

# A Cross-Cultural Analysis of Positive Illusions and Sport Performance Levels in American, Croatian, and Norwegian Basketball Players

Peter Catina<sup>1</sup>, Kenneth Swalgin<sup>1</sup>, Damir Knjaz<sup>2</sup> and Ola Fosnes<sup>3</sup>

<sup>1</sup> Faculty of Kinesiology, The Pennsylvania State University, York, USA

<sup>2</sup> Faculty of Kinesiology, University of Zagreb, Zagreb, Croatia

<sup>3</sup> Faculty of Kinesiology, The Norwegian University of Sport and Physical Education, Oslo, Norway

## ABSTRACT

*The present study examined the degree to which positive illusion is associated with sport performance in basketball players among 3 different cultures: The United States of America, Croatia, and Norway. Positive illusion is a cognitive characteristic that is common in mentally healthy individuals<sup>1</sup>, and becomes especially important in the athletic arena<sup>2</sup>. The model tested in this study depicts the level of positive illusion as the main predictor variable and the performance of the basketball players as the criterion variable. The Positive Illusion Sports Scale<sup>3</sup> was used to measure the predictor variable while The Basketball Evaluation System<sup>4</sup> was used to measure the criterion variable. Participants were 239 competitive male basketball players, 122 from USA, 57 from Croatia and 60 from Norway. Results showed that positive illusion was directly (positively) related to actual success and that these relationships were statistically significant and consistent with positive illusion as a theoretical construct for predicting behavior and success.*

**Key words:** positive illusion, sport performance, cross-cultural analysis

## Introduction

The term positive illusion represents a multidimensional psychological dimension consisting of the following three sub-constructs: self-aggrandizement, illusion of control, and unrealistic optimism<sup>1</sup>. Self-aggrandizement is the perception of one's self, one's past behavior, and one's enduring attributes as more positive than is actually the case. Illusion of control is an exaggerated belief in one's personal control, involving the perception that one can bring about primarily positive but not negative outcomes. Unrealistic optimism is the perception that the future holds an unrealistically bountiful array of opportunities and an absence of adverse events. These positive illusions are common in mentally healthy individuals and become especially important in the athletic arena<sup>2</sup>.

The theory of positive illusion has been well established in the literature, but an assessment tool that measures positive illusion has only recently begun to be recognized. The implementation of a theory-based instrument assessing the factors that influence levels of success in sport is necessary to understand the role of

positive illusion in sport-performance outcomes. Although a host of psychological factors examined in the literature such as anxiety, hardiness, locus of control and intrinsic motivation offers insight into explaining sport performance<sup>5</sup>, positive illusion has not been fully addressed as a variable influencing favorable outcomes in sport.

Other studies, of course, have shown differences in athletes and differences in cultures thus extending our knowledge about how cultures may, for example, influence perception and motivation. The current study avoids the often misleading approach of item-construction where the significance of various personality traits may vary across different types of situations by grounding the items of the Positive Illusion Sport Scale and coupling those items with the Basketball Evaluation System in a specific sport context common to the three cultures sampled, thus extending the universality of the Positive Illusion Sport Scale in important ways. Previous research using the scale with individual sports has revealed emerging patterns that are similar to those

found in team sports. The current study brings to light a striking resemblance in the mental aspect of athletes from three different cultures. Namely, levels of positive illusion are consistent in basketball players from the USA, Croatia, and Norway. Additionally, the way in which positive illusion operates as a predictor variable for success is a common thread both within and between each of the cultures sampled.

In relation to fear of failure, there is an extreme sense of shame which is marked by personal inadequacy, diminished sense of control, and a sense of worthlessness. These negative feelings can be overcome by adopting positive illusions. This type of cognitive adaptation is based on fostering emotional adjustment by instilling a sense of optimism and regaining a perception of control over one's life. Since there is a sense of mastery which can be gained through the use of positive illusion, it stands to reason that there is a strong and positive relationship between the construct of positive illusion and the constructs of self-esteem and optimism.

