European Journal of Psychology of Education
2000, Vol. XV, n° 3, 271-280

Predictors of students' intrinsic motivation in school physical education

Marios Goudas
Irini Dermitzaki
Konstantinos Bagiatis
University of Thessaly, Greece

The aim of the present study was to examine the relations of students' intrinsic motivation in physical education lessons with factors such as perceived locus of causality, perceived competence and outcome expectancies. Five hundred sixteen students of grades 7-12 participated in the study. The students were randomly selected from three schools located in a medium sized town in Greece. Perceived locus of causality was examined using Ryan and Connell's (1989) motivational orientation scales, while intrinsic motivation was assessed by means of the Intrinsic Motivation Inventory (Ryan, 1982). Outcome expectancies for ten possible outcomes of school physical education were assessed by means of two different scales, namely outcome evaluation and outcome likelihood. Causal modelling analysis showed that intrinsic motivation was mainly influenced by perceived usefulness which in turned was influenced by outcome expectations. Moreover, outcome expectations also influenced perceived locus of causality. These results show that students' outcome expectancies for their participation in school physical education is an important factor influencing their intrinsic motivation.

Research on sport and exercise psychology has focused on either competitive sport or recreational exercise. Unfortunately, relatively little research has examined psychological aspects of participation in school physical education. However, school physical education is an arena where sport and physical activity are presented to almost all children and youth. Moreover, it is recognised that physical education has the potential to have a significant impact on public health (Haywood, 1991). Consequently, it is important to examine student motivation for participation in physical education, especially after recent reports that youngsters do not engage in vigorous physical activities sufficiently enough to benefit their health (Armstrong & Biddle, 1992).

This study was funded by a grant (code no 2156) from the Research Committee, University of Thessaly.

A construct that has attracted considerable attention in the study of motivation in education is intrinsic motivation (Ryan, Connell, & Deci, 1985). According to Deci and Ryan (1985) intrinsically motivated behaviours are engaged for their own sake – for the pleasure and satisfaction derived from their performance. On the other hand, extrinsically motivated behaviours are performed because they are believed to lead in certain consequences. It has been shown that intrinsic motivation is positively related to a number of desired educational outcomes such as enhanced learning (Gottfried, 1985), general self-worth (Ryan & Grolnick, 1986) and persistence in learning activities (Patrick, Skinner, & Connell, 1993). Cognitive Evaluation Theory (CET; Deci & Ryan, 1985) which later was referred to as Self-Determination Theory (e.g. Deci, Vallerand, Pelletier, & Ryan, 1991) has been the prime paradigm in the study of intrinsic motivation in educational settings. According to CET, intrinsic motivation stems from the fulfilment of the competence and self-determination needs. Individuals are intrinsically motivated when they feel that their capabilities are sufficient for the demands of the situation and when they feel their actions to be self-initiating and self-regulating.

Regarding the operationalisation of intrinsic motivation, several studies have utilised inventories that contain scales assessing interest and enjoyment. One such inventory is the Intrinsic Motivation Inventory (IMI) developed by Ryan (1982) to assess post-experimental intrinsic motivation. Since its development, the IMI has been one of the dominant instruments for the measurement of state intrinsic motivation (e.g. Goudas, Biddle, Fox, & Underwood, 1995; Hall, Humphrey, & Kerr, 1997; Ryan, Koestner, & Deci, 1991; Whitehead & Corbin, 1991) including studies examining newer formulations of the intrinsic-extrinsic continuum described further below (Ryan & Connel, 1989).

This conceptualisation of intrinsic motivation as emotions of interest and enjoyment (Deci & Ryan, 1985) resembles recent approaches to the study of interest in education. According to Krapp (1999) there have been three approaches to the study of interest: (a) interest as a dispositional characteristic of the person, (b) interest as a characteristic of the learning environment, and (c) interest as a psychological state.

It appears that when we consider interest as a psychological state within the person, there is a conceptual similarity with intrinsic motivation. In fact, Deci and Ryan (1985) regard interest as indicative of intrinsic motivation. As they state "The emotion of interest plays an important directive role in intrinsically motivated behaviour in that people naturally approach activities that interest them" (p. 34). Similarly, Krapp (1999) asserts that "With respect to goal -oriented learning, we suppose that the experience of intrinsic motivation always results from a more or less obvious connection between the learning task and an individual's concept of interest" (p. 27). This conceptual similarity is reflected in the inventories used for the measurement intrinsic motivation, such as the IMI which contains a subscale of interest and enjoyment. Items in this subscale are very similar with items used for the assessment of interest towards schools subjects (e.g. Sansone, Sachau, & Weir, 1989; Schiefele & Csikszentmihalyi, 1994).

