

The role of basic psychological needs in predicting dispositional flow of basketball players in training. Differences by sex.

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THE ROLE OF BASIC PSYCHOLOGICAL NEEDS IN PREDICTING DISPOSITIONAL FLOW OF BASKETBALL PLAYERS IN TRAINING. DIFFERENCES BY SEX

KEY WORDS: Basketball, Motivation, Training, Gender.

ABSTRACT: The objectives of this study were: a) analyze the influence of the satisfaction of basic psychological needs on dispositional flow in athletes in training and b) to study possible differences in the explanation of this relationship by sex of the participants. Questionnaires PNSE and FFS were administered to 131 basketball players in training. Results indicated that: a) boys showed higher levels of autonomy than girls; b) competence emerged as a predictor of flow in both samples, c) among boys, autonomy was also a predictor of flow.

Improving athletic performance is a major concern of basketball coaches. In the field of sport psychology factors that can facilitate this process are investigated. One of the most studied in recent times is called the flow state (Csikszentmihalyi, 1990), optimal psychological state characterized because the subject becomes so immersed in what it is doing that reaches the exclusion of any other thought or emotion (Jackson and Csikszentmihalyi, 1999). In sport, Santos-Rosa (2003) defines it as "an optimal psychological state that allows the athlete facing a motor task with the best possible psychic conditions" (p.88). Several studies suggest that achievement of a state of flow is usually associated with high levels of performance (Jackson, Thomas Marsh and Smethurst, 2001; Pates, Cummings and Maynard, 2002; Pates, Oliver and Maynard, 2001).

The bulk of research about flow is focused from the self-determination theory (Deci and Ryan, 1985; Ryan and Deci, 2000). This theory is based on the premise that individuals pursue self-determined goals, driven by a motivation that fluctuates on a continuum from a motivation to intrinsic motivation. Subjects pursue these goals to achieve the satisfaction of its basic psychological needs (competence, autonomy and relatedness).

Several studies in recent years have been carried out to know the factors that determine the state of flow from self-determination theory (Almagro, Saenz-López and Moreno, 2012; Cervelló, Moreno, Martínez, Ferriz and Moya, 2011; Santos Rosa, 2003). The findings from these studies show a strong relationship between high levels of self-determination and willingness to achieve flow state (e.g., Jackson and Marsh, 1996; Moreno, Cervelló and Gonzalez-Cutre, 2006; Moreno, Cervelló and Gonzalez -Cutre, 2010). There is likewise evidence of the role of basic psychological needs as predictors of willingness to

experience the flow state (eg., Cervelló, et al., 2011, Gonzalez-Cutre, Sicilia, Moreno and Fernández-Balboa, 2009)

Although, the literature is scarce in studies that include the sex of participants in physical and sports activities as a possible determinant of motivational variables (Cervelló, del Villar, Jimenez, Ramos and Blázquez, 2003; Torregrosa, et al., 2011), nowadays only a few studies have examined the differences in experiencing flow state by sex.

The objectives of this study were: a) analyze the influence of the satisfaction of basic psychological needs on dispositional flow in athletes in training and b) study possible differences in the explanation of this relationship by sex of the participants.

Method

The sample consisted of 131 basketball players in training from the Autonomous Community of Madrid (age = 15.75 ± 1.22 years) with a gender distribution of 79 boys and 52 girls.

The instruments used to conduct this study were the version adapted to Spanish context (Moreno, March and Martínez Galindo, 2011) of the *Psychological Need Satisfaction in Exercise Scale* (PNSE, Wilson, Rogers, Rodgers and Wild, 2006) and the Spanish version of the Flow State Scale (FSS, Jackson and Marsh, 1996).

Firstly, we made a descriptive analysis of the data. Subsequently, in order to assess the predictive capability of the basic psychological needs in relation to the flow state, we used a linear regression analysis using stepwise procedures. This analysis was performed by segmenting the sample into boys and girls. A significance level of $p < .05$ was used.

