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The Development and Assessment of a Mental  
Training Program with Young Female Figure Skaters

by Blaize Mumford

A thesis submitted to the School of Graduate Studies  
and Research in partial fulfillment of the requirements for  
the degree of Doctor of Philosophy in Education

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January 10, 1995

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Orlick Reference

Commitment to Sport Scale, pg. 10-11  
Appendix A

Orlick, T. (1980). In pursuit of excellence. Ottawa, Canada: Coaching Association of Canada. p. 36-37.

Self-Control Scale, p. 12,  
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Performance Evaluation Form  
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## Abstract

The present investigation had two purposes. First to examine whether a group of young competitive figure skaters could effectively learn and use mental training skills taught to them during a mental training program intervention. Second, to examine to what extent the skaters could learn and use the three primary mental training skill components from Orlick's heuristic model of personal excellence (i.e., imagery, focusing, and refocusing).

A group of 17 female competitive figure skaters (mean age 13.6 years) were divided into two groups - experimental 1 and experimental 2. Measures used to assess mental skills and trait anxiety were taken on three occasions - pre-test, post-simulation, and follow-up. The measures included both qualitative (short-answer and interview responses) and quantitative (Sport Competition Anxiety Test, Commitment to Sport and Self-Control Scales) methods of assessment. The pre-test measures were taken prior to any subjects receiving the mental training program. The post-simulation measures were taken after a simulated competition when only the experimental group 1 skaters had completed the mental training program. Follow-up measures were taken several months after all skaters (both experimental 1 and experimental 2) had received the mental training. Comparisons done between pre-test and post-simulation measures, and pre-test and follow-up measures were used to assess the effectiveness of the mental training program. Results from the pre-test - post-simulation comparisons showed virtually no change following the experimental group 1 training. Comparisons of the pre-test - follow-up measures did show improvements in the skaters' imagery, focusing and refocusing skills. The discussion examines factors which contributed to the mental training program success, aspects of the program found most useful by the skaters, and gives suggestions for future research in this area.

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## Chapter 1

### Introduction

Many children are drawn to the sport environment because they love activity and enjoy the comraderie, excitement, exertion, and good feelings that coincide with physical activity. Unfortunately for some, the good feelings that accompany sport participation are either never experienced or are eliminated by worry and anxiety. The negative consequences associated with a competitive sport environment have been identified as one reason why young athletes discontinue their sport participation (McPherson, 1982; Orlick & Botterill, 1975). Recent sport psychology literature has examined the negative effects of anxiety on youth sport participants. High anxiety levels can affect the youngsters' athletic performance, physical health, and psychological well-being (Magill, Ash & Smoll, 1982; Smoll & Smith, 1978; Weiss & Gould, 1986). Sport psychology training programs have been developed to assist more mature athletes in dealing with sport-related anxiety and have proven successful (Fenker & Lambiotte, 1987; Garfield, 1984; Nideffer, 1985; Orlick, 1986b). Thus, it seems logical that younger athletes, too, could benefit from these mental training programs that form an integral part of sport psychology training.

When potentially joyous occasions are spoiled for youngsters by high levels of anxiety, there may be long-term effects on the child's interest in sport participation, and abilities for coping with future endeavours. Clearly, for those children who find sport activities anxiety-provoking, methods should be provided to assist them in dealing effectively with the perceived stressors. It is believed that if children are taught how to control the anxiety they are experiencing in the sport environment, they will enjoy the physical activity more, and will be more likely to remain involved.

## **Statement of the problem**

Although a great deal of research has examined stress-related factors in youth sport, there has been very little work that has implemented mental training programs with young athletes, and attempted to evaluate their effectiveness. Given the paucity of information in this area, it was decided the present research study would focus on assessing whether young athletes could effectively learn and use mental training skills for sport performance. In order to examine this research question, a mental training program was developed specifically for young competitive figure skaters, drawing heavily from previously field implemented programs which dealt with youths and adults (Hellstedt, 1987b; Orlick, 1986b; Smith & Smoll, 1982). The program was then implemented with a group of young competitive figure skaters. The principle investigator then conducted an exploratory research study which examined the following research questions:

1. To what extent can young athletes effectively learn and use mental skills for sport taught during a mental training program intervention?
2. To what extent does this study support the proposition that young athletes can learn and use the three primary mental training skill components of Orlick's heuristic model of personal excellence (i.e., imagery, focusing, and refocusing).

## **Definition of Terms**

Key terms which require definition include: mental imagery, focusing, refocusing, pre-competition planning, and goal-setting.

Mental imagery is a mental skill used by athletes to imagine or mentally rehearse certain aspects of sport performance. Athletes commonly use imagery to practice skills, rehearse sport situations or prepare for an upcoming competition. The mental practice assists the athletes by helping them mentally prepare, and physically prime the body for the activity. Athletes with highly developed imagery skills are able to imagine very realistic images that are controlled and contain kinesthetic sensation.

Focusing refers to how the athlete is thinking or where the concentration is centered during sport activity. An athlete with good focusing skills concentrates only on thoughts and feelings which are directly related to performance. They are mentally well connected to the performance and focusing "in the moment", rather than thinking ahead or reviewing what has already happened.

Refocusing is a mental skill used by athletes when they have become distracted and experienced a loss concentration. Once distracted, the athlete must return to a more suitable train of thought by refocusing to thoughts which are better connected to sport performance. Athletes with well developed refocusing skills regain composure immediately following an error, and continue to maintain the proper focus until the sport performance is completed.

Pre-competition plans are used by athletes during the period of time leading up to the competitive event. The plan may begin a few days before or just hours before the competition. The pre-competition plan includes routines and activities (e.g., warm-up exercises and use of mental imagery to prepare for performance) which allow the athlete to feel completely mentally and physically prepared for the competition. Athletes with well established pre-competition plans use them consistently for pre-performance preparation.

Goal-setting is a mental skill used by athletes to organize training time and ensure that all important aspects of training are receiving attention. Athletes may set goals which pertain to specific short-term goals on a weekly basis (e.g., get more lift on the double axel take-off), or long-term goals to be achieved over an entire season (e.g., land the double axel). Goals may also be set for competitive performances (e.g., place in the top four at Sectionals and qualify for Divisionals). Athletes who set goals effectively approach training in a well organized manner, and are better able to maintain motivation during their athletic pursuits.

## Chapter 2

### Review of Literature

More children are competing in sport than ever before, and youngsters are being introduced to the complexities of competitive sport at much younger ages (Martens, 1986; Valeriotte & Hansen, 1986). While for some children sport participation has proven to be a positive experience, for others it produces high levels of stress (Martens, 1977; Scanlan & Passer, 1978a,b; Gould, Horn, & Spreeman, 1983). In the sport environment, stress can be defined as a predominantly negative emotional response to a situation that the athlete perceives as being physically and/or emotionally taxing.

Aside from affecting the child's enjoyment of sport, stress can interfere with a child's optimal performance, increase the risk of injury, and stimulate the development of various psychosomatic disorders (Coddington, 1975). Psychologists and health educators continually express concern regarding the stress of youth sport (Ogilvie, 1979; Staniford, 1976). In 1982, Gould surveyed researchers and sport practitioners, and found that competitive stress experienced by young athletes was considered one of the most important issues in sport research (Gould, 1982b). Unfortunately, there is still a lack of applied focus on children's exercise and sport participation. Although the popularity of applied sport psychology is on the increase, most researchers are concerned with performance enhancement and the elite athlete (Weiss, 1989).

The following literature review begins by examining a model of stress in children's sport developed by Smith (1986). The model provides the reader with an outline of four components that interact to influence the young athletes' stress response. Sources of anxiety in the children's sport environment and methods used to measure the anxiety are presented next. The final sections examine the stress management interventions and strategies that have been employed with child athletes. The literature review concludes

by summarizing the status of the current research literature in this field, and presenting the theoretical rationale behind the present research study.

**Model of Stress in Children's Sport.** Smith (1986) has outlined a conceptual model of sport-related stress to guide researchers in the development of intervention programs. The model encompasses four components that interact to produce the athlete's experience. Each component plays a part in the child's response to the stressful situation. The first component of the model is the sport situation. If the demands of the situation appear to be beyond the ability of the athlete, a stress response will occur. The situational component consists of both internal and external stressors that may result in anxiety. External stressors can include a demanding coach, a critical parent, or an opponent of superior athletic ability. An internal stressor can result from a variety of personality or motivational factors. These include an athlete's level of commitment, personal performance standards, desired goals, or the amount of personal value the athlete attaches to sport. According to Smith (1986), these personality factors influence which of the environmental demands will be most salient to the athlete.

The athlete's cognitions are the second component in the model. In many cases athletes will attribute emotional responses to situational factors, when in fact it is their own thoughts about a situation that are influencing their responses. The intensity of the emotional response results from what people tell themselves about situations, the meaning they attach to them, and their overall ability to deal with perceived demands. Thus an individual's cognitive appraisal plays a major role in evaluating any emotional response. People in all situations assess the demands of their particular circumstances to determine whether their personal resources (both physical and mental) can meet the challenge. It is the perceived balance of demands and resources that determines how stressed a young athlete will become (Smith, 1986). In many cases the child's assessment may not be accurate. For example, a youngster low in self-confidence may appraise the demands of a competitive situation as being far more out of balance than a

young athlete who is more self-assured. It is this perception of balance and imbalance that influences the emotional response. For this reason factors such as self-esteem and competitive trait anxiety must be considered (Passer, 1984).

An athlete's appraisal of a situation can also be affected by the amount of self-worth attached to the sport endeavour. For some youngsters, their basic self-worth is defined by the outcome of sports competition. The significance attached to achieving goals in sport is extremely exaggerated, and failure to meet these goals can be psychologically devastating for them. These athletes suffer from high levels of stress due to their irrational beliefs concerning the meaning and importance of athletic success and approval from others. The adjustment of these beliefs has been an essential part of the stress management training programs developed for athletes (Smith, 1980a,b; 1984).

Physiological arousal is the third component of Smith's model. It results from the appraisal of the situation. Arousal occurs in an attempt to mobilize resources to deal with a situation, and the level of arousal provides feedback concerning the intensity of the emotional response. In the sport environment, a young athlete may become extremely physiologically aroused upon perceiving the demands of a sports event. A level of arousal that is too high may be detrimental to the sport performance, as well as signaling to the athlete that the situation is even more threatening than originally perceived. Based on the level of physiological arousal, the athlete's second appraisal of the situation may be even more exaggerated than the original assessment. Conversely, a young athlete who is able to remain relatively calm in the face of a potentially stressful situation can make a more realistic appraisal and will likely be better able to cope (Smith, 1980a,b). An athlete's awareness or assessment of physiological arousal and the ability to control it are important skills in a stress management program.

The fourth component of the model, the behavioural component, consists of social behaviour and coping strategies that occur in response to: the demands of the situation; the cognitive assessment of the situation; and the nature and intensity of the emotional

responses that result. Athletes who produce successful or adequate coping responses will maintain a balanced perception of the demands being made and the resources that are available. Those athletes who respond inadequately will likely find their situation becoming increasingly more threatening and will have a negative affective experience (Smith, 1986).

The four components of the model work in an interactive manner, and are all influenced by individual differences in personality and motivation. These personality and motivational variables predispose the child to look for specific situations and to interpret and respond to the situation in a certain way. Researchers attempting to deal effectively with the stress experienced by young athletes may want to direct their intervention at the cognitive appraisal processes. Although intervention aimed at any of the components of the model can produce a result that may effectively assist in the other components, the cognitive appraisal processes are in many respects considered the key component of the model. The cognitive assessment generates the physiological stress response, which in turn influences the behavioural outcome. Thoughts which constitute worry and dwell on the negative consequences of failure breed anxiety and tension for the athlete. If the dominant thought patterns can be focused on the performance, then the level of physiological arousal will be within manageable limits and the athlete will respond and perform more effectively. Methods directed at other components of the model will ultimately be monitored by or exert their effects on the cognitive appraisal processes (Smith & Smoll, 1982). Figure 1 illustrates the relationships between the various components of Smith's model.

Although stress will exist in any sport situation where the athlete perceives the environment as threatening, no youngster should be incapacitated by the amount of stress they are experiencing. Thus it follows that teaching youngsters coping skills to actively deal with the stressors should alleviate some of the mental distress and encourage the positive psychological growth of the child. In turn, once these skills are

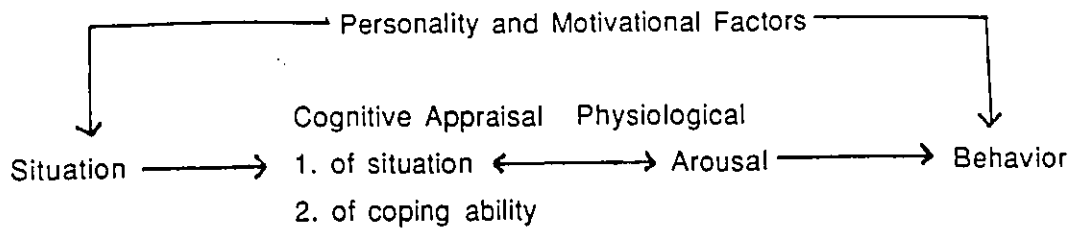


Figure 1. A conceptual model of stress showing the hypothesized relationships among situational, cognitive, physiological, and behavioral components of Smith's model (Smith & Smoll, 1982, p. 180).

learned, they should be transferable to other life situations which provoke stress reactions (Smith & Smoll, 1982).

**Measuring Sources of Anxiety in Children's Sport.** There is a large body of experimental literature that examines factors related to stress in the children's sport environment. Prior to reviewing this work, experimental measures used by these researchers will be presented. An understanding of how anxiety is currently measured in the sport setting will help the reader to better understand the experimental literature related to the present research investigation.

In order to measure the stress of a sport situation, Martens (1977) developed the *Sport Competition Anxiety Test (SCAT)*. Competitive trait anxiety (A-trait), which is defined as a relatively stable disposition in which the athlete views competitive situations, is measured by SCAT. A high SCAT score indicates the child perceives the sport situation as very threatening to self-esteem.

