ELSEVIER

Learning and Instruction 18 (2008) 528–536

Learning and Instruction

www.elsevier.com/locate/learninstruc

A team-sports-based life-skills program in a physical education context

Marios Goudas*, Georgios Giannoudis

Department of Physical Education and Sport Science, University of Thessaly, 421 00 Karies, Trikala, Greece

Received 2 April 2007; revised 17 October 2007; accepted 19 November 2007

Abstract

The present study aimed at examining the effectiveness of a team-sports-based life-skills program taught as part of physical education lessons. One hundred sixty-five sixth and eighth graders were assigned either in an experimental or in a control group and received an abbreviated version of SUPER, a team-sports-based program. The program focused on setting goals, on positive thinking, and on problem solving. Students were assessed on four sport-skills tests, knowledge about life skills, and beliefs about effective use of life skills. Results showed gains of the experimental group on two of the four sport-skills tests, knowledge and self-beliefs.

Keywords: Physical education; Team sports; Life skills; Intervention

1. Introduction

Sport is a metaphor for life. This statement captures the widespread belief that sport participation is beneficial for youth because it promotes their capacity to deal with life's challenges. However, respective research results have been equivocal and youth sport theorists warn that various factors will determine whether participating in sport will have positive or negative effects for youth. As Petitpas, Cornelius, Van Raalte, and Jones (2005) note ''Sport can provide a wonderful forum for youth to learn about themselves and to acquire skills that can assist them throughout life, or it can create a negative environment that may have a detrimental effect on participants' self-esteem confidence and physical self-efficacy'' (p. 76). Therefore, it is probably not the mere participation in sport that enhances positive development but the individual's experience in sport that may be the critical factor. For personal growth and development to be realized sport programs must be developed with this goal in mind.

''Positive youth development refers to promoting competent, healthy, and successful youth and involves the production of experiences, supports and opportunities known to enhance positive developmental outcomes'' (Benson, Scales, Hamilton, & Sesma, 2006, p. 895). Within this movement, training life skills is recognized to have a positive impact on youth development. According to World Health Organization (1999), teaching life skills is essential for the

* Corresponding author.
E-mail address: mgoudas@pe.uth.gr (M. Goudas).

0959-4752/$ - see front matter © 2007 Elsevier Ltd. All rights reserved.
doi:10.1016/j.learninstruc.2007.11.002

promotion of healthy child and adolescent development, as well as for the preparation of young people for changing social circumstances. Life skills enable individuals to succeed in the environments in which they live (Danish & Nellen, 1997). Life skills can be physical (e.g., taking a right posture), behavioral (e.g., communicating effectively), or cognitive (e.g., making effective decisions) (Danish & Donohue, 1995). It is recognized that sport can be used as a medium for enhancing youngsters' development if it incorporates the teaching of skills and strategies useful for life. Thus, Petitpas et al. (2005) claim, ''youth sport programs that promote psychosocial development are those that use sport as a vehicle to provide experiences that promote self-discovery and teach participants life skills in an intentional and systematic manner'' (p. 66).

There are several reasons why sport is a suitable context for teaching life skills. First, there is a resemblance between performance excellence in sport and personal excellence in life and an apparent similarity between the mental skills needed for successful performance in sport and in non-sport domains (Danish, Forneris, & Wallace, 2005). Second, many of the skills learned in sport are transferable to other life domains. These skills include the abilities to perform under pressure, to solve problems, to meet deadlines and/or challenges, to set goals, to communicate, to handle both success and failure, to work with a team and within a system, and to receive feedback and benefit from it. Third, most youngsters are acquainted with sport as it is a pervasive activity throughout our society. Fourth, sport is a context that emphasizes training and performance just as school and work (Danish, Petitpas, & Hale, 1992). Fifth, sport skills and life skills are learned in the same way, through demonstration, modeling and practice (Orlick & McCaffrey, 1991). Sixth, sport is a significant factor in the development of adolescents' self-esteem and perceptions of competence (Danish, Petitpas, & Hale, 1993; Fox, 1992). Moreover, sport can provide for successful and satisfying goal accomplishment as goals in sport are generally tangible and short term. Thus, sport can instill to individuals the value of experiencing success in setting and achieving goals (Danish, Forneris, Hodge, & Heke, 2004). Additionally, school physical education may benefit from sport's potential for life-skills teaching as it is a setting where sport and physical activity is presented to almost all children. Therefore, it has been proposed that an optimal way to promote skill acquisition is to integrate sport and life-skills instruction (Petlichkoff, 2004).

