

PROLOGUE: A REVIEW OF LIFE SKILLS TEACHING IN SPORT AND PHYSICAL EDUCATION

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Abstract: This prologue reviews existing programs and respective research on life skills in the context of sport and physical education. The paper identifies three distinct lines of research within this area and discusses how the five papers of this issue fit into these research lines. The first of these lines focuses on the identification of athletes' and students' life skills needs, the second on factors contributing to life skills development, and the third on the evaluation of life skills programs. Further, two issues regarding future research are discussed: the transferability of life skills and the development of life skills measures.

Key words: Life skills, Physical education, Youth sport.

INTRODUCTION

Youth sport participation steadily grows. This proliferation is partly based on the widespread belief that participating in sport and physical activity results in youth developing positive future expectations. Although several authors have acknowledged that participation in sports and physical activities may have the potential to enhance personal development (Danish, Petitpas, & Hale, 1993; Smoll & Smith, 2002), the results of respective research has been equivocal. Being on the field or the court does not necessarily contribute to positive youth development. It is the experience of sport that *may* facilitate this outcome. Therefore, it has been proposed that skills that integrate mind and body must be taught in conjunction with and through sport and other physical activities (Anderson, 1997; Laker, 2000). In other words, there has been a call for an "education through the physical" as

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opposed to an “education of the physical” orientation. Within this realm sport programs that alongside sport skills teach skills that can be useful in contexts other than sports have been developed. These skills are called life skills.

At the same time empirical research on life skills teaching through sports has been steadily growing. In a comprehensive review, Gould and Carson (2008) summarized existing sport-related research, suggested a heuristic model for understanding the process of coaching life skills through sports and provided eight directions for future research. The purpose of the present review is to complement that of Gould and Carson (2008) (a) by considering alternative theoretical frameworks for life skills; b) by examining life skills programs and respective research in physical education and sport; and (c) by commenting on Gould and Carson’s (2008) directions for future research. We first consider alternative frameworks for the notion of life skills, next we present existing life skills programs, we review respective research and present the papers of this issue and, finally, we discuss future research directions.

LIFE SKILLS FRAMEWORKS

Gould and Carson (2008) noted the plethora of life skills definitions and other related terms and commented on the distinction between positive youth development and life skills. We concur with their view that positive youth development is the most general term describing the «...promotion of any number of desirable competencies or outcomes in young people» (p. 59). A recent definition states that «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 view, life skills can be viewed as particular skills which upon learned and exercised successfully can lead to desired competencies. However, there are also several definitions of life skills.

The World Health Organisation (1999) defines life skills as “the ability for adaptive and positive behavior that enables individuals to deal effectively with the demands and challenges of everyday life”. Similarly, for Unicef¹ life skills are “a large group of psychosocial and interpersonal skills, which can help people make informed decisions, communicate effectively and develop coping and self-

¹ For more information on the definitions of terms by UNICEF you may visit http://www.unicef.org/lifeskills/index_7308_html.

management skills that may help them lead a healthy and productive life”.

According to Brooks (1984), life skills are the «learned behaviors that are necessary for effective living, including requisite knowledge or conditions for the development or acquisition of such behavior» (p. 6). Similarly, Danish has defined life skills as «...the skills enable individuals to succeed in the environments in which they live» (Danish & Nellen, 1997, p. 102). Gould and Carson (2008) defined life skills as «those internal personal assets, characteristics and skills such as goal setting, emotional control, self-esteem, and hard work ethic that can be facilitated or developed in sport and are transferred for use in non-sport settings» (p. 60). Nelson-Jones (1990) defined life skills as “the skills of effective living, psychological health or high-level human functioning” (p. 229). Finally, Jones and Lavalée (2009) asked coaches and athletes to define life skills and came up with defining life skills as «ranges of transferable skills needed for everyday life, by everybody, that help people thrive» (p. 165).

One aspect of life skills emphasized by several authors is the transferability of skills (Danish et al., 1993; Gould & Carson, 2008). That is, for a skill to qualify as life skill it needs to be transferable to other situations than the one the skill was taught and additionally, the teaching process should provide for this transfer. Thus, sport and physical education programs designed for teaching life skills should involve specific components aiming towards the use of life skills in non-sport settings. Unfortunately, existing research on the topic on transferability is limited. We discuss this issue further, later on in this paper.

