DIFFERENCES BETWEEN TOP SENIOR BASKETBALL PLAYERS FROM DIFFERENT TEAM POSITIONS IN BIG FIVE PERSONALITY TRAITS

Joško Sindik

Institute for Anthropological Research, Zagreb, Croatia

Original scientific paper

Abstract

Assessment of differences in personality traits in basketball players from different play positions in team may contribute to better understanding of the basketball players and basketball. It could provide guidance for the more differentiated trainer's approach. Our research aimed at ascertaining the differential factors between players playing in Croatian top senior teams on different play positions (point guard and shooting guard, compared with small forward, power forward and center), with respect to Big Five personality traits. The final sample of participants (74 basketball players) was selected from the initial sample of 107 subjects, basketball players from nine senior teams A-1 Croatian Men's Basketball League in the championship 2006/2007. Results showed that discrimination function can't statistically significantly distinguish players that play on different positions, in relation to dimensions of Big Five personality traits. In other words, they have similar Big Five personality traits. However, statistically significant difference has been found for only one particular dimension (Intellect), which has been hypothetically explained.

Key words*: personality, basketball, Big Five, discrimination analysis, differences*

Introduction and the aim

Basketball is a complex polystructural variable activity characteristic for its cyclic and acyclic motion types that are preceding the main goal of the game, shooting the ball into the basket, as well as preventing the opponent player to make a shot. The game itself is divided into three main stages: defence, attack and transition (Jukić, 1998). The rules of basketball do not define any specific player positions. So the positions in basketball are more part of an overall strategy of the game. There are 5 traditional positions that most teams have in their offense and defensive schemes. Many players today are interchangeable or can play many positions. The point guard is the team leader and play caller on the basketball court. A point guard needs good ball handling skills, passing skills as well as strong leadership and decision making skills (* * *, 2008 /Ducksters/). The shooting guard in basketball has the main responsibility of making long outside shots including the three-point shot. The shooting guard also should be a good passer and able to help the point guard with the ball handling. Along with the shooting guard, the small forward is often the most versatile player on the basketball team. They should be able to help with ball handling, make an outside shot, and get rebounds. The small forward is often a great defensive player as well. The power forward on a basketball team is usually responsible for rebounding and some scoring in the paint. A power forward should be big and strong and able to clear out some space under the basket. Many great power forwards in the game today do not score a lot of points, but lead their team in rebounds. The center is usually the biggest or tallest member of the basketball team. The center can be a big scorer, but also needs to be a strong rebounder and shot blocker; in many teams the center is the final line of defense (* * *, 2008 /Ducksters/). Basketball, as all modern team sports games impose ever greater requirements on players' potential, sport selection and sports preparation. As we mentioned, the probable future development of sports games will probably erase the strict differences among the basic play positions, but roles and tasks will remain crucial components of technical-tactical activities players are bound to perform when playing a particular post. The selection procedure algorithm, proposed by Trninić et al. (2008) integrates all body of knowledge and facilitates decision making in team sports games. It is assumed that the future developments will need more and more versatile players, that is, the players who can satisfy performance criteria on two or even more play positions. For players' overall quality it is only important what and how many tasks they can perform, not which is their primary positions. Their contribution to the team play is of the main importance: team games are played by individuals, but only successful and well-composed teams win (Trninić et al., 2008).

Concept of personality explains why one individual differs from all other individuals and it explains his/her behavioral consistency in diverse situations (Knezović et al., 1989). The Big Five Model or the Five-Factor Model (FFM) is descriptive and taxonomic: it assumes the way in which personality can be divided into a smaller number of fundamental constructs (Macdonald, Bore, & Munro, 2008). Following that theory, personality can be described by means of five factors: extraversion, agreeableness, conscientiousness, emotional stability and intellect (Pervin & John, 1997). Five factors represent personality in the highest degree of abstraction, and each of these dimensions includes a large number of distinct specific characteristics.