Today, there is a small number of youth sport programs that teach concurrently life and sport skills and focus on personal, social, and sport development. These programs are the Sports United to Promote Education and Recreation (SUPER; Danish, Fazio, Nellen, & Owens, 2002), the Play It Smart (Petitpas, Van Raalte, Cornelius, & Presbrey, 2004) and the First Tee (Petlichkoff, 2001, 2004).

SUPER is a sport-based adaptation of the Going for Goal program (GOAL; Danish et al., 1992a, 1992b), which used sport metaphors to teach adolescents a sense of personal control and confidence about their future so that they can make better decisions and ultimately become better citizens. O'Hearn and Gatz (1999, 2002) conducted two studies using GOAL with mostly Hispanic students. In the first study, participating students, as compared to a wait-list Control group, gained knowledge about the skills being taught and were able to attain the goals they set. In the second study, in addition to the above stated goals they also improved their problem-solving skills. Hodge, Cresswell, Sherburn, and Dugdale (1999) applied GOAL to at-risk New Zealand students. Their results showed that the GOAL program was successful in achieving positive change in self-esteem and intrinsic motivation for school work.

SUPER is taught like sports clinics with participants involved in three sets of activities: learning the physical skills related to a specific sport; learning life skills related to sports in general; and playing the sport. Skill modules are adapted to fit the specific sport and time and most of them require 20–30 min to teach. Brunelle, Danish, and Forneris (2007) reported significant changes on several 'character-related' measures following an abbreviated version of SUPER. Adolescents who received the program in the context of a golf academy exhibited increased social interest and social responsibility from pre- to posttest.

Papacharisis, Goudas, Danish, and Theodorakis (2005) reported the evaluation of an abbreviated form of SUPER. In this study, young athletes were tested in sport skills and then they were taught to set goals regarding the sport-skills tests, to think positively regarding their goal, and to solve problems inhibiting them to reach their goal. The results showed that young volleyball and soccer athletes who received the program performed better in sport skills, and showed enhanced knowledge and improved confidence in applying life skills relative to athletes of a Control group. In a subsequent study, Goudas, Dermitzaki, Leondari, and Danish (2006) employed a wait-list Control group design and had physical education students tested in seat-and-reach and push-up tests. Then, simultaneously with and in relation to physical practice students were taught goal setting, making plans, and positive thinking in relation to the physical skills tests. Results showed gains and retention on physical fitness, knowledge, and self-beliefs regarding goal setting.

Team sports represent an important and strong element of physical education curricula. This element is often the one most enjoyed by physical education students (Goudas & Biddle, 1993). Therefore, a life-skills program that is delivered through team sports would be of apparent practical value to physical education teachers. Furthermore, team sports offer unique opportunities to teach specific life skills such as problem solving. When playing team sports, students face situations where they have to produce motor responses to problems related to game strategy and tactics. These situations may be employed by physical educators to serve as a vehicle for teaching problem solving. In the Papacharisis et al. (2005) study, the life-skills program involved a problem-solving component, but only in relation to the goal achievement plan. The present study extended the Papacharisis et al. (2005) and the Goudas et al. (2006) studies by including a problem-solving component that is taught and practiced through problem-based situations relating to team sports.

The present study also extended the Papacharisis et al. (2005) and the Goudas et al. (2006) studies with respect to the positive thinking component of the life-skills program. In these studies, students were instructed to use keywords when practicing to enhance their performance. The present study added an additional subcomponent (namely, change of negative thoughts) by instructing students to spot their negative performance-related thoughts and changing them to positive ones. This differentiation is also reflected in the instruments used to assess the effectiveness of the program: students' self-beliefs for applying life skills were assessed both for positive thinking and for changing negative thoughts in contrast with the previous studies in which only positive thinking was assessed.

