33 (.91), and 35 (.76). Figure 2 (*Model with factors that are not inter-correlated*) graphically shows the factor saturations of all items.

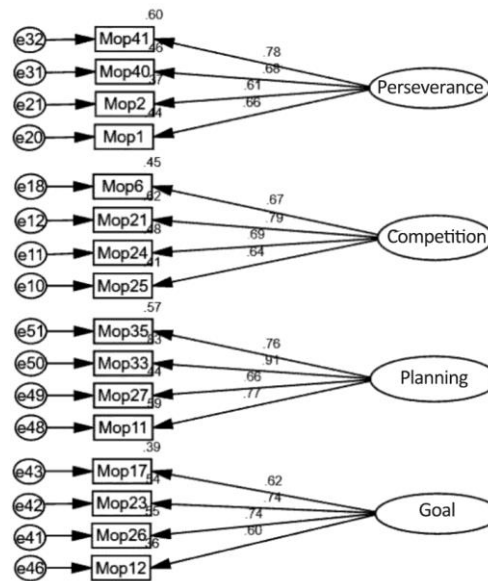


Figure 2. Model with factors that are not inter-correlated

The continuation of the analysis focused on testing the fit of the proposed model, whose factors were not interrelated. The value of the basic parameter – chi-square, was $\chi^2 (104, N = 292) = 535.216$, and the data showed that such a value of chi-square was statistically significant ($p = .000$), which did not indicate a good fit. Also, the value of the ratio of chi-square

and the number of freedom degrees did not indicate that there was a basis for stating a good fit of the model ($\chi^2 / df = 5.146$). The fit indices were then checked. The values of GFI (.80), CFI (.77), IFI (.77), TLI (.73), NFI (.73), and PCFI (.67) did not indicate a good fit of the model, nor did the values of RMR (.20), SRMR (.24), and RMSEA (.12, with confidence intervals of .11 and .13). The aforementioned data is presented in Tables 9 and 10. Taking into account these parameters, it can be stated that the proposed model with factors that are not inter-related does not fit the collected data.

Table 9. Value χ^2 and χ^2/df in the model with non-correlated factors

| χ^2 | df | P | χ^2/df |
|----------|-----|------|-------------|
| 535.216 | 104 | .000 | 5.146 |

Table 10. Fit indices in the model with non-correlated factors

| GFI | IFI | TLI | CFI | PCFI | NFI | RMSEA | LO90 | HI90 | RMR | SRMR |
|-----|-----|-----|-----|------|-----|-------|------|------|-----|------|
| .80 | .77 | .73 | .77 | .67 | .73 | .12 | .11 | .13 | .20 | .24 |

THE THIRD STUDY – SELECTION BASED ON THE FREQUENCY OF ITEM CHOICE WITHIN THE FOCUS GROUPS

The third study involved the assessment of the content of items within the MOP2002 as indicators of individual factors. The results of this qualitative assessment are presented in Table 11.

Table 11. The numbers of items selected based on the highest frequency

| Factors | Items | | | |
|-------------------|-------|----|----|----|
| F1 – Competition | 6 | 24 | 25 | 31 |
| F2 – Planning | 11 | 27 | 33 | 35 |
| F3 – Perseverance | 1 | 4 | 32 | 41 |
| F4 – Goal | 17 | 23 | 42 | 5 |

The results of the three studies opened up the possibility of comparing the isolated items for each factor from the MOP2002 scale, which is an additional indicator of the justification for the method of item selection for the shortened version. Table 12 provides a summary of the item numbers isolated from each study.