Results

Table 1 lists the descriptive statistics and bivariate correlations of the variables under investigation according to the sex of the players.

The boys have higher scores on the scale of autonomy ($t = 2.15, p < .05$). In terms of correlations, competence is related with the state of flow in both boys and girls, while relatedness is positively related to the flow state in the sample of boys.

Boys Girls	M (SD)	p	α	Flow		
				Boys (n = 79)	Girls (n = 52)	
1. Competence	3.86 (.72)	3.82 (.70)	.672	.79	.83	.533** .470**
2. Autonomy	3.02 (.70)	2.79 (.73)	.033	.65	.71	.163 .086
3. Relatedness	3.78 (.59)	3.67 (.53)	.540	.69	.55	.357* .094
4. Flow	3.74 (.53)	3.60 (.46)	.053	.92	.87	

Table 1. Means, standard deviations, Cronbach's α and bivariate correlations of analyzed variables according to the gender.

	Variable	β	R ² corregida	t	p
Boys	Step 1 Competence	.40	.27	5.70	.00
	Step 2 Competence Autonomy	.42 .28	.39	4.24 2.80	.00 .01
Girls	Step 1 Competence	.41	.27	4.65	.00

Table 2. Coefficients of stepwise regression analysis in boys and girls.

Table 2 shows the stepwise regression analysis using for flow state by sex. The boys, in the first step, showed that competence obtained the higher predictor values ($t = 5.70, p < .01$), explaining 27% of the variance. In a second step, competence ($t = 4.24, p < .01$) and autonomy ($t = 2.80, p < .05$) explained 39% of the variance. In the girls sample, competence ($t = 4.65, p < .01$) emerged as the only predictor of flow state explaining 27% of the variance. Autonomy is put of the model in the regression analysis in the girls sample, while there is no evidence of relatedness in predicting flow state.

Discussion

The aim of this study was to analyze the influence of satisfaction of basic psychological needs (competence, autonomy and relatedness) of the disposal to achieve the flow state taking into consideration possible gender differences in the associations found.

The findings of the study show that the main predictor of dispositional flow is the satisfaction of competence. These findings are consistent with those of previous research conducted among practitioners of different physical and sporting activities

which establish a positive relationship between competence and flow (e.g., González-Cutre, et al., 2009; Kowal and Fortier, 1999), and suggest that satisfaction of the basic psychological need plays an important role in living the experience of flow. Feeling confident about having enough skill to do the task at hand is an essential condition for feeling more prone to achieving flow states (Csikszentmihalyi, 2005). The fact that prediction level is equal in both sexes suggests a similar quality in the organization and training methods. This could be considered as an indicator of the perception of the players of the importance acquired by women's basketball in our country in recent years compared to the difference by sex in other sports competitions.

With regard to differences depending on the sex, these were just found in the variable of autonomy. Previous studies that examined the satisfaction of this need by sex of the students have not been found. Analyzing our sample in-depth, we obtained that the girls sample between 13 and 14 years was nearly twice than that of boys of the same age range. Taking into consideration that the transfer of autonomy to the athlete increases with their age, the high number of girls participating in youth categories could be the cause of the differences found in our work. This variable, autonomy, emerges as a predictor of flow in males, but not in

females which could be explained by the reason discussed above. Although no previous studies have not studied this relationship, do exist that have linked autonomy with enjoyment (Hagger, Chatzisarantis, Barkoukis, Wang and Baranowski, 2005; Liukkonen, Watt, Barkoukis and Jaakkola, 2010) which is one of the flow dimensions.

As for the flow, considering previous works in sports our results are similar with those found so far, showing no differences between boys and girls in terms of willingness to reach the flow state (Moreno, Cervelló and Gonzalez-Cutre, 2008; Russell, 2001). Differences have been found previously in a study carried out in a physical education setting, in which boys showed higher levels of dispositional flow than girls (Villodre, Martínez Galindo, Moreno and Cervelló, 2005). It would be interesting a further

study that analyze the plausible differences and their causes, of experiencing flow state between different populations, as for example, physical education students and sport players.