In addition to trait anxiety, which is believed to represent an individual's overall level of or predisposition to anxiety (Mischel, 1971), "state anxiety" (A-state) is often measured to provide an indication of stress at a specific moment in time. State anxiety is the immediate, "right now" response to a situation (Spielberger, 1972). It is a transitional emotional condition, characterized by apprehension and tension in response

to a stressful circumstance. There are two common psychological inventories of competitive stress that measure state anxiety levels. They are the *State Anxiety Inventory for Children (SAIC)* , developed by Spielberger (1973), and the *Competitive State Anxiety Inventory for Children (CSAI-C)* , developed by Martens and his colleagues (Martens, Burton, Rivkin, & Simon, 1980). These inventories are generally used in combination with the SCAT to determine correlations between state and trait anxiety. Research with both children and adults in laboratory and field settings has consistently found a positive relationship between competitive trait anxiety and subsequent state anxiety reactions to competition (Gill & Martens, 1977; Scanlan & Passer, 1978b; 1979b; Weinberg & Genuchi, 1980). This positive correlation provides support for both the predictive validity of the SCAT measure and Martens' concept of competitive trait anxiety as a predisposition toward competition.

Self-report measures of anxiety are the main psychological method used to infer the existence of anxiety. A-state and A-trait measures provide relative assessments of anxiety level, however, they do not determine a point at which anxiety becomes detrimental to performance (Ash & Chatman, 1982). Researchers are becoming more critical of using a "number" to understand the anxiety experienced by an individual (Burton, 1990). Mahoney and Meyers (1989) have noted there is "room for improvement" when it comes to studying and understanding individual patterns of athletes experiencing anxiety. They believe "traditional unidimensional or trait-based explanations of the anxiety-athletic performance relationship have not adequately addressed the complex phenomenon" (Mahoney & Meyers, 1989, p.91).

A number does not differentiate between acceptable and unacceptable anxiety levels for a particular person, and it does not provide much-needed information on ability to perform or learn while feeling anxious (Ericsson & Simon, 1980; Martens, 1978). Each person's perception of anxiety is an individualized cognitive response and should be recorded as such. In addition, standardized anxiety inventories contribute little insight

into the causes of pre-competition anxiety, or toward identifying the specific sources of stress inherent in the sport environment (Kroll, 1979). While anxiety inventories provide information on the level of emotional response, further work is needed to refine our knowledge of sport anxiety. "Such refinements in our understanding will aid us . . . in working . . . with young athletes whose notions of self-worth, self-efficacy, and competence are often so formatively intertwined with their sports performance" (Mahoney & Meyers, 1989, p.91).

Self-report inventories have also been used extensively as a method for measuring or monitoring athletes using mental training skills (Gordin & Henschen, 1989). Orlick (1989) cautions against the use of standardized inventories when consulting with athletes about their mental training. "Individuals are different, their needs are different, situations are different. Standardized inventories do not tap the unique individual perceptions of situations or identify specific problems that occur only under specific circumstances" (Orlick, 1989, p. 359). Orlick suggests that it is possible to obtain relevant information about an athlete's mental training concerns simply by asking the right questions during an informal interview.

Self-report measures were used by Gould, Petlichkoff, Hodge and Simons' (1990) in a study which examined the effects of a psychological skills training program with elite-level wrestlers. Findings from the analysis revealed that the athletes responded positively to the program, and improved their knowledge of mental training and their attitude towards its value. The researchers felt, however, that they would have gained far more insight into the wrestlers' use of the mental training skills had they used interviews or behavioural observations as a method of evaluation. Researchers and practitioners in sport psychology are aware that athletes are using mental training skills. Further information that contributes to a clearer understanding of the process of mental training is needed.

**Sources of Anxiety in Children's Sport.** Research on identifying sources of anxiety in sport for children typically employs the A-state and A-trait inventories mentioned earlier, in combination with measures of other individual difference factors (i.e., self-esteem and performance expectancies) thought to be predictive of stress (Scanlan, 1986). Researchers have identified three major categories of stressors - intrapersonal, situational, and significant adult factors - that alone or in combination cause the child to experience stress (Scanlan, 1984).

With respect to intrapersonal factors, the work of Scanlan and colleagues has found that those children who manifest high competitive trait anxiety, low self-esteem, and low team and personal performance expectancies, find the competitive sport environment significantly more stressful (Scanlan & Lewthwaite, 1984; Scanlan & Passer 1978a; 1978b; 1979b). These factors consistently predict the expected stress response of youngsters. It is clear that children's perceptions of themselves, and their abilities for dealing with a situation, greatly influence their response to a sport setting.

The nature of the sport is a situational factor which intensifies the importance of social evaluation, and subsequently increases stress. In individual sports, the performance outcome is solely dependent on the performer, and responsibility cannot be distributed among team members. Findings from field studies (Griffin, 1972; Simon & Martens, 1979) indicate that individual performers experience more stress through greater anxiety reactions than do those engaging in team activities. Although there are differences in anxiety levels between team and individual sport performers, the most potent source of situational stress is defeat. Those athletes who experience loss are found to manifest higher levels of post-competition state anxiety. It is unfortunate that children learn to place so much emphasis on winning. However, there is one factor that tends to override the importance of winning, namely, "fun". Children who have fun while participating, whether they win or lose, experience the least amount of post-competition stress (Scanlan & Lewthwaite, 1984; Scanlan & Passer, 1978b; 1979b).

Wankel and Sefton (1989) have further examined the components of fun, and what makes sport a fun experience. They found that: feelings of positive affect following a game; how well the youngster played in the game; and the level of challenge experienced during the game, were the three most consistent predictors of the fun experienced by young athletes. Although game outcome was found to be important to fun, it was not the most important predictor. These results combined with other mounting evidence (Duda, 1987; Roberts, 1984; Wankel & Kreisel, 1985), indicate that organized sport for youths should provide an environment in which "skill development is emphasized, realistic challenges are provided, success is defined largely in terms of personal skill mastery, and there is not excessive emphasis upon winning" (Wankel et al., 1989, p. 364).

Scanlan and Lewthwaite (1984) also examined adult factors that influence the young athlete's level of stress. They found it is often the coach or parent who plays a critical role in determining the child's self-perception in the sport setting. Two adult factors have surfaced as making significant contributions to the child's stress experience. Athletes who felt "parental pressure to participate" experienced greater pre-competition state anxiety than youngsters who did not feel pressured into the sport. A second stress-related factor involved "worries about receiving negative evaluations from parents and coaches". Those athletes who worried about the possibility of negative social evaluation prior to performance experienced the most pre-competition state anxiety. Parents and coaches have often been cited as potential stressors for young athletes, yet little research to date has examined their influence (Hellstedt, 1987a).

Within the children's sporting environment, adults are viewed as placing too much emphasis on winning (Martens, 1986), which consequently causes the sport activity to reflect the priorities of adults rather than the participants. When asked, children report that opportunities to play, to play as well as they can, and to have fun are most important in sport, while beating their opponent ranks as one of the least important

things (Halbert, 1986). Research has shown that in some cases youngsters actually avoid sport participation because they fear performing badly or failing to make a team (Orlick & Botterill, 1975). In in-depth interviews with children who had dropped out of sport, the overemphasis on competition was put forth as a major influence for leaving (Orlick, 1974; Robertson, 1984). A study of age-group swimmers revealed that too much pressure, not enough success, and conflicts with coaches and other adults were the main reason why young athletes had dropped out (McPherson, 1982). There is also a conflicting view which on the surface appears to indicate that competitive stress has little bearing on a child's decision to leave sport. In a survey study by Pierce (1980), some athletes cited "loss of interest in sport", too great a time commitment, or interest in other non-sport related activities as reasons for leaving. Unfortunately, the researcher did not delve into the reasons behind the "loss of interest in sport" which might have led to a more complete understanding of the participants' reasons for leaving. The soundest conclusion that can be drawn from the research thus far is that some athletes experience sufficient competitive stress to cause them to leave their sport activity or to avoid participation entirely (Passer, 1982).

**Dealing with Stress.** Methods for coping with stress in youth sports fall into two basic categories. The most frequently suggested approach is modification of the sport setting. Often it is recommended that the emphasis on competition and winning be decreased by having scoreless games, eliminating league standings, and employing coaches who are well trained in dealing with young children. These modifications reduce the situational demands that many young players find stressful (Passer, 1982). The second method is to implement psychological intervention programs which teach athletes how to deal with competitive situations. Some programs have been designed to teach young athletes stress-management skills that can be applied to their sport-related anxieties (Hellstedt, 1987b; Martin, 1989; Smith, 1980b).

Sport situations inherently contain some degree of stress. Also present, however, are needless stressors that detract from both the child's enjoyment of the sport, and his/her personal growth. Consequently, the development of stress management intervention programs for young athletes appears warranted. There has been some clinical work which substantiates the effectiveness of a stress management program for young athletes (Smith, 1980b), yet there is still a need for assessment and application of applied intervention strategies (Smoll, 1986; Orlick, 1986a). The remainder of this literature review will examine stress management interventions that have recently been applied in the sport setting.

A limited amount of research has been done with youngsters where one specific skill such as relaxation, cognitive control strategies, or self-monitoring has been taught. One group of Swedish researchers (Setterlind & Patriksson, 1982; Setterlind, Unestahl & Kaill, 1986) has had encouraging results with teaching stress reduction techniques to school children in conjunction with physical exercise. Relaxation training for coping with school-related stress was taught to a small group of children with the goal of testing and evaluating simple short programs for tension control. The students responded positively to the training, and this led to further larger-scale studies on relaxation. Setterlind (1983) carried out a major study with more than 500 students ranging from grade 6 to grade 11. Prior to relaxation training, students in the experimental group received lectures on the concept of stress and information on relaxation. During the experimental period, subjects received training in relaxation for approximately 10 minutes 3 times per week over a 6-week period.

The program was evaluated with pre-post psychological tests and questionnaires. Results from the questionnaire analysis revealed that 90% of the students found the relaxation training pleasant, and the majority indicated they felt relaxed immediately following the training period. When asked if they felt they had really learned to relax during the training, 55% indicated they had. Other responses to questions included the

following results: 52% thought they could do their school work better; 33% believed their sleep had improved; 60% felt less stressed; and 40% felt more at ease with themselves. Based on the results from the study, the experimenters concluded that relaxation training can provide positive psychological effects even when practised for a very short time (Setterlind et al., 1986).

Researchers have also been successful teaching younger children relaxation skills (Zaichkowsky & Zaichkowsky, 1984). A school-based program of relaxation training was conducted with a group of 24 fourth grade students. The study followed a pre-test - post-test research design with a control group. The experimental subjects received a program which extended over a 6-week period, and included a brief theoretical lesson followed by seventeen 10-minute relaxation training sessions. These sessions focused on progressive muscular relaxation, mental imagery, and breathing techniques. Results indicated students receiving the training were able to significantly improve their ability to control respiration and heart rate response. In addition, information gathered from parents and participants 12 weeks after the program revealed a generally positive feeling about program participation. The researchers contend that findings from this study provide support for teaching young children relaxation skills for controlling the stress response.

Cognitive control strategies such as Meichenbaum's (1977) Self-Instructional Training (SIT) are another method that can be used to assist children in dealing with stress. Sarrazin and Hallé (1986) used a case study approach with a group of young gymnasts aged 11 to 15 years who had from 3 to 5 years experience competing at the national level. The SIT method was used to modify the athletes' negative or self-defeating cognitions so that training time could be spent more effectively. SIT training was done in small group sessions over a period of 9 months for a total of 28 sessions that varied from 5 to 20 minutes in duration. The results from this work revealed that Meichenbaum's SIT did improve the gymnasts' responses to anxiety-causing situations.

However, the improvements were more obvious with the 12-16 year age group than with the 11 year olds. One issue noted by the authors was that newly learned mental skills needed to be reinforced with long-term follow-up in order to be completely adopted into the athlete's repertoire.

Wrisberg and Anshel (1989) also examined cognitive strategies to assist young basketball players with their free throw shooting. Forty boys (age 10-12 years) received training in either mental imagery, arousal adjustment, or combined use of imagery and arousal adjustment, or control training. Subjects learned the cognitive strategies during two 15-minute instructional sessions. Results revealed that imagery combined with arousal adjustment was the most useful cognitive strategy for improving free throw shooting. The basketball players were able to learn and effectively use cognitive strategies that are most often practised by older athletes. This research provided support for the teaching of performance-enhancing cognitive strategies to young athletes.

Rodgers, Hall and Buckholz (1991) also studied the effects of imagery training with a group of young athletes. The purpose behind the study was to examine the effects of imagery training on imagery ability, imagery use, and athletic performance, and to compare the effects of imagery training with training in the mental skill of verbalization (using cue words). Twenty-nine young figure skaters (mean age=13.7 years) were taught either imagery training (n=14) or verbalization (n=15) over a 16-week period. Pre-test and post-test measures of imagery ability (Movement Imagery Questionnaire), imagery use (Imagery Use Questionnaire), and figure skating performance (skating tests successfully completed and assessments of free-skating program run-throughs) were used to assess the effects of the program.

Results from the study indicated that only the skaters in the imagery group improved both their visual movement imagery ability, and use of imagery following the training. The skaters learned to use imagery more during practice sessions, increased the

structure of their imagery practice sessions, and were able to visualize and feel certain aspects of their skating more easily. Skaters in both imagery and verbalization groups showed improvements in performance by attempting and passing more figure skating tests following the training.

There were however, no significant changes in the "new" performance measure that had been specifically developed for the study. At the pre-test and post-test, an independent observer blind to the nature of the study, assessed the number and difficulty of elements completed by each skater during a free-skating program performance. The observer was introduced in an attempt to assess whether the skaters would improve the consistency and difficulty of their program run-throughs following the imagery training. According to the coaches and independent observer, the skaters actually improved the quality of elements in their programs, but added few new elements. Thus the new performance measure showed no change.

The difficulty of attaining an objective measure of sport performance in order to assess the effects of mental training has been an issue in other research studies (Mumford & Hall, 1985). The use of an independent observer to gain unbiased assessments of performance was a valid approach, however, future studies may need to develop more refined measures of performance that take into account the quality of the skills performed. Researchers working in applied settings need to continue to work to develop measures that can effectively assess the impact of mental training on performance (Burton, 1990; Rodgers et al., 1991).