Integrating life-skills teaching with physical skills teaching was expected to produce superior results in comparison to teaching physical skills solely. Motor-learning theorists have pointed that ''in order to direct and regulate behavior effectively, the control of emotions, attitudes and thought must occur integratively'' (Singer, 1988, p. 59), and have developed strategies for learning physical skills that emphasize both cognitive and affective considerations (Singer, 1988). Therefore, ''an integrated mental management approach that guides the systematic and progressive development of effective mental skills during the regular practice or class schedule of the athlete or student'' has been proposed (Sinclair & Sinclair, 1994, p. 16).

Based on the above, it was hypothesized that, in comparison to a Control group, students who received training of life skills: (a) would perform significantly better on sport skills (hypothesis 1), (b) would demonstrate greater knowledge of life skills (hypothesis 2), and (c) their belief in their ability to effectively use life skills would be higher due to the enhanced knowledge and opportunities to practice these life skills (hypothesis 3).

2. Method

2.1. Participants

Participants in the study were 165 students from two elementary and two junior high schools. Of them, 86 students were in the sixth year of elementary school (age 12 ± 0.5 years) and 79 were in the second year of junior high school (age 14 ± 0.5 years). The four schools were in the broad district of Thessaloniki (Greece) in middle class areas. Each school had one physical education teacher who taught two classes; one class received the life-skills intervention program and the other served as the Control group. However, absences from the program and missing data resulted in a full data set from 130 participants (Experimental group $n = 69$, Control group $n = 61$).

2.2. Procedure

Permission to implement the program was secured from the school principals as well as from the Greek Ministry of National Education and Religious Affairs. The physical education teachers were trained by one of the authors and received analytical lesson plans. Moreover, one of the authors was present during the lessons to assist in the implementation of the program.

Both the Experimental and the Control groups were taught for 17 teaching hours corresponding to 17 sessions. In the first 10 sessions, students were taught two basketball skills: dribbling and chest-pass. In the rest seven sessions, students were taught two volleyball skills: overhead-pass and underside service. The practice sessions were the same for Experimental and Control groups. The difference was that the Experimental group had in every session about 10 min life-skills lectures, while the Control group spent the same time for lectures about body function issues during exercise.

2.3. The life-skills program

An overview of the program is presented in Table 1. It comprised three life skills: (a) goal setting, (b) problem-solving strategies, and (c) positive thinking. In the beginning of the basketball and volleyball sections, students were tested in respective sport tests (described below). Then (Sessions 1–4 for basketball and Sessions 11–12 for volleyball) using their test score as a stimulus, students were taught what a goal is and principles of effective goal setting; they were also asked to set goals for the retest on these tests and were instructed how they could set up their personal action plan to reach their goals.

In the fifth, sixth, seventh, fifteenth and sixteenth session the students were taught a three-step procedure for problem solving. The first step referred to thinking of as many possible solutions for the existent problem. The second step referred to considering the consequences of each choice. The third step referred to picking up the solution with the best anticipated consequences, as well as to applying and to evaluating the solution. Students were presented with modified basketball and volleyball games requiring a novel solution and were asked to use the three-step procedure to find a solution. Moreover, in the seventh and fifteenth session the students had to consider roadblocks that prevented them from reaching theirs goals and to consider ways to overcome these roadblocks by using the three-step procedure.

In the eighth, ninth, thirteenth and fourteenth sessions the students were taught what positive thinking is, how it influences performance and how they could spot a negative thought when practicing and change it to a positive

Table 1
Description of the program

Session	Life skills	Team sport	Lesson content
1	Goal setting	Basketball	Introduction to goal setting, principles of goal setting Basketball dribble pretest Goal setting for basketball dribble test
2	Goal setting	Basketball	Goal setting examples Basketball pass pretest Goal setting for basketball pass test
3	Goal setting	Basketball	Goal achievement plan Basketball passing and dribbling drills
4	Goal setting	Basketball	Development of personal goal achievement plan Basketball passing and dribbling drills
5	Problem solving	Basketball	Problem-solving strategy Applying the strategy to modified games
6	Problem solving	Basketball	Applying the problem-solving strategy to overcome roadblocks to goal achievement Applying the strategy to modified games
7	Problem solving	Basketball	Applying the problem-solving strategy to overcome roadblocks to goal achievement Applying the strategy to modified games
8	Positive thinking	Basketball	Introduction to positive thinking and self-talk Drills practice using keywords
9	Positive thinking	Basketball	Changing negative thoughts to positive ones Drills practice using keywords and changing negative thoughts Reminding of goals
10	Goal setting	Basketball	Dribble and pass posttest Check for goal achievement
11	Goal setting	Volleyball	Service and pass pretest Goal setting for service and pass tests
12	Goal setting	Volleyball	Goals achievement plan Pass and service drills
13	Positive thinking	Volleyball	Positive thinking and self-talk Drills practice using keywords
14	Positive thinking	Volleyball	Drills practice using keywords and changing negative thoughts
15	Problem solving	Volleyball	Applying the problem-solving strategy to overcome roadblocks to goal achievement Applying the strategy to modified games
16	Problem solving	Volleyball	Applying the strategy to modified games
17	Goal setting	Volleyball	Service and pass posttests Check for goal achievement