Extraversion accounts for the amount and intensity of social interaction, activity level, the need for external stimulation and the feature of joy (Trninić, Barančić & Nazor, 2008). Agreeableness assesses quality of interpersonal orientation towards the others along a continuum from pity and compassion to adversary, antagonism in thoughts, emotions and actions. Conscientiousness describes task-oriented and goal-oriented behavior and socially required impulse control. Neuroticism identifies persons who tend to feel negative emotions (anxiety, bitterness, sorrow), who suffer from unrealistic ideas, excessive yearning and urges and have or suffer from maladaptive stress-coping strategies. Intellect (Openness to experience) assesses proactive seeking and appreciation of experience for its own sake, tolerance for the unknown and exploration of the unfamiliar (Pervin & John, 1997). Several research studies demonstrated that extraversion and emotional stability from FFM are congruent to extraversion and neuroticism from the Eysenck's model (Mlačić & Knezović, 1997).

The main aim of this research was to determine the differences in big five personality traits, between top Croatian senior basketball basketball players that different play positions in team. For practical purpose, identification of such personality differences could contribute to better understanding of top Croatian senior players. On the other hand, it could contribute that coaches use this information to make improvements in their own work, in their training practice and during coaching basketball games. It is assumed that the differences in personality between the guards (shooting and point guards) and forwards (small and power, together with centers) don't exist. We argued this hypothesis with a complexity and interconnectedness of all play positions in the team, and their dependence on the constantly changing tactical variants during the basketball game.

Methods

Variables

The International Personality Item Pool 50 (IPIP50) is a shorter version of a Goldberg IPIP100 cross-cultural Big-Five questionnaire (Goldberg, 2001, from Goldberg et al., 2005). The current study makes use of the 50-item version consisting of 10 items for each of the Big-Five personality factors: Extraversion (E), Agreeableness (A), Conscientiousness (C), Emotional Stability (ES), and Intellect (I). We administered the IPIP items with a 5-point, Likert-type scale ranging from 1 (very inaccurate) to 5 (very accurate) as in the original instrument (Goldberg, 1999). The IPIP scales have good internal consistency and relate strongly to major dimensions of personality assessed by two leading questionnaires. The IPIP50 items were translated into Croatian by Boris Mlačić (Mlačić, 2002, in Mlačić & Goldberg, 2007) at the Croatian Studies. He found Cronbach's alpha (α) indexes that indicate good reliability: for extraversion, reliability coefficient was α = .88, for Agreeableness α = .81, for Conscientiousness α = .82, for Emotional Stability α =.90 and for the dimension Intellect was α =.78. Gow et al. (2005) examined the structure of the 50-item IPIP in three different adult samples, in each case justifying a 5-factor solution, with only minor discrepancies. Age differences were comparable to previous findings using other inventories. Conscientiousness, Extraversion and Emotional Stability/Neuroticism scales of the IPIP were highly correlated with those of the NEO-FFI (r = 0.69 to −0.83). Agreeableness and Intellect /Openness scales correlated less strongly (r = 0.49 and 0.59). Correlations between IPIP and EPQ-R Extraversion and Emotional Stability/Neuroticism were high, at 0.85 and −0.84. Mlačić & Goldberg (2007) studied a Croatian version of both the 100-item and the 50-item versions of the IPIP Big-Five markers; both self-reports and peer ratings in large Croatian samples of research participants showed clear 5-factor orthogonal structures that were nearly identical to the American structure. Internal consistency reliabilities (Cronbach's alpha) in this research were something lower, but satisfying, ranging from .56 to .73 (Extraversion α = .56, Agreeableness α = .73, Conscientiousness α =.71, Emotional Stability α = .65, Intellect α = .68). In our sample, participants showed 5-factor orthogonal structure, nearly correspondent with the original one.

'*Basketball variable*', i.e. dependent variable in discrimination analysis, is player's position in team. It is defined from the base of players on the Portal Kosarka.hr (2008). The players are divided into two sub-groups: 44 guards (26 shooting and 18 point) in one group and 30 centers (9) and forwards (11 small and 10 powers) in the second group. The reason for dividing the number of participants in just such a two-sample, instead of four or five, was practical: the small total number of players in the final sample.

Participants and procedure

Population from which the purposeful sample of participants was drawn represented by sport success top Croatian senior basketball players, who played in nine men's senior teams of A-1 Croatian Men's Basketball League in 2006/2007: «Cedevita», «Svjetlost», «Borik», «Kvarner», «Dubrava», «Dubrovnik», «Alkar», «Šibenik» and «Osijek». The average chronological age was 23. The final sample of participants (74 basketball players) was selected from the initial sample of 107 players. The criteria for selection of a player into the final sample of respondents was the number of minutes in play (minimum ten minutes per game), i.e. the number of games played (minimum eight games played in championship). The players were examined between sixth and eighth round of A-1 league championship (from December 2006 until mid January 2007).

