



The role of gender stereotypes in sport interests for Taekwondo and other sports of urban elementary school pupils

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Gender stereotypes in sport interests for Taekwondo and other sports popular in Croatia among boys and girls urban elementary school pupils are analyzed in this study.

A sample of 1294 elementary school pupils (685 males and 609 females) from 5th, 6th, 7th and 8th grade between 11 and 15 years of age participated in the study. They were given a list of 52 sports to be evaluated on five-point scale. The original data were standardized and transformed to 52 standardized principal components. Discriminative analysis had been performed regarding gender within the frame of multiple regression approach in the space of principal components. Coefficient of canonical discrimination in overall space is $\rho_{1-52} = 0.837$ ($\rho^2_{1-52} = 0.701$), but when projected just on the second principle component alone is $\rho_2 = 0.793$ ($\rho^2_2 = 0.628$) which alone provide 89.59% of information available for discrimination. With the positive values for females and negative values for males on the discriminative function, the discriminative function is bipolar. The structure of discriminative function in the space of original variables is bipolar too. Gender stereotypes based component of sport interests enables us to recognize 18 sports substantial positive values that are declared as feminine. On the opposite side with substantial negative values of their correlations 21 sports are recognized as masculine. With correlations oscillating around the zero for: mountaineering, cycling, orienteering, water skiing, surfing, basketball, alpinism/ rock climbing, handball, karate, kayaking/canoeing,



parachuting, Taekwondo, judo 13 sports are declared as gender neutral expressed sport interests. Taekwondo, as an Olympic modern combat sport, is perceived as gender neutral sport in the Croatian sport culture.

Key words: gender stereotypes, sports interests, Taekwondo, principal components, discriminative analysis, urban elementary school pupils

Introduction

Exploring gender stereotypes is both of theoretical value and of practical importance for ongoing improvement of gender equity issues. Based on gender stereotypes (Oglesby & Hill, 1993) combat sports are considered male activities perceived as aggressive and dominance-oriented and are often treated as inappropriate for female participants (Plaisted, 1995). In this way participation in sport and preferences are active components of gender identity. Gender identity is a person's concept of self as being male and masculine or female and feminine, or ambivalent. It is based, in a part, on several sources, as are physical characteristics, parental responses, and psychological and social pressures. It is an internal experience of gender role but have consequences on position in society (Matteo, 1986; Koivula, 1995, 1999; Coakley, 2003). If gender identity of person, social group and other social aggregate is based on oversimplified generalizations about gender attributes, differences and roles when we are dealing with gender stereotypes. Sport interests are preferences individuals have for activities that go with different sports, where preferences are individual's expressions of desirability or value of one course of action, outcome, or selection in contrast to others. Positively identified degree of influence of gender stereotyping on different sports and different sports preferences enable us to classify and recognize sports as female dominant male dominant and gender neutral (Bosnar and Žugaj, 2009). Gender neutral sports have great potential for practical management of gender equity, and as a synergy support achievement UN millennium development goals to promote gender equality and empower women. By using sport as a tool, the IOC and its partners International Sports Federations (ISF) and their Member National Associations (MNA) are implementing various activities across the globe in field of gender equality. Elementary school pupils 5th, 6th, 7th and 8th grade aged between 11 and 15 years form cadet and junior divisions in the most of sports. Confidence to



authorities, lacking the experiences in wider range of sports activities make them prone to stereotyping. Gender stereotyping is not exception at all. Based on sport preferences of urban elementary school pupils gender stereotyping will be studied with the aim to evaluate taekwondo and other sports in Croatian sports culture.

Material and Methods

A sample of 1294 urban elementary school pupils composed of 685 males and 609 females regular attendants of 5th grade (166 males, 143 females), 6th grade (185 males, 146 females), 7th grade (175 males, 176 females), and 8th grade (159 males, 144 females) between 11 and 15 years of age participated in study.