Further, predictions of cognitive evaluation theory are compatible with recent research findings of studies examining interest towards specific school subjects. CET holds that intrinsically motivated behaviour stems from the fulfilment of the basic needs for autonomy, competence and social relatedness. It is postulated that events or situations that facilitate satisfaction of these needs will promote intrinsic motivation. Similarly, Wild and Krapp (1996, cited in Krapp, 1999) have shown that the learning context influence to a large extent need- related feelings and interest.

Given the importance of intrinsic motivation, and our relatively limited understanding of its determinants in specific school subjects, the present study examined possible antecedents of students' intrinsic motivation in physical education classes. Cognitive evaluation theory (Deci & Ryan, 1985) proposes that intrinsic motivation is primarily determined by two factors: individuals' sense of competence and their perception of autonomy regarding their actions. Regarding the latter, the concept of perceived locus of causality (PLOC) is often used to describe people's sense of autonomy. PLOC refers to the perception people have about the

reasons they engage in a particular behaviour. Ryan and Connell (1989) have operationalised PLOC as a continuum where different forms of behavioural regulation, namely internal regulation, identified regulation, introjected regulation and external regulation, can be located.

External regulation refers to behaviour that is initiated and maybe sustained for external inducement. In this case, behaviour is shaped by external rewards or contingencies. Typical reasons for action falling into this category are the avoidance of punishment and compliance with existing rules. In introjected regulation, action is controlled by rules set by oneself. Avoidance of negative self-evaluation is the aim of actions. Students who complete their assignments in order not to feel bad about themselves are displaying introjected regulation. Thus, this type of regulation is a form of control from within the self. In identified regulation the individual values the activity and possible benefits that are associated with it. An example is a child who tries hard in football lessons because of the belief that football maybe useful later in college life. Finally, internal regulation action is sustained from the pleasure derived form the activity itself.

Ryan and Connell (1989) have argued that these different forms of motivational orientation can be located on a continuum of perceived locus of causality, with external at the one extreme and internal regulation at the other. This continuum represents an "index of relative autonomy" as perceived by the individual.

Ryan and Connell (1989) have developed measures for assessing individuals' orientations towards these different types of behavioural regulation in the academic domain. They found that external and introjected regulation were positively related to cognitive anxiety while identified regulation and intrinsic motivation were related to ratings of enjoyment and effort. Vallerand and Bissonnette (1992), utilising a prospective design, showed that students who dropped out from a college course were less intrinsically motivated, had lower scores on identified regulation and higher scores on amotivation than students who remained in the course. More recently, Goudas, Biddle, and Fox (1994) reported that students perceived autonomy in two different activities (soccer and gymnastics) in school physical education influenced their intrinsic motivation as well their intention to be involved in these activities in the future. Similarly, in the Goudas, Biddle, and Underwood (1995) study, university students rated their perceived autonomy for a gymnastics course in the beginning of the academic semester. In the end of the semester they rated their intrinsic motivation and intention to re-elect the course in the future. Perceived autonomy in the beginning of the course was a strong positive predictor of intrinsic motivation and intention in the end of the course.

Another line of research in participation motivation in sport and exercise contexts has focused on potential motives of individuals participating in some form of exercise. The basic tenet of this line of research is that individuals are motivated by contemplating the possible consequences and results of their actions. Recently, Rodgers and Brawley (1991) have argued that outcome expectancies are formed by the interaction of two factors: (a) outcome likelihood which refers to the probability that a certain action will lead to a certain outcome, and (b) outcome value which refers to the value assigned by the individual to the possible outcome of the action.