Results and Discussion

Trends of average results for basketball players who play in two different positions in the team were practically identical.

Descriptive statistics for the dimensions of the IPIP50 for A-1 Croatian senior league basketball players (Table 1) showed that Conscientiousness and Agreeableness are the most pronounced personality characteristics at basketball players. Data for all the variables are distributed normally. Comparing with the most of samples in other researches (Guenole & Chernyshenko, 2005; Goldberg et al, 2005; Gow et al., 2005), in our research the level of Conscientiousness is something higher level than in 'usual' samples. Possible reason could is distinctive: basketball players have to be conscientious, to themselves, as same as to their team.

Table 1. Descriptive statistics for the dimensions of the IPIP50 for A-1 Croatian senior league basketball players: shooting and point guards (44); small and power forwards, centers (30)

Shooting and point guards						
Variable	Mean	Std. deviation	Minimum	Maximum	Kolmogorov-Smirnov Z	p
Extraversion	33,426	4,586	22,00	44,00	0,752	> ,20
Agreeableness	37,404	5,343	23,00	50,00	0,790	> ,20
Conscientiousness	37,277	5,728	24,00	50,00	0,632	> ,20
Emotional Stability	33,957	5,250	25,00	45,00	0,552	> ,20
Intellect	35,787	4,814	25,00	46,00	0,827	> ,20
Small, power forwards and centers						
Variable	Mean	Std. Deviation	Minimum	Maximum	Kolmogorov-Smirnov Z	p
Extraversion	32,407	4,396	24,00	40,00	0,674	> ,20
Agreeableness	36,630	4,289	30,00	47,00	0,480	> ,20
Conscientiousness	36,889	4,750	23,00	44,00	0,482	> ,20
Emotional Stability	33,407	5,063	23,00	44,00	0,507	> ,20
Intellect	33,444	4,117	26,00	41,00	0,686	> ,20

Table 2. Correlations between the dimensions of the IPIP50 for A-1 Croatian senior league basketball players: shooting and point guards (44); small and power forwards, centers (30)

Shooting and point guards					
Variable	Extraversion	Agreeableness	Conscientiousness	Emotional Stability	Intellect
Extraversion	1	0,255	-0,117	0,212	0,186
Agreeableness		1	0,136	0,130	0,103
Conscientiousness			1	0,290*	0,278
Emotional Stability				1	0,107
Intellect					1
Small, power forwards and centers					
Variable	Extraversion	Agreeableness	Conscientiousness	Emotional Stability	Intellect
Extraversion	1	0,463**	0,588**	0,355	0,062
Agreeableness		1	0,706**	0,390*	0,112
Conscientiousness			1	0,442*	0,239
Emotional Stability				1	-0,018
Intellect					1

Table 3. Discrimination analysis between players that play in A-1 Croatian Men's Basketball League Championship on different team positions in relation to the dimensions of the IPIP50

Discrimination function	Characteristic root	Wilks λ	Canonical correlation	χ^2-test	p
	0,072	0,933	0,259	4,819 (5)	p>,20

VARIABLE	Wilks λ	Correlation with discrimination factor	F-test (1,72)	p	M Guards	M Forwards, center	σ Guards	σ Forwards, center
Extraversion	,988	-0,062	,871	>,20	33,426	32,407	4,586	4,396
Agreeableness	,994	0,334	,414	>,20	37,404	36,630	5,343	4,289
Conscientiousness	,999	0,128	,089	>,20	37,277	36,889	5,728	4,750
Emotional Stability	,997	0,329	,193	>,20	33,957	33,407	5,250	5,063
Intellect	,941	0,321	4,498	<,05	35,787	33,444	4,814	4,117

Pearson inter-correlations between all the dimensions of the IPIP50 for the entire sample A-1 Croatian senior league basketball players, show low but statistically significant positive correlations between the dimensions Conscientiousness and Agreeableness (r=,29; p<,05), Agreeableness and Extraversion (r=,32; p<,05), Extraversion and Em. Stability (r=,26; p<,05), Conscientiousness and Em. Stability (r=,34; p<,05), Conscientiousness and Intellect (r=,27; p<,05). Conscientiousness is the highest correlated with other (especially for the one team sport) 'desirable' variables.