They were given a list of 52 sports: acrobatics, aerobics, aeronautics, alpinism/ rock climbing, archery, athletics, auto-motor sports, badminton, baseball, basketball, bodybuilding, bowls, boxing, cycling, dance, diving, equestrian, fencing, field hockey, football, handball, ice hockey, judo, karate, kayaking/canoeing, mountaineering, orienteering, parachuting, pin bowling, rhythmic gymnastics, roller skating, rowing, rugby, scuba diving, shooting, skating, skiing, sledging, spear-fishing, sports fishing, sports gymnastics, swimming, synchronized swimming, table tennis, taekwondo, tennis, volleyball, water polo, water skiing, weightlifting, wind surfing, wrestling. Each of these sports to be evaluated on five-point scale: 1 – I will never participate; 2 – I will participate only if there is no other activity; 3 – I will participate from time to time under suitable conditions; 4 – I would like to participate and 5 – I will participate if there is any opportunity.

The original data were standardized and by means principal component analysis they were transformed to 52 standardized principal components ordered according to the values of corresponding eigenvalues of correlation matrix. Discriminative analysis had been preformed regarding the gender in the space of all 52 principal components. Coefficients of canonical discrimination in the space of all 52 principal components and structure of discriminative function in the space of all components and original variables (sport preferences) were computed. The same procedure has been repeated for the second principal component only.



Results

Principal components (table 1.) ordered according to the values of corresponding eigenvalues of correlation matrix are showing that first nine components have variance greater than 1.0 and consequently positive reliabilities. They are representing 54.78% of all information of correlations of sport preferences. First principal component with 22.13% and second principal components with 11.13% are representing 33.26% of information of system of 52 original variables. But with respect to first nine components the second component contribute with 20.32% what is important for this study.

Table 1. Principal component transformation. The first nine above average eigenvalues of correlations matrix with percent of variance explained and percent of cumulative variance explained.

Component	Eigenvalues		
	Total	% of Variance	Cumulative %
1	11.510	22.134	22.134
2	5.787	11.130	33.264
3	2.331	4.482	37.746
4	2.239	4.306	42.051
5	1.694	3.257	45.308
6	1.432	2.755	48.063
7	1.293	2.487	50.550
8	1.163	2.237	52.787
9	1.036	1.992	54.779

Extraction Method: Principal Component Analysis, only Above average first 9 of 52 Eigenvalues are presented

Canonical discriminative analysis of all 1-52 principal components of sports interests regarding gender (table 2.) shows high and significant coefficient of canonical discrimination in overall space is $\rho_{1-52} = 0.837$ ($\rho^2_{1-52} = 0.701$). Inspection of vector of standardized discriminative coefficient, structure of discriminative functions in all 52 component space (table 5.) shows very interesting phenomena. The only one substantially high discriminative coefficient 1.055 and 0.947 corresponding to the second principal component shows that second principal component tends to be collinear with information on gender of entities.



Table 2. Results of discriminative analysis of all 1–52 principal components of sports interests regarding gender

Eigenvalue	Canonical Correlation	Wilks' Lambda	Chi-square	Degrees of freedom	Significance of χ^2 test
2.342	.837	.299	1527.551	52	.000

When discriminative procedure is repeated just for the second principal component and information on gender is projected on the second principle component alone correlation is $\rho_2 = 0.793$ ($\rho^2_2 = 0.628$). This demonstrate that second principal component alone provide 89.59% of information available for discrimination regarding the gender. Rest of ten percent of information available for discrimination is collected from rest of principal components.

Table 3. Results of discriminative analysis of 2nd principal component of sports interests regarding gender

Eigenvalue	Canonical Correlation	Wilks' Lambda	Chi-square	Degrees of freedom	Significance of χ^2 test
1.690	.793	.372	1277.776	52	.000

In this way the second principal component is the best single synthetic measure of gender related component of sport preferences ascribed to gender stereotypes.

Group means on bipolar discriminative functions (table 4.) are showing positive values for females and negative values for males

Table 4. Group means on discriminative functions for all components discriminative function ($\Phi_{(1-52)}$) and for 2nd component discriminative function($\Phi_{(2nd)}$)

Gender	$\Phi_{(1-52)}$	$\Phi_{(2nd)}$
males	-1.442	-1.225
females	1.622	1.377

Table 5. Standardized discriminative coefficient (WC), Structure of discriminative function (FC) in all 52 component space

PRINCIPAL COMPONENT	WC	FC
Principal component 1	-.106	-.058
Principal component 2	1.055	.947
Principal component 3	-.023	-.012