In addition to relaxation, imagery, and cognitive control training, research on teaching young athletes self-monitoring techniques has been quite successful (Hume, Martin, Gonzaliz, Cracklin & Genthon, 1985). Researchers employed a self-monitoring feedback technique in an attempt to improve the quality of training sessions with 3 young skaters (14 to 16 years of age). The training intervention included the use of self-monitoring checklists and coach feedback regarding each skater's progress. Skaters

monitored their progress using specially designed display boards. Following each training session, the coach examined the skaters' boards and provided feedback on their progress. A reversal replication (ABAB) design was used to implement the training, and the entire program extended over a 13-week period.

Upon completion of the intervention, skaters had increased the frequency of jumps and spins completed during training sessions by over 90%, and increased the number of times the free-skating program was practised during a session. The skaters also decreased the time spent on off-task behaviors (i.e., talking, tightening skates etc.), and improved the quality of their skating. The coach, skaters, and parents of the skaters all felt the training program definitely contributed to the improvements in training and performance (Hume et al., 1985).

A few attempts have been made to develop more complete mental training programs to assist young athletes in dealing with sport-specific stressors. Gould et al (1990) conducted a study which examined the effects of a relatively short mental training intervention on the attitudes of young wrestlers. A group of 33 junior-elite wrestlers (mean age 16.6 years) received a week-long psychological skills training program which included training in relaxation, visualization, goal-setting and mental preparation. The mental training was conducted during four 1-hour group sessions. Additionally, the athletes were given individual consultation and six "on-the-mat" sessions which focused on relaxation and visualization. Assessments of the subjects' knowledge and use of mental training skills was taken prior to and immediately following the camp, and at a 3-month follow-up. Results from the study were positive, and the researchers felt the program effectively changed the wrestlers' attitudes regarding psychological skills. Unfortunately, because a control group was not included in the research design, no causal link could be made between the improvements in attitude and program participation.

Smith (1980a, 1980b, 1984), Hellstedt (1987b) and Martin (1989) have developed and implemented Stress Management Training (SMT) programs with athletes which have extended over a longer period of time. Their work provides additional examples of methods for teaching stress management skills, and will be presented in some detail.

Smith's (1984) cognitive-affective SMT program was derived from a number of theories (Arnold, 1967; Ellis, 1962; Lazarus, 1966; Schachter, 1966). The program follows what is termed the "coping skills model", where the emphasis is on the development of active coping skills. Participants in the program are seen as having the capacity to control themselves in their approach to dealing with stressful events. They must assume responsibility for their thinking, and play an active role in restructuring their "faulty" thought patterns. The program combines a number of clinical treatment techniques in an educational program for self-control of emotion. SMT has been applied to a variety of nonclinical populations that have included social welfare caseworkers, university administrators, bankers, business executives, heavy social drinkers, and athletes. The athlete participants have ranged from pre-adolescent to college-level athletes, and professional players from both individual and team sports. The goal of the SMT program is to teach a variety of coping skills and allow the athletes opportunities to practise and rehearse the skills in practical situations.

The program can be administered in five phases: 1) pretreatment assessment; 2) treatment rationale; 3) skill acquisition; 4) skill rehearsal; and 5) post-treatment evaluation. During the pretreatment assessment, the nature of each individual athlete's stress response is evaluated. Athletes respond to questions about the circumstances under which stress occurs, and its effect on performance. This allows the instructor to develop a mental training program tailored to each individual's needs. The interview data is also supplemented by a number of self-report inventories and questionnaires. Smith (1980b) notes, however, that there is a need for more adequate self-report

inventories for analyzing athlete's stress-related cognitions during sport performance. Improved measures would assist in developing a more comprehensive assessment of the mental training being taught and the athlete's responses to the training.

In the treatment rationale phase, athletes are introduced to a simplified conceptual model of stress. Smith (1980b) believes it is essential that athletes understand the implications and functions of stress in order to get them to commit to the training program. The instructor leads the athlete into an understanding of the model by asking questions which examine the athlete's stress response. The questions elicit descriptions of situational, physiological, and cognitive elements of the conceptual model. Questions such as: "When did it happen?"; "What was it like?"; and "What were your thoughts like?" are usually sufficient stimuli to ensure athletes arrive at the conceptual model on their own, simply by thinking about past experiences.

Two important points are emphasized during the rationale phase and throughout the training program. One is that the program is not psychotherapy, rather it is an educational program for self-control and stress management. The second point is that the amount of success any individual has with the program can be directly attributed to the effort put forth in learning the skills. Those athletes who work at the methods being taught should leave the program feeling capable of using the skills effectively, independent of the instructor (Smith, 1980a,b).

During the skills acquisition phase, athletes learn and rehearse both cognitive and relaxation techniques. Training in muscular relaxation is done using a variant of Jacobson's (1938) progressive muscle relaxation method. A special emphasis is placed on the use of deep breathing to elicit a relaxation response. The command to "relax" is repeatedly paired with the exhalation of the breathing. Using the cue word "relax" to elicit relaxation becomes an important component of the integrated coping response developed later in training.

Training in cognitive coping skills is begun by developing the athlete's awareness of internal self-statements and their corresponding emotional responses. A book by Ellis and Harper (1975) on rational-emotive therapy is recommended reading for this topic. To identify the stressful cognitions, subjects are given daily homework forms on which they list: situations that upset them; the emotional response that occurred; the statement they used in connection with the situations; and what a more reasonable self-statement might have been. Smith's experience with athletes reveals that the most common and destructive self-statements are connected with either a fear of failure or the worry of not living up to others' expectations. Smith (1980b) attempts to replace these statements with substitutions like: "Don't catastrophize - I may not like this, but I certainly can live with it; or I can do not more than give 100%, and I'm still the same person whether I win or lose" (p. 64). The readings, discussions with the instructor, and the exercises assist the athlete in identifying and dealing with their irrational self-statements. Participants also keep an "anti-stress" log where they monitor their self-talk and substitute positive self-statements when necessary.

When the athletes begin to feel comfortable with the relaxation and cognitive skills they have acquired, opportunities to practise the techniques under self-induced high-stress situations are introduced during the skill rehearsal stage. A technique known as "induced affect" is employed where the subject imagines a stressful athletic situation, and then attempts to focus on the emotional response the imagery elicits. Once in a state of high arousal, the athlete tries to use the newly-learned coping response to turn off the anxiety. Initially only the relaxation technique is practised in response to the emotional arousal. Then it is combined with the self-statement to create a more integrated coping strategy. This integrated response ties both the self-statements and the relaxation response into the breathing cycle. For example, in response to the anxiety state, the subject would first inhale deeply while occupying the mind with a positive self-

statement. Upon exhalation the subject would induce a state of somatic relaxation with the self-instruction to relax (Smith, 1984).

Following the skill rehearsal phase, the SMT program ends with training sessions in Benson's (1976) meditation procedure. It is suggested that the athletes use this technique to relax and reduce stress in situations outside the sport setting.

An evaluation of any intervention program is essential for understanding what effect the mental training is having on the participants. The SMT program is generally evaluated using the pre-post design, in which dependent variable measures are obtained before and after the training. Smith (1980b) notes that when using self-report measures in the absence of a control group, results must be interpreted with caution. When working with athletes, however, there are often opportunities to gather behavioural measures of performance. Smith and Smoll (1978) were able to evaluate the effectiveness of the SMT program using coaches' ratings of university football players' performances before and after the program. Based on the coaches' ratings, it was possible to demonstrate improved athletic performance by highly anxious college players who participated in the program. It is also possible to evaluate the program's influence by monitoring performance outcomes over a series of competitive performances before and after the SMT. Smith (1980a) provides examples of a number of case studies, one being a young figure skater who improved her competitive standings considerably after receiving a 3-week SMT program. A SCAT measure taken following the completion of the program also indicated a reduced level of trait anxiety.

Recently, Crocker, Alderman and Smith (1988) investigated the effectiveness of Smith's SMT program under controlled experimental conditions. A group of 27 high-performance volleyball players (all under 19 years of age) received eight SMT modules over an 8-week period. Subjects were assigned to either the treatment group or a waiting-list control group. Following training, the treatment group showed a decrease in negative thoughts when responding to videotaped stressors, and had better service

reception performance in a controlled practice situation. The cognitive and performance measures provided support for the effectiveness of the SMT program. A pre-post state anxiety (CSAI-2) and trait anxiety (SCAT) measure did not, however, show any significant differences between the trained and untrained subjects.

The lack of effect on anxiety levels may have been due to several factors. The period of time for the intervention may not have been long enough to show change, particularly for the trait anxiety measure. The authors also felt the state anxiety measure may not have provided an accurate assessment of the subjects' state levels. They speculated that a pre-competitive measure may have been inappropriate for assessing anxiety levels. In some cases, an increased state anxiety level only occurs once the game has begun, while for other athletes, it is possible that heightened pre-game state anxiety is a necessary part of pre-competition preparation. The higher levels indicate an optimal level of pre-competition anxiety that is necessary for the athlete in order to initiate appropriate coping strategies for the upcoming performance.

Crocker (1989) conducted a follow-up study in order to test the durability of the SMT effects. He was able to collect follow-up measures on 14 of the subjects 6 months after the intervention. The results regarding the durability of the mental training were mixed. The athletes maintained their improved service reception, but gender differences were apparent for the thought listing and anxiety measures. Only the female subjects maintained or improved their inner dialogue (thought listing), and decreased their anxiety levels from pre-treatment to follow-up. The author suggests the gender differences may have been due to different coaches for the men's and women's teams. There was also the possibility the measures taken may not have provided a clear picture of the effects of the program. Stressful sport situations contain many complex types of interactions. The measures provided only a "snapshot" of the athletes' circumstances. It is possible that the mental skills acquired from the training were being used but went untapped by the measures.

The limited evaluation done on the SMT program to date suggests favourable results. It is clear that the program contains many useful techniques for reducing performance anxiety in athletes and other populations. Further research needs to be done on the effects of the SMT program.

One of the most effective mental training programs to be introduced and evaluated with youngsters involved in sport is the work done by Hellstedt (1987b,c). The purpose of his study was to take a group of developing athletes and teach them the mental training skills used by older, more mature competitors. The program was designed to assist a group of competitive skiers ranging in age from 12 to 18 years (mean age of 15 years) with their mental approach to training and competition.

The mental training program covered such topics as: achievement motivation; goal setting; relaxation; mental imagery; controlling cognitions; on-site stress reduction; and pre-competition preparation. The program was divided into pre-competition and competition stages, and was taught over a 7-month period. During the pre-competition sessions, four weekend workshops were presented to the skiers. Athletes did reading and writing assignments on specific sport psychology techniques in preparation for the workshops, and the instructor conducted group sessions to discuss the topics in further detail. During the competition season, the sport psychology meetings were held on a weekly basis and the emphasis was on small group work, with 4 to 10 athletes per group. The following paragraphs describe the methods used to teach the athletes during the pre-competition and competition stages.

Achievement motivation was the focus for the first workshop and athletes were asked to read from articles that discussed commitment to sport (Orlick, 1980) and "learned effectiveness" (Rotella, 1981). The discussion that followed emphasized the importance of maximizing potential by setting realistic goals, staying in the present, and taking control of training situations by working on weaknesses and maintaining a task focus.

The second workshop on anxiety and relaxation began with an explanation of the effect arousal has on performance, and the importance of controlling arousal levels during competition. Athletes learned the Jacobson (1938) method of relaxation, as well as some breathing and centering techniques (Nideffer, 1976). Some form of relaxation exercise was done at each of the weekly meetings during the competitive season, and athletes were encouraged to practise on their own.

Mental imagery was introduced to the athletes during the third workshop. The subjects were guided through several imagery sessions which concentrated on the feeling and sensations of free skiing and riding up a hill on the chair lift. They were given opportunities to discuss the various uses of imagery, and to practise a number of imagery exercises. The skiers were encouraged to use relaxation techniques prior to imagery rehearsal, and to use their imagery skills on the hill as much as possible.

The final fall workshop focused on goal setting. The sessions were oriented around methods of goal setting outlined by Orlick (1980). Athletes were taught to concentrate not only on outcome goals but also on goals that would assist performance and personal self-improvement. The athletes met in groups of two to discuss each other's goals and make plans for achieving personal goals throughout the training week. They were given goal sheets to use for the remainder of the training season.

During the competitive season, small group meetings were held weekly. At this time goal sheets were turned in and an evaluation of each athlete's progress was made. Goals in the areas of technical skill development, mental preparation, academic performance, and lifestyle were set. The remaining time in these sessions was spent on relaxation, imagery, and some other techniques that had not been introduced in the fall workshops. The skiers also worked on developing pre-competition and competition plans, and kept mental preparation diaries to prepare for upcoming competitions. The instructor conducted pre-competition workshops either the night before or the morning of a

competition. During these sessions, athletes would be taken through relaxation, imagery, and energizing exercises in preparation for the competition.

Upon completion of the mental training, subjects and coaches involved were asked to rank the effectiveness of each component of the program. Pre-test and post-test SCAT measures were used to evaluate the effectiveness of the program. The results of the evaluation indicated that all aspects of the program were found to be quite useful, with athletes ranking relaxation skills, mental imagery, and coping strategies for competition the highest. The athletes tended to prefer practical methods that assisted them in dealing with on-site competitive stress rather than the theoretical components of the program. A comparison of pre-test and post-test SCAT scores revealed a significant decrease in the level of competitive trait anxiety. This decline may be indicative of the subjects' improved abilities for dealing with performance anxieties. However, other influences may have been affecting the scores. This interpretation is difficult to make because the second set of scores reflects another year of competitive experience as well as the mental training. The decrease in competitive trait anxiety and the favourable evaluations of the program suggested the mental training did assist the subjects in controlling their performance anxiety. In the subjective evaluations from the skiers, many commented on how the sessions helped them in dealing with other aspects of their lives outside of skiing. Before any firm conclusions can be drawn, further research that employs a control group and performance measures is needed.

A final mental training program study was conducted with a group of competitive figure skaters. Martin (1989) provided a description of a mental training program that was implemented during a provincial development training camp for figure skating. The skaters participating ranged in age from 11 to 20 years. The components of the mental training included: developing concentration skills for both figures and free skating; improving self-confidence for competitive performances; and pre-competition

planning for free skating. While the program was made available to 38 skaters, not all participants chose to complete the entire program.