It is apparent that different definitions of life skills emphasize different aspects of the concept. Nevertheless, as Danish, Forneris, Hodge, and Heke (2004) stress, the adoption of a definition is connected with the successful design and implementation of a life skills teaching program. The same applies to the framework which describes the concept that one employs. Indeed, several frameworks have been proposed to outline life skills.

Steve Danish has categorized life skills as physical (e.g., taking a right posture), behavioral (e.g., communicating effectively), or cognitive (e.g., making effective decisions) (Danish & Donohue, 1995). Brooks (1984) has identified four broad categories of life skills: interpersonal communication/human relations skills, problem solving/decision making skills, physical fitness/health maintenance skills, and identity development/purpose-in-life skills. He has also provided life skills descriptors for these categories separately for childhood, adolescence and adulthood. Nelson-Jones (1990) considers seven broad areas of life skills: Awareness and expression of feelings, thinking skills, relationships skills, study skills, working/handling unemployment skills, leisure skills, and health-related skills.

The categorization of Danish and Nellen (1997) reflects the conceptual similarity between the potential sport and physical education outcomes which are physical, cognitive and behavioral in nature. The frameworks of Nelson-Jones and Brooks reflect a developmental view providing counseling directions.

The development of life skills teaching programs and respective evaluative research should take into account respective frameworks in order to frame research hypotheses, build coherent programs and select appropriate measures: For example, Goudas and Magotsiou (2009) employed Brooks' (1984) taxonomy of life skills in order to select specific social skills as learning objectives for devising a cooperative learning program in physical education. Brooks' (1984) list of interpersonal communication/human relations skills for childhood and adolescence was presented to 12 physical education teachers who held a masters degree and they were asked to rank these competencies in order of importance as well as whether they could be achieved in physical education. Based on these rankings, five skills were selected and served as learning objectives for devising the lesson plans. These were: interacting with peers, solving problems cooperatively, helping peers and receiving help for goal accomplishment, meeting personal goals through cooperative play, and following or leading in a group depending upon the circumstances. Their results showed gains of an experimental group in cooperating skills and empathy as well as strengthening of positive attitudes towards group work.

Wallace, Danish, McClish, and Ingram (this issue) posit that health-enhancing behaviors such as breast and testicular examinations, fruit and vegetable consumption, reduction of fat intake and regular physical activity, can be conceived as life skills which can be taught. This reflects Brooks' (1984) categorization which identifies a physical fitness/health maintenance skills category. They report results of a large-scale correlational study, showing that physical activity and television viewing are related to students' intentions and self-efficacy to eat healthy. More specifically, students who engaged in more physical activity and watched less television had stronger intentions and self-efficacy to eat healthy.

To sum up, a close connection between life skills definition, life skills framework, and the life skills program enhances the possibility of successful implementation. We now turn to present current programs based on life skills in sport and physical education.

PROGRAMS TEACHING LIFE SKILLS IN SPORT AND PHYSICAL EDUCATION

The potential of sport to teach life skills is grounded on several reasons summarized by Goudas and Giannoudis (2008). 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 by participating in sport and physical education can be transferred 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 et al., 1993). 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 et al., 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 et al., 2004). Finally, Cross and Jones (2007) have highlighted the apparent conceptual similarity between the philosophy of Olympism and the notion of teaching transferable skills through sport. Therefore it has been proposed that sport can be used as a metaphor for the transfer of life skills from sport to other life domains (Danish, Hodge, Heke, & Taylor, 2003).

School physical education may benefit from sports' potential for life skills teaching as it is a setting where sport and physical activity is presented to almost all children. Therefore, physical education may be an ideal field for introducing life skills to the majority of children. Recent studies implementing short life skills programs within physical education units have provided promising results (Goudas, Dermitzaki, Leondari, & Danish, 2006; Goudas & Giannoudis, 2008). It is important to notice that in the aforementioned studies life skills teaching was not at the expense of sport skills but on the contrary it improved sport skills. In conclusion, physical education may be regarded as an attractive option to teaching life skills alongside other settings such as extra-curricular and community youth sport. Thus, we next consider life skills programs developed for sport and for physical education.

A number of programs have recently been developed, applied and tested. These

programs may be classified in three categories: (a) Programs that teach life skills in classroom settings using sport metaphors; (b) programs teaching life skills in youth sport settings in addition to sport skills, and (c) programs teaching life skills within the practice of physical education and sport at the same time with physical skills.