Principal component 4	.270	.149
Principal component 5	-.150	-.082
Principal component 6	-.062	-.034
Principal component 7	-.232	-.128
Principal component 8	.001	.001
Principal component 9	-.013	-.007
Principal component 10	-.175	-.096
Principal component 11	.081	.044
Principal component 12	.101	.055
Principal component 13	.033	.018
Principal component 14	.079	.043
Principal component 15	-.203	-.111
Principal component 16	.063	.034
Principal component 17	.080	.044
Principal component 18	-.089	-.049
Principal component 19	-.094	-.051
Principal component 20	.021	.012
Principal component 21	-.011	-.006
Principal component 22	.058	.032
Principal component 23	-.056	-.031
Principal component 24	-.001	-.001
Principal component 25	.060	.033
Principal component 26	.087	.047
Principal component 27	.028	.015
Principal component 28	-.054	-.030
Principal component 29	.026	.014
Principal component 30	-.007	-.004
Principal component 31	-.027	-.015
Principal component 32	.011	.006
Principal component 33	.039	.022
Principal component 34	-.091	-.050
Principal component 35	.026	.014
Principal component 36	.022	.012
Principal component 37	.039	.021
Principal component 38	-.017	-.010
Principal component 39	.063	.034
Principal component 40	-.012	-.007
Principal component 41	-.051	-.028
Principal component 42	.075	.041



Principal component 43	-0.017	-0.009
Principal component 44	.007	.004
Principal component 45	.007	.004
Principal component 46	-0.038	-0.021
Principal component 47	.036	.020
Principal component 48	-0.036	-0.019
Principal component 49	-0.016	-0.009
Principal component 50	.020	.011
Principal component 51	-0.031	-0.017
Principal component 52	.030	.016

Classification of cases based on results of discriminative analysis on all 52 principal components, and classification of cases based on results of discriminative analysis on 2nd principal component alone (tables 6. and 7.) is considered successful. Reproduction of initial classification is reduced from 93.4% of original grouped cases correctly classified to 90.4%, only 3% of difference.

Table 6. Classification results based on discriminative analysis on all 52 principle components

	Gender	Predicted Group Membership		Total
		males	females	
Original Count (%)	males	659	26	685
	females	59	550	609
	males	96.2	3.8	100.0
	females	90.3	100.0	100.0

Table 7. Classification results based on discriminative analysis on 2nd principle component

	Gender	Predicted Group Membership		Total
		males	females	
Original Count (%)	males	649	36	685
	females	88	521	609
	males	94.7	5.3	100.0
	females	14.4	85.6	100.0



Such a synthetic measure of gender stereotypes component of sport interests enables us to recognize sports with high moderate and low (neutral) values of correlations on the structure of discriminative function showing high positive values for females and high negative values for males (table 8.). Gender stereotypes based component of sport interests enables us to recognize 18 sports substantial positive values that are declared as feminine. On the opposite side with substantial negative values of their correlations 21 sports are recognized as masculine. With correlations oscillating around the zero for: mountaineering, cycling, orienteering, water skiing, surfing, basketball, alpinism/rock climbing, handball, karate, kayaking/canoeing, parachuting, taekwondo, judo 13 sports are declared as gender neutral expressed sport interests. Taekwondo, as an Olympic modern combat sport, is perceived as gender neutral sport in the Croatian sport culture.

Table 8. Structure of all 52 components discriminative function ($FC_{(1-52)}$) in space of sport preferences, structure of 2nd component discriminative function ($FC_{(2nd)}$) in space of sport preferences

SPORT	$FC_{(1-52)}$	$FC_{(2nd)}$
Dance	.737	.715
Rhythmic gymnastics	.681	.714
Skating	.566	.623
Aerobics	.631	.610
Synchronized swimming	.569	.590
Sports gymnastics	.438	.532
Badminton	.449	.509
Roller skating	.471	.503
Equestrian	.499	.471
Volleyball	.344	.411
Acrobatics	.288	.382
Tennis	.227	.314
Swimming	.189	.284
Sledging	.138	.273
Diving	.207	.264
Athletics	.099	.194
Scuba diving	.097	.123
Skiing	.000	.120
Mountaineering	.017	.098
Cycling	.003	.095
Orienteering	.024	.094
Water skiing	.076	.081