one. Moreover, they were taught about self-talk and, specifically, instructional self-talk, and how they could use appropriate keywords for channeling their attention to the most important element of each motor skill. For basketball they were instructed to use the keywords 'low' and 'tempo' for dribbling, and 'fingers' and 'target' for the chest-pass. For volleyball they used the keyword 'triangle' for the overhand-pass, and the keywords 'open arms' and 'fist' for underarm service.

During the goal setting and positive thinking sessions, students worked mostly using a self-check approach (Mosston & Ashworth, 2002). During the problem-solving sessions, students worked in groups. Experimental group participants were provided with a workbook where students could find information about the life skills taught. Each page of the workbook corresponded to one session where, apart from information, there were brief life-skills exercises that had to be completed in group work during the session. For each skill there was optional homework asking students to teach what they had learned to another person and to write about their experience.

2.4. Measures

2.4.1. Knowledge test

A modification of a test (Goudas, Karabekou, & Papacharisis, in press), which was developed by Papacharisis (2004) based on the work of Hogan (2000), was used. The 15-item multiple-choice test evaluates knowledge of how to set goals (5 items), think positively (5 items) and solve problems (5 items). For example, ''In order to make a dream come true: (a) I should dream more and more, (b) I must turn the dream into a goal, (c) I must sit and wait for something to happen, (d) I don't have to do anything. If I want it, it will happen''. Goudas et al. (in press) reported satisfactory difficulty and discrimination indices for all the items. For the present study, the difficulty index ranged from 0.21 to 0.91 for the 15 items and the discrimination index ranged from 0.15 to 0.48.

2.4.2. Self-beliefs

A 21-item scale measuring self-beliefs for goal setting, problem solving, and positive thinking was administered. The scale was a modification (Goudas et al., in press) of a test developed by Papacharisis (2004). Papacharisis (2004) reported satisfactory internal consistency and structural validity results for a three-factor structure accounting for 58.6 of the variance; Cronbach's alphas for the three factors were 0.82 for goal setting, 0.76 for problem solving, and 0.84 for positive thinking. In the present study, 6 items were used to assess students' perception of goal setting ability (e.g., ''I am very good at setting goals for myself''); 4 items were used to assess individuals' perception of positive thinking (e.g., ''I am very good at thinking positively for myself''), 4 items were used to assess individuals' perception of their ability to change negative thoughts to positive ones (e.g., ''I can spot a negative thought of mine and change it to a positive one''), and 7 items were used to assess individuals' perception of problem-solving ability (e.g., ''I am very good at finding appropriate solutions for the problems that I confront''). A seven-point Likert-type scale was used from 1 (strongly disagree) to 7 (strongly agree). An exploratory factor analysis with oblimin rotation yielded four factors that accounted for 59% of the variance. The four factors were goal setting (4 items), positive thinking (3 items), change of negative thoughts (4 items), and problem solving (4 items). Cronbach's alphas for these four factors were 0.72, 0.81, 0.64, and 0.69, respectively. The rest of the items had loadings less than 0.3 and were not included in the analysis.

2.4.3. Sport-skills tests

Basketball dribble. Students had to dribble among five cones that had 3.05 m distance between each other. The task lasted 30 s and the score was the total number of cones the student had dribbled (Harisson, 1969).

Basketball chest-pass. Students tried from a distance 4.5 m to hit three cycles, each one having diameter of 30 cm, painted on a wall. Each cycle was on a different height from the ground and the distance between them was 1.6 m. Students tried to score as many cycles as they could in 30 s (Stubbs, 1969).

