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## GRADE AND GENDER DIFFERENCES IN ELEMENTARY AND SECONDARY STUDENTS' MOTIVATIONAL REGULATIONS FOR PARTICIPATING IN SCHOOL PHYSICAL EDUCATION\*

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### Abstract

The purpose of the study was to examine grade and gender differences in students' motivational regulations for participating in school physical education. Participants were 1402 students, 681 boys and 704 girls (17 students were excluded as they did not provide grade or gender), of 5<sup>th</sup> ( $n=358$ ), 7<sup>th</sup> ( $n=348$ ), 9<sup>th</sup> ( $n=346$ ) and 11<sup>th</sup> grade ( $n=333$ ), who participated in 72 regular physical education classes from 33 schools of 11 cities in central and north Greece. The motivational regulation questionnaire (Goudas, Dermitzaki & Bagiatas, 2000) with the addition of the amotivation subscale (Goudas, 1994) was used for the evaluation of students' motivational regulations. Four (grade) x 2 (gender) ANOVAs and post hoc comparisons revealed significant reduction in intrinsic motivation and identified regulation from 5<sup>th</sup> to 7<sup>th</sup>, from 7<sup>th</sup> to 9<sup>th</sup> and from 9<sup>th</sup> to 11<sup>th</sup> grade, while boys, independently of grade, referred higher levels of intrinsic motivation and identified regulation compared with girls. Moreover, boys compared with girls referred higher levels of external regulation and amotivation in 5<sup>th</sup> grade, while girls referred higher levels of amotivation in 11<sup>th</sup> grade. These results are discussed with reference to the assumptions of self-determination theory (Deci & Ryan, 2004), emphasizing in practical implication for physical education.

**Key words:** Self-determination theory, motivation, physical education, grade and gender differences

\*An extended Summary Plus English version is freely available at [www.hellenicjsport.com](http://www.hellenicjsport.com)

## **Introduction**

Studies in physical education have indicated that, students' interest, mastery goals and intrinsic motivation decline with age (Digelidis & Papaioannou, 1999). The present study aimed to expand the results of these studies by examining the reasons of students' participation in physical education, using the self-determination theory as framework (Deci & Ryan, 2004). The purpose of the present study was to examine grade and gender differences in students' motivational regulations for participating in school physical education.

## **Method**

Participants were 1402 students, 681 boys and 704 girls (17 students were excluded as they didn't refer grade or gender), of 5th (n=358), 7th (n=348), 9th (n=346) and 11th grade (n=333), which participated in 72 regular physical education classes from 33 schools of 11 cities in central and north Greece. The motivational regulation questionnaire (Goudas, Dermitzaki & Bagiatis, 2000) with the addition of the amotivation subscale (Goudas, 1994) was used for the evaluation of students' motivational regulations.

The research design included two independent variables: the students' grade with four levels (5th, 7th, 9th and 11th) and the students' gender, while students' score in motivational regulation served as depended variables. The questionnaire was administrated in the middle of the school year; after permission was obtained by the schools head teachers and the physical education teachers. Students were given the appropriate instructions, assured about the confidentiality of their answers and completed voluntary and anonymously the questionnaire during the physical education lesson. Grade and gender differences in students' motivational regulations were examined through four separate, for each dependent variable, analyses of variance.

## **Results**

The internal consistency of the questionnaire's subscales was satisfactory (Cronbach's  $\alpha$  ranged from .65 to .83) except for the low internal consistency of the introjected subscale (.58) which, for this reason, was not included in the rest analysis. For intrinsic motivation, the 2x2 ANOVA revealed a significant main effect for grade,  $F(3, 1377) = 72.73, p < .001, \eta^2 = .14$  and a significant main effect for gender,  $F(1, 1377) = 12.09, p < .001, \eta^2 = .01$ . For identified regulation, the 2x2 ANOVA revealed a significant main effect for grade,  $F(3, 1377) = 85.01, p < .001, \eta^2 = .16$ , and a significant main effect for gender,  $F(1, 1377) = 11.64, p < .001, \eta^2 = .01$ . Post hoc comparisons with Bonferoni test revealed a significant reduction in intrinsic motivation and in identified regulation from 5th to 7th, from

7th to 9th and from 9th to 11th grade, while boys, independently of grade, referred higher levels of intrinsic motivation and identified regulation compared with girls. For external regulation, the 2x2 ANOVA revealed a significant grade and gender interaction,  $F(3, 1377) = 5.57, p < .001, \eta^2 = .01$ , and the simple main effects analysis revealed that boys compared with girls referred higher levels of external regulation in 5th grade. For amotivation, the 2x2 ANOVA revealed a significant grade and gender interaction,  $F(3, 1377) = 5.75, p < .001, \eta^2 = .01$ , and the simple main effects analysis revealed that boys compared with girls referred higher levels of amotivation in 5th grade, while the opposite was the case in the 11th grade.