This fact support previous explanation, connected with a mean value for this dimension, about possible 'special meaning' of this trait for the basketball players. Inspecting separate correlations for the guards and forwards/centers (Table 2), we can see that trends that are typical for the total sample of basketball players are more obvious at players that play on the positions forwards and centers. In that sub-sample, all the correlations between Extraversion, Agreeableness, Conscientiousness and Emotional Stability (except one) are positive, significant and medium high. Insignificant intercorrelations were found between the dimension Intellect and all other dimensions. Possible interpretation of this result may be the fact that Intellect is perhaps not so important personality trait, which players really need to have: basketball players have a priority to direct individual actions as a function of team success. Intercorrelations in the guards' sub-sample are not statistically significant, except low but positive correlation between Conscientiousness and Emotional Stability. Perhaps the guards are just more diverse personalities in relation to the forwards and centers: it may be due to the more 'creative' role in the team, comparing with the forwards or centers. On the other hand, forwards and centers could have more homogenous, more similar personalities. Table 4 shows that discrimination function did not differ significantly basketball players who play in different positions in the team. Group centroids values are 0,200 for the guards and -0,349 for the forwards/centers. Discrimination function only 62,2 % original grouped cases classify correctly. Consequently, the players can't be statistically significantly differed on the basis of their playing position in the basketball team. Structural coefficients that indicate a correlation between individual discrimination variables with discrimination function, in this case vary between –0,062 and 0,334. In univariate analysis of variance, with respect to the discriminate function, one statistically significant difference was however found, for the dimension Intellect, in a direction of higher means for the guards, comparing with forwards/centers. The hypothesis about the more 'creative' role in the team for guards, comparing with the forwards or centers, could be given even in this situation. The main result of this research is that in general there are no statistically significant differences in Big Five dimensions of personality between basketball players that play on different positions. However, only the dimension of Intellect is the differentiating individual variable that statistically significantly differ the players teams in A-1 championship league that play on different positions, in a direction of statistically significant higher results for the guards.

On the other hand, guards (at least in this research, considering only Big Five personality traits) are more complex personalities. The main weakness of the research could be the small sample of top players, as well as specificity of the Croatian population of top senior basketball players. This has a direct influence onto reduced possibility of generalisation of results. The potentially most important reason for the results obtained came as a consequence of the chosen sample of respondents. It is, however, possible that relatively small variability in personality dimensions is the result of multiple selectivity of the basketball players' samples. The number of games played and time in play contributed to reduction of the number of respondents in the final sample. On the other hand, the main advantage of the research lay in the fact that practically all available players were tested in the targeted A-1 basketball league championship. Consequently, the principles revealed could be useful for the concrete sample (practically the population) of basketball players, which could serve as stimulation for coaches to increase their efforts. Results of this research, besides the scientific, can have a practical value as well. They can serve as guideline for a more successful work of coaches, who can give greater emphasis to working with the guards, as more 'diverse' personalities (individualized approach). In future researches, the number of participants could be increased as much as possible (by testing injured and other absent players). In this situation, we could compare players that play on all five different positions in the team. However, it might be good to include in the sample the players of four Croatian most successful teams (competing in NLB-league) and thus (probably) obtain higher variability in personality traits. An improvement could also be a multiple repetition of the same type of research during few basketball championships.

Conclusion

Discrimination function did not differ significantly basketball players who play in different positions in the team, according to their Big Five personality traits. So we support initial null-hypothesis that there is no difference in personality traits between the basketball players who play on different positions in the team. One individual significant difference is found: dimension of Intellect is the only differentiating individual variable, in a direction of statistically significant higher results for the guards, comparing with forwards/centers. Much more statistically significant correlations are found in the sub-sample of forwards/centers, than in guards' sub-sample, which may indicate the possibility that the guards are complex personalities.

Literature

Goldberg, L.R. (1999). A broad-bandwidth, public-domain, personality inventory measuring the lower-level facets of several Five-Factor models. *In: Marveled, I., Deary, I.J., de Fruyt, F., & Ostendorf, F. (Eds.) Personality psychology in Europe, 7*, (pp. 7–28). Tilburg: Tilburg University Press.

Goldberg, L.R., Johnson, J.A., Eber, H.W., Hogan, R., Ashton, M.C., & Cloninger, C.R. (2005). The International Personality Item Pool and the future of public-domain personality measures. *Journal of Research in Personality, 40,* 84–96.

