

Examination of Hungarian age group swimming in terms of
motivation, motivational environment and relative age

Doctoral thesis

Nagy Nikoletta Katalin

University of Physical Education
Doctoral School of Sport Sciences



Supervisor: Dr. Csaba Ökrös associate professor, PhD
Consultant: Dr. habil. László Tóth associate professor, PhD

Official reviewers: Dr. habil. Andrea Gál associate professor, PhD
Dr. habil. László Balogh associate professor, PhD

Chairman of the Examination Committee: Professor János Gombocz emeritus, CSc

Members of the Examination Committee: Dr. Tamás Dóczi associate professor, PhD

Dr. Váczi Márk Associate Professor, PhD

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1. INTRODUCTION

Hungarian competitive swimming is amongst the most popular sports. Its success is well known all around the country. Recently, social science research has become more important in the field of sports. The continuous development and changes in competitive sports would require to be followed by sport science research. For this reason, it is essential to expand the scope of social science research within Hungary.

The topic of my doctoral dissertation is the study of motivation, motivational climate, and the relative age effect. In addition, the examination of age group swimmers have more recommendations in the Hungarian sports science literature (Révész és mtsai, 2013).

Motivation is greatly influenced by the sport environment and according to Tóth (2008) it is determinant of the individual's performance and well-being in every case. Therefore, the analyzation of the environment is a crucial factor in sports. Szemes és munkatársai (2017) are calling for additional studies in the field of perceived motivational studies, referring to the results of practical applicability in sport psychology. Further studies were suggested of the sport environment by Young és Starkes (2009) while they were studying the training environment.

In my dissertation, I would like to respond to the suggestion of further expansion of the scope of research in relative age, among young age group athletes suggested by Gonzáles-Víllora és Pastor-Vicedo (2012) and Wattie és Baker (2013). Although, there is a study and a research recommendation in the international sport science literature of relative age of swimmers, made by (Ferreira és mtsai, 2017). Such a research topic is still unprocessed in Hungarian sports science. In the field of swimming and in an earlier study, my fellow authors and I are the first to examine this topic in the Hungarian sports literature (Nagy és mtsai, 2015). I intend to explain and continue the examination of this area in my dissertation.

The exploration of the relation between the three areas examined in my dissertation is a new field of research in the Hungarian sports science literature, which knowledge is necessary for the quality work of sport professionals.

2. OBJECTIVES

The primary goal of my dissertation is to map the motivational orientations, the characteristics of motivational climate, and the relative age correlation between Hungarian age group swimmers. These swimmers are at the age between eleven and twelve and are considered the most talented swimmers, and fit the characteristics of the three areas mentioned above. Furthermore, my objective is to examine the relative age related issues of both the evaluation system that was adopted in 2010, and the selected swimmers to the Jövő Bajnokai talent management program.

2.1 Hypothesis

In line with the research questions, I formulated the following research hypothesis:

About the motivational orientation:

- **H1:** I assume that the amotivation of the swimmers selected for the Jövő Bajnokai talent management program is below average.
- **H2:** I assume that the extrinsic motivational value of the examined swimmers is higher than their intrinsic motivational value.
- **H3a:** I assume that the motivational orientation is different between the examined swimmers in the capital city and the swimmers who live in rural areas of the country;
- **H3b:** I assume that there is a difference between the motivational orientation of the successful and unsuccessful swimmers;
- **H3c:** There is no difference between the examined boy and girl swimmers motivational orientation.

About the perceived motivational environment:

- **H4:** I assume that the selected swimmers for the Jövő Bajnokai talent management program have a Task scale value that is higher than their Ego scale value.
- **H5a:** I assume that there is no significant difference in the goal orientation and the perceived motivational climate between girls and boys;

- **H5b:** There is a difference in the perceived motivational climate between the successful and unsuccessful swimmers;
- **H5c:** There is a difference in the goal orientation and the perceived motivational climate between those swimmers who live in the capital city and those who live in rural areas of the country.

About the relative age effect:

- **H6a:** I assume that most children who are selected for the Jövő Bajnokai talent management program were born in the first quarter of the year;
- **H6b:** Most of the successful swimmers were born in the first quarter of the year;
- **H7:** I assume that there is no difference between the genders according to the period when they were born.

The relationship between the three examined areas:

- **H8a:** I assume that the motivation of the swimmers who were born in the first quarter of the year is different than other swimmers;
- **H8b:** I assume that goal orientation of those swimmers who were born in the first quarter of the year is different than other swimmers.
- **H9:** I assume that there is a difference in the motivational climate between the swimmers who were born in the first quarter of the year and other swimmers.