Volleyball overhand-pass. Students tried to make as many continuous passes to themselves, upwards of their head, as they could during a period of 45 s. The ball had to get over 50 cm from their head (Strand & Wilson, 1993).

Volleyball underhand-service. Students made 10 continuous services and tried to get as many points as they could. The other side of the playfield was separated into different sections that gave different points. The most difficult section gave 4 points, next gave 3, next 2 etc. The maximum score that a student could get was 40 points (Strand & Wilson, 1993).

3. Results

Means and standard deviations of all variables are reported in Table 2.

3.1. Sport-skills tests

A 2 × 2 repeated measure MANOVA, with the four sport skills as the dependent variables, Time of measure as the within-subject factor and Group as the between-subjects factor, revealed a significant multivariate Group × Time interaction, $F(4, 119) = 7.43$, $p < 0.001$, partial $\eta^2 = 0.20$, observed power = 0.99 for $\alpha < 0.05$. Univariate tests indicated a significant interaction effect for all sport-skills tests: for basketball dribble, $F(1, 122) = 14.04$, $p < 0.001$, partial $\eta^2 = 0.10$, for basketball chest-pass, $F(1, 122) = 5.23$, $p < 0.05$, partial $\eta^2 = 0.04$, for volleyball underhand-service, $F(1, 122) = 7.97$, $p < 0.01$, partial $\eta^2 = 0.06$, and for volleyball overhand-pass, $F(1, 122) = 7.82$, $p < 0.01$, partial $\eta^2 = 0.06$. According to Cohen (1988) the η^2 values reported in this study correspond to medium effect sizes.

To further investigate these interactions, the two groups (Experimental and Control) were compared before and after the intervention, using Tukey's Honestly Significant Difference test (Vincent, 1995, p. 159, formula 9.15 for comparing unequal groups). The analyses showed that there were no significant differences before the intervention on the four sport skills. After the intervention there were significant differences with the Experimental group scoring higher than the Control on the basketball chest-pass and on the volleyball underhand-service, but not on basketball dribble and on volleyball overhead-pass. The Experimental group improved their scores on basketball dribble and on volleyball overhead-pass, 26.38% and 33.27%, respectively, whereas the percentage improvement for the Control group on these two skills was only 1.26% and 6.62%, respectively.

3.2. Knowledge tests

A repeated measure ANOVA showed a significant Group × Time interaction for the knowledge test, $F(1, 128) = 28.22$, $p < 0.001$, partial $\eta^2 = 0.18$ (high effect size; Cohen, 1988), observed power = 1.00 for $\alpha < 0.05$. Tukey's Honestly Significant Difference test showed that there was no significant difference between the two groups before the intervention, but there was a significant difference between the groups after it, with the Experimental group scoring higher than the Control group, 33.8% increase and 10.6% decrease, respectively.

3.3. Self-beliefs

A repeated measure MANOVA showed a significant Group × Time multivariate interaction, $F(4, 125) = 2.72$, $p = 0.033$, partial $\eta^2 = 0.08$ (medium effect size), observed power = 0.74 for $\alpha < 0.05$. Univariate tests showed

Table 2
Mean and SD scores as a function of group and testing

Variables	Experimental group				Control group			
	Pretest		Posttest		Pretest		Posttest	
	M	SD	*M*	SD	*M*	SD	*M*	SD
Basketball dribble	21.21	4.42	24.43	4.65	21.75	4.10	23.16	3.83
Basketball chest-pass	3.97	2.63	5.01_a	2.71	3.87	2.47	3.90_b	2.59
Volleyball underhand-service	9.85	6.13	13.19_a	6.46	10.22	6.98	10.82_b	6.96
Volleyball overhead-pass	48.21	18.02	57.97	19.01	51.75	15.44	56.88	17.07
Knowledge test	9.03	2.04	11.87_a	2.69	8.62	2.81	9.28_b	2.85
Self-beliefs – goal setting	5.07	0.96	5.27	0.74	5.10	1.08	5.08	1.17
Self-beliefs – problem solving	5.09	0.92	5.34	0.79	5.09	1.00	5.18	0.79
Self-beliefs – positive thinking	5.16	1.17	5.33	1.12	4.80	1.31	4.73	1.44
Self-beliefs – change of negative thought	4.96	1.16	5.27_a	1.01	4.82	1.18	4.59_b	1.24