This formulation follows an expectancy-value approach where individuals are thought to be motivated both by the anticipated consequences or outcomes of their actions and the utility or significance they attach to these outcomes. This form of conceptualisation may have considerable value in examining student motivation in physical education. Within the recent movement of health related physical education, it is considered of prime importance to convince students about the value of physical activity for promoting their health. Thus, it is worth examining factors affecting students' perception of the usefulness of the physical education lessons. Recently, Papaioannou and Theodorakis (1996) showed tht students' perceptions of the usefulness of physical education lessons was a positive predictor of their interest for the lessons. Also, Papaioannou (1992) reported a positive relationship between perceived usefulness of physical education and students' intrinsic motivation in physical education. Thus, it seems that perceptions of usefulness are positively related with interest. These findings are in accordance with current approaches to interest in neducational settings.

These approaches (Krapp, Hidi, & Renninger, 1992; Schiefele, 1991) postulate that value-related valences is one of the components of the interest-specific relationship. Value-related valences refer to the individual's perception of the significance of the behaviour at hand. Such theorising is in line, with the expectancy-value approach proposed by Rodgers and Brawley (1991) (as well as other related expectancy-value approaches, e.g. Eccles, 1983) in that the person's estimation of the likely consequences of his or her behaviour combined with the evaluation of these consequences form a strong determinant of his or her motivation to engage in the behaviour. However, as it has been noted, such cognitive appraisals are not the sole determinant of intrinsic interest and intrinsic motivation, and that concepts such as that of the basic psychological needs (Deci & Ryan, 1985) that provide for feeling-related psychological processes need also to be taken into account (Krapp, 1999).

Based on the above, the aim of the present study was to examine student motivation for participation in school physical education lessons by testing the network of relationships of the above factors. It was hypothesised that perceived locus of causality and perceived competence would have direct effects on intrinsic motivation whereas the effect of outcome expectancies would be indirect via perceived usefulness.

Method

Sample and procedure

The sample of the study consisted of 516 secondary school students (grades 7-12) from three different schools located in a medium sized town in north-central Greece. The students were from a middle socio-economic status. The three schools were based on the same complex and were using the same facilities for physical education classes. Permission for the study was obtained by the physical education advisor as well as by the school head teachers.

Data collection took place during physical education classes by a trained research assistant. Students responded to the questionnaires anonymously and were assured about the confidentiality of their answers.

Instruments

Translation procedure. English versions of the Motivational Orientations Questionnaire and the Intrinsic Motivation Inventory (both described below) adapted for physical education were used. These versions have been developed in previous research (Goudas, 1994; Goudas et al., 1994). The English versions were translated to Greek using the parallel back translation procedure. Minor differences that evolved were solved by mutual agreement between the two persons involved in the procedure.

Perceived locus of causality. Perceived locus of causality was assessed by means of the Motivational Orientations Questionnaire (Ryan & Connell, 1989). This inventory assesses the relative strength of different reasons for participating in school lessons and comprises four subscales named: intrinsic regulation, identified regulation, introjected regulation and external regulation. For the present study Cronbach's alpha for the above scales was .74, .69, .73, and .72 respectively. Following Ryan and Connell (1989) perceived locus of causality was computed by giving each orientation scale a relative weight as follows: external regulation (-2), introjected regulation (-1), identified regulation (+1), and internal regulation (+2) and then adding the products.

Outcome expectancies. Based on recommendations of Rodgers and Brawley (1991) a pilot study was conducted with 30 students in which they responded to a question that asked

them to list their reasons for participating in school physical education. The ten most frequently reported reasons served for the construction of items of the outcome expectancy scales. Two different scales were used for the assessment of students' outcome expectancies for physical education. In the first one named outcome likelihood, students rated, on seven-point scales ranging from "very unlikely" (1) to "very likely" (7) the likelihood of occurrence of the ten different possible outcomes of physical education. In the second one named outcome value students rated, on seven point scales ranging from "very unimportant" (1) to "very important" (7) each of the outcomes in terms of its value for them. Each outcome likelihood score was multiplied by the respective outcome evaluation score and a composite score was obtained by summing up the products.

Intrinsic motivation. The Intrinsic Motivation Inventory (Ryan, 1982) was used. IMI comprises four subscales: Enjoyment/Interest, Effort/Importance, Competence and Pressure/Tension. A composite score provides an index of intrinsic motivation. However, in the present study the Competence subscale was omitted for two reasons. First, because it overlaps conceptually with the perceived competence measure we employed. Second, because competence has been theorised as an antecedent of intrinsic motivation and not as a concominant of this concept (Goudas, 1994). Cronbach's alpha for the above scales was .79, .78, and .76 respectively. A composite score for intrinsic motivation was obtained by adding all the items with those of the pressure/tension subscale reverse coded.