Several studies have addressed the relationship of intrinsic motivation with dispositional flow, reflecting that high levels of intrinsic motivation were associated with a higher willingness to experience flow (e.g., Kowal and Fortier, 2000; Moreno, et al., 2010) In order to establishing a more complete picture of the determinants of flow, and under the findings showed, it is suggested as a future line of research, observational analysis of the context in which occurs the sport for detecting possible influencing factors on both the intrinsic motivation as to the dispositional flow.

EL PAPEL DE LAS NECESIDADES PSICOLÓGICAS BÁSICAS EN LA PREDICCIÓN DEL FLOW DISPOSICIONAL DE JUGADORES DE BALONCESTO EN FORMACIÓN. DIFERENCIAS EN FUNCIÓN DEL GÉNERO

PALABRAS CLAVE: Baloncesto, Motivación, Formación, Género.

RESUMEN: Los objetivos del presente estudio fueron: a) analizar la influencia de la satisfacción de las necesidades psicológicas básicas sobre el flow disposicional en deportistas en formación y b) estudiar posibles diferencias en la explicación de esta relación según el género de los participantes. Se administraron los cuestionarios PNSE y FFS a 131 jugadores de baloncesto en formación. Los resultados indicaron que: a) los chicos mostraron niveles superiores de autonomía que las chicas; b) la competencia emergió como predictor del flow en ambas muestras; c) en los chicos, la autonomía también fue un predictor del flow.

O PAPEL DAS NECESSIDADES PSICOLÓGICAS BÁSICAS NA PREDIÇÃO DO FLOW DISPOSICIONAL DE JOGADORES DE BASQUETEBOL EM FORMAÇÃO. DIFERENÇAS EM FUNÇÃO DO GÉNERO

PALAVRAS-CHAVE: Basquetebol, Motivação, Formação, Género.

RESUMO: Os objetivos deste estudo foram: a) analisar a influência da satisfação das necessidades psicológicas básicas sobre o fluxo disposicional em atletas em formação e b) estudar possíveis diferenças na explicação desta relação segundo o género dos participantes. Foram aplicados os questionários FFS PNSE a 131 jogadores de basquetebol em formação. Os resultados indicaram que: a) os rapazes apresentaram níveis superiores de autonomia comparativamente com as raparigas, b) a competência emergiu como um preditor do flow em ambas as amostras, c) nos rapazes, a autonomia também foi um preditor do flow.

References

- Almagro, B. J., Saenz-López, P. and Moreno, J. A. (2012). Perfiles motivacionales de deportistas adolescentes españoles. *Revista de Psicología del Deporte*, 21(2), 223-231.
- Cervelló, E., del Villar, F., Jiménez, R., Ramos, L. and Blázquez, F. (2003). Clima motivacional en el aula, criterios de éxito de los discentes y percepción de igualdad de trato en función del género en las clases de educación física. *Enseñanza*, 21, 379-395.
- Cervelló, E., Moreno, J. A., Martínez, C., Ferriz, R. and Moya, M. (2011). El papel del clima motivacional, la relación con los demás, y la orientación de metas en la predicción del flow disposicional en educación física. *Revista de Psicología del Deporte*, 20(1), 165-178.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper and Row.
- Csikszentmihalyi, M. (2005). Flow. In A. J. Elliot and C. Dweck (Eds.), *Handbook of competence and motivation* (pp. 598-608). New York: Guilford Publications.
- Deci, E. L. and Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behaviour*. New York: Plenum.
- González-Cutre, D., Sicilia, A., Moreno, J. A. and Fernández-Balboa, M. (2009). Dispositional flow in physical education: relationships with motivational climate, social goals, and perceived competence. *Journal of Teaching in Physical Education*, 28, 422-440.
- Hagger, M., Chatzisarantis, N., Barkoukis, V., Wang, C. K. J. and Baranowski, J. (2005). Perceived autonomy support in physical education and leisure-time physical activity: A cross-cultural evaluation of the trans-contextual model. *Journal of Educational Psychology*, 97, 287-301.
- Jackson, S. A. and Csikszentmihalyi, M. (1999). *Flow in sports*. Champaign, IL: Human Kinetics.
- Jackson, S. A. and Marsh, H. W. (1996). Development and validation of a scale to measure optimal experience: the Flow State Scale. *Journal of Sport and Exercise Psychology*, 18, 17-35.
- Jackson, S. A., Thomas, P. R., Marsh, H. W. and Smethurst, C. J. (2001). Relationships between Flow, Self-Concept, Psychological Skills, and Performance. *Journal of Applied Sport Psychology*, 13(2), 129-153.