Significant mean differences between the Experimental and the Control groups in the same row are indicated by different subscripts, $p < 0.05$ in the Tukey's Honestly Significant Difference test.

significant Group × Time interaction only for change of negative thought, $F(1, 128) = 9.01$, $p = 0.003$, partial $\eta^2 = 0.06$. To investigate this interaction the two groups were compared before and after the intervention using Tukey's Honestly Significant Difference test. Before the intervention there were no significant differences in change of negative thought between the two groups. In contrast, after the intervention the Experimental group had significantly higher score than the Control group, 6.95% increase 4.57% decrease, respectively.

4. Discussion

The present study examined the effectiveness of a team-sports-based life-skills program carried out in a physical education context. Considering that the intervention consisted of seventeen 10–15 min sessions, the results are very encouraging and in agreement with the findings of the application of the GOAL program in school settings (Danish & Nellen, 1997; O'Hearn & Gatz, 1999, 2002) and with respective results regarding the application of SUPER in sport and physical education settings (Brunelle et al., 2007; Danish et al., 2002; Goudas et al., 2006; Papacharisis et al., 2005).

Previous research on the application of GOAL reported significant increases on participants' knowledge about life skills and perception of their competence to achieve the goals they have set (Danish & Nellen, 1997). Brunelle et al. (2007) have also reported significant changes on social responsibility, goal knowledge, and social interest, as a result of implementing an abbreviated version of SUPER. The present study replicated and extended these results to include students' performance on team-sport skills that are very popular among students and are broadly used in Greek physical education. Students who received the program demonstrated enhanced knowledge about life skills and higher self-beliefs for changing negative to positive thinking compared to students of the Control group. Further, the present research adds to the results of previous related studies two distinct points: First, a new subcomponent of positive thinking – change of negative thoughts during practice – can successfully be added to the life-skills program and, second, a novel way for teaching problem-solving skills can be employed using modified team sports.

Hypothesis 1 was verified. Life-skills training resulted in an improvement in sport skills relative to the Control group. Previous studies that had applied SUPER and GOAL (Brunelle et al., 2007; Danish & Nellen, 1997; Hodge et al., 1999) did not evaluate this potential benefit of life-skills training for sport or physical fitness. The finding of the present study corroborated those of Papacharisis et al. (2005) and Goudas et al. (in press) denoting that when life-skills training is appropriately embedded in sport or physical education practice, their learning is not at the expense of learning sport and fitness skills. On the contrary, students can improve their performance by applying the life skills they are taught.

The results of the self-report instruments showed that students who received the program gained knowledge about life skills, thus hypothesis 2 was verified, but their self-beliefs about applying these skills were not altered to a significant extent, for three of the four skills assessed, although for all four skills scores of the Experimental group improved. Therefore, hypothesis 3 was partly verified. This finding is in contrast with respective results of previous applications of this abbreviated form of SUPER (Goudas et al., 2006; Papacharisis et al., 2005) and may be attributed to two reasons. First, the scores in the first measure were high preventing from a significant increase. To rectify this problem, it has been suggested that a retrospective form of the questionnaires can be used (Brunelle et al., 2007). Second, as the present study involved an additional skill taught, it may be argued that the increased number of skills prevented from effective learning.

The three skills taught in this program, that is, goal setting, positive thinking, and problem solving were selected due to a strong theoretical basis and their potential to enhance performance both in sport and in other settings. Goal setting coupled with problem solving are central strategies of a life-development intervention approach (Danish et al., 1993) as a means of empowerment. Further, goal setting has been consistently shown to increase performance in a wide variety of settings (Locke & Latham, 1990). Moreover, several studies have shown that positive self-talk, a strategy to enhance positive thinking, is a useful psychological skill for ensuring high sport performance (Theodorakis & Goudas, 2006). These three skills can be transferred and used in other settings like other school subjects or at home. For example, a student may set process goals and develop a goal achievement plan for studying music or practice specific self-talk keywords to focus his/her attention when taking an exam.