Perceived competence. According to suggestions by Nicholls (1989), perceived competence was assessed by items asking students to rate their competence in physical education compared to their classmates. Cronbach's alpha for this measure was .81.

Perceived usefulness. Finally students responded to a scale with two items asking about the usefulness of the physical education subject (Cronbach's alpha=.79). These items were adapted from Papaioannou (1994).

Results

Confirmatory factor analyses

In order to examine the structural validity of the IMI and PLOC questionnaires, confirmatory factor analysis with nested factor models was applied using EQS statistical package (Bentler, 1993). Nested factor models were preferred instead of hierarchical models because they allow for covariances between the first-order factors and provide information about the relative contribution of each first-order factor to the overall fit of the model (Gustafsson, 1994). Tables 1 and 2 present the results for these nested factor models with indices of fit in each row representing the model fit after the specification of the respective factor. As can be seen, after the inclusion of all subscales the fit of the models was satisfactory with indices of fit exceeding .9 for IMI and .87 for PLOC.

An examination of the modification indexes of the program revealed several high residuals caused by the measurement errors among the observed items within each of the scales. Since it is reasonable that some of the measurement errors with a subscale would be correlated, a revision of the models was attempted by allowing for covariances between errors of measurement within a scale. While this revision is compatible with the proposed factor structure of the inventories, it allows for a better estimation of the fit of the models as it captures systematic error due to interrelationships between particular items which comprise each of the subscales. The last row of Tables 1 and 2 presents indices of fit for the revised models. For both models the data confirmed the proposed factor structure supporting their structural validity.

Table 1

Indexes of fit for the nested factor models for the Intrinsic Motivation Inventory

IMI Model	χ^2	*df*	Bentler-Bonnett Normed Fit Index	Bentler-Bonnett Non Normed Fit Index	Comparative Fit Index
General factor	688.48	54	.687	.637	.703
Enjoyment/Interest	591.88	50	.731	.665	.746
Effort/Importance	227.25	45	.897	.875	.915
Pressure/Tension	127.67	39	.942	.930	.958
Revised model	49.86	33	.977	.984	.992

Table 2

Indexes of fit for the nested factor models for Perceived Locus of Causality

ACSI Model	χ^2	*df*	Bentler-Bonnett Normed Fit Index	Bentler-Bonnett Non Normed Fit Index	Comparative Fit Index
General factor	1198.51	104	.417	.348	.435
Intrinsic Motivation	859.05	100	.582	.530	.608
Identified Regulation	539.62	95	.738	.710	.778
Introjected Regulation	401.54	89	.805	.782	.839
External Regulation	252.27	82	.877	.871	.912
Revised Model	163.53	82	.920	.938	.952

Path model

In order to examine the network of relationships between the variables of the study causal modelling analysis was employed using the EQS computer package (Bentler, 1993). In the model initially specified, direct paths were specified from perceived locus of causality and perceived competence to intrinsic motivation. Further an indirect path from outcome expectancies to intrinsic motivation via perceived usefulness was set. These specifications were based on previous relevant findings. For example, Goudas et al. (1994) showed that perceived locus of causality and perceived competence were main determinants of students' intrinsic motivation for two different sport activities in the context of school physical education. Further, Papaioannou (1992) reported a high correlation between students' perceptions of the usefulness of the physical education lesson and their intrinsic motivation. The indices of fit for this model were: $\chi^2(4)=31.35$, Normed Fit Index=0.949, Non Normed Fit Index=.845, Comparative Fit Index=.954.

However, examination of the Langrange multipliers information provided by the program revealed that the fit of the model could be improved by specifying another two paths: one from outcome expectancies to perceived locus of causality and another one from outcome expectancies directly to intrinsic motivation. Both of these paths can be theoretically justified. Perceived locus of causality refers to one's perception about the reasons s/he engages in an activity. It is therefore predictable that when there are certain outcomes associated with a particular activity and when these outcomes are valued by the individual, she or he would have a more internal locus of causality for engaging in this specific activity. Further, positive outcome expectations can enhance intrinsic motivation. As discussed, in identified regulation which is a form of internal regulation, the activity is valued for the possible outcomes associated with it. Thus, it seems reasonable to hypothesise that outcome expectations would be positively associated with intrinsic motivation. This revision resulted in a significant

improvement of the fit of the model ($\chi^2(2)=2.90$, Normed Fit Index=.995, Non Normed Fit Index=.993, Comparative Fit Index=.999) which represents an excellent fit. Figure 1 presents standardised structural equation coefficients for this model.