Perhaps the first program that utilized sport to teach life skills was the Going for the Goal (GOAL) program (Danish et al., 1992a, b). This program falls in the first category of programs named above in that life skills are taught in the classroom and sport is used as a metaphor for teaching the skills. The GOAL program is a 10-hour, 10-session program taught by carefully selected and well-trained high school students to middle school or junior high school students. The program is designed 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.

There are several programs that can be classified in the second category. These programs teach life skills in workshops and clinics in the sport setting, before or after sport practice. The skills taught are closely related to sport, beneficial both for performance enhancement and for well-being in life while special effort is applied to stress the transferability of skills.

The SUPER (Sports United to Promote Education and Recreation) program (Danish, 2002) is a sport-based adaptation of the GOAL Program. The SUPER program 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. The procedures for implementing the SUPER program differ from those for the GOAL program. Skill modules are adapted to fit the specific sport and time. Most skills require 20 to 30 minutes to teach.

Recently, Gould (2008) and colleagues have developed the Captain's Leadership Development Program (CLDP). This program teaches leadership skills to high school students selected as potential candidates for captainship on their team. Modules involve, among others, effective leadership and communication, motivating others and team cohesion. Consistent with the transfer theme of life skills, emphasis is given to transfer these skills from the sport setting to other life situations.

While SUPER and CLDP are programs that can be applied to any sport, there is also a number of sport-specific life skills programs. These programs adapt life skills teaching to a specific sport by using sport-specific situations as examples and teaching opportunities.

Hodge (2008) developed the Rugby Advantage Program, which consists of 15 workshops that teach general life skills adapted to rugby. Example skills that, among others, the program teaches is to keep trying after a mistake, to make the best out

of a difficult situation and to accept that mistakes and errors are part of a positive life-skill mindset.

The Play It Smart program (Petitpas, 2001; Petitpas, Van Raalte, Cornelius, & Presbrey, 2004) is related to football. This program has not a predetermined content, but it is structured independently each time to take advantage of the local resources available. It is implemented as a collaborative effort between academic coaches, parents, school personnel and community leaders. Participants are taught to identify life skills they possess and to apply them in contexts such as academic preparation and work.

The First Tee (Petlichkoff, 2001) program² teaches life skills to young golfers in addition to golf skills and golf rules instruction. The program consists of twenty modules divided in three areas: self-management, interpersonal skills and goal setting. Participants learn about the importance of maintaining a positive attitude; how to make decisions by thinking about the possible consequences and how to define and set goals from the golf course to everyday life.

All the above mentioned programs have shown great potential for enhancing young athletes' life skills as respective studies show. Respective studies are reviewed later in this article.

A third category of programs involves modifications of existing programs in order these to be embedded within the sport or physical education practice (Goudas et al., 2006; Goudas & Giannoudis, 2008; Papacharisis, Goudas, Danish, & Theodorakis, 2005). Thus, instead of teaching a life skill separately from practice, these programs teach these within the physical education or the sport practice session in conjunction with sport skills. The rationale for incorporating life skills teaching within sport practice is grounded on three reasons: First, life skills teaching should be easily implemented in order to be attractive to physical educator and coaches; second, life skills teaching should require minimum time for implementation as time allocated to physical education is limited, and third, life skills teaching should not be taught at the expense of sport skills.

Features of this program involve sport skill tests, brief lectures and sport skill practice related to life skills. Sport skill tests are taken before and after the program and test scores serve as stimuli for goal setting and students are instructed to set specific test-related goals on related forms. After the program test scores serve as a means to appraise effort, for adaptive attributions and for setting goals again. Lectures of life skills are provided in the beginning of practice sessions and require

² For more information on the First Tee program the reader can visit http://www.thefirsttee.org/club/scripts/view/view_insert.asp?IID=58648&NS=GI&APP=106.

five to ten minutes. Finally, during practice students are instructed to use the skills they have been taught. For example, regarding positive thinking students are instructed to use key words to improve their performance and to change occasional negative thoughts to positive ones. As regards problem solving, students are first taught a simple problem-solving method adapted from Danish et al. (1992a, 1992b) and then they are playing modified basketball and volleyball games requiring a novel solution. Next, they are asked to work in groups and to form a strategy using the problem-solving method, to apply it in the game and to evaluate it.

The above mentioned programs teach skills that facilitate learning and performance enhancement such as goal setting, self-talk, and problem solving. However, there are other physical education programs that target different competencies that may be conceived as life skills. For example, Hellison's (1985, 2003) physical education curriculum model aims at developing students' responsibility. The program is built on the conviction that teaching life skills and values must be integrated with the physical activity subject-matter rather than taught separately. The program aims at five levels of goals: Respect for the rights and feelings of others, effort and teamwork, self-direction, helping and leadership, and transferring skills outside the gym. A number of studies (see Hellison & Walsh, 2002, for a review) have shown the potential of the model for underserved or at-risk youth. Hassandra and Goudas (this issue) have utilized Hellison's model in mainstream physical education.