For example, Taylor<sup>6</sup> advances that the adjustment process of cancer patients is centered on three themes: a search for meaning in the experience, an attempt to regain mastery over the event, and an effort to restore self-esteem through self-enhancing evaluations. Other researchers have found similar attributes. Helgeson and Cohen<sup>7</sup> suggest the following five psychological mechanisms that facilitate emotional adjustment to having cancer: enhancement of self-esteem, restoration of perceived control, instilling of optimism about the future, provision of meaning for the experience, and fostering of emotional processing. A positive sense of self, a need for control, and an optimistic view of the future facilitate normal mental functioning<sup>1</sup>. This positive sense of self becomes especially important in the face of threatening social feedback<sup>8–11</sup>. Many of the cognitive mechanisms that are present in the minds of athletes are congruent with the research literature on positive illusion. For example, Taylor<sup>6</sup> proposes that the diagnosis of cancer leads to a sense of personal inadequacy, diminished sense of control, increased feelings of vulnerability and a sense of despondency and that these negative feelings can be overcome by adopting positive illusions. This can easily be seen within the realm of fear of failure in athletes and the consequences of such failure.

Concerning performance outcomes in sport, the construct of positive illusion provides a coping strategy for failure through a positive view of the self and an elevated belief in personal control. Current research is focused on whether or not these self-enhancing beliefs may increase the likelihood of success in sport<sup>2</sup>. The substantiation of the scale will provide empirical evidence to better understand the relationship between positive illusion and sport performance. Since the athlete's psychological mindset is widely regarded as influencing his or her behavior in sport, more assessment tools are needed in order to broaden the understanding of the mental components that facilitate success in sport. In regard to the present study, the researchers

hypothesized that levels of positive illusion would be commensurate with levels of performance in basketball players across different cultures.

## Method

### *Subjects*

The current study examined levels of positive illusion in relationship to basketball performance among 122 male players from the United States of America, 57 male players from Croatia, and 60 male players from Norway ranging in age from 18–36 ( $X=24.70$ ,  $SD=11.20$ ). Subjects signed an informed consent form and their scores were code-linked in order to protect anonymity. Ranges in age were noticeably different among the 3 countries since it is not as unusual to have players over the age of 25 in Croatia and Norway, as it is in the United States. Originally, a low number (15) of subjects had to be eliminated because they did not complete the basketball season. The participation rate in this study was exceptionally high at (90%) indicating sound methodology in inventory distribution and data collection.

### *Instrumentation*

The Positive Illusion Sport Scale is a 23-item, psychological inventory measuring cognitive characteristics in competitive athletes. It was developed to calculate the degree to which positive illusion was associated with sport performance. Convergent and discriminant validities were assessed by correlating scores from the Positive Illusion Sport Scale with scores of self-esteem<sup>12</sup>, hopelessness<sup>13</sup>, optimism<sup>14</sup>, and depression<sup>15</sup>. The Scale showed a moderate positive correlation with self-esteem and optimism and a moderate negative correlation with hopelessness and depression. The internal consistencies for the Self-Esteem, Optimism, Hopelessness, and Depression scales were high with alpha coefficients of 0.88, 0.89, 0.90, and 0.90 respectively. Cronbach's alpha indicated high internal consistency for the Positive Illusion Sport Scale at 0.84. These findings demonstrate considerable convergent and discriminant validity for the instrument and indicate that it is psychometrically accurate for research purposes.

The Basketball Evaluation System produces a standardized score for basketball performance based on the following criteria: »Position of Play«, »Time Played«, and »Game Conditions«. The accuracy of the model lies in the fact that it incorporates the following 3 measurement concepts: a common set of sport-specific performance criteria, a norm-based context to measure the criteria, and a functional measurement system inherent to the structure of the sport.

### *Procedure*

The Positive Illusion Sport Scale was administered to basketball players in the United States, Croatia, and Norway through their respective coaches. The protocols were such that a blind data collection method was es-

tablished in order to prevent research bias. Namely, the researchers kept the scores from the psychological inventory separate from the basketball statistics until all data had been recorded. Scores from the Positive Illusion Sport Scale, a patented, internally consistent, 23-item psychological inventory<sup>3</sup> were correlated to scores from the Basketball Evaluation System, a standardized grading system for basketball performance based on position of play, time played, and game conditions<sup>4</sup>.

**Results**

A positive linear relationship was found between positive illusion scores and basketball evaluation system scores, which supported the directional hypothesis. Moderately positive Pearson Product-Moment Correlations (r) between positive illusion and basketball performance levels were as follows: USA r=0.320, Croatia r=0.532, Norway r=0.403.