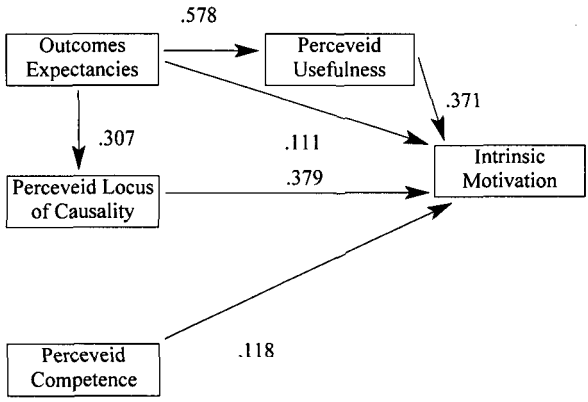

Figure 1. Standardised coefficients from causal modelling analysis

Discussion

The aim of the present study was to examine factors influencing students' intrinsic motivation in physical education lessons. More specifically, it was sought to assess the relative strength of outcome expectancies, perceived locus of causality and perceived competence in predicting intrinsic motivation.

Perceived locus of causality had a strong effect on intrinsic motivation. Students with a more internal perceived locus of causality reported higher levels of intrinsic motivation in physical education lessons. This is in accordance with previous research on student motivation in general (Ryan & Connell, 1989), and more specifically on physical education (Goudas et al., 1994; Goudas et al., 1995). It appears that in order to enhance students' motivation it is important to promote their autonomy within the classroom. From the teachers' standpoint, the promotion of students' autonomy is a rather complex issue. Kaplan and Assor (1998) have showed that elementary school students can reliably differentiate between teachers' behaviours that suppress autonomy and teachers' behaviours that enhance students' autonomy. Among the former are included forcing participation in meaningless and uninterested activities, intervening unnecessarily in ongoing behavioural sequences and suppressing vocal expression. The latter set of behaviours includes fostering understanding and interest regarding one's academic activities and goals, providing choice in learning and encouraging self-expression. The results of the present study support the notion that the enhancement of students' autonomy would probably result to the promotion of their intrinsic motivation for physical education lessons. Thus, teachers adopting such strategies are more likely to promote enjoyment and interest among their students.

The causal path analysis also showed that outcome expectations play a crucial role in students' motivation in physical education. Outcome expectations strongly influenced both intrinsic motivation via perceived usefulness of the lessons and perceived locus of causality. That is, when students perceived that physical education would lead to certain outcomes and when they valued these outcomes they had a more internally focused locus of causality and scored higher on intrinsic motivation.

This finding underscores the need to tie the practise of physical education with benefits for students' life after they leave school. The recent "health-related fitness" move within physical education curricula both in United Kingdom (Armstrong & Biddle, 1992) and in

U.S.A. (Pate & Hohn, 1994) is an important step in this direction. However, as the results of the present study imply, students have to be convinced about the benefits of their participation in physical education lessons, and, at the same time, they need to value these benefits. Therefore, physical education teachers need to spend time and effort explaining to their students the health-related benefits of an active lifestyle.

As to the limitations of the present study, it needs to be stressed that these data only capture a "slice" of time and, therefore, do not capture the dynamic and ongoing nature of students' motivation. Future studies in this area need to address this issue by utilising prospective designs. In this way, we will enhance our understanding about the long term influence of students outcome expectations and perceived autonomy on their interest and participation in physical education and in physical activities in general.

References

Armstrong, N., & Biddle, S. (1992). Health-related physical activity in the national curriculum. In N. Armstrong (Ed.), *New directions in physical education, Vol. 2: Towards a national curriculum* (pp. 71-110). Champaign, IL: Human Kinetics.

Bentler, P.M. (1993). *EQS: Structural equations program manual.* Los Angeles, CA: BMDP Statistical Software.

Deci, E.L., & Ryan, R.M. (1985). *Intrinsic motivation and self-determination in human behavior.* London: Plenum.