Prior to receiving the training, skaters were required to score 80% or better on a test that covered material from an introductory sport psychology manual. Those skaters passing the exam participated in a seminar that included approximately 5 hours of sport psychology training. The sessions were conducted both off and on the ice, in group and individual meetings. Skaters received homework assignments regarding the training given at the seminar. The purpose of the assignments was to help the skaters incorporate the mental training skills into their daily training once they returned home.

The skaters also had an opportunity to participate in a simulated competition prior to their first major competition of the season. The sport psychologist conducting the program attended all simulations and major competitions. He worked closely with the skaters and coaches at these events to assist in the implementation of the mental skills. The post-season evaluation of the program was very positive. Evaluation questionnaires were returned by 25 participants. The highest ratings of the program came from the 9 skaters who completed the entire mental training package. Again, preliminary results were favourable, but further work is needed in order to evaluate the effectiveness of the program and its individual components (Martin, 1989).

**Summary.** Mental skill intervention research is viewed as one of the most promising methods for evaluating the impact of stressful events within the child's sport setting (Ash & Chatman, 1982). As is evident from the literature review, researchers have already identified many of the stress-related factors that influence the child's perception of the sport setting (Scanlan & Lethwaite, 1984; Scanlan & Passer, 1978a,b; 1979a,b), and stress management intervention programs have been developed for dealing with these factors (Hellstedt, 1987b; Martin, 1989; Smith, 1980b). The mental training programs developed for young athletes thus far, contain many excellent practical methods for assisting children in dealing with the stress inherent in the sport

setting. Unfortunately, to date there has been very little research which has examined the effects of mental training program interventions on children within an experimental design. Hellstedt (1987b), in his research with a group of young skiers provided one example, however, no control group or performance measures for comparison were included in the research design. Although the results of Hellstedt's study indicated an improvement in mental training skills, it was not possible to make any definitive statement about the effects of the mental training program. Researchers studying the effects of mental training on a group of young wrestlers had a similar problem. They could not attribute the improvements in attitude toward mental skills solely to their program intervention, as no control group was included in the research design (Gould et al., 1990).

When positive results occur in the absence of a control group, interpretations must be made with caution. The researcher must account for uncontrolled factors that may influence scores or lead to false interpretations. In mental training intervention research, it is possible that improvements in mental training skills will result from normal training or competitive experiences that athletes encounter during the time the mental training program is in place. A logical progression for research in this field would be to systematically evaluate the usefulness of stress management programs with children. Researchers must determine which mental training skills work best for young athletes, and whether youngsters can actually learn and use mental skills (Wrisberg & Anshel, 1989). By training young athletes to use stress control strategies, and then assessing the effect, it should be possible to identify aspects of stress management training that are most applicable for children in sport.

The present study was designed to address a number of issues directly related to mental training program implementation with children. The investigator first developed a mental training program specifically designed for young competitive figure skaters. The program originated from field-tested mental training programs (Hellstedt, 1987b;

Orlick, 1986b; Smith & Smoll, 1982), pilot work with young figure skaters, and a review of literature related to mental training. The amount of material included in the mental training program, and the methods employed for teaching mental training required that the program be taught over an 8-week period.

Figure skaters were chosen as subjects for the study because it was believed the nature of the sport of figure skating would provide a good setting for the teaching and assessment of a mental skills training program. Figure skating is a very demanding competitive sport with specific performance requirements. Skaters engage in intense training in order to hone their skating skills, and must perform on a regular basis during test and competition situations. For these reasons, any youngster who chooses to become involved in figure skating, must possess a certain level of commitment to the sport. Figure skating is also an individual sport which made it possible to examine the effects of the mental training program without the additional influence of a team sport atmosphere.

The specifically designed mental training program was implemented with a group of young competitive figure skaters at the Nepean Skating Club. Field settings are necessary for the evaluation of mental training programs with athletes. This presents a number of ethical and practical barriers to the researcher. First it is difficult, if not impossible, to find athletes who are willing to stand by and serve as control subjects while others receive training in mental skills. Accessing an appropriate subject sample can also create difficulties. The experimenter requires a group of athletes who have no prior mental training experience, and who are relatively homogeneous in terms of other factors that may influence the study.

The situation at the Nepean Skating Club provided a suitable field laboratory for evaluating a mental skills training program. The athletes were young, involved in competitive sport, and had no prior experience with mental training. The training and competition situation at the club provided ample time for the training and assessment of

the mental skills. The number of athletes available to participate in the study was also adequate. The time required to teach mental training skills to individual athletes limits the number of subjects who can participate in an applied mental training study. Twenty skaters from the club's competitive program were offered an opportunity to participate, and 17 skaters served as subjects. It was felt this was an appropriate number of subjects for this type of study. The subjects available to the researcher comprised a completely female subject sample. Figure skating is a predominantly female sport thus making it difficult to acquire male subjects.

Once implemented, it was necessary for the investigator to assess the effectiveness of the mental training program. As was evident from the literature review, many of the mental training programs cited used self-report measures (e.g., SCAT) to assess effects. These measures provide limited information regarding what is actually occurring (e.g., what the athletes are experiencing) during the intervention, and researchers have been critical of the accuracy of these measures (Burton, 1990). A combination of measures (i.e., both qualitative and quantitative) used in the present study were designed to provide more extensive information on how the skaters were experiencing the program, and which aspects of the mental training program were most useful to the skaters. The people closest to the athletes, the parents and coaches of the skaters, were also asked for their impressions of the program intervention. It was believed that this would help provide a clearer and more extensive understanding of the complexities of mental training intervention with young athletes.

As is clear from the review of literature, few of the intervention studies to date have incorporated a control group into the research design. The present study included a control group for comparison purposes which allowed the researcher to examine the short term effects (i.e., after 8 weeks) of the mental training program within an experimental design. The long term effects (i.e., after 11 months) of the program were also examined. Information provided by the various assessment measures and control

group comparisons were implemented in an attempt to ensure that this study would make a valuable contribution to the literature in this field.

The rationale behind examining three mental training components from Orlick's theory of excellence will be discussed in the following section.

**Theoretical Rationale for the Study.** Having a theoretical rationale to guide the researcher is an essential part of research design. What is difficult in the study of applied sport psychology is that specific theories which can guide valid research activities are virtually absent. There has been little theory generation in sport psychology, and most sport psychology researchers have simply borrowed a theory from psychology and tried to apply it in the sport situation. Martens (1987), one of the founding fathers of applied sport psychology, has stated very clearly the direction applied sport psychology research needs to take:

Some researchers contend that we need to return to controlled laboratory studies, especially studies that test theories - these theories, I assume, being the existing ones in social psychology since sport psychology is theory poor. I could not disagree more. We have been so eager to test theories of the larger field of psychology in order to confirm our scientific respectability that we have not adequately observed, described and theorized about our own thing - SPORT. We clearly need to spend more time observing behavior in sport and building our own theories unique to sport. We not only need more field studies but also competent sport psychologists who put themselves into the heart of these studies by being intimate, participant observers (p. 51).

The field of applied sport psychology is at a formative stage in its development, and steps must be taken to ensure the experiential knowledge base that applied researchers have developed is put to good use. The formulations or models of applied sport psychology are grounded in the reality of the sport experience, and have developed from consultation with sport participants. The mental skills training programs have developed as a result of coaches and athletes sharing their experiences with sport psychology researchers. In order for applied sport psychology researchers to examine sport, they must rely on the heuristic models that have developed from sport. This type

of research is clearly more difficult to conduct and evaluate, yet adopting a heuristic paradigm will eventually lead to the development of a much stronger body of knowledge in applied sport psychology (Martens, 1987).

In applied sport psychology, limited theoretical approaches to research are available and feasible. The researcher must take into account the reality of the current status of the models, formulations, and theories which guide applied sport psychology research. A mental training program evaluation study could use Smith's (1980a) cognitive-affective stress management training program as a theoretical basis. However, its development was based largely on the work of psychological theorists who dealt with clinical populations not athletes. Additionally, researchers have raised concerns that arousal reduction, a key component of Smith's model, may not be desirable for performance enhancement (Burton, 1990). Studies which evaluate psychological skills training should "utilize current thinking in the field [of sport psychology] which consists of theory and research as well as valuable experiential knowledge advanced by practitioners, coaches, and athletes" (Vealy, 1988, p. 331). At present there is one model, Orlick's (in press) heuristic model of personal excellence, that is grounded in the sport situation, and was developed as a result of over 20 years of consultation work with athletes (Orlick, 1986b), and applied research with elite level athletes (Orlick & Partington, 1988).

Orlick's model contains seven elements of excellence which are believed to contribute to excellence in human performance. The elements are: commitment; belief; positive images; mental readiness; full focus; distraction control; and constructive evaluation. The first two elements, commitment and belief, are central to the model. These elements represent the athlete's dedication towards achieving excellence, and the belief in his/her ability to do so. The five remaining elements are mental skills that must be developed in order to achieve high levels of excellence. The essential mental skills of positive imagery, full focusing, and distraction control are effective methods that athletes in

pursuit of excellence must refine and use consistently. In addition, those pursuing excellence must maximize their potential by consistently being mentally ready for all sport-related activities, and by constructively evaluating all performances.

It is believed that these seven elements "allow human beings to excel, or to become the best that they can possibly be in a chosen pursuit" (Orlick, in press, p.4). Orlick emphasizes that the heuristic model of personal excellence is applicable to all human beings regardless of their ability or the nature of their pursuit.

The model is still loosely formulated at present, but obviously solidly grounded in applied intervention work with athletes. What guided the design of the present study were elements from this heuristic model. The second research question in the present study focused on three components from the heuristic model of personal excellence. Included in the mental training program developed for figure skating were the mental skills of positive images (mental imagery), full focusing (focusing), and distraction control (refocusing). Only three elements from Orlick's model were examined because it was felt to be unrealistic to teach, then develop, and test all seven elements in the first study on mental training intervention with children. The three elements that appeared to be most viable to begin with, and focus on in this study were chosen based on related literature, extensive pilot work, and careful thought. Based on the principle investigator's pilot work, it was believed the mental skills of imagery, focusing, and refocusing would be the best skills to assess. These three mental skills were found to show the most improvement during pilot work. They were also the skills used most frequently during training, therefore the most likely to show improvement. The author of the model of human excellence also supported this decision and confirmed that imagery, focusing and refocusing were the three most important skills for children to learn (T. Orlick, personal communication, August, 1987).

Subjects were taught the three mental training skills with the intent to determine whether young athletes could learn and use these skills effectively.

## Chapter 3

### Methodology

#### Subjects

There were originally 20 subjects selected to participate in the study, none of whom had received previous individual mental training consultation. Three subjects were unable to participate in that 2 retired from competitive skating, and another changed skating clubs prior to receiving the experimental treatment. The final subject group consisted of 17 female competitive figure skaters who trained at the Nepean Skating Club in Nepean, Ontario. The skaters ranged in age from 11 to 16 years, with an average age of 13.6 years ( $SD=1.28$ ). On average the skaters had competed at the Sectional level for 2.53 years ( $SD=1.12$ ). Sectional competition is the qualifying event for Divisional and National level competition. The subjects were competing at four different competitive levels: Juvenile (2); Pre-Novice (6); Novice (7); and Junior (2).

#### Procedure

Nine subjects were assigned to the experimental group 1 and 8 to the experimental group 2. The two groups were evenly matched on variables related to the dependent measure. Age, number of years skating competitively at Sectionals, commitment to skating, competitive level, test level and coach were taken into consideration when assigning the skaters to the experimental groups. Table 1 shows the equivalence of the two experimental groups on these variables. Data collection for the study began in January 1988 and extended through the entire year to December 1988.

**Gaining Entry.** In September 1987, the mental training instructor (principal investigator) contacted the Nepean Skating Club to inquire about the possibility of conducting a mental training study with the club's competitive figure skaters. After receiving an outline of all requirements for the study, the skating club executive agreed to allow the study with the understanding that all competitive program skaters would

Table 1  
Equivalence of the Two Experimental Groups on Variables Related to the Dependent Measure

	Experimental 1	Experimental 2
Average age of the skaters	13.3 years	13.9 years
Average number of years skating competitively at Sectionals	2.7 years	2.4 years
Commitment score for commitment to sport scale	40.7	40.4
Competitive level		
Juvenile	1	1
Pre-novice	4	2
Novice	3	4
Junior	1	1
Figure tests completed		
2nd	1	2
3rd	3	1
4th	2	2
5th	2	2
6th	0	1
7th	1	0
Free-skating tests completed		
Junior bronze	1	1
Senior bronze	3	2
Junior silver	3	2
Senior silver	1	2
Gold	1	1
Number of skaters taking from each coach		
Coach A	3	3

Coach B	4	2
Coach C	0	1
Coach D	2	2

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have an opportunity to participate. Arrangements were made for the mental training study to begin in January.

**Coaches' Meeting.** Prior to any experimental manipulation, the mental training instructor held a meeting with the coaches whose athletes would be involved in the study. At this time, coaches received copies of the mental training manual developed for the study and an explanation of the program procedures. The term "sport psychology" was defined, and an explanation of the mental training skills to be used in the program was provided. It was also necessary to discuss the implementation of the mental training program. The coaches were interested in how the data collection and mental training classes would affect their schedules. Data collection took place both prior to and following skating sessions. In some instances, skaters missed small amounts of ice time for interviews, however, this did not interfere with the coaches' pre-set lesson time. As for the mental training sessions, these had little effect on the coaches' schedules because they took place either before or after skating sessions.

Other aspects of the mental training program that needed clarification for the coaches included the mental training instructor's presence on the ice, and the fact that not all skaters would be receiving the mental training during the same period of time. The mental training instructor was present on the ice for approximately 75% of the skating sessions during the study. The purpose of the on-ice mental training was to reinforce the use of mental skills, and to assist skaters who were practising imagery and focusing during training. Skaters came to the mental training instructor when they were having difficulties with various skills. Their difficulty was discussed and corrective instructions the skater had received from the coach were reviewed. Based on this input, the mental training instructor suggested to the skater how to use mental skills to assist

in correcting the error. During the coaches' meeting, the mental training instructor explained the on-ice procedures in detail and gave examples of typical on-ice mental training interactions. It was essential that the coaches felt comfortable with the on-ice methods of the mental training instructor. The mental training instructor was a former competitive figure skater, and qualified figure skating coach. She also had worked for several years as a mental training consultant with young figure skaters.