LIFE SKILLS RESEARCH IN SPORT AND IN PHYSICAL EDUCATION

Three different, yet complementary, lines may be identified in life skills research in sport and in physical education. These are (a) identification of athletes' and students' life skills needs, (b) factors contributing to life skills development, and (c) evaluation of the effectiveness of life skills programs.

Identification of athletes' and students' life skills needs

Gould, Chung, Smith, and White (2006) surveyed 154 high school sport coaches regarding the problems they encounter in working with adolescent athletes. The three most frequently encountered problems by coaches are (a) failure to take personal responsibility, (b) lack of motivation/work ethic, and (c) poor communication/listening skills. Similarly, Gould, Carson, Fifer, Lauer, and Benham (2009)

interviewed coaches, athletic directors, school principals and parents of high school athletes regarding skill issues and concerns of high school athletes. Key themes that emerged among others from this study were: learning to deal with pressure, handling unhealthy parental involvement and counteracting inappropriate expectations about winning. Jones and Lavalée (2009) used focus groups to ask British adolescent athletes and coaches which life skills are needed by the athletes. Interpersonal skills including social skills, respect, leadership, family interactions, and communication were identified as the most important skills. These studies provide important information for the development of life skills programs by identifying the most important skills for particular groups of youth sport participants.

Factors contributing to life skills development

Gould, Collins, Lauer, and Chung (2006, 2007) conducted in-depth interviews with 10 football coaches known for their ability to teach life skills to the players they coached. These coaches identified four sets of factors that contributed to life skills teaching. First, the coaches had well-grounded philosophies regarding life skills teaching. Second, they had the ability to build strong relationships with their players. Third, the coaches had a variety of strategies for teaching life skills. These strategies could be classified in two general categories: (a) effective coaching strategies and (b) player development strategies. In a naturalistic study Holt, Tink, Mandigo, and Fox (2008) observed the practice sessions of a soccer team with high-school male athletes. The coach of this team focused on building relationships with the athletes and involved them in decision making. Their results showed that student-athletes demonstrated behaviors related to initiative, respect and teamwork/leadership.

Gould and Carson (this issue) extend this line of research by reporting the results of a quantitative study that examined how perceived coaching behaviors related to life skills developmental experiences of former high school athletes. Their results show a relation of specific coaching behaviors such as relating sport lessons to life, building a positive rapport with athletes, goal setting and teaching of competition strategies with positive developmental experiences such as emotional regulation, prosocial norms and linkages to community.

The results of these and similar studies can assist in the improvement of youth sport programs in several ways. For example, youth sport coaches may be taught successful strategies for teaching life skills. Also, the content and the structure of the programs can be modified according to principles for effective life skills teaching.

Evaluation of life skills programs

A third line of research has examined the effectiveness of life skills programs. As Gould and Carson (2008) noted, studies of this nature are essential in order to establish the credibility of life skills programs. Unfortunately, this kind of research is still limited.

There are currently four studies that have examined the effectiveness of GOAL. O'Hearn and Gatz (1999, 2002) conducted two studies using the GOAL program with mostly Hispanic students. In the first study, participating students, as compared to a waiting-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 the GOAL program 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. Finally, Forneris, Danish, and Scott (2007) reported that participants in the GOAL program felt that they had learned how to set goals, to solve problems effectively and to seek social support.

Regarding the SUPER program, there are another four studies that have tested its effectiveness: one of them (Brunelle, Danish, & Forneris, 2007) has applied the complete form of the SUPER program, while the rest (Goudas et al., 2006; Goudas & Giannoudis, 2008; Papacharisis et al., 2005) have employed an abbreviated form of it. Brunelle et al. (2007) reported significant changes on several 'character-related' measures following an abbreviated version of the SUPER program. Adolescents who received the program in the context of a golf academy exhibited increased social interest and social responsibility from pre- to posttest. The results of Papacharisis et al. (2005) 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. Goudas et al. (2006) employed a waiting-list control group design and had physical education students tested in seat-and-reach and push-up tests and taught goal setting and positive thinking skills. Results showed gains and retention on physical fitness, knowledge, and self-beliefs regarding goal setting.