Deci, E.L., Vallerand, R.J., Pelletier, L.G., & Ryan, R.M. (1991). Motivation and education: The self-determination perspective. *Educational Psychologist, 26*, 325-346.

Eccles, J. (1983). Expectancies, values, and academic behaviors. In J.T. Spence (Ed.), *Achievement and achievement motives* (pp. 75-146). San Fransisco: Freeman.

Gottfried, A.E. (1985). Academic intrinsic motivation in elementary and junior high school students. *Journal of Educational Psychology, 77*, 631-645.

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., Biddle, S., & Underwood, M. (1995). A prospective study of the relationships between motivational orientations and perceived competence with intrinsic motivation and achievement in a teacher education course. *Educational Psychology, 15*, 89-96.

Goudas, M., Biddle, S., Fox, K.R., & Underwood, M. (1995). It ain't what you do, it's the way that you do it! Teaching style affects children's motivation in track and field lessons. *The Sport Psychologist, 9*, 254-264.

Gustafsson, J.E. (1994). Hierarchical models of intelligence and educational achievement. In A. Demetriou & A. Efklides (Eds.), *Intelligence, mind and reasoning: Structure and development* (pp. 45-69). Amsterdam: New Holland.

Hall, H., Humphrey, E., & Kerr, A. (1997). Understanding and enhancing children's intrinsic motivation in sport: Adopting the tenets of Eccles' expectancy-value model. In R. Lidor & M. Bar-Eli (Eds.), *Innovations in sport psychology: Linking theory with practice. Proceedings of the IX World Congress on Sport Psychology* (pp. 309-311). Tel-Aviv: Zinman College.

Haywood, K.M. (1991). The role of physical education in the development of active lifestyles. *Research Quarterly for Exercise and Sport, 62*, 151-156.

Kaplan, H., & Assor, A. (1998). The meaning and consequences of autonomy-related teachers' actions for students: A developmental perspective. Paper presented at the 6th Workshop of Achievement and Task Motivation. March 28-30, Thessaloniki.

Krapp, A. (1999). Interest motivation and learning: An educational-psychological perspective. *European Journal of Psychology of Education, 34*, 23-40.

Krapp, A., Hidi, S., & Renninger, K.A. (1992). Interest, learning and development. In K.A. Renninger, S. Hidi, & A., Krapp (Eds.), *The role of interest in learning and development* (pp. 398-428). Hillsdale, NJ: Erlbaum.

Nicholls, J.G. (1989). *The Competitive ethos and democratic education.* Cambridge, MA: Harvard University Press.

Papaioannou, A. (1992). *Students' motivation in physical education classes which are perceived to have different goal perspectives.* Unpublished doctoral dissertation, University of Manchester, Manchester, United Kingdom.

Papaioannou, A. (1994). Development of a questionnaire to measure achievement orientations in physical education. *Research Quarterly for Exercise and Sport, 65,* 11-20.

Papaioannou, A., & Theodorakis, Y. (1996). A test of three models for the prediction of intention for participation in physical education lessons. *International Journal of Sport Psychology, 27,* 383-399.

Patrick, B.C., Skinner, E.A., & Connell, J.P. (1993). What motivates children's behavior and emotion? Joint effects of perceived control and autonomy in the academic domain. *Journal of Personality and Social Psychology, 65,* 781-791.

Pate, R.R., & Hohn, R.C. (1994). *Health and fitness through physical education.* Champaign, IL: Human Kinetics.

Rodgers, W.M., & Brawley, L.R. (1991). The role of outcome expectancies in participation motivation. *Journal of Sport and Exercise Psychology, 13,* 411-427.

Ryan, R.M. (1982). Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. *Journal of Personality and Social Psychology, 43,* 450-461.

Ryan, R.M., & Connell, J.P. (1989). Perceived locus of causality and internalisation: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology, 57,* 749-761.

Ryan, R.M., Connell, J.P., & Deci, E.L. (1985). A motivational analysis of self-determination and self-regulation in education. In C. Ames & R. Ames (Eds.), *Research on motivation in education, Vol. II: The clasroom milieu* (pp. 13-51). London: Academic Press.

Ryan, R.M., & Grolnick, W.S. (1986). Origins and pawns in the classroom: Self-report and projective assessments of individual differences in children's perceptions. *Journal of Personality and Social Psychology, 50,* 550-558.