Each coach was aware that approximately half the skaters were in the experimental group 1 and the other half would be receiving the training at a later date. It was not possible to keep the identity of the experimental 1 skaters hidden from the coaches. The coaches were told to follow their regular teaching procedures with all skaters regardless of whether the athlete was receiving mental training or not. In cases where the skater was receiving the mental training, coaches were asked to be both positive and encouraging if the topic of mental training was discussed.

**Parents' Meeting.** Parents received a letter from the mental training instructor with an explanation of the program procedures and the mental training skills that would be taught. The letter clearly outlined what was required of the skater if they chose to participate in the study. A consent form was enclosed with the letter. Parents were asked to bring the signed consent form to the introductory meeting if they wanted their child to be involved in the study.

The meeting began with an explanation of the term "sport psychology". It was particularly important for all parents to understand the mental training instructor would be working with their children not as a psychologist or psychiatrist, but as a mental trainer. The parents were told that the purpose of the study was to work with healthy children to help them learn useful mental skills for training and competition. During the meeting the mental skills necessary to excel in skating were discussed. Each time a mental skill was described, examples of well-known elite level skaters using the skill were given. This was done to further illustrate the value of the mental training

program. A 25-minute video on the use of mental imagery in sport was shown (Botterill & Orlick, 1987). The video featured prominent Canadian Olympic athletes talking about the usefulness of mental imagery. They described how they used imagery daily in training, and in preparation for competition. Following the video, parents had an opportunity to ask questions and discuss scheduling with the mental training instructor. Copies of the letter to the parents and the consent form are available in Appendix E.

**Pre-Program Measures.** All subjects completed pre-test measures in order to assess factors related to mental training (e.g., competitive trait anxiety, imagery use etc.,). It was necessary to attain baseline measures on each subject before implementing the program. The following pre-test measures were completed: the Sport Competition Anxiety Test (SCAT); a Competitive Figure Skaters' Questionnaire (CFSQ); and Commitment to Sport and Self-Control Scales. The SCAT measure is a standardized trait anxiety scale with 15 response items. It was specifically designed to assess anxiety levels of athletes in sport settings (Martens, 1977).

The CFSQ was developed based on other mental training studies (Mahoney & Avenier, 1977; Partington & Orlick, 1986), pilot work, and mental training consultation with young figure skaters. It contained short answer and scaled response questions designed to assess the mental training skills included in the mental training program. CFSQ questions 1 through 4 were designed to assess goal-setting ability. Athletes who use goal-setting effectively will generally feel they have: accomplished something following each training session (CFSQ #1); are less likely to feel overwhelmed during preparation for competition (CFSQ #2); will break down the skills they are working on (CFSQ #3); and will work on skills that need extra practice (CFSQ #4). CFSQ questions 5 through 7 were designed to assess attitudes towards performance and training. During the mental training program, the mental training instructor emphasized the importance of good training habits, and how proper training can override many of the factors that

can negatively influence a performance. CFSQ question 8 was designed to assess the pre-performance emotional state of the skaters. It was believed that the positive feelings of pre-competition excitement would increase after the skaters received the mental training program. CFSQ questions 9 through 13 were designed to assess imagery ability. Skaters were asked to describe their imagery of stroking, a waltz jump, and a free-skating solo performance, then rate both the feeling and control they had during the skating images. These three images were chosen because all skaters do these skills regularly during training. It is standard practice for a skater to begin a free-skating session with warm-up stroking followed by a waltz jump. The free-skating solo is also practised frequently during training sessions. It was believed the imagery description combined with the feeling and control scales would provide accurate information on imagery ability, and that improvements in imagery ability would occur following training. CFSQ question 14 was designed to assess the skaters' self-talk during training. It was felt that any change toward more positive, productive inner dialogue would be evident in responses to this question. CFSQ questions 15 through 23 were designed to assess focusing and refocusing skills. The skaters were asked to provide information on where their thoughts were during training and performance situations for both figures and free-skating. It was anticipated that following the mental training program, if the skaters had learned the mental skills, their responses would indicate they were focusing more on performance cues, rather than distractions such as judges and other skaters. CFSQ questions 24 through 27 were designed to assess the skaters' attitudes regarding poor performances. During the mental training intervention, emphasis was placed on assessing performances and drawing lessons from poor performances. Following the mental training program, it was anticipated that these questions would reveal an improvement in constructive performance evaluation. Finally, CFSQ questions 28 through 30 were designed to assess attitudes towards placement in competition. During the mental training program, the mental training instructor emphasized the importance

of achieving personal best performances rather than focusing on the outcome of the competition. These questions were included to assess any changes in attitude toward competition placement and personal performance level.

The Commitment to Sport and Self-Control Scales were adapted from Orlick (1990). They have been widely used by athletes and contain 10 point response scales where athletes rate themselves on various aspects of commitment and self-control. The Commitment to Sport Scale was adapted by inserting skating relevant terms into the questions (e.g., replacing the word sport with skating) where necessary. In addition two questions were added at the end of the questionnaire. The additional questions inquired about the importance of skating and learning the mental training skills. Scores from the Commitment to Sport Scale and the two additional questions were used in an attempt to balance the two experimental groups. It was felt the athletes' level of commitment to sport and desire to learn mental training skills would be relevant factors in the success of the mental training program.

The Self-Control Scale was adapted by inserting skating relevant terms, and by removing a team sport question that was not relevant to figure skating. The Self-Control Scale was included as a measure because the questionnaire items assessed aspects of mental training that were included in the mental training program. Copies of all questionnaires are available in Appendix A.

A standardized open-ended interview was conducted with each skater as an additional pre-test measure. All interviews were conducted in a room at the arena where the skaters trained. The athletes came off their skating sessions at a time most convenient to them. The interviews lasted for an average of 25 minutes, with the shortest being 15 minutes and the longest being 55. The questions inquired about the skaters' competition, training, and mental preparation experiences. Each question was carefully worded, and sequenced so as to enhance the interviewee's comfort and recall. Appropriate

clarification probes were used when necessary (Patton, 1987). The interview was pilot tested by the principle investigator with skaters before beginning the study.

Six interview questions were asked at the pre-test. The first two interview questions were designed to help the interviewee relax and become accustomed to the interview situation. The skaters were asked to comment on how they felt about their skating and the balance between the fun and work involved. Interview questions 3 through 5 focused on the pre-competition period. The skaters were asked how they felt, what they were thinking about, and how they felt physically before a performance. The pre-competition period can be an extremely stressful time for athletes. One of the aims of the mental training program was to assist the skaters in dealing with pre-competition tensions. The purpose of this series of questions was to assess each skaters' pre-competition emotional and physical state prior to the mental training program intervention. The final pre-test interview question consisted of two parts, and was designed to provide a measure of goal-setting ability prior to the mental training program intervention. A copy of the interview questions and procedures followed during the interview are available in Appendix A.

**Controls for Bias.** Where possible, precautions were taken to control for biases occurring within the experimental setting. A research colleague familiar with the principles of sport psychology administered all questionnaire measures. Prior to data collection periods, the skating club secretary reminded each subject of the dates and times for completing the questionnaires. Subjects were informed at this time that a researcher from the university would be present when they completed the questionnaires, and any questions they had would be answered by this person. When the skaters arrived for the testing sessions, the researcher (colleague) provided each subject with a standard set of instructions. Skaters were told that all responses to the questionnaires would be held in complete confidence. They were not to write their name on any item. Instead they were shown that a coded number was written on the back of

each questionnaire. Subjects were identifiable only by a coded number, and all responses were entered into a computer at the university under the coded identification number. The skaters were told it was extremely important they be honest when responding to the questions because researchers at the university wanted to know how they felt about the mental training program. They were also told the mental training instructor who was conducting the program would not know how they (specific skaters) responded, and that how they chose to respond would not in any way affect the credibility of the mental training instructor.

Similar precautions and instructions were used for pre-test interviews. All interviews were conducted by a research colleague of the mental training instructor who was well-versed in both interview technique and the field of sport psychology. The interviewer had taught several university courses in counselling and interview methods, and was conducting a qualitative research project herself at the time of the interviews. A standardized open-ended interview approach was used to help minimize interviewer effects. A pre-set list of interview questions was established prior to the interview. This approach allowed the investigator to obtain data that were "systematic and thorough" for each of the program participants (Patton, 1987).

**Mental Training Program.** Subjects in the experimental group 1 received an 8-week mental training program, while experimental 2 subjects continued to train as usual. The methods used in the mental training program were decided upon based on pilot work with young skaters, other mental training programs used with athletes, and an examination of the mental training methods used by elite level athletes. Skills were taught to the subjects by the mental training instructor during either individual consultation or during small group sessions. The skaters were divided into groups of four or five for the small group sessions. Skaters were assigned to groups based on their age and compatibility with other group members.

Over the 8-week training period, subjects participated in 16 small group sessions lasting 30 minutes in length, and six individual meetings. Small group meetings were used to introduce and discuss mental training topics, and to practise relaxation and imagery skills. A discussion format was followed by the investigator for each small group meeting. This included a list of all topics that would be discussed during the meeting. The discussion list format was used to ensure that all subjects were exposed to similar information and had an opportunity to share experiences regardless of which meeting they attended.

During individual meetings the mental training instructor discussed the skater's progress with the mental skills, and assisted each subject in developing mental plans. All skaters received mental training manuals that contained readings for the program, information sheets on mental skills, and mental planning sheets. A copy of the mental training manual is available in Appendix B. The manuals were brought to all individual meetings and small group sessions. The athletes used the manuals to record their goals, complete small group exercises, and develop mental plans. An outline of the order of presentation of mental skills during small group sessions and individual meetings is available in Tables 2 and 3 respectively. An account of how the mental training techniques were taught to the skaters is available in Appendix D.

**Simulation.** After the completion of the experimental 1 training, all subjects participated in a competitive simulation. The simulation was designed to follow regular competition procedures as closely as possible. The 17 participants were divided into three competitive groupings based on their competitive level. An order of skating was posted the night before the simulation, and skaters were asked to wear their competition dresses for the performance. All participants had a 6-minute on-ice warm-up prior to performing their competitive free-skating programs in front of three official skating judges. The results of the competition were posted at the end of the evening. The competition simulation was open to the public, and had been advertised locally as a

Table 2  
Mental Training Program Schedule for Small Group Meetings

Session 1	Organizational meeting Introduction to sport psychology Video of Olympic Men's Free-Skating Competition Relaxation practice
Session 2	CAC imagery video Discussion of video Imagery practice
Session 3	Discussion of Calgary Olympics skating Discussion of success elements reading Discussion of Brian Orser's interview Imagery and relaxation practice
Session 4	Figure skating imagery video Discussion of imagery reading One breath relaxation Imagery and relaxation practice
Session 5	Video of Brian Orser's win in Cincinnatti Discussion of relaxation reading Stretch and relaxation practice
Session 6	Discussion of Barbara Underhill's interview Breaking down a skill in imagery
Session 7	Discussion of goal-setting reading Work on goal-setting sheets Time solo imagery with stop watch
Session 8	Stretch and relaxation practice Complete goal-setting sheets Imagery practice
Session 9	Complete Skating Performance Reflections Form Discussion of pre-competition planning Break down a skill in imagery
Session 10	Discuss pre-competition warm-up Imagery of a testing situation Imagery of solo with a stop watch
Session 11	Static and dynamic stretching Discussion of Lori Fung's interview Physical warm-up exercise
Session 12	Discuss focusing reading Break down a skill in imagery Imagery of a competition situation

Session 13	Work on focusing plans Discuss refocusing Refocusing exercises
Session 14	Charlene Wong's talk
Session 15	Video of national team simulation Changing negative self-talk to positive Competition imagery
Session 16	Video of Brian Orser's win in Cincinatti (repeat) Discussion of Sylvie Bernier's interview

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Table 3  
Mental Skills Covered During Individual Meetings with Skaters

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For each meeting, the athletes were asked to bring a completed plan from the previous session. The following areas were covered during individual meetings:

- |           |   |
|-----------|---|
| Session 1 | - used mainly to establish rapport and ensure the athlete understood the purpose of mental training consultation.<br>- also focused on the main mental training concern of the athlete. |
| Session 2 | - worked on setting goals, and breaking them down into smaller attainable goals.  |
| Session 3 | - discussed imagery, and began working on pre-competition plan.   |
| Session 4 | - discussed focusing and refocusing plans.  |
| Session 5 | - checked that all mental plans were in order, and reviewed goals.  |
| Session 6 | - ensured all concerns had been dealt with.   |
- 

performance night where community members were invited to view the skating performances.

**Post-Simulation Measures.** Immediately following the simulation, all subjects completed a Performance Evaluation Form. The Performance Evaluation Form contained three short-answer questions taken from Orlick's (1986b) performance evaluation form. The purpose of the form was to have the skaters evaluate their level of mental

preparation, and to determine whether they were using pre-competition and refocusing plans for the simulated competition. A copy of the form is available in Appendix A. Subjects were also required to complete a set of post-simulation measures. The purpose of the post-simulation measures was to determine any changes in mental skill training between the experimental group 1 and experimental group 2 skaters. The measures were administered adhering to the same procedures used during the pre-test data collection. The post-simulation measures were a repeat of the pre-test measures with the exclusion of the individual interview. The measures were completed 2 weeks after the simulated competition. It was felt the 2 week delay would decrease the effects of the simulated competition. Furthermore, the pre-test measures were completed 2 weeks after the 1987 Eastern Ontario Sectionals competition. Thus it was necessary to follow a similar pattern for all measurement periods (i.e., follow-up measures were completed 2 weeks after the 1988 Eastern Ontario Sectionals competition).

**Post-Simulation Activities.** Once the post-simulation measures were completed, experimental 2 subjects were introduced to the mental training program following the same methods used with the experimental group 1. Prior to beginning the training, experimental 2 subjects were asked about their knowledge of the mental training program. This was done to determine whether they had taught themselves or were training any mental skills while the experimental 1 group was receiving the program. None of the skaters were aware of what was actually happening during the experimental 1 training sessions. They knew the experimental 1 group were learning sport psychology techniques but they did not know precisely what these training techniques were. The experimental 2 skaters' responses to the Performance Evaluation Form from the competition simulation also confirmed they had no knowledge of the contents of the mental training program. None of the experimental 2 skaters indicated they were using pre-competition or refocusing plans at the simulated competition.