### **Discussion**

The results revealed that students' intrinsic motivation and identified regulation for both gender, decline with age, while external regulation and amotivation remained relative stable across grades. Moreover, the gender differences that were found were low according to calculated effect sizes. These results are in accordance with previous research examining similar motivational constructs in Greek physical education (Digelidis & Papaioannou, 1999) and indicated that students' motivation for participation in physical education decline with age.

Self-determination theory postulates that the satisfaction of students' basic need through the establishment of an autonomy supportive environment in physical education can enhance students' motivational regulations (Ryan & Deci, 2007). Recent studies in physical education setting (Hagger, et al., 2008; Lim & Wang, 2009) have provided empirical evidence for this notion. Both theory and research offer practical guidelines for enhancing students' motivational regulation for participating in physical education, including strategies for the establishment an autonomy supportive climate and the satisfaction of students' basic needs (e.g., providing students with a meaningful rationale, giving them responsibility and choices that enhance their feelings of volition, fostering personally-relevant goals and focusing in personal improvement).

### **Conclusion**

In conclusion, the results of the present study indicate that students' motivation for participating in physical education decline with age. Students' motivation for participating in physical education can be enhanced adopting the practical guidelines that self-determination theory provides, so as the physical education becomes more appealing, effective and useful for all students.

## References\*

- Brooks, F., Magnusson, J. (2006). Taking part counts: Adolescents' experience of the transition from inactivity to active participation in school-based physical education. *Health Education Research*, 21, 872-883.
- Carroll, B., & Loumidis J. (2001). Children's perceived competence and enjoyment in physical education and physical activity outside school. *European Physical Education Review*, 7, 24-43.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences (2nd ed.)*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Couturier, L. E., Chepko, S., & Coughlin, M. A. (2005). Student voices: What middle and high school students have to say about physical education. *Physical Educator*, 62, 170-178.
- Deci, E. L., & Ryan, R. M. (2000). The 'what' and 'why' of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11, 227-268.
- Deci, E. L., & Ryan, R. M. (2004). Overview of self-determination theory: An organismic dialectical perspective. In E. L. Deci, & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 3-33). Rochester, NY: The University of Rochester Press.
- Δημητρίου, Ε., Κολοβελώνης, Α., Γούδας, Μ., & Γεροδήμος, Β. (2007). Η επίδραση ενός προγράμματος ανάπτυξης δεξιοτήτων ζωής στην αυτοαποτελεσματικότητα μαθητών/τριών Α' γυμνασίου. *Αθληση και Κοινωνία*, 45, 68-75.
- Διγγελίδης, Ν., Μπογιατζή, Α., Χατζηγεωργιάδης, Α., & Παπαϊωάννου, Α. (2006). Επιθετικότητα, προσωπικοί προσανατολισμοί και εσωτερική-εξωτερική παρακίνηση των μαθητών στο μάθημα της φυσικής αγωγής. *Αναζητήσεις στη Φυσική Αγωγή και στον Αθλητισμό*, 4, 57-67.