Table 12. Comparison of the isolated items in the three conducted studies with a view to selecting items for the final shortened version

| | E F A | | | | | C F A | | | | | F O C U S | | | | |
|-------------------|-------|----|----|----|----|-------|----|----|----|----|-----------|----|----|----|--|
| F1 – Competition | 6 | 24 | 25 | 30 | 31 | 6 | 20 | 21 | 24 | 25 | 6 | 24 | 25 | 31 | |
| F2 – Planning | 11 | 27 | 33 | 35 | 39 | 11 | 27 | 33 | 35 | | 11 | 27 | 33 | 35 | |
| F3 – Perseverance | 1 | 4 | 22 | 32 | 45 | 1 | 2 | 40 | 41 | | 1 | 4 | 32 | 41 | |
| F4 – Goal | 13 | 17 | 26 | 42 | 50 | 17 | 23 | 42 | 50 | 51 | 17 | 23 | 42 | 50 | |

Based on the results of all three studies, from the collection of 55 items comprising MOP2002, the following items were retained for the shortened version of the instrument: 1, 4, 6, 11, 13, 17, 22, 24, 25, 26, 27, 30, 31, 32, 33, 35, 39, 42, 45, and 50. Therefore, the majority of the items that overlap in all three studies were isolated.

THE CORRELATION BETWEEN THE ACHIEVEMENT MOTIVE AND OTHER PSYCHOLOGICAL CONSTRUCTS

In order to test the construct validity of the scale, correlations between achievement motive and certain psychological variables were determined, including time perspective, self-efficacy and locus of control (Table 13).

Table 13. Correlation of achievement motive with time perspective, self-efficacy and locus of control

| | | P | C | PL | G | MOP |
|------|---------------------|-------|-------|-------|-------|-------|
| PP | Pearson correlation | .153 | .079 | .098 | .215 | .173 |
| | Sig. (2-tailed) | .000 | .049 | .014 | .000 | .000 |
| | N | 624 | 624 | 623 | 623 | 622 |
| FP | Pearson correlation | .394 | .298 | .713 | .402 | .619 |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 |
| | N | 624 | 624 | 623 | 623 | 622 |
| PH | Pearson correlation | .144 | .258 | .079 | .212 | .230 |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 |
| | N | 624 | 624 | 623 | 623 | 622 |
| PF | Pearson correlation | -.017 | -.013 | -.087 | -.019 | -.049 |
| | Sig. (2-tailed) | .678 | .740 | .030 | .640 | .226 |
| | N | 624 | 624 | 623 | 623 | 622 |
| PN | Pearson correlation | -.125 | .006 | -.089 | -.047 | -.087 |
| | Sig. (2-tailed) | .002 | .888 | .026 | .246 | .029 |
| | N | 624 | 624 | 623 | 623 | 622 |
| FN | Pearson correlation | -.267 | -.112 | -.112 | -.236 | -.238 |
| | Sig. (2-tailed) | .000 | .005 | .005 | .000 | .000 |
| | N | 621 | 621 | 620 | 620 | 619 |
| SGSE | Pearson correlation | .525 | .383 | .168 | .422 | .490 |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 |
| | N | 624 | 624 | 623 | 623 | 622 |
| LCA | Pearson correlation | .456 | .317 | .165 | .420 | .443 |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 |
| | N | 624 | 624 | 623 | 623 | 622 |

Note: P – perseverance; C – competition; PL – planning; G – goal achievement;
MOP – general achievement motive; PP – past positive; FP – future positive;
PH – present hedonistic; PF – present fatalistic; FN – future negative;
SGSE – General self-efficacy; LCA – locus of control

Most of the correlations are statistically significant. When interpreting them, the sample size effect should not be ignored. Therefore, on-

ly high correlations ($> .30$) will be commented on. **Perseverance** is highly positively correlated with the dimension of self-efficacy and internal locus of control. **Planning** is in a high positive correlation with the dimension of positive future. **Goals** are highly positively correlated with positive future, self-efficacy and internal locus of control. **Competition** positively correlates with self-efficacy and internal locus of control. The overall general achievement motive is highly positively correlated with positive future, self-efficacy and locus of control.

Based on the entire range of the obtained correlations, from low to high, it can be assumed that the MOP20 scale possesses a satisfactory level of validity.

