

CHE05309

Exploring the Effect of Relationship Dynamics and Dimensions of Support on Gymnasts' and Figure Skaters' Self-Concept, Education & Psychological Resilience: A Research Proposal

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Gymnastics and figure skating are two sports which feature a predominantly young, female population (Ryan, 1990). This proposal will consider the question of how relationships between the athlete with their significant others affect the elite athlete's self-concept and psychological resilience as young female athletes are particularly vulnerable in a sport where body-image is important as part of their presentation. Self-concept, at the elite level, has been found to be unique when compared to the general population (Marsh, Perry & Roche, 1995). This is especially apparent in young athletes where support from their parents, coaches and other significant figures is extremely important. Previous literature has shown that it is one of the key components to their success and contributor to their enjoyment of the sport (Vanden Auweele, & Wylleman, 1993). However, support is not enough to guarantee these positive psychological outcomes. Psychological resilience, the ability to "bounce back" from stressful experiences quickly and effectively (Lazarus, 1993), has also been found to be a substantial contributor to recovery. (Sheldon & Eccles, 2005). The question of how the athletes manage their time between education and their sport is also a pressing one as coaches demand increasing hours from their athletes when they advance through the ranks of the sport.

The aim of this research proposal is to establish how significant others affect figure skaters' and gymnasts' psychological resilience, self-concept and educational outcomes. In general, figure skaters and gymnasts start at a very young age, peaking in the late teens (Ryan, 1996). It is because of the young nature of the sport that a lot of the athletes require ongoing and substantial parental support, emotionally and also in terms of practical considerations relevant to training and performance.

Psychological resilience

The construct of psychological resilience is "the effective coping and adaptation although faced with loss, hardship or adversity" (Tugade & Fredrickson, 2004). It has been associated with a variety of behavioural and psychological outcomes, for example, relaxation techniques, optimistic thinking or using humour to divert negative thoughts. Folkman and Moskowitz (2000) reviewed a body of evidence that suggests that positive emotions help to buffer against stress which supports the "broaden-and-build theory of positive emotions" (Fredrickson, 2001).

The "broaden-and-build theory of positive emotions" (Fredrickson, 2001), stipulates that negative emotions narrow one's thought-action repertoire by preparing one to act in a specific way, for example, attacking when angry or running away when scared. The positive emotions are proposed to expand the range of cognitions and behaviours that come to mind. Therefore if one becomes more resilient, they are able to elicit more positive emotions and thus increase the range of methods to deal with adversity. The "broaden-and-build theory of positive emotions" has also been supported by physiological data. The experience of using positive emotions contributed to participants' accelerated cardiovascular recovery from negative emotional stimuli (Tugade & Fredrickson, 2004). Higher psychological resilience has been found to be a psychological predictor of perceived ability in male and female tennis players (Sheldon & Eccles, 2005). Rugby league players playing at international level have also been found to have significantly higher levels of resilience than those playing at a national level (Golby & Sheard, 2003).

If an athlete has high psychological resilience in the domain of their sport, does this resiliency "carry-over" to the field of education and vice-versa? Academic resilience has been defined as the "ability to effectively deal with setback, stress or pressure in the academic setting" (Martin & Marsh, 2003). In a longitudinal study on high school students, self-efficacy and anxiety were found to be the highest predictors of academic resilience (Martin & Marsh, 2004). When athletes are high in self-efficacy and are able to control their anxiety well, will this result reflect positively towards their schooling or are the two domains independent?

During the career of an athlete, it is inevitable that he or she is faced with one type of adversity or another. These adversities could be psychological, competing against a known rival who has consistently obtained better results in past competitions, physical, for example sustaining an injury, or could even take the shape of a simple functional mishap, for example not arriving to the competition on time. Whatever form the setback takes, it is necessary to ask how the interplay of significant others around the athlete boosts or dampens his or her own psychological resilience and whether this resilience can be sustained across the sporting and academic domain.

Self-concept

Traditionally, self-concept was a broad global construct in which domains such as physical, social and academic were considered to be inter-dependent. It was later posited that these domains represented the multi-faceted and hierarchically organised levels of self-construct (Shavelson, Hubner, & Stanton, 1976). Shavelson et al., (1976) purported that general self-concept appears at the apex of the construct and is divided into academic, and non-academic components with further subdividing further down the hierarchy (figure 1). Although only moderate support was found for this initial stage in developing self-concept, instruments measuring self-concept provided evidence for its structure and multi-dimensional nature, namely the series of three Self-Description Questionnaires (Marsh, 1989; 1990a) developed for pre-adolescents (SDQI), adolescents (SDQII) and late adolescents and young adults (SDQIII). Support was demonstrated for Shavelson et al.'s (1976) proposition that self-concept is multi-dimensional in that academic achievement was substantially related to academic self-concept, but unrelated to non-academic components of self-concept e.g. physical concept. Furthermore, academic achievement in specific subjects, for example Mathematics, was even more highly correlated with academic self-esteem in the corresponding subject, that is, achievement in Mathematics correlated with Mathematics self-worth.