Gow, A.J., Whiteman, M.C., Pattie, A. & Deary, I.J. (2005). Goldberg's 'IPIP' Big-Five factor markers: Internal consistency and concurrent validation in Scotland. Personality and Individual Differences, 39*(2),* 317-329.

Guenole, N., & Chernyshenko, O.S. (2005). The suitability of Goldberg's Big Five IPIP personality markers in New Zealand: a dimensionality, bias, and criterion validity evaluation. *New Z J of Psychology, 34,* 86–96.

Jukić, I. (1998). *Monitoring of motor-functional preparation in annual training cycle of top women basketball players*. [In Croatian.]. (Master thesis). Zagreb: Faculty of Physical Culture.

Knezović, Z., Kulenović, A., Šakić, V., Zarevski, P., & Žužul, M. (1989). *Psihološke karakteristike osuđenih osoba*. Zagreb: Znanstvena edicija časopisa Penološke teme.

Macdonald, C., Bore, M., & Munro, D. (2008). Values in action scale and the Big 5: An empirical indication of structure. *Journal of Research in Personality, 42*(4), 787–799.

Mlačić, B., & Goldberg L.R. (2007). An analysis of a cross-cultural personality inventory: The IPIP Big-Five factor markers in Croatia. *Journal of Personality Assessment, 88,* 168-177.

Mlačić, B., & Knezović, Z. (1997). Struktura i relacije Big Five markera i Eysenckova upitnika ličnosti. [Structure and realtions of Big five markers and Eysenck personality inventory. In Croatian.]. *Društvena istraživanja, 27*(1), 1–21.

Pervin, A.L., & John, P.O. (1997). *Personality: Theory and research. 7th ed*. New York: John Wiley & Sons.

Trninić, S,. Papić, V., Trninić, V., & Vukičević, D. (2008). Player selection procedures in team sports games. *Acta Kinesiologica, 2*(1), 24-28.

Trninić, V., Barančić, M., & Nazor, M. (2008). The Five-Factor model of personality and aggressiveness in prisoners and athletes. *Kinesiology 42,* 170-181.

* * * (2008). *Basketball player positions*. Retrieved May 30. 2010. from: http://www.ducksters.com/sports/basketballpositions.php.

* * * (2008). Igrači – baza podataka. [Players – database. In Croatian.]. Retrieved May 17. 2008. from: http://www.kosarka.hr/main.asp?dir=sc.

RAZLIKE VRHUNSKIH HRVATSKIH SENIORSKIH KOŠARKAŠA RAZLIČITIH POZICIJA U MOMČADI U VELIKIH PET OSOBINA LIČNOSTI

Sažetak

Utvrđivanje razlika u crtama ličnosti košarkaša koji igraju na različitim pozicijama u momčadi, može doprinijeti boljem razumijevanju košarkaša i košarke. To može dati smjernice za diferenciraniji trenerski pristup. Cilj istraživanja bio je utvrđivanje faktora razlika u dimenzijama Velikih Pet osobina ličnosti kod vrhunskih hrvatskih seniorskih košarkaša, koji igraju na različitim pozicijama u momčadi (razigravač, šuter, krilo, krilni centar, centar). Finalni uzorak sudionika (74 košarkaša) izabran je iz početnog uzorka od 107 ispitanika, košarkaša iz devet seniorskih momčadi A-1 hrvatske košarkaške lige u prvenstvu 2006/2007. Rezultati su pokazali da diskriminacija funkcija ne može znatno razlikovati statistički košarkaše koji igraju na različitim pozicijama u odnosu na dimnezije Velikih Pet osobina ličnosti. Drugim riječima, košarkaši su slični u odnosu na Velikih Pet osobina ličnosti. Međutim, statistički značajna razlika je pronađena za samo jednu pojedinačnu dimenziju (Intelekt), te je i hipotetski objašnjena.

Ključne riječi: *ličnost, košarka, Velikih Pet, diskriminacijska analiza, razlike*

Received: August 12, 2011
Accepted: December 10, 2011
Correspondence to:
Joško Sindik, PhD
Institute for Anthropological Research
10000 Zagreb, Ljudevita Gaja 32, Croatia
Phone: 00 385 (0)1 5535 122
E-mail: josko.sindik@zg.t-com.hr