Surfing	.078	.063
Basketball	-.009	.021
Alpinism(rock climbing)	-.031	.021
Handball	-.115	-.053
Karate	-.007	-.065
Canoeing	-.088	-.065
Parachuting	-.057	-.071
Taekwondo	-.006	-.074
Judo	-.060	-.085
Bowls(boules)	-.169	-.105
Bodybuilding	-.117	-.137
Pin bowling	-.177	-.142
Field hokey	-.199	-.187
Baseball	-.161	-.191
Waterpolo	-.302	-.197
Spear-fishing	-.282	-.207
Fencing	-.177	-.210
Archery	-.210	-.211
Sports fishing	-.317	-.225
Shooting	-.256	-.242
Rugby	-.227	-.264
Rowing	-.275	-.266
Aeronautics	-.283	-.270
Table tennis	-.332	-.290
Weightlifting	-.277	-.310
Wrestling	-.325	-.347
Ice hockey	-.451	-.445
Football	-.518	-.481
Box	-.407	-.482
Auto-moto sports	-.579	-.541

Discussions

The results show similar gender-type classification of sports as founded out and reported earlier (Koivula, 2001 and Bosnar and Žugaj, 2009). Discriminative analysis in the space of principal components of sport preferences demonstrates that gender stereotyping is dominantly determ

The results show similar gender-type classification of sports as founded out and reported earlier (Koivula, 2001 and Bosnar and Žugaj, 2009). Discriminative analysis in the space of principal components of sport preferences demonstrates that gender



stereotyping is dominantly determined by the second principle component as its synthetic measure. Its order and variance magnitude demonstrate its importance and relevance for the imposed research problem. This synthetic measure of gender stereotypes component of sport interests enables us to recognize sports with high moderate and low positive values of correlations on the structure of discriminative function. With the positive values for females and negative values for males, the discriminative function is bipolar in structure. Sports: dance, rhythmic gymnastics, skating, aerobics, synchronized swimming, sports gymnastics, badminton, roller skating, equestrian, volleyball, acrobatics, tennis, swimming, sledging, diving, athletics, scuba, diving, skiing i.e. 18 of them are declared as feminine. On the opposite side with high, moderate and low negative values of correlations (auto-motor sports, boxing, football, ice hokey, wrestling, weightlifting, table tennis, aeronautics, rowing, rugby, shooting, sports fishing, archery, fencing, spear-fishing, water polo, baseball, field hokey, pin bowling, bodybuilding, bowls) i.e. 21 of them are recognized as masculine. Finally, values of correlations oscillating around the zero (mountaineering, cycling, orienteering, water skiing, surfing, basketball, alpinism/ rock climbing, handball, karate, kayaking/canoeing, parachuting, taekwondo, judo) 13 of them are declared as gender neutral expressed sport interests. It's important to point out that taekwondo, as an Olympic modern combat sport, is perceived as gender neutral sport in the Croatian sport culture, and it could be of practical importance for ongoing improvement of gender equity issues in broader social context (Coakley, 2003; Cunningham and Sagas, 2008)

Conclusions

The results illustrate that the sport preferences are gender stereotyped. Suitable selection of data analysis procedure in this study demonstrate that second principal component of sport preferences is synthetic bipolar dimension by which sports could be viewed as masculine or neutral or feminine. Apart from the other factors that can influence attitudes and preferences toward different sports the presence of gender-based component is identified. Based on its order and variance magnitude its relative importance is estimated and evaluated as substantially strong.

Based on sample of subjects participated in the study it could be concluded that gender stereotypes in sport are present among elementary school pupils at the age of late childhood and early teenage period. Their pattern in Croatian sports culture is similar to those experienced in different part of the world giving meaning to sport



as an active component shaping social relations in developed societies.

According to results of this research taekwondo, as a modern Olympic combat sport, is perceived as gender neutral sport in the Croatian sports culture. Therefore, as a good example, it could be of practical importance for ongoing improvement of gender equity issues in broader social context.