Based on these findings, further questionnaires were developed to examine each domain in more depth, e.g. Academic Self-Description Questionnaire (Marsh 1990b; 1992) and the Physical Self-Description Questionnaire (Marsh, Richards, Johnson, Roche & Tremayne, 1994) along with the Physical Self-Perception Profile (PSPP; Fox & Corbin, 1989) specifically to identify contributors to the physical self-esteem of a college-age population.

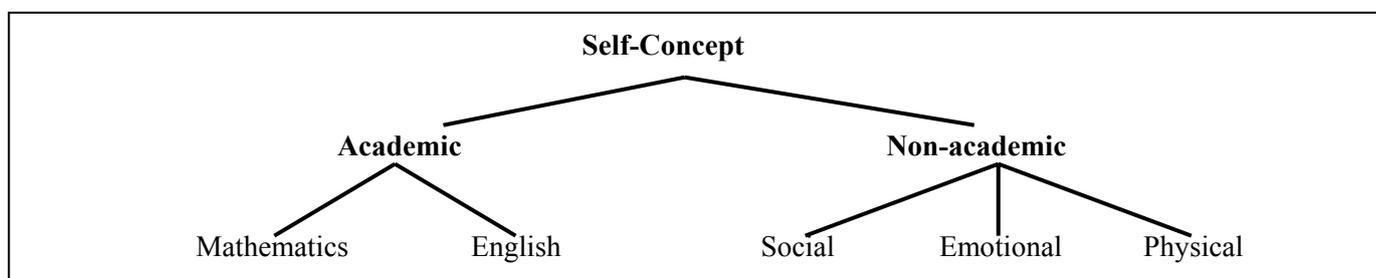


Figure 1. Diagrammatic representation of Shavelson et al.'s (1976) hierarchical and multidimensional view of self-concept.

Research on self-worth in the sport setting

In a study by Marsh, Perry, Horsely and Roche (1995), the multi-dimensional self-concept of elite athletes was compared to those of non-athletes. It was found that whilst elite athletes had substantially higher physical ability self-concepts than non-athletes, there was no difference between the groups on physical appearance, emotional and academic self-concept. The latter results were explained by social comparison theory, stating that self-concepts were formed on the basis of social comparison to others in the same group. Relating it to a school context, whilst an academically very able student might be brighter than the average student, the academically able student might also attend an academically selective school in which he is surrounded by pupils of the same standard, and therefore form the opinion that he did not have a higher ability than others (Marsh, 1991). Although the result that physical appearance did not differ between the groups was surprising, little previous literature had been investigated comparing sports that place a high emphasis on image, e.g. figure skating and those that do not, i.e. those that were featured in this study, e.g. field hockey, and netball. These results provided the premise on which to develop a self-description

questionnaire purely for elite athletes, the Elite Athlete Self-Description Questionnaire (EASDQ; Marsh, Hey, Johnson & Perry, 1997).

Other studies have demonstrated the correlation between more optimal performance states and high self-esteem. A study on youth gymnastics investigated the relationship between self-efficacy and performance (Weiss, Wiese, & Klint, 1989). Gymnastic self-efficacy was assessed by having gymnasts record the scores they thought they were capable of performing approximately 2 hours before the start of a competition at state championships. Multiple regression analyses revealed that gymnasts who had higher efficacy expectations were more successful than those who held lower expectations, and six out of seven correlations between self-efficacy items and gymnastic performance were significant.

Self-worth and interpersonal relationships

These findings clearly demonstrate that a positive relationship does exist between self-concept and performance. The varying measures of performance and self-concept only provide more support that these relationships are in fact, in place. Since self-concept is at least partly derived from standpoints of others around the self, that is, perceptions about the self will also be gathered from others' opinions about him/herself, it is imperative to delve into studies that examine how self-concept is affected by relationships with others.

Hinde, Finkenauer and Auhagen (2001) take a modified slant by reversing the idea of self-concept and argues that relationship processes occur in the individual's mind with the individual having their own view of the relationship as well as a shared one. This relationship affects and is affected by one's self-concept and therefore it becomes a critical factor for understanding the dynamics of relationships. They mention the idea of congruency, that is, the balance of our perceptions of ourselves and others' perceptions of ourselves is constantly sought and can affect one's behaviour in an attempt to confirm one's self-image. Though this idea has mainly focused on personality traits, e.g. honesty, extroversion, congruency could also be applied to the physical-self. This can lead to maladaptive consequences in elite sports like figure skating and gymnastics where self-presentation and body image is vital in performance. Judges may tell skaters to lose weight (Ryan, 1996) to conform to the image and the skater would do so in order to seek congruency.

Knowing that self-concept is to a large extent, a product of perceptions of those around us, considering the values of significant others seem all the more essential. When elite athletes train for 40 hours per week, the coach's influence becomes great and their behaviour towards the athlete can affect the dynamics of their relationship. Due to the amount of support needed by the athlete from his or her parent, the parent now becomes another significant other. This triangular relationship therefore has three components that will serve to form the elite gymnast's and skater's self-concept, the skater, the parent and the coach, as well as the relationship between any of the three parties.