During the experimental 2 group training, the experimental 1 subjects continued to use their mental skills under the guidance of the mental training instructor. These athletes had opportunities to discuss their progress with the mental training instructor, and mental skills were reinforced in training by the coaches and the instructor.

**Post-Program Activity.** The experimental group 2 training was completed at the end of July, 1988. The mental training instructor continued to monitor the mental skills of both experimental groups until the 1988 Eastern Ontario Sectional Competition in November. The annual Sectionals competition is an extremely important event for young figure skaters working their way through the competitive ranks. Skaters from all over Eastern Ontario attend the competition and vie for positions to go on to the Eastern Divisional Championships. When commenting on their yearly competition schedule, the skaters often referred to Sectionals as the "only competition that really matters". During the time prior to Sectionals all athletes worked with the mental training instructor to ensure proper use of the mental skills. This ongoing evaluation included many discussions between the mental training instructor and the skating club coaches. The mental training instructor spoke weekly with the coaches regarding each skater's progress.

**Follow-Up Measures.** Immediately after their Sectional performances all skaters completed a second Performance Evaluation Form. A set of follow-up measures were also completed approximately 2 weeks after the Sectionals competition. The purpose behind the follow-up measures was to assess changes in mental skill training for the entire group of skaters (experimental groups 1 and 2 combined) from the pre-test to follow-up measure. These measures were a repeat of the pre-test measures with the addition of Mental Training Program Evaluation Forms (Partington & Orlick, 1986). The purpose of the program evaluation forms was to determine which aspects of the mental training program the skaters found most useful. Copies of the Mental Training Program Evaluation Forms are available in Appendix A.

All measures were conducted under the same conditions as the pre-test measures. During the final interview, pre-test questions were repeated in order to assess any change following the mental training program intervention. Additional questions regarding skills learned during the mental training program were included in the follow-up interview.

The first three additional follow-up interview questions (questions # 7, 8 and 9) inquired about which mental training skills the skaters employed during training and competition. The purpose behind these questions was to determine which mental training skills the skaters found to be most useful during training and competition situations. Interview question 10 inquired as to whether the skaters's coach had encouraged mental skill usage. Coaches clearly have a strong influence on the athletes' training methods, thus it was necessary to have some assessment of the coaches' involvement in the mental training program. Interview question 11 asked the skaters to assess their level of mental preparation for the 1987 Cornwall Sectionals competition (where they had no mental training) compared to the 1988 Ottawa Sectionals competition (where they had received mental training). The purpose behind the question was to determine if the skaters felt more mentally prepared following the mental training program, and if so, what it was that contributed to the improvement. The final interview question (#12) was a general question asking the skaters what (if any) aspects of their skating had changed as a result of the program. Before completing the interview, the skaters were asked to rate on a scale from 1 to 10 how much effort they put into learning the mental skills. This measure was included to assess whether the athletes' perceived level of effort was related to mental skill development. A copy of the additional interview questions is available in Appendix A.

Coaches of the skaters involved in the study were also interviewed at this time. The coaches' interview questions focused on their impressions of the mental training program, the effectiveness of the program, and any suggestions for future mental

training programs. The coaches were with the skaters throughout the entire mental training program intervention, thus it was believed they would provide valuable insight into the effectiveness of the program. Procedures for the coaches' interviews were similar to those followed for the skater interviews. The coaches were encouraged to speak candidly about the mental training program. They were assured any comments made regarding the program would be completely confidential. A copy of the coaches' interview questions is available in Appendix A.

The opinions of the parents of skaters involved in the study were also obtained at the conclusion of the study. Given the parents had been observing their children throughout the program implementation (either at home or at the rink), it was felt they might have had experiences with their children that would contribute to the evaluation of the program. In particular, the parents had opportunities to view their children's reactions to the stress of competition and daily training regimens outside the sport setting. The parents received a letter from the investigator requesting their comments and suggestions regarding the mental training program. The letter contained examples of some types of behavior that might change as a result of participation in a mental training program. It was necessary to provide some information to the parents through examples, while at the same time maintaining neutrality in the letter. For this reason, the letter followed an illustrative examples format. It outlined both positive and negative examples of behavior that represented a number of dimensions of the program where changes might occur (Patton, 1987). The parents were informed any individual responses received would be held in complete confidence, and that all responses would be coded in order to protect the identity of the respondent. A copy of the letter to the parents is available in Appendix A. Table 4 outlines the overall schedule of activities and measures that took place throughout the entire experimental period.

All measures incorporated into the study were designed to either evaluate the skaters' learning and use of the mental skills, or to evaluate the overall mental training program.

Table 4  
Overall Schedule of Experimental Measures and Activities

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January	<ul style="list-style-type: none"> <li>- Meeting with coaches</li> <li>- Meeting with parents</li> <li>- All skaters completed Pretest Measures:               <ul style="list-style-type: none"> <li>Sport Competition Anxiety Test</li> <li>Competitive Figure Skaters' Questionnaire</li> <li>Commitment to Sport Scale</li> <li>Self-Control Scale</li> <li>Pre-test Interview</li> </ul> </li> </ul>
February	<ul style="list-style-type: none"> <li>- Started 8-week mental training program with Experimental 1 skaters.</li> <li>- Experimental 2 skaters continued to train normally.</li> </ul>
April	<ul style="list-style-type: none"> <li>- Experimental 1 and Experimental 2 skaters participated in a competition simulation, and completed a Performance Evaluation Form.</li> <li>- All skaters completed post-simulation measures:               <ul style="list-style-type: none"> <li>Sport Competition Anxiety Test</li> <li>Competitive Figure Skaters' Questionnaire</li> <li>Commitment to Sport Scale</li> <li>Self-Control Scale</li> </ul> </li> </ul>
May and July	<ul style="list-style-type: none"> <li>- Experimental 2 subjects began 8-week mental training program</li> <li>- Experimental 1 subjects continued normal training with mental skills being monitored.</li> </ul>
August-October	<ul style="list-style-type: none"> <li>- Summer and Fall training with mental skills being monitored for both Experimental 1 and 2 skaters</li> </ul>
November	<ul style="list-style-type: none"> <li>- All skaters competed in the Eastern Ontario Sectionals Competition, and completed a Performance Evaluation Form.</li> </ul>
December	<ul style="list-style-type: none"> <li>- All skaters completed Follow-up Measures:               <ul style="list-style-type: none"> <li>Sport Competition Anxiety Test</li> <li>Competitive Figure Skaters' Questionnaire</li> <li>Commitment to Sport Scale</li> <li>Self-Control Scale</li> <li>Mental Training Program Evaluation</li> <li>Follow-up Interviews</li> </ul> </li> <li>- Coaches interviewed regarding mental training program.</li> <li>- Requested parents' opinion of the mental training program.</li> </ul>

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The skaters were assessed on their ability to learn and use the five mental training skills. Certain measures were developed to assess learning of the mental skills. These measures included:

- CFSQ #1-4 - goal-setting
- CFSQ #9-13 - mental imagery
- CFSQ #14 - self-talk (focusing related)
- CFSQ #15-23 - focusing and refocusing
- Self-Control Scale - focusing and refocusing
- Interview Question #6 - goal-setting
- Mental Training Program Evaluation - focusing, refocusing, and imagery

Responses to these questions which showed improvement in a mental training skill during the training period (from pre-test - post-simulation, or pre-test - follow-up) were felt to be indicative of learning. A mental skill was judged as improved if the skater's response revealed that the mental skill being assessed was coming closer to the ideal definition of the skill as outlined in the definition of terms and mental training program manual (e.g., skaters whose imagery descriptions revealed improved control and kinesthetic sensation showed improvement in the mental skill of imagery).

With regard to use of the mental training skills, a number of measures inquired about the frequency of use of each skill. These measures included:

- Interview Questions #8-10, 11b, 12
- Performance Evaluation #1-3

Changes in the frequency of use were assessed based on the skaters' responses to these questions. If the skaters applied the mental skills during training and competition situations, this was judged to be an increase in use.

The effects of the overall mental training program were also assessed. The following measures were designed to assess the complete program:

- CFSQ #5-7 - attitude towards training
- CFSQ #8 - attitude towards competition
- CFSQ #26, 27 - attitude towards poor performances
- Interview Questions #3-5, 11a - mental preparation
- Performance Evaluation #3 - mental preparation
- Mental Training Program Evaluation - most useful aspects of program

The coaches' and parents' responses to the mental training program also provided information about the effects of the overall program.

### **Data Analysis**

A combination of qualitative and quantitative data gathering methods were used to evaluate the mental training program. Each data analysis method will be described separately.

**Qualitative Analysis.** Data from interviews, short-answer questionnaire responses and letters were inductively content analyzed. The raw data for the analysis was made up of quotations from verbatim interview transcripts and written responses. The quotations were identified as the basic units of analysis (Miles & Huberman, 1984). The content analysis was used to organize the quotations into logical categories that assisted with interpretation. The purpose of the content analysis was to find what experiences the skaters brought with them into the program; and what patterns of change were experienced by the skaters or reported by observers of the program (i.e., parents and coaches) following the intervention. Qualitative data gathering techniques have been found to be useful especially when research is exploratory in nature (Patton, 1980).

One of the benefits of using qualitative methods is that an inductive approach to the analysis is possible. The data are analyzed for categories and themes that emerge from the measures taken. Rather than imposing restrictions on response categories with the hypothetical-deductive approach, an inductive qualitative analysis allows the participants' responses to provide guidance to understanding. Pre-existing expectations are not set out prior to data collection, therefore exploration and discovery of patterns in the data are more likely to occur.

**Validation and Verification.** Standard methods were employed for both the validation and verification of the qualitative research data gathered in this study. The principle investigator and a second researcher, both familiar with the field of sport

psychology and qualitative analysis, each independently examined the data following the same procedures. The second researcher was blind to the purpose of the study.

The principle investigator and second researcher each directed a group of four undergraduate kinesiology students during the initial analysis. The students were blind to the purpose of the study, but had been exposed to mental training methods and interview studies during sport psychology course work.

The principle investigator and second researcher provided the students with the information necessary to conduct the analysis (i.e., several copies of the raw data, and helpful hints for conducting the analysis). The two groups of researchers (i.e., the principle investigator and her four students formed one group, and the second researcher and her 4 students formed the second group) met independently to work on the data analysis. During the group meetings each group of four student analysts worked together to develop categories. The principle investigator and second researcher provided guidance when necessary, and spent time developing their own category systems during the meeting time.

Category systems were developed for the various responses through inductive analysis. No apriori categories were imposed on the data. During the initial examination of the data, the content analysis was conducted by the two groups of analysts without knowledge of the measuring point (i.e., pre-test, post-simulation, or follow-up) or identification number of the data.

The categories were then compared and discussed within each group (i.e., the principle investigator compared her categories with those developed by the students). During the discussion the categories were clarified and there was agreement to collapse certain categories. Consensus validation was used to confirm categories and the placement of quotations into each category. The principle investigator and second researcher then compared categories from each of the groups and where there was agreement, the category was confirmed. In cases where categories were not validated,

the researchers discussed the data and came to an agreement on what was deemed to be the most appropriate category system. In the final analysis, interrater reliability ranged from 82.4% to 88.2% for the placement of quotes into each category.

Following consensus validation, the principle investigator and second researcher developed labels which accurately described categories or themes that emerged from the data. These labels were analyst-constructed typologies. The main purpose behind developing typologies is to describe subjects and data that fit a particular category and add meaning to the classification system. They also make clear any contrasts that exist between categories. The typologies can later be used for developing or expanding category systems (Patton, 1987).

The category systems were then examined for "meaningfulness and accuracy". The categories must be accurately represented by the data, and the data placed in each category must truly belong. Guba (1978) has outlined two criteria for assisting in the verification of category completeness. Once categories are established, they must be judged for "internal homogeneity" and "external heterogeneity". The first criterion of internal homogeneity represents "the extent to which the data that belong in a certain category hold together in a meaningful way" (Patton, 1987). The data collected within a set should appear well-integrated and complete. The external heterogeneity criterion is also essential because it identifies the extent of differences between categories. The categories in the present study were examined for both internal homogeneity and external heterogeneity. All categories were judged to be complete. This was supported by the absence of unassignable data. All existing data should be included in the category system. If parts of the data overlap or cannot be categorized properly, then the suitability of the category system should be re-evaluated (Guba, 1978).

A final test for completeness involves the opinion of a second observer. If a competent judge can make sense of the category systems, and feels the categories are well-represented by the data they contain, then this serves to further verify the accuracy of

the analysis. A researcher familiar with the current study examined all category systems for accuracy. All categories were found to accurately represent the data.

A McNemar change test was conducted on the frequencies which resulted from the pre-test - follow-up qualitative analyses to determine if any significant degree of association existed between the categorizing schemes. The McNemar change test is a nonparametric statistical test used in cases where there is one sample with two measures (Siegel & Castellan, 1988). In all these procedures .05 was used as the criterion level.

**Quantitative Analysis.** In order to evaluate and examine the effects of the mental training program intervention, responses from the pre-test, post-simulation, and follow-up quantitative measures were examined. The quantitative measures included the SCAT, CFSQ scaled response questions, and Commitment to Sport and Self-Control Scales. The pre-test - post-simulation measures were analyzed using a mixed-model analysis of variance (ANOVA). These analyses had two factors - one between (two levels: experimental 1 and experimental 2) and one within (two levels: pre-test and post-simulation). The mixed-model examined the immediate effect of the independent variable (mental training).

The pre-test - follow-up analysis was a completely within group design. These analyses examined the long-term effect of the training on the entire sample. A mixed-model was inappropriate for the pre-test - follow-up comparisons as all subjects had received the training thus disqualifying any group comparisons (experimental 1 and experimental 2) at the follow-up.

In all these procedures .01 was used as the criterion level. Due to the number of ANOVAs conducted, a Bonferroni-type correction was made on the Type 1 error rate. According to Huberty & Morris (1989), an exploratory study with many dependent variables should be analyzed at the univariate level with a correction on the type 1 error rate, however, the correction need not be a strict Bonferroni. The variables

should be clustered according to the content of each question, then a correction can be applied. In the present study, a subjective content clustering was done and each cluster was found to contain approximately 5 items. Therefore, the Bonferroni was applied with  $\alpha = .05/5 = .01$ . This technique was a compromise between the truly conservative approach of dividing the alpha by the total number of questions, and a liberal use of a = .05 for each question (Huberty & Morris, 1989). Due to the number of analyses conducted, only the statistically significant comparisons will be presented in the results section.