CONCLUDING REMARKS

The aim of this paper was to reduce the MOP2002 scale used to measure the general achievement motive. The reduction process was based on several models that encompassed quantitative and qualitative analyses, which strengthens the objectivity of the obtained results. The application of both quantitative and qualitative analyses is still rare. This paper is an attempt to integrate them in the construction of psychological measurement instruments.

Using this approach as a starting point, three different studies were conducted in order to reduce and select items. Besides this, psychometric checks of the shortened version called MOP20 were carried out. All the obtained results indicate that the shortened version of MOP20 retained full in formativeness, and that it has satisfactory psychometric properties. Furthermore, a clear and stable four-factor structure of the achievement motive was determined. The aforementioned results can be considered a confirmation of the theoretical framework elaborated in previous studies (Franceško, Nedeljković, and Kosanović, 2019), based on McClelland's definition of the achievement motive.

The four isolated factors, in our opinion, provide sufficient frameworks for perceiving the characteristics of an individual's achievement motive as complex, cognitive and social motivational characteristics. This once again confirms the justification for diagnosing the way in which an individual's success is defined (competition with others, and/or setting and achieving one's own goals), along with psychological mechanisms or instrumental forms of response in achievement situations (perseverance and orientation towards planning). The results of exploratory and confirmatory factor analysis indicate that the scale has a unique subject of measurement, but also that there is justification to isolate four components of this complex motivational disposition. In support of this, significant parameters were obtained in those analyses that assume the correlation between potential factors.

The modification of the instrument also involved the content direction of the respondents in the self-assessment process. The Likert scale used in MOP2002 was modified into an assessment scale with a clear continuity in the degree of presence and absence of the formulation *I neither agree nor disagree*. The continuum in the shortened version of the MOP20 scale contains five points, and represents a self-assessment of whether and to what extent a certain way of responding *does not apply to you at all or applies to you completely*.

The shortened version enables data collection with a lower level of respondent engagement while maintaining the same level of informativeness. The shortened version can also be used as a protocol for observing the prominence of motivation in an individual over a longer period of time and in different social situations. This opens up the possibility of comparison of the data obtained through an individual's self-assessment and the data resulting from observation, which we consider to be another significant criterion for the objectivity of measurement.

Testing the constructive validity and stability of the factor structure of the achievement motive measured by the MOP2002 and MOP20 scales opens up the possibility of analysing the characteristic profiles of this complex motivational disposition in the following steps. This means isolating typical constellations in the degree of prominence of all four components, assuming their outcomes on efficiency in certain activities (individual success). A psychological analysis of the isolated profiles would also indicate the existence of a certain degree of incongruence as one of the significant factors of inefficiency (failure). Furthermore, this implies perceiving the basis for designing psychological interventions aimed at overcoming a specific problem within the structure of the achievement motive. In addition to immediate intervention, such findings could be a significant content of socialisation in the fields of sports and entrepreneurship, as activities based on achieving success.

In this paper, a correlation analysis of the achievement motive measured by the shortened MOP20 scale was conducted with several psychological constructs: time perspective, self-efficacy, and locus of control. Although the main function of this correlation analysis was the psychometric validation check, the obtained correlation coefficients can also be viewed as a confirmation of some theoretical perspectives on the nature of this motivational characteristic. For example, significant positive correlations with all dimensions of time perspective were found, with the highest degree of correlation being found with orientation towards positive future, and significant negative correlations with orientation towards negative future. Also, significant correlations were found between almost all dimensions of the achievement motive and internal locus of control, i.e. readiness to accept personal responsibility. The connection with time perspective and locus of control can be treated as a confirmation of the cognitive aspects of the achievement motive. The results

showed a positive correlation between the achievement motive and self-efficacy, which means that, in order to understand individual success factors, it is desirable to include other personality traits as well.

The shortened MOP20 scale also opens up the possibility of determining the standards for assessing this motivational disposition. The categories for standardisation can include different age and gender groups of respondents, categories of athletes and non-athletes, and those who engage in sports as amateurs and professionally. In the field of entrepreneurship, in addition to the age and gender categories, when standardising, it is important to separate categories of those who come from entrepreneurial families and those who did not have such a form of entrepreneurial socialisation.