Significant others

Coach-athlete dynamics

Kelley et al. (1983) define an interpersonal relationship as the situation in which two people's emotions, thoughts and behaviours are interconnected. Jowett and Meek (2000) applied this to a coach-athlete relationship by stating that this dyad is interdependent and that its main goal is to produce a combined outcome of an improved and high performance. Following on from previous research, it is emphasised that due to the interpersonal nature of this relationship between the coach and the athlete, the quality of this relationship would have a great impact on the possible consequences for both the athlete and the coach, for example performance, self-worth, motivation and enjoyment.

A series of qualitative and quantitative studies have been conducted giving rise to the constructs of "Closeness, Commitment and Complementarity" (the 3 Cs) to reflect the relational aspects of emotions, cognitions and behaviour respectively (Jowett, 2003; Jowett & Cockerill, 2003; Jowett & Meek, 2000). From these constructs, a schematic representation of the c-a relationship was constructed to illustrate its interpersonal nature (figure 2) and were further defined based on themes in social psychology on relationships.

“Closeness” refers to the emotional aspect in the dyad and is reflected by feelings such as “liking” or “similarity” (Jowett, 2002). Argyle (1994) associated “liking” with the ability to disclose and exchange information freely, and therefore in the sporting context, the coach and athlete should be able to communicate freely if there is perceived closeness by both members. “Trust”, the term used to indicate the confidence that one individual has in another, also facilitates self-disclosure which in turn leads to effective problem solving as each person’s needs and concerns are raised, otherwise the lack of trust negatively affects performance (Gould, Guinan, Greenleaf, Medbery & Peterson, 1999). Jowett and Ntoumanis (in press) also included “respect” as another representative of “Closeness” as “respect” indicates acceptance in the relationship of an individual’s position in the dyad (Jowett, 2002).

“Commitment” is the intention of an individual to maintain an interpersonal relationship (Rosenblatt, 1977) and therefore reflects the relational aspect of “cognitions”. Thus, in the coach-athlete relationship, commitment is the coach’s and athlete’s intent to maintain their relationship as a working partnership. From this definition, indications of commitment would include accommodations made by either side to counteract any negative impacts made on the relationship by the other party. If these accommodations were not made then the partnership would collapse, negating the “maintenance” aspect of commitment (Rusbult, Verette, Whitney, Slovik & Lipkus, 1991).

The final, behavioural aspect of interpersonal relationships is denoted by “Complementarity” (Kiesler, 1997). Built from the traditional meaning of the term “to complement”, the coach and athlete would demonstrate complementarity when they complement each other. For example, the coach teaches and the athlete learns or when both are friendly towards each other. Hence, there is reciprocity and correspondence between the two people in the dyad (Kiesler, 1997) and if this occurs, then the relationship will progress in a positive manner (Jowett, 2002).

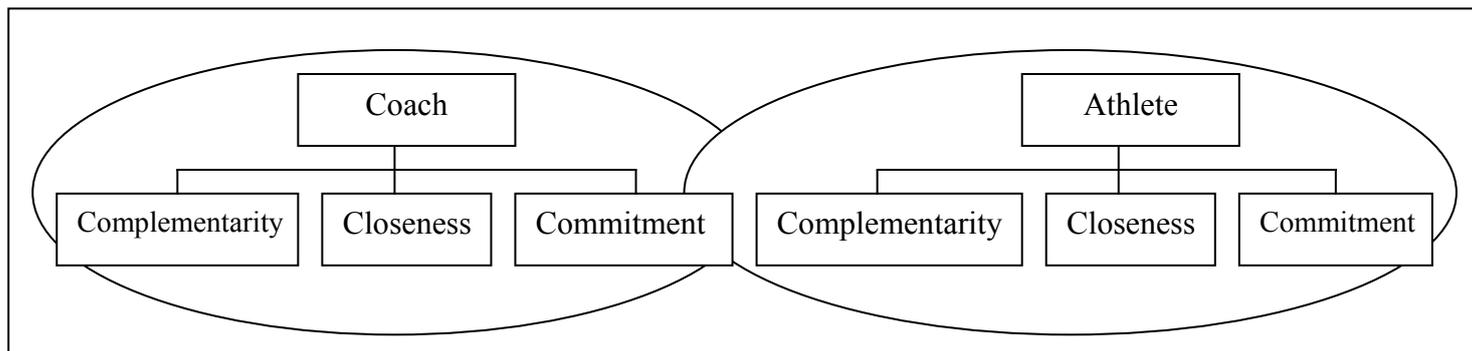


Figure 2. Schematic representation of the coach-athlete relationship (Taken from Jowett, 2002).

Members in any given dyad would also be able to form perceptions of how the other views the relationship as well. These two perspectives were based on the relational analysis developed by Laing, Phillipson and Lee (1996) and were named the “direct perspective” and “meta-perspective” to signify an individual’s own perspective and an individual’s perception of another member’s perspective. Thus, the statement made by an athlete, “I like my coach” is the direct perspective of the athlete whereas the statement “My coach likes me” is the meta-perspective of the athlete as it is an assumption of the coach’s emotions. Figure 3 provides a schematic of these perspectives based on Kenny and Acitelli’s (2001) paradigm to measure the effects of bias and accuracy of perceptions simultaneously.