In an effort to examine potential theoretical explanations regarding the positive results of life skills programs, two studies have collected additional data from participants in the Goudas et al. (2006) study. Kolovelonis, Goudas, Dimitriou, and Gerodimos (2006) hypothesized that experimental group participants, relative to the control group, participants would be more self-determined because they set

goals for themselves and worked independently for their achievement. To assess self-determination they used the Greek version (Goudas, Dermitzaki, & Bagiatis, 2000) of a respective questionnaire of Ryan and Connell (1989) that had been modified for use in the physical education domain (Goudas, Biddle, & Fox, 1994). Their results showed an increase in students' self-determination which was retained two months after the completion of the program. Also, Dimitriou, Kolovelonis, Goudas, and Gerodimos (2007) obtained self-efficacy measures from participants in the Goudas et al. (2006) study regarding a strength and an agility test. Their results showed that experimental students' self-efficacy, relatively to control group students was increased from pre- to posttest. These two studies provide some initial evidence regarding the possible mechanisms activated when applying life skills programs in physical education.

As regards the Play it Smart program, Petitpas et al. (2004) reported results from a two-year pilot implementation. These results showed an increase in grade point average of athletes that participated in the program. Further, these authors reported that 98% of the senior athletes graduated from high school on schedule and 83% of these athletes continued their studies in higher education.

Regarding the First Tee program, Weiss, Bolter, Bhalla, and Price (2007) compared First Tee participants with youngsters in other organized activities on life skills learning and developmental outcomes. Their results showed higher scores for First Tee participants on life skills transfer and psychological outcomes such as self-efficacy to resist peer pressure. Also, an evaluation report³ of the First Tee program (First Tee) claimed a 47% improvement of First Tee participants in knowledge and understanding of life skills coupled with significant positive observed changes reported by parents and guardians in areas such as communication, confidence, responsibility, school grades and social skills.

Two papers in this issue extend this line of research by examining the impact of life skills programs. Hassandra and Goudas (this issue) used Hellison's (1985, 2003) model to devise a hockey course aiming at developing students' personal and social responsibility and employed both quantitative and qualitative methods for evaluating its effectiveness. Interestingly, their quantitative results showed that the improvement of the experimental group was not statistically different than that of the control group while qualitative results showed a general positive reception of the program by the students as well as an understanding by the students of the program's aims. Thus, although Gould and Carson (2008) advocate the use of both

³ For more information on the evaluation report on the First Tee program the reader can visit http://www.thefirsttee.org/club/scripts/view/view_insert.asp?IID=58648&NS=GI&APP=106.

quantitative and qualitative methods, one should always keep in mind that quantitative and qualitative methods are not simply different research methods. Rather, they represent different world views, or different axioms involving radically different assumptions regarding ontology, epistemology and research methodology (Sparkes, 1992).

VanGorden, Cornelius, and Petitpas (this issue) employed exit interviews with a large number of Play it Smart participants to conduct a qualitative outcome evaluation of the program. Their data showed that students recognized the contributions of the program in helping them in several aspects of their lives. More specifically, students felt that the Play It Smart Program helped them to develop a work ethic, to stay focused on academic and sport tasks, and to set and pursue goals.

Overall, we agree with Gould and Carson (2008) that research on the evaluation of life skills programs, although promising, is still limited and that programs need to prove their accountability in order to be established in youth sport and in physical education. The papers of this issue provide additional evidence towards this aim.

Future directions

Gould and Carson (2008) discussed eight future research directions in this area and argued about the need for: (a) quantitative and qualitative research; (b) the development of valid sport-related life skills measures; (c) an examination of sport program type differences; (d) evaluation research; (e) longitudinal studies; (f) studies focusing on identifying theoretical explanations for the life skill development sport participation link; (g) the utilization of experimental designs; and (h) an examination of the transferability of life skills. All these recommendations provide important directions advancing this research area. Below, we comment briefly on the life skills transfer and the measurement issues.

Transfer and retention of life skills. Gould and Carson (2008) noted the absence of research on the transferability of life skills taught in life skills programs and at the same time the absence of longitudinal research on life skills development. This is rather unfortunate given that life skills programs are based on the assumption that the skills learned can be transferred to other settings in life. We do acknowledge that the examination of these issues is somewhat troublesome. However, in order to examine transfer of life skills one needs to define precisely the context where the transfer is warranted.