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AIM OF THE STUDY:

**ESTABLISH AND INVESTIGATE
GENDER DIFFERENCES
RELATED TO SPORT INTERESTS IN
LATE CHILDHOOD AND EARLY
TEENAGE**

ENTITIES

- Representative sample of elementary school pupils 5th, 6th, 7th, and 8th grades aged between 11 and 15.3 years

SAMPLE: 1294 subjects

male (685)

female (609)

5th grade 166 143

6th grade 185 146

7th grade 175 176

8th grade 159 154

VARIABLES

Measure of sport preferences -

list of 52 sports

The list of 52 sports:

- **acrobatics, aerobics, aeronautics, rock climbing, archery, athletics, auto-motor sports, badminton, baseball, basketball, bodybuilding, bowls, boxing, canoeing, cycling, dance, diving, equestrian, fencing, field hockey, football, handball, ice hockey, judo, karate, mountaineering, orienteering, parachuting, pin bowling, rhythmic gymnastics, roller skating, rowing, rugby, shooting, scuba diving, skating, skiing, sledging, spear-fishing, sports fishing, sports gymnastics, surfing, swimming, synchronized swimming, table tennis, taekwondo, tennis, volleyball, water skiing, water polo, weightlifting and wrestling.**

to be evaluated on five-point scale

Five-point scale:

1 – I will never participate

2 – I will participate only if there will be no other activity

3 – I will participate from time to time temporarily under suitable conditions

4 – I would like to participate

5 - I would participate if it will be any opportunity

DATA ANALYSIS:

**Principal component
transformations**

Discriminant analysis

RESULTS

Table 1. Principal component transformation. The first nine above average eigenvalues of correlations matrix with percent of variance explained and percent of cumulative variance explained.

Component	<u>Eigenvalues</u>		
	Total	% of Variance	Cumulative %
1	11.510	22.134	22.134
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8	1.163	2.237	52.787
9	1.036	1.992	54.779

Extraction Method: Principal Component Analysis, only
Above average first 9 of 52 Eigenvalues are presented.

Two canonical discriminant analyses were conducted and results were compared.

Table 2. Results of discriminative analysis of all 1-52 principal components of sports interests regarding gender

<u>Eigenvalue</u>	Canonical Correlation	<u>Wilks' Lambda</u>	Chi-square	Degrees of freedom	Significance of χ^2 test
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1.690	.793	.372	1277.776	52	.000

Canonical correlations

1st analysis : $\rho_{1-52} = 0.837$ $\rho^2_{1-52} = 0.701$

2nd analysis: $\rho_2 = 0.793$ $\rho^2_2 = 0.628$

$\rho_2 / \rho_{1-52} = 89.59\%$ of informations available for gander based discrimination.

- **The positions of centroids on discriminant functions are oriented on positive side for females and on negative side for males.**

Centroids on discriminant functions

Table 4. Group means on discriminative functions for all components discriminative function ($\Phi_{(1-52)}$) and for 2nd component discriminative function ($\Phi_{(2nd)}$)

Gender	$\Phi_{(1-52)}$	$\Phi_{(2nd)}$
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Principal component 43	-.017	-.009
Principal component 44	.007	.004
Principal component 45	.007	.004
Principal component 46	-.038	-.021
Principal component 47	.036	.020
Principal component 48	-.036	-.019
Principal component 49	-.016	-.009
Principal component 50	.020	.011
Principal component 51	-.031	-.017
Principal component 52	.030	.016

Table 6. Classification results based on discriminative analysis on all 52 principle components

		Gender	Predicted Group Membership		Total
			males	females	
Original	Count	Males	659	26	685
		Females	59	550	609
	%	Males	96.2	3.8	100.0
		Females	9.7	90.3	100.0

93.4% of original grouped cases correctly classified.

Table 7. Classification results based on discriminative analysis on 2nd principle component

		Gender	Predicted Group Membership		Total
			Males	Females	
Original	Count	Males	649	36	685
		Females	88	521	609
	%	Males	94.7	5.3	100.0
		Females	14.4	85.6	100.0

90.4% of original grouped cases correctly classified.

- With the positive values for females and negative values for males, the discriminative function is bipolar in structure.
- High, moderate and low positive values of correlations sports:
dance, rhythmic gymnastics, skating, aerobics, synchronized swimming, sports gymnastics, badminton, roller skating, equestrian, volleyball, acrobatics, tennis, swimming, sledging, diving, athletics;
i.e. 18 of them are declared as feminine.