If the accuracy of perceptions between the coach, parent and athlete is poor, and the importance placed on each of the 3Cs is low, in what ways would it manifest itself in terms of the athlete developing his or her self-concept and psychological resilience? If a coach had a low commitment to maintaining the athletic partnership, would the athlete feel insecure of his or her own self-concept by inferring that he or she was not worthy to maintain a relationship? Would this also increase the pressure on an athlete’s psychological resilience? How would it affect the life of an athlete in general, especially with respect to their education? The present proposal endeavours to uncover the means by which the 3Cs have a specific role on these outcomes.

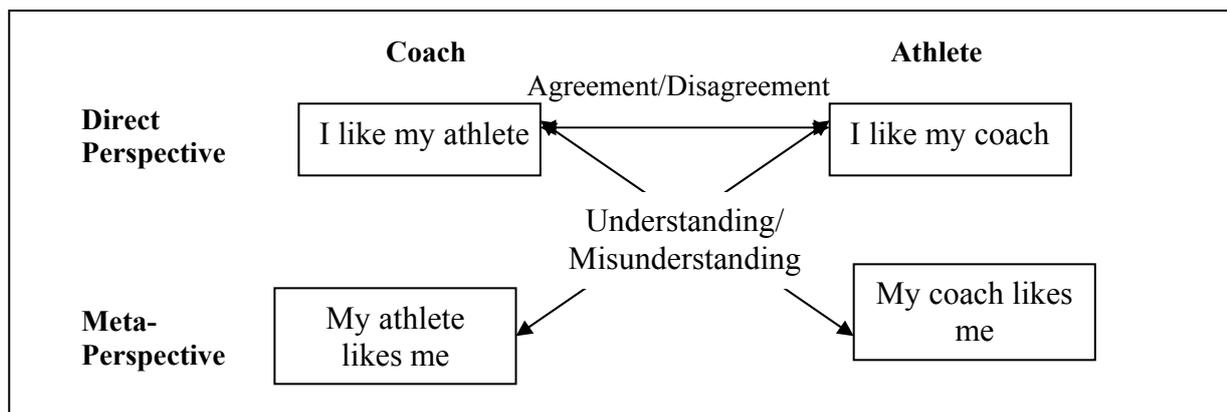


Figure 3. Direct and meta-perspectives of the coach and athlete (cited in Jowett, 2002).

Family dynamics

“The family provides the primary social environment where the athlete can develop an identity, self-esteem and the motivation for athletic success” (Hellstedt, 1995, p.117). The term “significant other” was first coined by Sullivan (1947) who was exploring the socialisation of children. The original use of the term “significant others” was primarily restricted to parents as it was believed that they were the essential people in training and influencing the child. Nowadays the use of the term has generalised to include all others who are believed to have an impact on one’s life, for example, siblings, partners, teachers and coaches (Webster & Sobieszek, 1974).

Parents have the greatest impact on children’s sport involvement due to a combination of the great amount of time spent between parent and child and the necessary high level of parental involvement with their child’s sport (Brustad, 1996; Scanlan & Lewthwaite, 1985). Examples of such studies include Power and Woolger’s (1994) which demonstrated that parental support was positively correlated with children’s enjoyment and enthusiasm in swimming. Even at Olympic level, athletes who are more successful in their event reported greater levels of family support than those who were less successful, that is, those who failed to perform up to performance predictions and reported more conflict and communication problems (Gould, et al., 1999).

At all levels of achievement, the family plays an important role in the development and success of athletes. However, few studies have examined the mechanisms of support and the number of avenues the support could have an impact on which could eventually lead to the success of the athlete. This study aims to explore how the family can affect an athlete’s psychological resilience, self-concept and continuation in education as possible mediators of performance.

A developmental perspective

Whilst parents are the major influence on introducing a child to sport (Greendorfer & Lewko, 1978), the shift towards the coach is apparent in adolescent years (Higginson, 1985). Athletes progress through a series of changes to different factors in their career as time progresses. Working on the premise that a family is an interacting social system which undergoes constantly changing developmental processes, Hellstedt (1995) assembled the family systems model to assist in assessing the “structural health and developmental maturity” (Hellstedt, 1995, p. 123) of the athlete family. Three distinct phases of development were set out beginning with the “early years”, proposed to last from the age of 4 to 12, through to the “middle years” (ages 13 to 18) and ending with the “later years” (ages 19 to late 20s), each one characterised by differing levels of parental support and differing emphasis on sport (table 1).

Based on the research above, and data whereby the athletic achievements of athletes in varying sports were mapped, Wylleman (2001) related the transitions of athletic proficiency to the ages at which they were obtained on average. Taking more factors into account other than age, a transitional model was proposed. Athletic, psychological, psychosocial and academic changes were charted on a model and were reflected in four layers (figure 4).