An important limitation of this study is that the transfer of skills to other domains was not examined. However, in earlier applications of the program, Papacharisis (2004), employing interviews, reported that many of the young athletes who received the program went on to apply the skills they had learned at school or at home. Danish and Nellen

(1997) have discussed that in order to have a transfer of skills learned in new settings "…it may be necessary to provide information about the new setting and 'coach' the student through the process of preparing for and implementing the skill" (p. 110). Future studies may in addition employ behavioral measures of students' use of life skills perhaps in settings other than physical education.

The results of this study could be strengthened if the program was introduced to the Control group after its implementation to the Experimental group as in the Goudas et al. (2006) and the O'Hearn and Gatz (1999, 2002) studies. These studies allowed for a follow-up measure and showed retention of the skills learned. Another potential limitation is that intact classes were assigned in the experimental and in the control replication conditions. Nevertheless, this resembles a real-life situation since the program would normally be provided to normal classes of students. Moreover, the results showed that the two groups did not differ before the application of the program, and the implementation of the program was based on standardized written procedures, which were strictly followed. An additional limitation could be the involvement of the researcher in the experimental procedures, which may have introduced a subtle bias. A final limitation regards the assignment of a control and an experimental class in each school. This choice was made in order to ensure matching of environmental conditions and of teachers between the Control and the Experimental groups. Nevertheless, this may have resulted in possible contamination between the two conditions.

In conclusion, the present study supported the effectiveness of a life-skills program that integrated sport- and life-skills training. Students who participate in such a program can improve their sport skills, while at the same time the inclusion of life-skills training in practice may serve as an effective model for learning life skills. Physical education teachers may facilitate students' learning if they place it within the context of goal setting for a specific measurable learning goal and positive thinking and problem solving regarding the achievement of this goal. Moreover, the life-skills program equips students with knowledge and skills that are necessary for successful coping with complex situations in life.

References

Benson, P. L., Scales, P. C., Hamilton, S. F., & Sesma Jr., A. (2006). Positive youth development: theory, research, and applications. In R. M. Lerner (Ed.), *Theoretical models of human development* (6th ed.). In W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology, Vol. 1* (pp. 894–941). New York: Wiley.

Brunelle, J., Danish, S. J., & Forneris, T. (2007). The impact of a sport-based life-skill program on adolescent prosocial values. *Applied Developmental Science, 11*, 43–55.

Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Danish, S., Forneris, T., & Wallace, I. (2005). Sport-based life skills programming in the schools. *Journal of Applied School Psychology, 21*(2), 41–62.

Danish, S. J., & Donohue, T. (1995). Understanding media's influence on the development of antisocial and prosocial behavior. In R. Hampton, P. Jenkins, & T. Gullota (Eds.), *Preventing violence in America* (pp. 133–156). Thousand Oaks, CA: Sage.

Danish, S. J., Fazio, R., Nellen, V. C., & Owens, S. (2002). Community-based life skills programs: using sport to teach life skills to adolescents. In J. V. Raalte, & B. Brewer (Eds.), *Exploring sport and exercise psychology* (2nd ed.) (pp. 269–288). Washington, DC: American Psychological Association.

Danish, S. J., Forneris, T., Hodge, K., & Heke, I. (2004). Enhancing youth development through sport. *World Leisure, 46*(3), 38–49.

Danish, S. J., Mash, J. M., Howard, C. W., Curl, S. J., Meyer, A. L., & Owens, S., et al. (1992a). *Going for the goal leader manual*. Richmond, VA: Virginia Commonwealth University, Department of Psychology.

Danish, S. J., Mash, J. M., Howard, C. W., Curl, S. J., Meyer, A. L., & Owens, S., et al. (1992b). *Going for the goal student activity manual*. Richmond, VA: Virginia Commonwealth University, Department of Psychology.

Danish, S. J., & Nellen, V. C. (1997). New roles for sport psychologists: teaching life skills through sport to at risk youth. *Quest, 49*, 100–113.

Danish, S. J., Petitpas, A., & Hale, B. (1992). A developmental education intervention model of sport psychology. *The Sport Psychologist, 4*, 403–415.

Danish, S. J., Petitpas, A. J., & Hale, B. D. (1993). Life development intervention for athletes: life skills through sports. *The Counseling Psychologist, 21*, 352–385.