A subsequent analysis was conducted to see if there were cultural differences in levels of positive illusion. The  $\chi^2$ -test was selected because sample size and level of measurement called for a distribution-free, non-para-

metric test to measure differences in positive illusion rank across the different cultures sampled. Multiple T-tests were not appropriate due to sample size variation. A  $\chi^2=45.967$  with 46 degrees of freedom (df) was calculated for USA. The critical value needed to reach statistical significance was 61.54<sup>16</sup>. Calculations for Croatia were  $\chi^2=21.25$  with df=30 against a critical value of 43.77. Calculations for Norway were  $\chi^2=24.10$  with df=28 against a critical value of 41.33. Since none of the  $\chi^2$  statistics even approached critical values, differences in positive illusion across the different cultures sampled were not statistically significant at p>0.05 (Table 2). This indicates that the construct of positive illusion operates in a similar manner across the sampled cultures.

A factor analysis was conducted to identify underlying variables, or factors, that could explain the pattern of correlations within the set of observed variables from USA, Croatia, and Norway. A Principal Components Analysis<sup>17</sup> using an orthogonal Varimax rotation identified the factor »Illusion of Control« that explained most of the variance observed in a much larger number of manifest variables. This technique is helpful in generating hypotheses regarding causal mechanisms within the multi-dimensional construct of positive illusion.

As outlined above, positive illusion has three sub-constructs that were reflected in three sub-scales during scale construction: The illusion of control sub-scale is a 9-item scale used to assess exaggerated beliefs of personal control. The self-aggrandizement sub-scale is a 5-item scale designed to assess overly positive self-perceptions, and the unrealistic optimism sub-scale is a 9-item scale measuring unrealistically optimistic views of the future. These measures were combined to form an aggregate score for positive illusion. The purpose of structure detection is to examine the underlying relationships between the variables thereby uncovering patterns of association with sport performance among the different cultures sampled (Table 3).

Of particular interest is the consistency in which »Illusion of Control« accounted for most of the variance across all of the cultures sampled (Table 4).

There was also an exceptionally strong similarity between USA and Norway in the domain of »Illusion of Control« with the USA and Norway reaching Eigenvalues of 1.899 and 1.874 respectively. Each of these val-

**TABLE 1**  
DESCRIPTIVE STATISTICS AND CRONBACH'S ALPHAS FOR CONVERGENT AND DISCRIMINANT VALIDITY ASSESSMENT OF THE POSITIVE ILLUSION SPORT SCALE AND RELATED CONSTRUCTS

Scales	X	SD	Cronbach's Alpha
Positive illusion	44.60	7.32	0.84
Self-esteem	24.25	4.06	0.86
Hopelessness	15.37	6.33	0.86
Optimism	16.35	3.36	0.83
Depression	5.07	6.49	0.91

**TABLE 2**  
NON-PARAMETRIC TEST STATISTICS FOR POSITIVE ILLUSION IN USA, CROATIA, AND NORWAY

	USA	Croatia	Norway
$\chi^2$	45.967	21.250	24.100
df	46	30	28
Asymp. Sig.	0.474	0.880	0.676

**TABLE 3**  
TOTAL VARIANCE EXPLAINED (USA BASKETBALL)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.899	63.291	63.291	1.899	63.291	63.291
2	0.641	21.370	84.660			
3	0.460	15.340	100.000			

Extraction method: principal component analysis

**TABLE 4**  
TOTAL VARIANCE EXPLAINED (CROATIA BASKETBALL)

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.387	46.244	46.244	1.387	46.244	46.244
2	0.934	31.121	77.365			
3	0.679	22.635	100.000			

Extraction method: principal component analysis

**TABLE 5**  
TOTAL VARIANCE EXPLAINED (NORWAY BASKETBALL)

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.874	62.478	62.478	1.874	62.478	62.478
2	0.649	21.638	84.116			
3	0.477	15.884	100.000			

Extraction method: principal component analysis

ues in »Illusion of Control« accounted for 63.291% and 62.478% of the respective variance in the sample (Table 5).

### Discussion

These results provide support for the reliability and validity of the Positive Illusion Sport Scale as a measure of positive illusion in competitive athletes. The current study increases the reliability for the Positive Illusion Sport Scale since it has been widely used in other domains. However, this is the first attempt at establishing cross-cultural validity, which makes this study particularly rich. More research is needed to further validate the measure, especially if it is to be used for teaching and cultivating positive illusion in athletes who may have low levels in this cognitive dimension.