AGE	10	15	20	25	30	35
Athletic Level	Initiation		Development		Mastery/ Perfection	Discontinuation
Psychological Level	Childhood		Adolescence		Adulthood	
Psychosocial Level	Parents Siblings Peers		Peers Coach Parents		Partner Coach	Family (Coach)
Academic/ Vocational Level	Primary education	Secondary education		Higher education	Vocational training Professional occupation	

Figure 4. A developmental model of transitions in sport. (taken from Lavallee, Kremer, Moran & Williams, 2004, p.221).

The top layer represents the stages and transitions athletes face in their athletic development including the transition out of their sport at elite level even though there might still be continuation in the sport by other means, for example coaching, or show events. The second layer reflects the stages occurring at the psychological level. Two developmental tasks have been purported to take place at childhood and adolescence – being psychologically ready for competition and developing a self-identity respectively. The third layer includes shifts that occur in who the athlete considers to be their ‘significant other’ with the most influential group cited at the top of the list. This psychosocial level is based upon conceptual frameworks related to the development of the athletic family (Hellstedt, 1987) and on empirical data on athletes’ interpersonal relationships (Price & Weiss, 2000). The lowest layer describes the typical academic transitions that one goes through and is depicted to show how all aspects of an athlete’s life relate to each other.

Given that changes occur at the psychosocial level during the athletic development of an athlete, it can be presumed that the support given to the athlete will differ as the most significant person in the athlete’s life at one stage will be different from the next. Research needs to be conducted to investigate whether this change affects an athlete’s educational decisions at the critical points of his or her life, that is, whether a coach would place more emphasis on the sporting career and neglect education and whether a parent would advocate education as the first priority.

The coach-athlete-parent triangle

Hellstedt (1987) developed a simple model to represent the interpersonal relationships between the athlete, parent and coach, the athletic triangle (Smoll, 1986). It was purported that a two-person interpersonal relationship system is unstable and that only a third person can stabilise any conflict between two individuals to neutralise the over-involvement of two people with each other. An ‘involvement continuum’ from “under-involved to moderately involved to over-involved” to categorise the amount of involvement parents have in their child’s sport (figure 5).

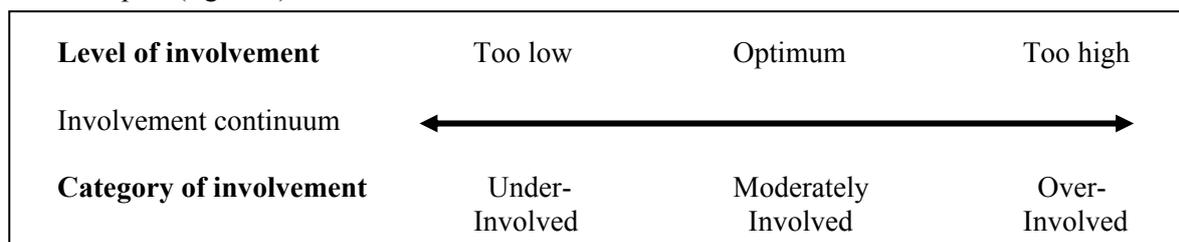


Figure 5. Diagrammatic representation of the involvement continuum proposed by Hellstedt (1978).

Certain characteristics classify parents into one of the three categories. According to Carter and McGoldrick (1980), the boundaries of involvement affect parents and their children in three main areas: financial, functional and emotional. Hence, under-involved parents have a relative lack of involvement in all three areas and over-involved parents are excessively involved in all three areas and tend to have a need that is satisfied through their child's participation in sport. The optimum level of parental commitment is delineated by the moderately-involved parent who guides their child with their decisions but also allows him or her to have a significant involvement in the process. Table 2 summarises examples of parental behaviour in each category.

Table 2. Characteristics of under-involved, moderately-involved and over-involved parents in their child's sport.

Involvement Level	Area Affected	Examples of Parental Behaviour
Under – involved	Emotional	<ul style="list-style-type: none"> • Little emotional support before training/competitions • Lack of enthusiasm at achievements • Minimal interest in conferences with coach about child's improvement in sport
	Functional	<ul style="list-style-type: none"> • Few volunteer activities, e.g. driving child to competitions/training • Lack of attendance at events • No help in setting goals or giving advice
	Financial	<ul style="list-style-type: none"> • Minimal financial investment in equipment/coaching fees, • Emphasis that the child should make their own contribution as it is their own sport
Moderately – involved	Emotional	<ul style="list-style-type: none"> • Supportive at events • Pride at achievements but emphasising the importance of effort at events • Interest in conferences with coach about child's development in the sport
	Functional	<ul style="list-style-type: none"> • Volunteer and support sporting organisation • Firm parental direction • Flexible to allow child's own decision making contributions • Entrust coaching staff to their child's skill development.
	Financial	<ul style="list-style-type: none"> • Support participation without being excessive • Ask child to contribute a small portion of the cost if possible
Over – involved	Emotional	<ul style="list-style-type: none"> • Own self-esteem is dependent on child's achievements • Emphasise the winning aspect of sport. • Feelings between the child and parent are somewhat dependent on performance at training/competitions. • Expression of frustration/joy at sidelines to child or to officials/coach • Express disappointment if goals are not met
	Functional	<ul style="list-style-type: none"> • Excessive activity involvement e.g. always driving athlete to events/training sessions • Set unrealistic goals without involving their child in the process • "Coach" the child in skill development
	Financial	<ul style="list-style-type: none"> • Excessive financial involvement e.g. contributing all costs and buying "the best" equipment in the hope of aiding performance.