Table 8. Structure of all 52 components discriminative function ($FC_{(1-52)}$) in space of sport preferences, structure of 2nd component discriminative function ($FC_{(2nd)}$) in space of sport preferences, decomposition of variance of 2nd principal component (h^2_{2c})

SPORT	$FC_{(1-52)}$	$FC_{(2nd)}$	h^2_{2c}	$\lambda_2\%$
Dance	.737	.715	0.511	8.83
Rhythmic gymnastics	.681	.714	0.510	8.81
Skating	.566	.623	0.388	6.70
Aerobics	.631	.610	0.372	6.43
Synchronized swimming	.569	.590	0.348	6.01
Sports gymnastics	.438	.532	0.283	4.89
Badminton	.449	.509	0.259	4.48
Roller skating	.471	.503	0.253	4.37
Equestrian	.499	.471	0.222	3.83
Volleyball	.344	.411	0.169	2.92
Acrobatics	.288	.382	0.146	2.52
Tennis	.227	.314	0.099	1.70
Swimming	.189	.284	0.081	1.39
Sledging	.138	.273	0.075	1.29
Diving	.207	.264	0.070	1.20
Athletics	.099	.194	0.038	0.65

- On the opposite side with high, moderate and low negative values of correlations:

auto-motor sports, boxing, football, ice hokey, wrestling, weightlifting, table tennis, aeronautics, rowing, rugby, shooting, sports fishing, archery, fencing, spear-fishing, water polo, baseball, field hokey;

i.e. 18 (21) of them are recognized as masculine.

Field hockey	-0.199	-0.187	0.035	0.60
Baseball	-0.161	-0.191	0.036	0.63
Waterpolo	-0.302	-0.197	0.039	0.67
Spear-fishing	-0.282	-0.207	0.043	0.74
Fencing	-0.177	-0.210	0.044	0.76
Archery	-0.210	-0.211	0.045	0.77
Sports fishing	-0.317	-0.225	0.051	0.87
Shooting	-0.256	-0.242	0.059	1.01
Rugby	-0.227	-0.264	0.070	1.20
Rowing	-0.275	-0.266	0.071	1.22
Aeronautics	-0.283	-0.270	0.073	1.26
Table tennis	-0.332	-0.290	0.084	1.45
Weightlifting	-0.277	-0.310	0.096	1.66
Wrestling	-0.325	-0.347	0.120	2.08
Ice hockey	-0.451	-0.445	0.198	3.42
Football	-0.518	-0.481	0.231	4.00
Box	-0.407	-0.482	0.232	4.01
Auto-moto sports	-0.579	-0.541	0.293	5.06

- Finally, values of correlations oscillating around the zero:

scuba, diving, skiing , mountaineering, cycling, orienteering, water skiing, surfing, basketball, alpinism/ rock climbing, handball, karate, kayaking/canoeing, parachuting, taekwondo, judo, pin bowling, bodybuilding, bowls;