3. METHODS

3.1 The characteristics of the analyzed population

I would like to refer to the results of my dissertation to a well definable population, the participants of the MÚSZ's (Hungarian Swimming Association) talent management program called the Jövő Bajnokai talent management program. Hence, I chose to study the entire population and I determined the test subjects by document analysis. All the participants in the program were involved in the research (N=235). The selected children with the before mentioned age, are the most talented swimmers who were chosen by the MÚSZ's coaching committee. A total of one hundred and eighteen boys and one hundred

and seventeen girls were involved in the study. The swimmers average age is $11,44 \pm 0,57$ years. The selected interviewees are swimming instructors and coaches who have a Master coach (the highest given degree based on the coaches athlete result(s)) degree in sports coaching, and who are still active contributors of developing and educating age group and youth swimmers (N=5). Thus, they helped to answer my research questions and helped me to achieve my goals.

3.2 The Method of data collection

In my research, I used qualitative and quantitative research strategies to get to know the topic as widely as possible. I collected two questionnaires for the topics of motivational orientation and motivational climate. To answer the relative age questions, I needed to obtain data through a document analysis. I used information from the in depth interviews to interpret the results.

3.3 Methods of data processing

The survey included data that can be interpreted on a nominal and interval scale, which has basically defined the statistical procedures. During the procedure I used parametric and nonparametric tests:

- Descriptive statistics
- One-sample t-test,
- Linear correlation
- Variance analysis
- Kruskal-Wallis test
- Khi^2 test

4. RESULTS

4.1 Motivation

During the examination of motivational orientation, I analyzed the intrinsic and extrinsic motivation, along with the lack of motivation. For the total number of items, the highest value was achieved by intrinsic motivation of 5.59 ± 0.97 . The extrinsic motivation

has a lower value of $5,269 \pm 1,047$ for the descriptive statistical analysis. In the case of lack of motivation, I have experienced 1.82 ± 0.96 mean \pm standard deviation results.

In further study of intrinsic motivation, among the three subscales of the questionnaire, the *Experience search* showed the highest value of 6.03 ± 0.840 .

All three subscales of extrinsic motivation have shown lower values than intrinsic motivation. The lowest value was the *External Control* subscale (4.85 ± 1.49).

In the case of motivation, a One sample t-test was performed and the value of motivation deficiency was lower than average ($p < 0.005$).

Within the home-based motivation analysis case, the main scales of intrinsic and extrinsic motivation and sub-scales achieved higher values for rural swimmers. The result of the lack of motivation was higher in the capital's swimmers. No significant difference was found between the groups in the ANOVA test ($p > 0.005$).

In the case of successful and unsuccessful swimmers, descriptive statistical results showed that the results were almost the same for both main scales and subscales. I experienced a significant difference between the two groups of main scales, in the lack of motivation. In the ANOVA test, I found a significant difference between the two groups ($p < 0.005$). The successful swimmers had significantly lower motivation deficits.

In the gender study, I found that boys' values were always higher than girls. In the ANOVA test, I found a significant difference between the Intrinsic Motivation and Extrinsic Motivation Scales, the Purpose of Perfection, and the Intrinsic Acquisition and External Control ($p < 0.05$).

4.2 Motivational Environment

The talented swimmer's value, those selected for the Jövő Bajnokai talent management program, were higher in the Task main scale and subscale than in the Ego main and subscale.

In the case of boys and girls, the mean \pm standard deviation values of Task orientation were similar. In the case of Ego orientation, there was a greater difference in favor of boys. In the ANOVA test, a significant difference was also found in this case ($p < 0.005$). In the

analysis of the subscales, I found a significant difference between boys and girls in the case of the subscale of *Rivalry within the Team* ($p < 0.005$). The boys had higher values.

I did not find any significant difference between the successful group and the unsuccessful group of swimmers during the analysis of the main scale or the subscale.

The results of the two groups were similar in the analysis of the place of residence. At the Task orientation, rural swimmers had higher values. In the Ego orientation, the capitals were higher. During the difference examination, there was no significant difference between the two groups.

4.3 Relative age

While examining the birth periods, the competitors were divided into four groups: first, second, third and fourth quarter. In the first quarter, 38% of the swimmers were born between January and March. In the second quarter, 25 % of the swimmers were born between April and June. In the third quarter, 25% of the athletes were born between July and September. Lastly, in the fourth quarter, 12% of swimmers were born between October and December.

During the χ^2 test I found a significant difference between the birth periods ($p < 0.005$). Most of the athletes that were selected into the program were born in the first quarter of the year.

The boys had a high percentage of births in the first quarter and the third quarter was second highest. The girls did not have as high of a percentage in the third quarter.