- Διγγελίδης, Ν., & Παπαϊωάννου, Α. (1995). Αναπτυξιακές διαφορές στην εσωτερική παρακίνηση, στόχους επίτευξης, αντίληψη κλίματος παρακίνησης και αντίληψη εαυτού, στο μάθημα της φυσικής αγωγής. *Αθλητική Ψυχολογία*, 8, 16-31.
- Digelidis, N., & Papaioannou, A. (1999). Age-group differences in intrinsic motivation, goal orientations and perceptions of athletic competence, physical appearance and motivational climate in Greek physical education. *Scandinavian Journal of Medicine & science in sports*, 9, 375-380.
- Διγγελίδης, Ν., & Παπαϊωάννου, Α. (2002). Αλληλεπιδράσεις μεταξύ προσπάθειας, διασκέδασης, προσωπικών προσανατολισμών και αντίληψης του κλίματος παρακίνησης στο μάθημα της φυσικής αγωγής. *Αθλητική Ψυχολογία*, 13, 35-55.
- Διγγελίδης, Ν., & Παπαϊωάννου, Α. (2004). Αναπτυξιακές διαφορές ως προς την προσπάθεια, τη διασκέδαση, τους στόχους επίτευξης, την αντίληψη κλίματος παρακίνησης και την αντίληψη εαυτού στο μάθημα της φυσικής αγωγής: Μια διαχρονική μελέτη τριών ετών. *Αθλητική Ψυχολογία*, 15, 3-16.
- Digelidis, N., Papaioannou, A., Laparidis, K., & Christodoulidis, T. (2003). A one-year intervention in 7<sup>th</sup> grade physical education classes aiming to change motivational climate and attitudes towards exercise. *Psychology of Sport and Exercise*, 4, 195-210.
- Eccles, J. S., Wigfield, A., & Schiefele, U. (1998). Motivation to succeed. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (5<sup>th</sup> ed., pp. 1017-1095). New York: Wiley.
- Field, A. (2005). *Discovering statistics using spss (2<sup>nd</sup> ed.)*. London: Sage.
- Goudas, M. (1994). *Goal orientations and intrinsic motivation in physical education*. Unpublished doctoral dissertation. University of Exeter, Exeter, United Kingdom.
- Goudas, M., Biddle, S., & Fox, K. (1994). Perceived locus of causality, goal orientations, and perceived competence in school physical education classes. *British Journal of Educational Psychology*, 64, 453-463.
- Goudas, M., Dermizaki, I., & Bagiatis, K. (2000). Predictor of students' intrinsic motivation in school physical education. *European Journal of Psychology of Education*, 15, 271-280.
- Goudas, M., & Hassandra, M. (2006). Greek students' motives for participation in physical education. *International Journal of Physical Education*, 43, 85-89.
- Hagger, M., & Chatzisarantis, N. (2007). The trans-contextual model of motivation. In M. Hagger & N. Chatzisarantis (Eds.), *Intrinsic motivation and self-determination in exercise and sport* (pp. 53-70). Champaign, IL: Human Kinetics.
- Hagger, M., & Chatzisarantis, N. (2008). Self-determination Theory and the psychology of exercise. *International Review of Sport and Exercise Psychology*, 1, 79-103.
- Hagger, M., Chatzisarantis, N., Barkoukis, V., Wang, C.K.J., & Baranowski, J. (2005). Perceived autonomy support in physical education and leisure-time physical activity: A crosscultural evaluation of the trans-contextual model. *Journal of Educational Psychology*, 97, 376-390.
- Hagger, M., Chatzisarantis, N., Culverhouse, T., & Biddle, S. (2003). The processes by which perceived autonomy support in physical education promotes leisure-time physical activity intentions and behaviour: A trans-contextual model. *Journal of Educational Psychology*, 95, 784-795.
- Hagger, M., Chatzisarantis, N., Hein, V., Soós, I., Karsai, I., Lintunen, T., et al. (2008). Teacher, peer and parent autonomy support in physical education and leisure-time physical activity: A trans-contextual model of motivation in four nations. *Psychology & Health*, 23, 1-23.