Further sequencing of these statistical procedures can be justified by the successful demonstration of the utility of the scale in a sport performance framework<sup>2</sup>. Given that no other scale of positive illusion exists, cultivating this new measure is necessary to create and employ predictive models for researchers to further assess its utility across a broader range of sport contexts. The Positive Illusion Sport Scale evolved from an empirical thrust specifically intended to create a scale with unique structural and construct validity qualities. Conceptually, the Scale is based on the well-established theory of positive illusion which may have a high degree of relevance to researchers interested in understanding more about the role of this cognitive construct in human performance. This strongly suggests the potential value of refining the scale to capture the performance levels in other areas including but not limited to business, organizational psychology, drug rehabilitation, weight management, and relationship counseling.

### Conclusion

Much of cross-cultural psychology focuses on describing the psychology of different groups of people without attempting to explain the cultural basis of these psychological differences. Therefore, it is either misunderstands the manner in which cultural factors shape psychology or fails to address those factors completely. For example, self-efficacy is widely noted in the research literature; however, little research has been done to examine it from a cross-cultural perspective. Self-efficacy is a powerful predictor for performance; especially sport performance. Self-efficacy expectations are beliefs that one can successfully execute behavior required to produce particular outcomes<sup>18</sup>. They derive from the relationship between one's perceptions of self-competence on a particular dimension and the relevance of the dimension to the task being confronted. Positive illusions enhance the self-concept indirectly by increasing self-efficacy. Consequently, this provides the athlete with the affirmative belief system needed to overcome the odds or to cope with extreme adversity which is inherent in athletic competition.

One must consider the way in which positive illusion operates in team sports when compared to individual sports. What is psychologically important to an individual depends strongly on what is salient to that person's identity in relationship to the activity in which he or she is engaged. The importance of identity is more closely associated with individualistic cultures rather than with collectivistic cultures<sup>19</sup>. The importance of identity in close-work relationships like team sports may be greater in individualistic countries than in collectivistic countries due to work and leisure being more highly differentiated in individualistic countries. Given the pat-

terns unveiled in the data, it is reasonable to conclude that Norway, Croatia, and the United States behave as individualistic countries. In fact, the importance of identity has been shown to be very high in these three countries<sup>19</sup>.

So many of the cultural variables examined by cross-cultural psychologists are abstract in that they are devoid of concrete content which reflect a specific domain. This type of abstraction results when a factor is confused as a variable with a singular fixed character. The development and use of psychological instruments are ways to reduce or eliminate this confusion. The Positive Illusion Sport Scale is a concrete measure which defines itself as a psychological factor that is qualitatively invariant and only varies quantitatively.

The results of the present study indicate that the construct of positive illusion operates in a similar manner across the sampled cultures (i.e., there was no statistical difference in levels of positive illusion among the three different cultures of basketball players sampled). These findings support the robustness of the scale and the pervasiveness of positive illusion as a psychological construct. One striking feature in the data revealed a very strong connection across all the cultures sampled in the domain of »Illusion of Control«. This particular

cognitive characteristic was extremely prevalent in all teams across all cultures measured.

Many analysts find obvious ways in which cultures are different. The present study has found one way in which cultures are similar. Thus, implicating to some extent, that athletes are similar, especially from a psychological perspective. The construct of positive illusion seems to have cross-cultural validity and is a universal personality dimension both from a theoretical perspective as well as a practical perspective.

A plausible reason for positive illusion to be such a strong predictor variable for success in sport is that it may be an evolutionary trait necessary for survival. Evidence suggests that emotional affect constructs like optimism and motivation are more consistent with evolutionary biology than with social constructivist perspectives<sup>20</sup>.

In line with the biological basis for optimism and motivation, the construct of positive illusion provides a type of overconfidence which may be adaptive in the sense that it provides a psychological advantage in the sports arena. The athlete is not trapped by over-cautiousness resulting in missed opportunities; rather his performance is facilitated by increased motivation, confidence, and persistence governed by a positively skewed interpretation of reality which leads to a self-fulfilling prophecy.