The parent, athlete and coach need to communicate with each other to achieve an idea of what a “moderately-involved” parent means to everyone involved. Otherwise, behaviours engaged in by the parent may be seen by the coach as being over-involved even though the parent perceives them not to be, causing potential conflict. Thus, the ideals of the 3Cs and the coach-athlete-parent triangle should work together to provide the optimum level of support to improve the athlete’s psychological resilience and elite-athletic self-concept.

Research questions

Drawing all the research together, it can be seen that there are many gaps in the current literature with respect to the relationship dynamics that lie within an intense, young sport such as figure skating and gymnastics (Gould, Jackson & Finch, 1993; Ryan, 1996); at elite level. Specifically, the mechanics underpinning the dynamics and their effect on educational and sporting outcomes need to be explored in greater detail. Hence, the pertinent questions that need to be asked are:

1. What is the nature of the coach-athlete-parent relationship?
2. What is the nature of the support structure surrounding the athletes?
3. How is the gymnasts’ and skaters’ self-concept affected?
4. How is the gymnasts’ and skaters’ psychological resilience affected?
5. How do the gymnasts’ and skaters’ sport, relationship dynamics and support structure affect academic attendance, participation, motivation and achievement?
6. Does a higher psychological resilience, stronger coach-athlete-parent relationship and better self-concept necessarily equate to higher performance?

The questions will be addressed by a mixed methodology of a series of quantitative questionnaires and qualitative interviews outlined in the next section.

Proposed Methodology

Quantitative instruments

The Elite Athlete Self-Description Questionnaire (EASDQ) was developed by Marsh et al. (1997) after determining that the physical self-concept of elite athletes differs from the general population. The EASDQ is a 28-item instrument designed to measure 6 components of elite athletes: skill, body composition, aerobic fitness, anaerobic fitness, mental competence and overall performance. Participants respond on a 6point Likert-type scale ranging from “False” to “True”. Examples of questions are, “I excel in my best sport because of my good aerobic fitness”. Testing of the EASDQ proved its applicability in its administration to diverse groups of elite athletes.

The 3 Cs of the coach-athlete relationship will be measured using the Coach-Athlete Relationship Questionnaire (CART-Q) constructed by Jowett & Ntoumanis (in press). It was originally developed using constructs of “Closeness”, “Co-orientation” and “Complementarity”. However, item and factor analyses failed to support the construct of co-orientation, but also revealed the emergence of the construct of commitment. The conceptualisation of the c-a relationship model was reflected in the CART-Q by including subscales for the 3 main “C”s of Closeness, “Commitment” and “Complementarity”. The construct of “Co-orientation” is still embedded in the two versions of the CART-Q – one to measure athletes’ perception and one to measure coaches’ perceptions of the coach-athlete dyad and therefore the conceptualisation of the c-a relationship has become 3Cs + 1. Both versions contain identical 11 items to measure their own perceptions of the 3 main “C”s in the relationship and a respective 11 items to measure the meta-perceptions of their athlete or coach. Participants respond on a 7point Likert-type scale ranging from “Strongly Agree” to “Strongly Disagree”. Examples of questions are, “I feel close to my coach” and “I feel my sport career is promising with my coach”. Testing has demonstrated sound reliability and validity across various sports and dyads.

However, the CART-Q does not take the parent into account in the athletic triangle. The Questionnaire Interpersonal Relationships in Competitive Sport - Athlete: parent, coach (QIRC-Apc; Wylleman, De Knop, Vanden Auweele, & Sloore, 1994) assesses the athletes’ perceptions of the parent-

coach relationship in 8 dimensions using 80 items. These dimensions are dominance, inferiority, kindness, aloofness, caring behaviour, aggressiveness, dependency and independence. Participants respond on a 5 point Likert-type scale ranging from “Never” to “Always”. Athletes are required to note how parents and coaches actually behave as well as how athletes prefer them behaving towards each other. It has been tested across 11 different sports and has shown good construct validity and internal reliability.

Psychological resilience will be measured using the Ego-Resiliency Scale (ERS; Klohnen, 1996). It consists of 29 items, for example, “I am certainly lacking in self-confidence” and “I feel like giving up quickly when things go wrong”. Participants respond on a 4point Likert-type scale ranging from “False” to “True”. The ERS has shown good internal consistency and internal validity. However, the ERS is not sport-specific but is applicable to all life domains. Investigations into modifying the ERS into a sport-specific scale will be explored.