The shortened MOP20 scale also provides an opportunity to apply it in the examination of a set of predictor variables for sports success and entrepreneurial orientation, since such research designs always use a complex and extensive test battery.

The limitations of this research will be the subject of further elaboration in designing future research endeavours in which it will be applied.

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СКРАЋЕНА ВЕРЗИЈА СКАЛЕ МОТИВА ПОСТИГНУЋА – МОП-20

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Резиме

Главни циљ рада је да прикаже процедуре редукције скале за мерење општег мотива постигнућа МОП2002. Мотив постигнућа одређује се као сложени социјални мотив усмерен ка постизању успеха, било да је тај успех дефинисан остваривањем

властитих циљева и/или истицањем пред другим људима. Структуру мотива постигнућа, поред одреднице успеха, чине и инструментални облици понашања при постизању успеха, и то истрајност и тенденција ка планирању. Наведени сегменти представљају четири фактора мотива постигнућа, а њихова комбинација у погледу степена изражености, указује на профил ове мотивационе диспозиције. Одређење профила на основу ове четири компоненте отвара могућност анализе и објашњења успешности, односно неефикасности појединаца. Примарна, дуго коришћена верзија скале МОП2002, показала је стабилност психометријских параметара током времена на различитим узорцима истраживања. Из тог разлога, са циљем да се задовољи критеријум економичности и не наруше психометријске карактеристике скале, спроведена је сложена квантитативно-квалитативна анализа података добијених применом оригиналне скале МОП2002. Почетна верзија инструмента МОП2002 садржи 55 ајтема и има форму скале Ликертовог типа. За конструкцију скале пошло се од претпоставке о четворофакторској структури мотива општег постигнућа: такмичење са другима, остваривање циљева као извор задовољства, истрајност у реализацији циљева и оријентација ка планирању. У поступку редукције примењене су квантитативне и квалитативне студије. Свака од ових студија спроведена је на посебном узорку – експлоративна факторска анализа $N = 2846$, и конфирмативна факторска анализа $N = 294$ – и четири фокус групе по 15 испитаника. На основу добијених резултата издвојено је 20 ајтема који чине скраћену верзију скале названу МОП20 и која има форму петостепене скале самопроцене. Овако конципирана скала може имати и форму протокола посматрања при процени општег мотива постигнућа. Утврђено је да инструмент има јединствени предмет мерења. Резултати факторских анализа показали су стабилност четворофакторске структуре мотива постигнућа. Параметри репрезентативности, поузданости и хомогености указују да МОП20 има задовољавајуће психометријске карактеристике. Ваљаност инструмента проверавана је путем корелационе анализе мотива општег постигнућа и димензија временске перспективе, самоефикасности, и локуса контроле. Добијени коефицијенти корелација указују на задовољавајућу ваљаност скале МОП20 и веома су интерпретабилни при објашњењу и сагледавању психолошког простора фактора значајних за постизање успеха у активностима као што су спорт и предузетништво. Такође, утврђена је јасна и стабилна четворофакторска структура мотива постигнућа. Наведени резултати могу се третирати као потврда теоријског полазишта заснованог на Меклилендовом одређењу мотива постигнућа. Кратка верзија инструмента отвара и могућност одређења норми за процену ове мотивационе диспозиције. Категорије за нормирање могу обухватити различите узрасте и пол испитаника, категорије спортиста и неспортиста, оних који се баве спортом аматерски и професионално. У области предузетништва поред узрасних и полних категорија, при нормирању значајно је издвојити категорије оних који су из предузетничких породица и оних који нису имали овакав вид предузетничке социјализације. Скраћена скала МОП20 отвара и могућност примене у испитивању сета предикторских варијабли спортске успешности и предузетничке оријентације, будући да се у оваквом дизајну истраживања увек примењује сложена и обимна батерија мерних инструмената.