Towards this aim, we propose a graded approach which examines stability and transfer of life skills at the same time. This approach may guide experimental research examining the effectiveness of life skills programs. It is proposed that

before examining transfer of skills, one should examine whether the skills taught present some temporal stability, that is, whether individuals continue to apply the skills they learned, in the setting they learned them, after the completion of the program. Towards this aim, an experimental waiting-list control design can be used. In this type of design, after initial baseline measures of an experimental and a control group, the program is introduced to an experimental group and upon completion of the program measures are taken again, and the two groups are compared. Then, the program is introduced to the control group and upon completion measures are taken for a third time. In this case, the third measure of the experimental group gives an indication for the retention of the skills taught and in our view is the first step for longitudinal research. This type of design has been employed by O'Hearn and Gatz (1999, 2002) and by Goudas et al. (2006).

The next step for examining the retention and at the same time the transfer of life skills would be to examine whether participants use the skills in the same context but in different circumstances. For example, if one teaches life skills in physical education using basketball as content of the sessions, then the next step in examining transfer of skills would be to observe whether students use the life skills, without respective instruction, in physical education (same setting) in other subject-matter such as in fitness training (different circumstances). The next step would be to examine whether the skills are employed without instruction in a similar setting (classroom) in a different subject (for example math). The next step would be whether the skills are employed at home while studying etc. We believe that this graded approach provides a framework for examining stability and transfer at the same time in a practical way.

The study of Goudas and Giannoudis (this issue) has examined the transferability of skills learned in physical education to other contexts. In this program, two methods were applied to enhance the transferability of skills. First, students were provided with non-sport examples of life skills applications and were constantly reminded about using the skills outside school. Second, students were asked to teach the skills they learned to someone else in their home or in their community such as one of their parents, their siblings or their friends. The results of Goudas and Giannoudis (this issue) clearly show that when transfer of life skills is actively sought then it can be achieved.

Life skills measures. Gould and Carson (2008) highlighted the need for the development of valid sport-related life skills measures. Indeed, measurement tools in this area are fragmentary and this limits the generalization of results and prohibits comparison of the studies. In sport devising sport-related life skills measures it may be useful to think of specific skills as comprising three dimensions: attitude,

knowledge, and skill (Nelson-Jones, 1990). According to Nelson-Jones (1990), attitude towards a life skill represents the personal responsibility for acquiring and using the skill, knowledge refers to knowing the correct choices to make, while skill refers to the actual application of skill. Therefore, in order to capture the concept of specific life skills, researchers need to develop measures regarding knowledge, attitudes, and behavioral application of the skills. Such instruments may provide valid alternatives on self-report measures.

There are currently some sport-related life skills measurement tools that reflect the above reasoning. For example, life skills knowledge inventories were used for the First Tee (2008) impact report. Goudas, Karabekou, and Papacharisis (2007) have also developed a 15-item multiple-choice knowledge test regarding goal setting, positive thinking, and problem solving and reported acceptable discrimination and difficulty indexes. Regarding attitude, a possible component to assess is participants' confidence to apply the life skills taught. Towards this end, Goudas et al. (2007), based on previous work of Danish and colleagues, developed a 21-item self-beliefs scale and reported satisfactory structural validity and internal consistency results. Finally, regarding behavioral application of skills the use of behavior-rating scales, a method widely employed in social skills research (Merrell & Gimpel, 1999) may be employed. Behavior-rating scales can provide rich data regarding actual behavior especially if multiple sources of ratings are collected (Renk & Phares, 2004). For example, Goudas and Magotsiou (2009), in order to assess the effect of a physical education cooperation program on students' social skills used a Greek version (Magotsiou, Goudas, & Hassandra, 2006) of the Multisource Assessment of Children's Social Competence (Juntilla, Voeten, Kaukiainen, & Vauras, 2006) and apart from self-reports they collected six peers' ratings of social skills for each of the students' participating in the program. Results from the self- and peer-reports were moderately related and provided multiple aspects for evaluating the program.

CONCLUSION

Based on the above review, one can conclude that there are several well established life skills programs in sport and physical education, sport-specific or more general, which have gained some initial recognition from coaches and physical educators. However, their adoption within the youth sport and the physical education system is still limited. There is also a growing body of research documenting the effectiveness of these programs and identifying the life skills needs of athletes, students and

coaches. Nevertheless, further research is required to establish the credibility of these programs, to identify their specific elements that contribute to their success or failure and to document the life skills needs of different groups of athletes. The papers included in this special issue contribute to the above needs and provide an additional input in the respective literature.

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