## Chapter 4

### Results

Two research questions have been identified as the central focus of this study. They are:

1. To what extent can young athletes effectively learn and use mental skills for sport taught during a mental training program intervention?
2. To what extent does this study support the proposition that young athletes can learn and use the three primary mental training skill components of Orlick's heuristic model of personal excellence (i.e., imagery, focusing, and refocusing)?

Given that the three mental skills from Orlick's heuristic model are part of the complete mental training program, the second research question is implicit within the first. The first section of the results chapter presents analyses from the CFSQ short answer questions. These questions most closely examine the three primary mental skills from Orlick's heuristic model (i.e., imagery, focusing, and refocusing). The other measures (i.e., interview responses, performance evaluations etc.) are more focused on assessing complementary mental skills, and the overall program, although they may include data which relate to the mental skills from Orlick's model.

Results from the data analysis are divided into two sections - qualitative analyses and quantitative analyses. The data in the qualitative section are presented in the following order: Competitive Figure Skaters' Questionnaire short-answer responses; Interview responses; Performance Evaluation responses; Parents' responses to the mental training program; Coaches' responses to the mental training program; and the Mental Training Program Evaluation Forms. The quantitative section includes analyses from the Competitive Figure Skaters' Questionnaire scaled responses, the Sport Competition Anxiety Test, and the Commitment to Sport and Self-Control Scales. Summary statements are provided at the end of each section, and an overall summary is provided at the end of the chapter.

## Qualitative Analyses

### CFSQ Short-Answer Responses

The data presented here is from the CFSQ short-answer questions. These measures were taken at three different times - pre-test, post-simulation, and follow-up. The purpose of the repeated measures was to assess the skaters' progress with the mental training skills. The analysis focuses predominantly on the pre-test - follow-up comparisons.

The short answer responses provide information on the athletes' imagery and focusing skills, as well as lessons learned from poor performances. Throughout this discussion, comparisons between experimental 1 and experimental 2 skaters at the post-simulation measure are presented first, followed by any changes evident for the entire group when comparing the pre-test and follow-up measures.

### Mental Imagery

**Imagery Use.** Skaters were asked the following question:

"Do you use imagery prior to skating in competition? If yes, what do you do in your images?"

With regard to whether they used imagery or not, many of the skaters were already using imagery as a pre-competition strategy prior to the mental training intervention. A comparison between the pre-test and follow-up measures did, however, show an increase in imagery use. At the pre-test measure, 6 of the 17 skaters were not doing pre-competition imagery, whereas all skaters were using pre-competition imagery as part of their performance preparation after the training. Table 5 shows how the skaters responded to this question across the three measuring points.

The result from the McNemar change test indicated a significant degree of association between skaters who were and skaters who were not using imagery prior to competition (pre-test - follow-up) at  $\alpha = .05$ . A larger proportion of the skaters were using imagery for pre-competition preparation following the training. The fourfold table used

Table 5

Frequency of Skaters doing Pre-competition Imagery at the Pre-test, Post-simulation, and Follow-up

	Experimental 1			Experimental 2		
	Pre-test	Post-sim.	Follow-up	Pre-test	Post-sim.	Follow-up
Nb	2	1	0	4	5	0
Yes	7	8	9	4	3	8

Note. For Tables 5 through 14 Post-sim. represents the post-simulation measure.

in the McNemar change test is available in Appendix F, Table F-1.

Responses about the type of imagery done prior to competition were content analyzed and sorted into three categories - No Imagery, Free-Skating Solo Imagery, and Multiple Use Imagery. Content analysis was carried out following the procedures described in the methodology section. All resulting categories were validated through consensus validation. Descriptions of the categories with examples of the corresponding responses are as follows:

**No Imagery.** These responses indicated the athlete did not use imagery prior to performance.

**Free-Skating Solo Imagery.** Responses in this category were from skaters who used imagery only to run through their free-skating solo before competing.

Examples: Yes, right before I do my solo.

Yes, I usually go through my solo before the competition starts (while waiting in the dressing room).

**Multiple Use Imagery.** The responses categorized as Multiple Use Imagery included skaters who imaged their free-skating program and then did further imagery work to prepare for the performance. The additional imagery included: working on individual elements; going over difficult parts of the program; trying to get a feeling for correct positioning through imagery; and doing the solo repeatedly.

Examples: Yes, very much. I go through my jumps, spins, and solo, warm-ups, practice figures. How I think it would feel.

Yes, I go over my solo in my mind and go over certain spots of it a lot of times.

Yes, I run through my solo before and I do imagery of myself being relaxed and focusing on my breathing. Also, I run through all my jumps and spins separately. Then I do them in my solo on the floor and jump separately. Then I run through the whole solo in imagery.

**Analysis.** An examination of the responses at the post-simulation shows no change for either experimental group. A comparison between the pre-test and follow-up for the entire group shows an increase in the number of skaters doing the more detailed Multiple Use Imagery following training. At the pre-test, only 5 of the 17 skaters described imagery that ranked in the Multiple Use category. By the follow-up measure, 13 of the 17 skaters were practising Multiple Use Imagery prior to competition. The frequency of responses in each category is shown in Table 6.

The result from the McNemar change test indicated a significant degree of association between the imagery categories (pre-test - follow-up) at  $\alpha = .05$ . A larger proportion of the skaters were using Multiple Use Imagery following the training. The fourfold table used in the McNemar change test is available in Appendix F, Table F-2.

**Imagery Skills.** A series of questions on the CFSQ required the subjects to image themselves doing three separate skating skills: stroking; a waltz jump; and a free-skating solo performance. After doing each image skaters were asked to describe what they had experienced in imagery. Each imagery description was content analyzed following procedures outlined in the methodology section. Four imagery categories arose from the analysis:

**No Imagery.** These responses did not describe an actual image. Instead, they were descriptions of emotions or thoughts the skater was experiencing while attempting to do

Table 6

Frequency of Skaters' Responses in each Imagery Category for Pre-competition Imagery at the Pre-test, Post-simulation, and Follow-up

	Experimental 1			Experimental 2		
	Pre-test	Post-sim.	Follow-up	Pre-test	Post-sim.	Follow-up
No imagery	2	1	0	4	5	0
Free-skating solo imagery	4	3	2	2	1	2
Multiple use imagery	3	5	7	2	2	6

imagery.

**Basic Imagery.** Responses in this category describe the actual image, however, there is a lack of control over the image, and there is no reference to any kinesthetic sensations associated with the imagery. Some of the skaters experienced external imagery (as if watching a video of themselves).

**Kinesthetic Imagery.** Imagery descriptions in this category have a kinesthetic component connected with the imagery. The descriptions are positive, but may contain some corrections during the image, indicating that the skater did not have complete control over the image.

**Controlled Kinesthetic Imagery.** The imagery descriptions in this category are characterized by many kinesthetic sensations. The athletes feel as though they are really doing the skill in their body, and their images are controlled and vivid.

Current sport psychology literature has examined mental imagery practice in detail. Well-controlled imagery that contains kinesthetic sensations is characteristic of the imagery practised by highly successful elite level athletes (Orlick & Partington, 1988). In this study, imagery descriptions ranked as Controlled Kinesthetic Imagery would be viewed as the most favourable because they emphasize both feeling and control

within the image. Actual examples of imagery descriptions from each category help to clarify the differences between the four categories.

**Stroking imagery.** The first of the imagery questions asked the skaters to describe what they experienced in their minds while trying to image themselves stroking on the ice. The following are examples of imagery descriptions from the No Imagery category:

I was thinking - what am I doing here? I think about my homework and tests and also, but not much, the people watching in the stands.

I experienced the feeling of winning and being important.

A bit of excitement, looking forward to another day of skating.

I was relaxed, thinking about what I was going to be doing on that session.

These imagery descriptions were not necessarily negative or unrelated to the skating experience. They contained thoughts and emotions the skaters experienced while attempting to image stroking around the ice at the beginning of a session. Some of the athletes were focused on the upcoming session, while others were distracted by thoughts unrelated to skating. None of the quotes in the No Imagery category actually described the feeling or sensation of stroking on the ice.

The following are examples of imagery descriptions from the Basic Imagery category:

I was all alone on the ice, and I was just out there stroking all by myself with no one around.

I thought about my arms being up and my head and eyes being up.

I just automatically started doing my program. For some reason I saw myself in a red dress when my competition dress is pink. I just did my program, it was fine.

The Basic Imagery descriptions are more focused on the stroking imagery experience, however, they lack control of the image and do not contain a feeling component. Some of the skaters started doing their free-skating programs instead of simply stroking. Two of the skaters in this category found themselves doing external (video) imagery with no feeling for what the body was doing during the image.

The following are examples of Kinesthetic Imagery descriptions:

I could see myself and feel myself stroking surrounded by clouds. I could feel the wind or air against my body. I could feel each stroke and my whole body was relaxed and comfortable - happy. I have both inside and outside imagery, more outside.

I felt like I was fast and I looked good but that my arms were not very high.

I started skating and did parts of my program - it felt really good. My body felt nice and flowing-good.

These imagery descriptions contain a kinesthetic component, however, the skater is still having trouble gaining complete control over the image. Greater control is evident in the Controlled Kinesthetic Imagery category, where the skater is completely focused on the sensation of stroking.

The following are examples of Controlled Kinesthetic Imagery descriptions:

I could feel the edges in the ice and it felt like I was skating.

I felt the cool air on my neck. I feel the ice as I glide. I am making my presence known as I skate faster and faster. I feel as though I'm one of the best.

I saw the ice, boards and stands. I then felt myself skating - pushing and gliding. I felt the cool breeze.

I feel the tension in my arms and the warm feeling of going fast. I feel the wind and I feel the posture of my head up. The muscles feel tight when doing cross-cuts. What I feel most is the sinking feeling of my knees while skating.

**Analysis.** When comparing the experimental 1 and experimental 2 groups at the post-simulation, the experimental 1 skaters showed a slight increase in Controlled Kinesthetic Imagery. An examination of the entire group from pre-test to follow-up measures reveals a trend towards increased Controlled Kinesthetic Imagery descriptions. Pre-test measures taken prior to imagery training showed 3 of 17 subjects had Controlled Kinesthetic Imagery. After the training, the follow-up measure revealed 11 of the 17 subjects had imagery descriptions that ranked in the Controlled Kinesthetic Imagery category. The distribution of imagery descriptions for all subjects is shown in Table 7.

The result from the McNemar change test indicated no degree of association between the imagery categories (pre-test - follow-up) at  $\alpha = .05$ . The skaters did not show a change in their imagery skills for this measure following the training. The fourfold table used in the McNemar change test is available in Appendix F, Table F-3.

**Waltz Jump Imagery.** Responses to the waltz jump imagery question were categorized using the same method as the stroking imagery. Four imagery description categories were developed that paralleled the stroking imagery categories. The following are examples of waltz jump imagery descriptions placed in the No Imagery category:

tension, nervousness

I experienced the feeling of knowing I could do it.

nothing

Again, these responses contain no reference to the actual sensation of the jump in imagery. They simply describe thoughts or emotions the skater was experiencing while attempting to do a waltz jump in imagery.

The following are examples of waltz jump imagery descriptions that were placed in the Basic Imagery category. These descriptions indicate the skater is thinking of the jump but there is no feeling sensation for the skill being imaged.

Table 7

Frequency of Skaters' Responses in each Imagery Category for Stroking Imagery at the Pre-test, Post-simulation, and Follow-up

	Experimental 1			Experimental 2		
	Pre-test	Post-sim.	Follow-up	Pre-test	Post-sim.	Follow-up
No imagery	3	1	0	3	3	0
Basic imagery	1	0	2	2	4	2
Kinesthetic imagery	3	2	1	2	1	1
Controlled kinesthetic imagery	2	6	6	1	0	5

I was going into the jump very fast and I jumped very high.

It seemed like an average type of jump.

I could see myself and I could control everything, but I couldn't feel myself doing it.

The following quotations were placed in the Kinesthetic Imagery category. The imagery descriptions contain a kinesthetic component for the waltz jump, however, there is a lack of control over the image.

I felt myself getting my body ready for the take-off, then I sort of floated up into the air and had some trouble coming back to earth!

I could see myself stroking around, then suddenly I felt my pick go in - during this I could not see myself. I felt myself going around and landing. I could feel it and see it.

I felt I was inside my body. I could tell that I had my left shoulder down and it pulled me off balance, thus the waltz jump wasn't very good.

The Controlled Kinesthetic Imagery descriptions are differentiated by good control combined with feeling for the waltz jump. The skaters described their waltz jump with more precision.

I could feel myself jumping and my legs bending, and I could feel my feet on the ice when I took off and landed.

I saw myself stroking, then I felt myself step onto my left foot, putting pressure and bending, then I lifted into the air and landed and felt my knees bend and the extension of my free leg.

I felt like I was actually jumping, and I could feel the take-off and landing positions.

**Analysis.** When examining the subjects' responses at the post-simulation, there was a slight tendency for the experimental 1 subjects to have better quality imagery descriptions. A comparison for the entire group between the pre-test and follow-up measures shows an increase in Controlled Kinesthetic Imagery after the training. Only 7 of the 17 skaters had descriptions categorized as Controlled Kinesthetic Imagery at the pretest. Twice as many (14 of 17) had imagery descriptions ranking in the Controlled Kinesthetic category at the follow-up. Table 8 lists the frequency of responses in each category for this question.

The result from the McNemar change test indicated a significant degree of association between the imagery categories (pre-test - follow-up) at  $\alpha = .05$ . A larger proportion of the skaters were using Controlled Kinesthetic imagery following the training. The fourfold table used in the McNemar change test is available in Appendix F, Table F-4.

**Solo Imagery.** The third imagery question asked the skaters to describe images they had while doing their free-skating solo. The imagery descriptions were content analyzed and placed into the 4 imagery categories following the previously outlined procedures. Descriptions rated in the No Imagery category had no reference to the actual imagery of the solo. Instead they contained thoughts and emotions that occurred as a result of thinking of the solo. The following are examples of the No Imagery category descriptions:

I hope I won't fall, but don't chicken out on everything.