- Kowal, J. and Fortier, M. S. (1999). Motivational determinants of flow: contributions from self-determination theory. *The Journal of Social Psychology*, 139(3), 355-368.
- Kowal, J. and Fortier, M. S. (2000). Testing relationships from the hierarchical model of intrinsic and extrinsic motivation using flow as a motivational consequence. *Research Quarterly for Exercise and Sport*, 71, 171-181.
- Liukkonen, J., Watt, A., Barkoukis, V. and Jaakkola, T. (2010). Motivational climate and students' emotional experiences and effort in physical education. *The Journal of Educational Research*, 103, 295 - 308.
- Moreno, J. A., Cervelló, E. and González-Cutre, D. (2006). Motivación autodeterminada y flujo disposicional en el deporte. *Anales de Psicología*, 22(2), 310-317.
- Moreno, J. A., Cervelló, E. and González-Cutre, D. (2008). Relationships among goal orientations, motivational climate and flow in adolescent athletes: differences by gender. *The Spanish Journal of Psychology*, 11(1), 181-191.
- Moreno, J. A., Cervelló, E. and González-Cutre, D. (2010). The achievement goal and self-determination theories as predictors of dispositional flow in young athletes. *Anales de Psicología*, 26(2), 390-399.
- Moreno, J. A., Marzo, J. C. and Martínez Galindo, C. (2011). Validación de la escala de "Satisfacción de las necesidades psicológicas básicas" y del cuestionario de la "Regulación conductual en el deporte" al contexto español. *International Journal of Applied Sports Sciences*, 7(26), 355-369.
- Pates, J., Cummings, A., and Maynard, I. (2002). The effects of hypnosis on flow states and three-point shooting performance in basketball players. *The Sport Psychologist*, 16, 34-47.
- Pates, J., Oliver, R. and Maynard, I. (2001). The effects of hypnosis on flow states and golf-putting performance. *Journal of Applied Sport Psychology*, 13, 341-354.
- Russell, W. D. (2001). An examination of flow state occurrence in college athletes. *Journal of Sport Behavior*, 24, 83-107.
- Ryan, R. M. and Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78.
- Santos Rosa, F. J. (2003). *Motivación, ansiedad y flow en jóvenes tenistas*. Cáceres: Universidad de Extremadura.
- Torregrosa, M., Viladrich, C., Ramis, Y., Azócar, F., Latinjak, A. T. and Cruz, J. (2011). Efectos en la percepción del clima motivacional generado por los entrenadores y compañeros sobre la diversión y el compromiso. Diferencias en función del género. *Revista de Psicología del Deporte*, 20(1), 243-255.
- Villodre, N. A., Martínez Galindo, C., Moreno, J. A. and Cervelló, E. (2005). Relación del género del alumno y el tipo de centro con la motivación, disciplina, trato de igualdad y estado de flow en educación física. In V. C. I. d. E. F. e. *Interculturalidad*. (Ed.). Murcia: ICD.
- Wilson, P., Rogers, W., Rodgers, W. and Wild, T. (2006). The psychological need satisfaction in exercise scale. *Journal of Sport and Exercise Psychology*, 28, 231-251.