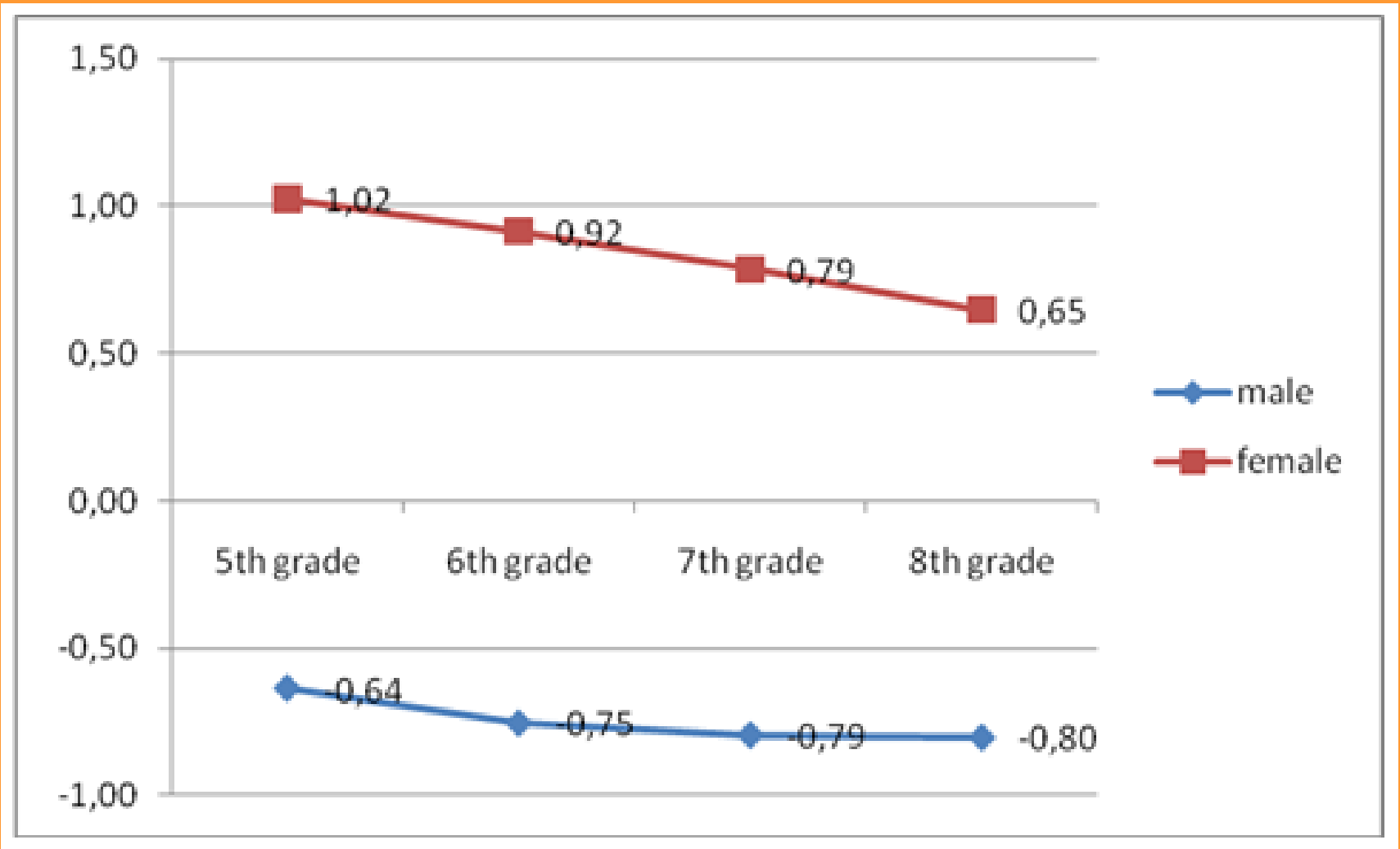
18 (13) of them are declared as gender neutral expressed sport interests

Scuba diving	.097	.123	0.015	0.26
Skiing	.000	.120	0.014	0.25
Mountaineering	.017	.098	0.010	0.17
Cycling	.003	.095	0.009	0.16
Orienteering	.024	.094	0.009	0.15
Water skiing	.076	.081	0.007	0.11
Surfing	.078	.063	0.004	0.07
Basketball	-.009	.021	0.000	0.01
Alpinism (rock climbing)	-.031	.021	0.000	0.01
Handball	-.115	-.053	0.003	0.05
Karate	-.007	-.065	0.004	0.07
Canoeing	-.088	-.065	0.004	0.07
Parachuting	-.057	-.071	0.005	0.09
Taekwondo	-.006	-.074	0.005	0.09
Judo	-.060	-.085	0.007	0.12
Bowls (<u>boules</u>)	-.169	-.105	0.011	0.19
Bodybuilding	-.117	-.137	0.019	0.32
Pin bowling	-.177	-.142	0.020	0.35