- Jaakkola, T. (2002). *Changes in students' exercise motivation, goal orientation, and sport competence as a result of modifications in school physical education teaching practices*. Unpublished doctoral dissertation. University of Jyväskylä, Jyväskylä, Finland.
- Jaakkola, T., & Sepponen, K. (1997). *The associations between goal orientations, motivational climate, and intrinsic motivation in physical education*. Unpublished master thesis. University of Jyväskylä, Finland.
- Κολοβελώνης, Α., Γούδας, Μ., Δημητρίου, Ε., & Γεροδήμος, Β. (2006). Η επίδραση ενός προγράμματος διδασκαλίας δεξιοτήτων ζωής στον αυτοκαθορισμό των μαθητών. *Αναζητήσεις στη Φυσική Αγωγή & τον Αθλητισμό*, 4, 379-389.
- Lim, C., & Wang, J. (2009). Perceived autonomy support, behavioural regulations in physical education and physical activity intention. *Psychology of Sport and Exercise*, 10, 52-60.
- Lonsdale, C., Sabiston, C. M., T. D. Raedeke, Ha, A. S. C., & Sum, R. K.W. (2009). Self-determined motivation and students' physical activity during structured physical education lessons and free choice periods. *Preventive Medicine*, 48, 69-73.
- Melograno, V. (1996). *Designing the physical education curriculum*. Champaign IL: Human Kinetics.
- Mononen, S., Pasi, H., & Spaninks, W. (2007). Studying autonomous motives in physical education and leisure time contexts. University of Jyväskylä. Unpublished master thesis. University of Jyväskylä, Finland.
- Ntoumanis, N. (2001). A self-determination approach to the understanding of motivation in physical education. *British Journal of Educational Psychology*, 71, 225-242.
- Ntoumanis, N. (2002). Motivational clusters in a sample of British physical education classes. *Psychology of Sport and Exercise*, 3, 177-194.
- Ntoumanis, N. (2005). A prospective study of participation in optional school physical education using a self-determination theory framework. *Journal of Educational Psychology*, 3, 444-453.
- Ntoumanis, N., Pensgaard, A.M., Martin, C., Pipe, K. (2004). An idiographic analysis of amotivation in compulsory school physical education. *Journal of Sport and Exercise Psychology*, 26, 197-214.
- Ommundsen, Y., & Kvalo, S. E. (2007). Autonomy-mastery performance focused? Different teacher behaviours and pupils' outcomes in physical education. *Scandinavian Journal of Educational Research*, 51, 385-413.
- Papacharisis, V., Simou, K., & Goudas, M. (2003). The relationships between motivation and intention towards exercise. *Journal of Human Movement Studies*, 45, 377-386.
- Pintrich, P., & Schunk, D. (2002). *Motivation in education: Theory, research, and applications (2<sup>nd</sup> ed.)*. Upper Saddle River, NJ: Merrill Prentice Hall.
- Prusak, K. A., Treasure, D. C., Darst, P. W., & Pangrazi, R. P. (2004). The effects of choice on the motivation of adolescent girls in physical education. *Journal of Teaching in Physical Education*, 23, 19-30.
- Reeve, J., Nix, G., & Hamm, D. (2003). Testing models of the experience of self-determination in intrinsic motivation and the conundrum of choice. *Journal of Educational Psychology*, 95, 375-392.
- Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology*, 57, 749-761.
- Ryan, R. M., & Deci, E. (2007). Active human nature. Self-determination theory and the promotion and maintenance of sport, exercise, and health. In M. Hagger & N. Chatzisarantis (Eds.), *Intrinsic motivation and self-determination in exercise and sport* (pp. 1-19). Champaign, IL: Human Kinetics.
- Sansone, C., & Harackiewicz, J. M. (1996). "I don't feel like it": The function of interest in self-regulation. In L. T. Martin, & A. Tesser (Eds.), *Striving and feeling. Interactions among goals, affect, and self-regulation* (pp. 203-228). New Jersey: Lawrence Erlbaum Associates.
- Sparkes, A. C. (1989). Health-related fitness: An example of innovation without change. *British Journal of Physical Education*, 20, 60-63.
- Standage, M., Duda, J., & Ntoumanis, N. (2003). A model of contextual motivation in physical education: Using constructs from self-determination and achievement goal theories to predict physical activity intentions. *Journal of Educational Psychology*, 95, 97-110.
- Standage, M., Duda, J., & Ntoumanis, N. (2005). A test of self-determination theory in school physical education. *British Journal of Educational Psychology*, 75, 411-433.
- Standage, M., Duda, J. L., & Ntoumanis, N. (2006). Students' motivational processes and their relationship to teacher ratings in school physical education: A self-determination theory approach. *Research Quarterly for Exercise and Sport*, 77, 100-110.
- Taylor, I. M., & Ntoumanis, N. (2007). Teacher motivational strategies and student self-determination in physical education. *Journal of Educational Psychology*, 99, 747-760.
- Thomas, J. R., & Nelson, J. K. (2001). *Research methods in physical activity (4<sup>rd</sup> ed.)*. Champaign, IL: Human Kinetics.
- Wang, J., & Liu, W. C. (2007). Promoting enjoyment in girls' physical education: The impact of goals, beliefs, and self-determination. *European Physical Education Review*, 13, 145-164.
- Van Wersch, A., Trew, K., & Turner, I. (1992). Post-primary school education: Age and gender differences. *British Journal of Educational Psychology*, 62, 56-72.
- ΦΕΚ 303, 13-3-2003. Διαθεματικό ενιαίο πλαίσιο προγραμμάτων σπουδών και αναλυτικά προγράμματα σπουδών για το δημοτικό και το γυμνάσιο.

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