## REFERENCES

1. TAYLOR, S. E., J. D. BROWN, *Psychol. Bull.*, 103 (1988) 193. — 2. CATINA, P. D., S. E. ISO-AHOLA, *Internat. Sports J.*, 8 (2004) 80. — 3. CATINA, P. D.: Positive Illusion Sport Scale. (Library of Congress, Patent number: TXU-9567-506, 2000). — 4. SWALGIN, K. L., *Internat. Sci. J. Kinesiol. Sport*, 30 (1998) 31. — 5. ISO-AHOLA, S. E., *Scand. J. Med. Sci. Sports*, 5 (1995) 191. — 6. TAYLOR, S. E., *Am. Psychol.*, 38 (1983) 1161. — 7. HELGESON, V. S., S. COHEN, *Health Psychol.*, 15 (1996) 135. — 8. TAYLOR, S. E., *Psychol. Bull.*, 110 (1991) 67. — 9. TAYLOR, S. E., J. D. BROWN, *Psychol. Bull.*, 116 (1994) 21. — 10. TAYLOR, S. E., D. A. ARMOR, *J. Pers.*, 64 (1996) 873. — 11. TAYLOR, S. E., L. G. ASPINWALL, Mediating and moderating processes in psychological stress: Appraisal, coping, resistance, and vulnerability. In: KAPLAN, H. B. (Ed.): *Psychological Stress: Perspectives on Structure, Theory, Life-Course, and Methods*. (Academic Press, San Diego, 1996). — 12. ROSENBERG, M., *Society and the Adolescent Self-Image*. (Princeton University Press, Princeton, 1965). — 13. BECK, A. T., R. A. STEER, *Beck Hopelessness Scale*. (University of Pennsylvania, Philadelphia, 1978). — 14. SHEIER, M. F., C. S. CARVER, *Health Psychol.*, 4 (1985) 219. — 15. BECK, A. T., W. Y. RIAL, K. RICKELS, *Psychol. Rep.*, 34 (1974) 1184. — 16. BORDENS, K. S., B. B. ABBOT: *Research design and methods: A process approach*. (Mountain View, Mayfield, 1998). — 17. BENTLER, P. M.: *EQS Structural Equations Program Manual*. (Multivariate Software Inc., Encino, 2004). — 18. BANDURA, A., *Psychol. Rev.*, 84 (1977) 191. — 19. WILLIAMS, J. E., R. C. SATTERWHITE, J. L. SAIZ: *The Importance of Psychological Traits: A Cross-Cultural Study*. (The Plenum Series in Social/Clinical Psychology, New York, 1998). — 20. CHURCH, A. T., M. S. KATIGBAK, J. A. S. REYES, S. M. JENSEN, *J. Pers.*, 67 (1999) 505.

P. Catina

Department of Health and Human Development, Penn State York, 1031 Edgecomb Avenue, York, PA. 17403-3398, USA  
e-mail: Puc2@psu.edu

## INTERKULTURALNA ANALIZA POZITIVNIH ILUZIJA I RAZINE SPORTSKOG POSTIGNUĆA KOD AMERIČKIH, HRVATSKIH I NORVEŠKIH KOŠARKAŠA

### SAŽETAK

Ova studija ispituje u kojoj je mjeri pozitivna iluzija povezana sa razinom realizacije kod košarkaša triju različitih kultura: SAD, Hrvatska, Norveška. Pozitivna iluzija je kognitivna karakteristika prisutna kod mentalno zdravih osoba<sup>1</sup>, a osobito je važna u sportu. Model koji se ispituje u ovom istraživanju prikazuje razinu pozitivne iluzije kao

glavnu predikcijsku varijablu dok je postignuće košarkaša kriterijska varijabla zavisna. Ljestvica sportskih pozitivnih iluzija (Positive Illusion Sports Scale<sup>3</sup>) korištena je kako bi se mjerila predikcijska varijabla dok je Sustav košarkaške evaluacije (Basketball Evaluation System<sup>4</sup>) korišten kako bi se mjerila kriterijska varijabla. Sudionici ispitivanja bili su 239 muških košarkaša (122 iz SAD, 57 iz Hrvatske i 60 iz Norveške). Rezultati su pokazali da je pozitivna iluzija direktno (pozitivno) povezana sa stvarnim uspjehom te da su ti odnosi statistički značajni i u skladu sa pozitivnom iluzijom kao teorijskim konstruktom kojim se može predvidjeti ponašanje i uspjeh.