I examined the difference between the boys and girls with the Kruskal-Wallis test. I didn't find any significant difference between boys and girls in terms of birth periods.

In the case of successful swimmers, the number of swimmers have been steadily decreasing from the first quarter to the last quarter. The difference between the successful group of swimmers and the unsuccessful group of swimmers was also examined by the Kruskal-Wallis test, which did not find any significant difference between the two groups.

4.4 Relation between relative age and motivation, relative age and motivational environment

During the variance analysis, I did not find any significant difference between the birth periods in the analysis of the motivational orientation.

In the analysis of the goal and Ego orientation, after completing the ANOVA test and in the Post Hoc test, I found a significant difference between the first and the fourth quarter birth periods ($p < 0,005$). Swimmers born in the last quarter had a higher Ego orientation.

When analyzing the motivational climate during the Post Hoc Test, I found a significant difference between the quarters. The results of the fourth quarter were significantly higher in the *Unequal Recognition subscale* ($p < 0.005$).

During the analyzation of the selection system for the Jövő Bajnokai program, the performance of the program's regions was analyzed with the help of the number of successful athletes. I found a significant difference between regions in the χ^2 test ($p < 0.005$). Central Hungary the Budapest region, which had a significantly higher number of successful swimmers than other regions.

5. CONCLUSIONS

5.1 Checking Hypotheses

Motivation

- **H1:** I accept because based on the results, the 11-12-year-old selected competitive swimmers for the program probably do not suffer from lack of motivation.
- **H2:** I cannot accept because contrary to my assumption, extrinsic motivation is less typical in the program participants than intrinsic motivation.
- **H3:** I have to reject the motivational orientation of the capital and rural swimmers. There is no significant difference between the motivational orientation of the swimmers who train in the capital city, and swimmers who train at rural areas. I cannot accept part b because results have shown that the motivational orientation of successful and unsuccessful swimmers is no different. Part c was rejected because contrary to my assumption, the motivational orientation of the selected competitive swimmers, differs by gender.

Motivational climate

H4: I accept because in the knowledge of the results, the selected swimmers for the Jövő Bajnokai program, are characterized by a task-oriented environment.

H5: I cannot accept part a because results show that boys are more performance oriented than the girls, due to the boy's rivalry with teammates. There is no difference between the categories of successful and unsuccessful swimmers at the target orientation, and the perceived motivational climate, so I cannot accept part b. The motivational environment of the swimmers selected for the Jövő Bajnokai program does not differ according to their place of residence, so I cannot accept the part c based on the place of residence.

Relative age

H6: I accept because the results showed that at 11-12 years of age, getting into the top of the sport, being an elite swimmer, and getting into the talent management program are influenced by the relative age. I accept part b for the successful and unsuccessful swimmers because with my assumption the differences in relative age between the athletes manifested in the talent management as well.

H7: According to the results, the examined boy and girl swimmers have the same characteristic of the relative age effect, so I accept my seventh hypothesis.

The relationship between the three areas examined

H8: I had to abandon the motivational orientation part a because contrary to my assumption, the motivation of the swimmers who were born in the first quarter of the evaluation year is no different from the other swimmers who have been selected in to the program.

The goal-oriented orientation of the swimmers who were born in the last quarter is different from that of the other swimmers, so I accept the sub-hypothesis stated for goal orientation.

H9: I cannot accept it because based on the results there is no difference in the motivational climate, with regard to the birth periods in the swimmers being studied.

5.2 Recommendations

For Head coaches, coaches:

- Develop intrinsic motivation
- Pay special attention to the motivation of the girls in the age group 11-12
- In the case of boys, preserve the level of perfection and emphasize self-performance
- Maintain the aspirations for the development of swimmers for long term. Encourage to use the correct technical elements of swimming, with special attention to the swimmers who were born at the end of the year
- Prefer those competitions that allow swimmers to be evaluated by the age and awarded until the sixth place ranking.

For the Hungarian Swimming Association Coaching Committee

- Prefer evaluating the swimmers by the age at age group competitions
- Evaluate the first six ranked swimmers at age group competitions
- Have standard times, finals at competitions, and medal ceremonies by age at the Shark and Adolescent National Championship

For the Regional leaders and supervisors of the Jövő Bajnokai program

- Take into account the differences resulting from the effects of relative age, throughout the process of the selection into the program
- In the case of cutting swimmers from the program, pay particular attention to the relatively young athletes
- Take into account the dominance of Central Hungary, Budapest, when determining the headcount of swimmers by regions

The results of my dissertation are recommended to those professionals who work in their daily life for successful Hungarian swimmers and promote a healthy life rich in swimming.

LIST OF PUBLICATIONS

Publications related to the topic of the dissertation

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