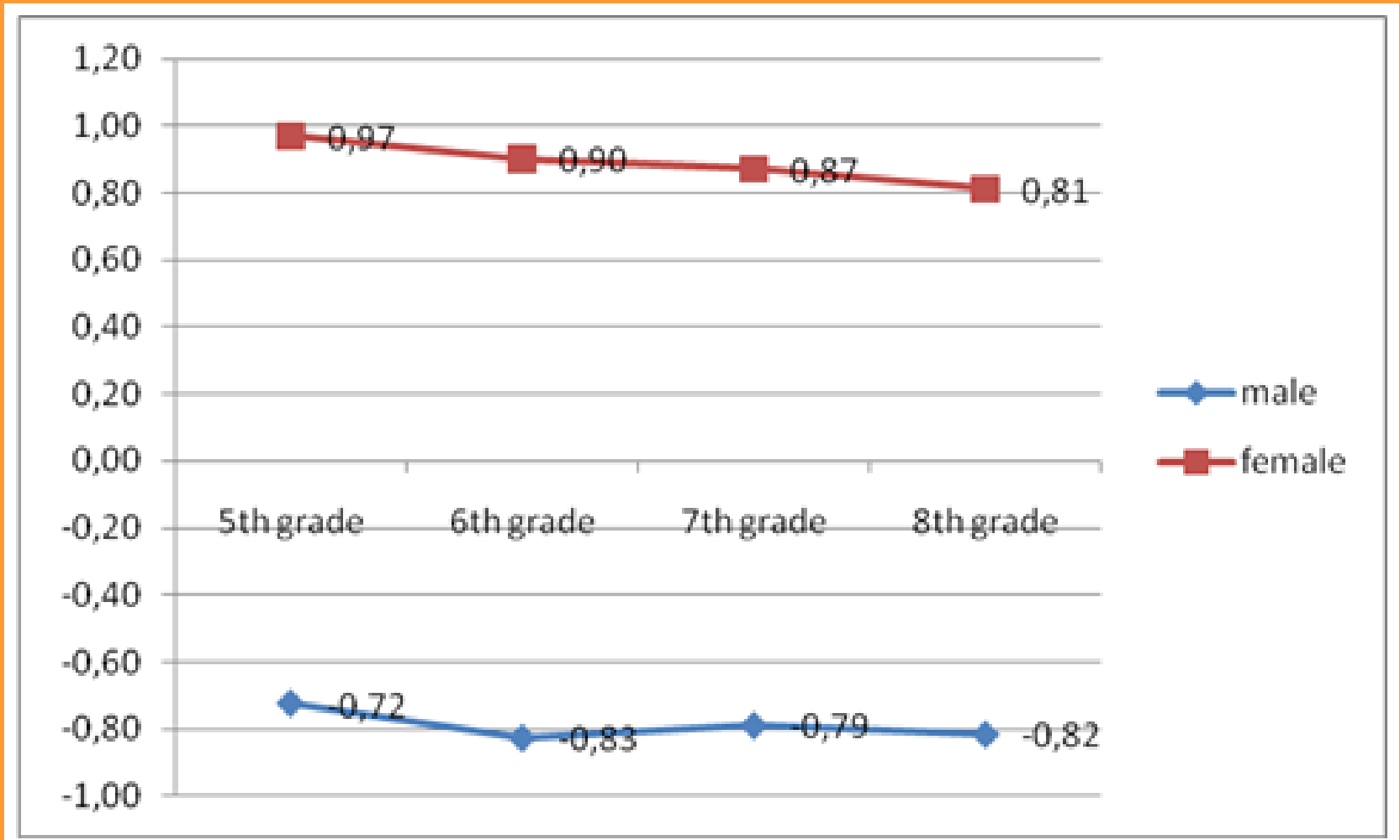
Centroids for grades and genders on 2nd principal component and standardized discriminant function in the space of all 52 principal components

GENDER	GRADE		STANDARDIZED 2 nd Principal component	STANDARDIZED DISCRIMINATIVE FUNCTION in the space of all 52 components
Males	5	Mean	-.637	-.724
	6	Mean	-.754	-.825
	7	Mean	-.794	-.789
	8	Mean	-.802	-.815
Females	5	Mean	1.023	.970
	6	Mean	.915	.900
	7	Mean	.786	.872
	8	Mean	.649	.812

Centroids of female (red) male (blue) for 5th, 6th, 7th and 8th grades on the 2th principal component



Centroids of female (red) male (blue) for 5th, 6th, 7th and 8th grades on standardized discriminative function in the space of all 52 Principal components



CONCLUSIONS

- **GENDER DIFFERENCES REGARDING SPORT INTEREST ARE EXISTING**
- **THEY CAN BE IDENTIFIED**
- **THEY DIFFER FROM SPORT TO SPORT**
- **MONITORING IS POSSIBLE AND THAT OFFERS REASONABLE BASIS FOR PRACTICAL ACTIONS IN THEIR REDUCTION**
- **TAEKWONDO BELONGS TO FAMILY OF GENDER NEUTRAL SPORTS IN CROATIAN SPORTS CULTURE**

Thank You very much for your
attention!



Sara Prot



Franjo Prot



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- **reference to:**

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