Ryan, R.M., Koestner, R., & Deci, E.L. (1991). Ego-involved persistence: When free choice behavior is not intrinsically motivated. *Motivation and Emotion, 15,* 185-205.

Sansone, C., Sachau, D.A., & Weir, C. (1989). Effects of instruction on intrinsic interest: The importance of context. *Journal of Personality and Social Psychology, 57,* 819-829.

Schiefele, U. (1991). Interest, learning and motivation. *Educational Psychologist, 26,* 299-323.

Schiefele, U., & Csikszentmihalyi, M. (1994). Interest and the quality of experience in classrooms. *European Journal of Psychology of Education, 9,* 251-270.

Vallerand, R.J., & Bissonnette, R. (1992). Intrinsic, extrinsic, and amotivational styles as predictors of behavior: A prospective study. *Journal of Personality, 60,* 599-620.

Whitehead, J.R., & Corbin, C.B. (1991). Youth fitness testing: The effect of percentile-based evaluative feedback on intrinsic motivation. *Research Quarterly for Exercise and Sport, 62,* 225-231.

Le but de cette étude presente était d'examiner les rapports entre la motivation intrinsèque pour l'éducation physique et des facteurs comme le locus de causalité, la competence perçue, et l'attente de résultat. Cinq cent seize étudiants des grades 7-12 ont participés à la recherche. Les étudiants ont été choisis au hasard dans trois écoles d'une ville grecque de grandeur moyenne. Le locus de causalité a été établi à l'aide du questionnaire d'orientation motivationnelle de Ryan et Connell (1989) tandis que la motivation intrinsèque a été estimée par le questionnaire de Motivation Intrinsèque (Ryan, 1982). L'attente de résultat concernant dix résultats possibles en éducation physique scolaire a été examinée par deux echelles differentes: évaluation de résultat et probabilité de résultat. L'analyse des relations de causalité a revelé que la motivation intrinsèque a été surtout affectée par l'utilité perçue et que l'utilité perçue a été affectée par l'attente de résultat. De plus, l'attente de résultat a affecté aussi le locus de causalité. Ces

résultats ont révélé que l'attente de résultats des étudiants en ce qui concerne leur participation à l'éducation physique scolaire est un facteur important qui affecte leur motivation intrinsèque.

Key words: Intrinsic motivation, Physical education.

Received: March 1999

Revision received: April 2000

Marios Goudas. Department of Physical Education and Sport Science, University of Thessaly, Karies, 42100, Trikala, Greece.

Current theme of research:

Achievement motivation and intrinsic motivation in physical education.

Most relevant publications in the field of Psychology of Education:

Goudas, M., & Biddle, S.J.H. (1994). Perceived motivational climate and intrinsic motivation in school physical education classes. *European Journal of Psychology of Education, 9*, 241-250.

Goudas, M., Biddle, S.J.H., & Fox, K.R. (1994). Achievement goal orientations and intrinsic motivation in physical fitness testing. *Pediatric Exercise Sciences, 6*, 159-167.

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., Biddle, S., Fox, K., & Underwood, M. (1995). It ain't what you do, it's the way that you do it! Teaching style affects children's motivation in track and field lessons. *The Sport Psychologist, 9*, 254-264.

Irini Dermitzaki. Ifigenias 14, 54352 Thessaloniki, Greece.

Current theme of research:

The relations of self-concept and metacognitive factors with school performance.

Most relevant publications in the field of Psychology of Education:

Dermitzaki, I., & Efklides, A. (in press). Different aspects of school language self-concept and its relationship with school performance and verbal ability. *The American Journal of Psychology.*

Dermitzaki, I., & Efklides, A. (in press). The concept of the self and its relations with cognitive and metacognitive factors regarding performance in specific knowledge domains (in Greek). *Psychology: The Journal of the Hellenic Psychological Society.*

Konstantinos Bagiatis. Department of Physical Education and Sport Science, University of Thessaly, Karies, 42100, Trikala, Greece.

Current theme of research:

Statistical models for the prediction of sport performance.

Most relevant publications in the field of Psychology of Education:

Theodorakis, Y., Goudas, M., & Bagiatis, K. (1995). Attitudes toward teaching in individuals with disabilities. An application of planned behavior theory. *Adapted Physical Activity Quarterly, 12*, 151-160.