The Academic Self-Description Questionnaire for adolescents (ASDQII; Marsh, 1990b) will be administered to measure the academic self-concept of the athletes in Mathematics and English classes. Each academic subject had 6 items each with a 6 point Likert-type scale ranging from “False” to “True. Questions included, “Compared to others my age, I am good at English/Mathematics” and “Work in English/mathematics classes is easy for me”. Cronbach alpha coefficients have been above .85 and exploratory factor analyses have proven the ASDQII to exhibit a sound structure. Academic achievement will be ascertained by examining the official school records. If students were placed in classes of differing level of ability, this will be taken into account when comparing grades.

Qualitative instruments

The qualitative aspect of the methodology will serve to further explore and better understand the findings derived through the questionnaires by asking, in more detail, about aspects of the elite athlete’s life pertaining to their education, significant others, self-concept and psychological resilience. The open-ended questions, based on the questions in the instruments described above, in in-depth interviews will seek to add a further understanding of the answers by allowing the participants to address these issues freely.

Academic attendance and participation will be determined by self-report, that is, the frequency at which school is attended, or if at all and whether the athletes perceive themselves to be active in the classroom and in extra-curricular activities of the school.

Participants

Skaters who are competing at a National and International level will be recruited from Ice Skating Australia Inc. (ISA). Gymnasts who are based at the Australian Institute of Sport (AIS) will be asked to participate. Both male and female participants need to be recruited in order to investigate whether there are gender differences found in the types of support provided by their significant others and whether this has an impact on the outcomes measured. Coaches and parents of the skaters and gymnasts will also be interviewed and will be asked to complete the coaches’ version of the CART-Q and the parents’ version of the QIRC-Apc. Therefore, purposive (Patton, 1990) and significant sampling (Simonton, 1999) will be used as it is believed that these participants, whose successes set them apart from less experienced athletes, will facilitate the knowledge and understanding of the theory in question.

Procedure

Interviews and questionnaires will be conducted at two time-intervals during a two-year period to determine whether relationship dynamics change as the athlete progresses in their career and as they get older. Data collection will be undertaken at critical points during the athlete’s year, for example at International competitions. The schools that the athletes attend will be approached so that the athletes will complete the ASDQ-II in the context of the classes that the ASDQ-II enquires about. Classroom teachers will be approached prior to the collection of the data to describe how the instruments are administered and all students will complete the questionnaire on the day. For athletes who do not attend school or engage in private tuition, the ASDQ-II will be completed at the ice rink where they train or with their private tutor who will be instructed beforehand as to its administration.

Data analysis

Quantitative analysis

Confirmatory factor analysis (CFA) will be performed on the data collected through the questionnaires to check whether a good factor structure exists with respect to the theory that is in question, that is, to check whether the variables in the scales of each questionnaire form coherent subsets but are relatively independent of each other (Tabachnick & Fidell, 2001). Once it has been confirmed that the obtained factor solution fits the expected factor solution then further analyses will be conducted via structural equation modelling (SEM).

Two “full-forward” a-priori SEM models (figures 6 & 7) will be used to test the model as it will estimate stability co-efficients and cross-lag effects to determine the causal flow among the constructs (Guay, Marsh & Boivin, 2003). The time lapse between two data collection points will last between 6 months to 1 year. The common theme between the two models is the issue of coach-athlete-parent relationships (CAP). CAP could be the linkage between key outcomes in the academic domain and key outcomes in the physical domain. If the parent and the coach have differing priorities pertaining to the athlete’s academic life and sporting career, and either the parent or coach is a dominating figure in the athletic then the outcomes in one of the domains will be stronger.

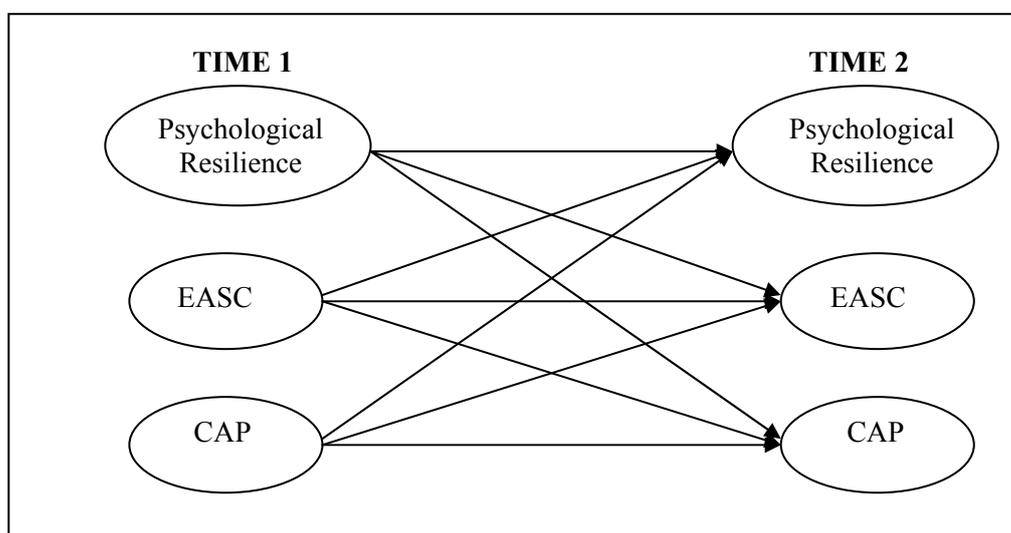


Figure 6. Reciprocal effects model in the physical domain of the elite athlete between the constructs psychological resilience, elite athlete self-concept (EASC) and coach-athlete-parent relationship dynamics (CAP)