Fox, K. R. (1992). Physical education and the development of self-esteem in children. In N. Armstrong (Ed.), *New directions in physical education, Vol. 2* (pp. 33–54). Champaign, IL: Human Kinetics.

Goudas, M., & Biddle, S. J. H. (1993). Pupil perceptions of enjoyment in physical education. *Physical Education Review, 16*, 145–150.

Goudas, M., Dermitzaki, E., Leondari, A., & Danish, S. (2006). The effectiveness of teaching a life-skills program in a physical education context. *European Journal of Psychology of Education, 21*, 429–438.

Goudas, M., Karabekou, A., & Papacharisis, V. Validity and reliability of questionnaires assessing life skills programs [In Greek]. Athlisi & Koinonia, in press.

Harisson, E. R. (1969). A test to measure basketball ability for boys. In H. Barrow, & R. McGee (Eds.), *A practical approach to measurement in physical education* (pp. 228–231). London: Kimpton.

Hodge, K., Cresswell, S., Sherburn, D., & Dugdale, J. (1999). Physical activity-based life skills programmes: Part II – Example Programmes. *Physical Education New Zealand Journal, 32*, 12–15.

Hogan, C. (2000). The impact of a peer-led program on the peer leaders' leadership-related skills. Unpublished Master thesis, Virginia Commonwealth University.

Locke, E., & Latham, C. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall.

Mosston, M., & Ashworth, S. (2002). *Teaching physical education* (5th ed.). Boston, MA: Cummings.

O'Hearn, T. C., & Gatz, M. (1999). Evaluating a psychological competence program for urban adolescents. *Journal of Primary Prevention, 20*, 119–144.

O'Hearn, T. C., & Gatz, M. (2002). Going for the goal: improving youth problem solving skills through a school-based intervention. *Journal of Community Psychology, 30*, 281–303.

Orlick, T., & McCaffrey, N. (1991). Mental training with children for sport and life. *The Sport Psychologist, 5*, 322–334.

Papacharisis, V. (2004). Implementation of life skills development programs in physical education and sports [In Greek]. Unpublished Doctoral Dissertation. University of Thessaly, Greece.

Papacharisis, V., Goudas, M., Danish, S., & Theodorakis, Y. (2005). The effectiveness of teaching a life skills program in a sport context. *Journal of Applied Sport Psychology, 17*, 247–254.

Petitpas, A. J., Cornelius, A. E., Van Raalte, J. L., & Jones, T. (2005). A framework for planning youth sport programs that foster psychosocial development. *Quest, 19*, 63–80.

Petitpas, A. J., Van Raalte, J. L., Cornelius, A. E., & Presbrey, J. (2004). A life skills development program for high school student athletes. *Journal of Primary Prevention, 24*, 325–334.

Petlichkoff, L. M. (2001). Teaching life skills through golf: development and delivery of a sports-based program. In A. Papaioannou, M. Goudas, & Y. Theodorakis (Eds.), *Proceedings of the 10th World Congress of Sport Psychology, Vol. 2* (pp. 318–319). Thessaloniki, Greece: Christodoulidis.

Petlichkoff, L. M. (2004). Self-regulation skills for children and adolescents. In M. R. Weiss (Ed.), *Developmental sport and exercise psychology* (pp. 272–292). Morgantown, WV: Fitness Information Technology.

Sinclair, G. D., & Sinclair, D. (1994). Developing reflective performers by integrating mental management skills with the learning process. *The Sport Psychologist, 8*, 13–27.

Singer, R. N. (1988). Strategies and metastrategies in learning and performing self-paced athletic skills. *The Sport Psychologist, 2*, 49–68.

Strand, B. N., & Wilson, R. (1993). *Assessing sport skills*. Champaign, IL: Human Kinetics.

Stubbs, H. C. (1969). An explanatory study in girls basketball relative to the measurement of the basketball handling ability. In H. Barrow, & R. McGee (Eds.), *A practical approach to measurement in physical education* (pp. 233–235). London: Kimpton.

Theodorakis, Y., & Goudas, M. (2006). Introduction. *Hellenic Journal of Psychology, 3*, 97–104.

Vincent, W. J. (1995). *Statistics in kinesiology*. Champaign, IL: Human Kinetics.

World Health Organization. (1999). *Partners in life-skills education*. Geneva, Switzerland: World Health Organization, Department of Mental Health.