Qualitative analysis

Interviews will be transcribed *verbatim* in order for content analysis to be conducted. The basic unit of analysis will be a quote taken from the transcriptions, a quote being a “statement made by the subject which was self-definable and self-delimiting in the expression of a single, recognizable aspect of the subject’s experience” (Cloonan, 1971, p.117, cited in Scanlan, Stein & Ravizza, 1989). Both inductive and deductive processes of reasoning will be used to let uniform themes emerge and be grouped together.

An independent researcher will check that the levels of abstraction obtained, accurately represented the raw data units. By employing this triangulation method of verifying data will increase its validity (Patton, 1990). The other researcher will categorise a sample of the transcript and then the two versions will be compared for the level of agreement for each category. A satisfactory percentage of agreement has been regarded as 85% or greater (Smith, Feld, & Franz, 1992).

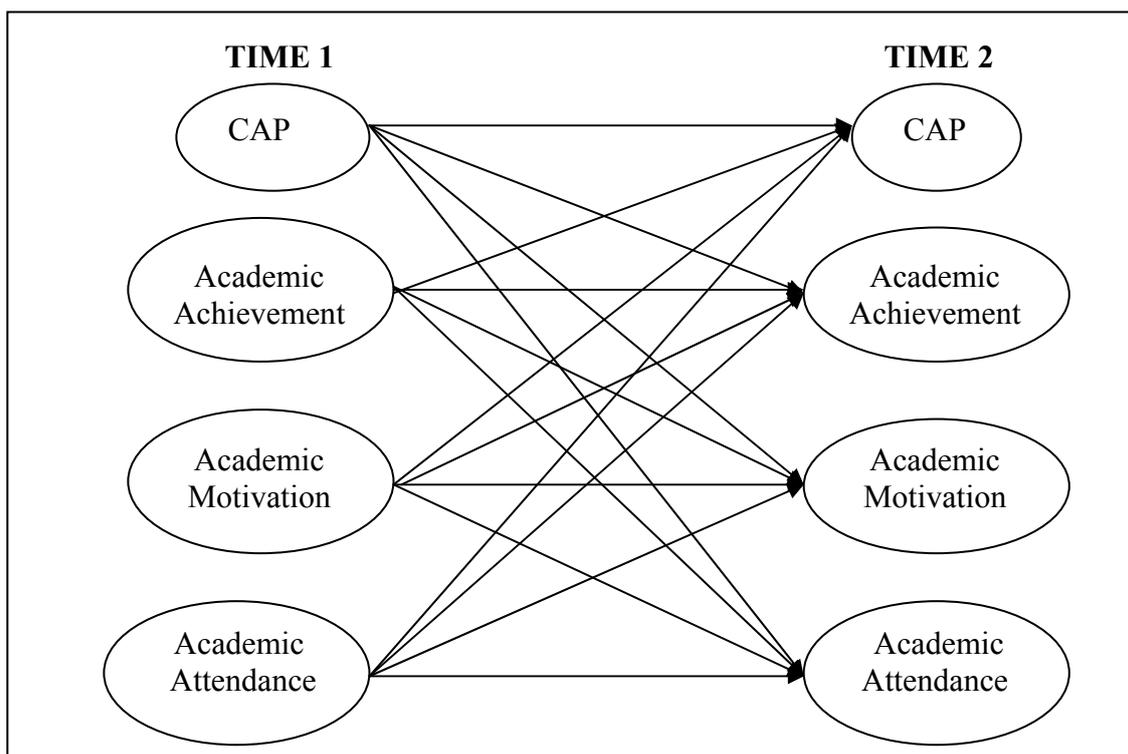


Figure 7. Reciprocal effects model in the academic domain of the elite athlete between the constructs coach-athlete-parent relationship dynamics (CAP), academic achievement, academic motivation and academic attendance.

Conclusion

Taken together, it is envisaged that the quantitative and qualitative data will jointly provide a clearer understanding of how significant others affect figure skaters' and gymnasts' psychological resilience, self-concept and educational outcomes. In addition to extending current research into the critical question and centrality of relationships, it is anticipated that numerous practical and intervention yields will emanate from the study. Hence, the findings of the proposed investigation hold substantive and methodological implications for researchers studying issues relevant to the sporting and academic dimensions of athletes' lives and are also relevant to practitioners seeking to enhance sporting, personal, and educational outcomes that rely in large part on the extent to which athletes supported through their relational contexts.

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