Table 8  
Frequency of Skaters' Responses in each Imagery Category for Waltz Jump Imagery at the Pre-test, Post-simulation, and Follow-up

	Pre-test	Post-sim.	Follow-up	Pre-test	Post-sim.	Follow-up
No imagery	2	0	0	2	2	0
Basic imagery	1	1	1	1	4	2
Kinesthetic imagery	2	1	0	2	2	0
Controlled kinesthetic imagery	4	7	8	3	0	6

I felt I could do everything and do the best that I could do.

I was nervous when I started and spent a lot of time trying to calm down.

The Basic Imagery category descriptions referred to the skills in the solo. However, the skaters did not report having any feeling associated with their images and there was a lack of control. The following are examples of Basic Imagery category descriptions:

I was outside myself watching the solo, but then in the middle I jumped back into myself, and then I couldn't remember the rest of my solo.

I saw some of my mistakes and the double axel that I've never succeeded [in completing] perfectly, I succeeded in doing it.

First I started off really good, landing everything with my music playing, then different music started and I blanked out for a minute.

The solo descriptions categorized as Kinesthetic Imagery were completely focused on the skills within the solo, and contained a kinesthetic component. The skaters were starting to feel the images, however they still lacked complete control over their mental images. The following are examples of the Kinesthetic Imagery category descriptions:

I landed every jump cleanly with ease except my body tightened before I went into my jumps. I

smile when I land and sigh when I finish.

I felt myself doing my artistic, if I missed a jump (like when I missed my double axel, half loop, double flip in imagery), then I refocused.

While I was doing my solo, basically I was inside myself. My jumps were pretty good except for one or two. I really felt like I was in an arena in a competition.

The Controlled Kinesthetic Imagery descriptions contained feeling, perfection, and reality. The skaters' images came to them with a kinesthetic sensation that made the imagery very realistic. The images seemed perfect. The following are a sample of the Controlled Kinesthetic Imagery descriptions:

I felt the cool breeze. I felt the audience's eyes watching me, but it didn't break my concentration. I felt every beat of my music and I executed everything perfectly.

I felt confident and really flowing on the ice as I went through my program - I was perfect.

Right from the beginning I felt confident and ready. I relaxed myself and just let the jumps flow - but I used my head.

I could hear my solo music. I felt warm inside (good feeling). I was focused and confident. I felt relaxed and very musical.

I was very relaxed. My jumps were high and smoothly landed. PERFECT!!!!

I felt like I was actually doing it and I talked to myself in my mind - I can do it! Go for it! Good!

**Analysis.** Analysis of the solo imagery descriptions followed a similar pattern to the stroking and waltz jump descriptions. At the post-simulation measure there was an increase in skaters responding with either Kinesthetic or Controlled Kinesthetic Imagery after the mental training. When a comparison is done for the entire group at the follow-up, there is an increase in the number of skaters with imagery descriptions categorized as Kinesthetic or Controlled Kinesthetic Imagery. At the pre-test only 5 of the 17 skaters had imagery rated in these categories. Following training 14 of the 17

skaters had Kinesthetic or Controlled Kinesthetic Imagery descriptions. The frequency of responses in each category are listed in Table 9.

The result from the McNemar change test indicated a significant degree of association between the imagery categories (pre-test - follow-up) at  $\alpha = .05$ . A larger proportion of the skaters were using Kinesthetic or Controlled Kinesthetic Imagery following the training. The fourfold table used in the McNemar change test is available in Appendix F, Table F-5.

An additional question regarding the solo imagery descriptions was also included in the CFSQ. After the skaters described the sensations experienced during their solo imagery, they were asked the following question:

"What sort of things were you saying to yourself (in your mind) while doing the imagery of your solo?"

Responses to this question were content analyzed following procedures described in the methodology, and five categories emerged from the analysis. Each category represents one type of focus skaters' reported experiencing during the imagery. The five categories were as follows:

**Poor Focus.** Subjects' self-talk during imagery contained worrisome, negative or distracting thoughts. A lack of concentration was evident, and the focus was not completely on the performance.

Examples: What's for supper? Why am I here?

Don't fall. Don't chicken out.

I felt like I wanted to do the jumps right, but I couldn't do them because when I am skating I always fall on them in my program.

**Positive Encouraging Focus.** Responses in this category had a positive focus.

The skaters encouraged or tried to convince themselves they could do it.

Examples: Telling myself that I can do this. Keeping in my mind positive thoughts. Thinking how good I'm going to feel when I'm finished.

Table 9  
Frequency of Skaters' Responses in each Imagery Category for Free-skating Solo Imagery at the Pre-test, Post-simulation, and Follow-up

	Experimental 1			Experimental 2		
	Pre-test	Post-sim.	Follow-up	Pre-test	Post-sim.	Follow-up
No imagery	2	1	1	2	3	0
Basic imagery	4	0	1	4	4	1
Kinesthetic imagery	2	4	1	1	0	3
Controlled kinesthetic imagery	1	4	6	1	1	4

I can do it! Good job! Go for it! I am calm.

I was telling myself I could land things, and to relax.

**Technical Focus.** These skaters appeared to be using performance cues and technical instructions to keep themselves focused while doing the solo imagery.

Examples: I told myself to hold the spinning position longer. The jumps were done with bent knees and I focused on checking my arms. (this was a problem in my long at Sectionals).

What I say when I am on the ice, which is: Stand strong, don't forget artistic and rotation on spins. Stroke tall.

Thinking of the artistic moves and telling my body 'out' on all the landings.

**Musical Focus.** The responses in this category described the use of musical cues to keep the timing and focus correct during imagery.

Examples: I was listening to my music, listening for my cues (arm movement, now cross-over and pull in tightly for the double flip).

I could hear my music in my mind and I was thinking of moving with it.

Listening to my music and focusing on each section as it came up.

**In the Moment Focus.** The skaters' responses in this category indicated the athlete was focusing on each section of their solo in sequence while imaging.

Examples: I was saying to myself everything in the solo. I was concentrating on exactly what I was doing in the exact place that I was in the solo, but I did not feel or say anything about my arms.

I was concentrating on each element as it came and I was talking myself through it.

I was telling myself the parts of the jump, or spin I was on, so I would do it practically perfectly.

**Analysis.** Based on current sport psychology literature (Orlick & Partington, 1988), the type of thinking or focus most often associated with a successful performance is one where the athlete is completely connected with his/her performance. Focusing on each skill as it occurs in a performance and taking things "one step at a time" allows the athlete to focus attention effectively. The categories developed from the content analysis of this question vary greatly in attentional focus. The Poor Focus category is least similar to an ideal focus. The other 4 categories, particularly the Technical, Musical, and In the Moment Focus are closer to the ideal connected focus. Keeping this in mind, it is interesting to note the changes in the skaters' responses to this question following training. There was a slight shift towards better focusing for the experimental 1 group at the post-simulation. When comparing the entire group from pre-test to follow-up, responses ranked in the Technical, Musical, and In the Moment Focus categories increased from 6 to 14 of 17 responses following training. The distribution of responses in each category is presented in Table 10.

The result from the McNemar change test indicated a significant degree of association between the focusing categories (pre-test - follow-up) at  $\alpha = .05$ . A larger proportion of the skaters indicated they had a Technical, Musical or In the Moment Focus following the training. The fourfold table used in the McNemar change test is available in

Table 10  
Frequency of Skaters' Responses in each Focusing Category for Focusing during Imagery at the Pre-test, Post-simulation, and Follow-up

	Experimental 1			Experimental 2		
	Pre-test	Post-sim.	Follow-up	Pre-test	Post-sim.	Follow-up
Poor focus	4	1	0	2	2	1
Positive encouraging focus	1	0	1	4	3	1
Technical focus	1	3	7	0	1	4
Musical focus	2	2	0	1	1	2
In the moment focus	1	3	1	1	1	0

Appendix F, Table F-6.

**Summary of Imagery Data.** Results from the pre-test - post-simulation comparisons indicated the experimental 1 skaters showed very slight improvements in the quality of their imagery descriptions (i.e., stroking, waltz jump, and solo imagery descriptions) after the 8-week mental training program. Responses to questions about pre-competition imagery use, and focus during imagery rehearsal showed no change at the post-simulation measure. The results from the pre-test - follow-up comparisons revealed that the skaters as a group showed some improvement on all the imagery measures. The skaters: increased their use of mental imagery prior to competitive performances; improved the quality of their pre-competition imagery; improved the quality of their imagery descriptions (stroking, waltz jump, solo); and improved the quality of their focus during imagery rehearsal. The imagery measure which assessed stroking imagery showed improvement, however, the change was not large enough to reach significance on the McNemar change test.

## **Focusing Skills**

**Free-Skating Focus.** Skaters were asked about their ability to maintain focus during free-skating and figure performances in front of the judges. Data from the free-skating focus question will be presented first. The question asked of the skaters was as follows:

"Can you write down the things that go through your head when skating a free-style program in front of the judges?"

The content analysis of responses was carried out following the procedures described in the methodology. The four resulting categories were confirmed through consensus validation. The categories were entitled: Poor Performance Focus; Positive Focus; Keyword Focus; and Performance Focus. Descriptions and examples of each category are presented below.

**Poor Performance Focus.** Responses categorized as having a poor performance focus made reference to: falling during a performance; wondering how the judges would respond to the performance; or just wanting to get the performance over with. There was no mention of concentrating on the task at hand, or dealing with the performance in a positive manner. Many of the skaters in this category seemed to be pressuring themselves to do the performance well.

Examples: Don't flub up, I have to do this.

Am I going to fall? Will the judges think I'm good?

I tell myself that I have to do well.

**Positive Focus.** Responses placed in this category contained phrases and words that were encouraging to the skater. They emphasized such things as smiling and enjoying the performance. These answers had a very positive feeling to them, however, there was no reference to focusing on the specific elements in the solo.

Examples: Smile; show-off; do my personal best.

positive thinking and having fun.

I can do it! Stay calm, good job.

**Keyword Focus.** Skaters reporting this type of response were reciting key points during their performance. The skaters in this category appeared to be maintaining a mental connection with their performance through the use of key words.

Examples: I give myself pointers, i.e., more artistic, point toes, pull in more.

Relax, breathe, stroke faster, do not panic, hold spins for five rotations.

I'm giving myself little notes on what I should do. I don't think about the judges.

**Performance Focus.** These skaters indicated their thinking consisted of thoughts related to what they were doing at specific points in their performance. Their answers also contained instructions to themselves that were encouraging, relaxing, or refocusing, however, the main theme of their focus was concentrating on exactly what they were doing. They appeared to be completely focused on their task and on what was occurring at the immediate moment in time.

Examples: Exactly what I am doing, my arms, my spins, landings, coming out of spins and artistic.

I tell myself to stay calm, to take it one step at a time, and to concentrate on what I'm doing.

Basically the same as figures, if I mess something up, I just go on to the next thing and forget about my mistake, and focus on what I'm doing.

**Analysis.** There was no change in the skaters' responses at the post-simulation measure. An examination of the complete group at the follow-up measure showed a shift towards more responses in the Performance Focus and Keyword Focus categories following mental training. At the pre-test measure, only 6 skaters' responses were categorized as being Performance Focus or Keyword Focus. At the conclusion of the

training 14 of the 17 skaters gave responses that were placed in these two categories. Table 11 displays the frequency of responses in each category.

The result from the McNemar change test indicated a significant degree of association between the focusing categories (pre-test - follow-up) at  $\alpha = .05$ . A larger proportion of the skaters were using a Performance Focus or Keyword Focus following the training. The fourfold table used in the McNemar change test is available in Appendix F, Table F-7.

**Figure Focus.** Skaters were also asked about their thinking during a figure performance. The question asked was as follows:

"Can you write down the things that go through your head when skating a figure in front of the judges?"

Responses to this question were content analyzed following procedures outlined in the methodology. Following consensus validation, three categories emerged - Worrisome Focus; Relaxed Encouraging Focus; and Focused Keywords. Descriptions and examples of each category are provided below.

**Worrisome Focus.** Skaters with answers in this category were not concentrating on their figure performance. Their thoughts contained concerns about making mistakes, or what the judges or coaches would think of their figure, and worries about their placing.

Examples: What if my figures are bad and I don't pass or I don't do well? What if my turns aren't clean, my circles are off axis, my circles aren't traced?

I want to get off the ice and go home and pretend I never entered the competition.

I think of what the judges will think, where will they place me? If they will pass me when doing a test.

**Relaxed Encouraging Focus.** Responses in this category contained positive statements that focused on the skater relaxing and concentrating.

Table 11  
Frequency of Skaters' Responses in each Focusing Category for a Free-skating Performance at the Pre-test, Post-simulation, and Follow-up

	Experimental 1			Experimental 2		
	Pre-test	Post-sim.	Follow-up	Pre-test	Post-sim.	Follow-up
Poor performance focus	2	2	1	4	2	0
Positive focus	3	2	0	2	2	2
Keyword focus	1	3	3	0	1	3
Performance focus	3	2	5	2	3	3

Examples: Good job, concentrate, stay calm.  
 You can do it, so do it! Relax, relax, relax.  
 Just let the figure go and skate it.

**Focused Keywords.** Skaters whose responses were categorized as Focused Keywords were giving themselves instructions to help maintain their concentration on the figure.

Examples: I talk to myself in my head about what I'm doing e.g., more edge, arms, etc...  
 All I think of is key words that I have to remember, for example - head up. Mostly I am in a feeling mood and in a daze (that is a good state to be in for me, but I am still using my head).  
 Look for your long axis. Set your circles on the ice. Look at the referee. Wait for the nod of the head. Bend and begin to follow figure plan.

**Analysis.** There was no change in the skaters' responses at the post-simulation measure. An examination of the change from pre-test to follow-up reveals a small increase in Focused Keyword responses. Prior to training at the pre-test 7 of the 17 skaters gave Focused Keyword responses. Following training 11 of the skaters had

responses categorized as Focused Keyword. There was also a decrease in skaters having Worrying thoughts at the follow-up. After mental training only 4 skaters were categorized as having a Worrying Focus compared to 8 skaters at the pre-test. The frequency of responses in each category is shown in Table 12.

The result from the McNemar change test indicated there was no degree of association between the focusing categories (pre-test - follow-up) at  $\alpha = .05$ . There was no change in the skaters' focusing based on responses to this question. The fourfold table used in the McNemar change test is available in Appendix F, Table F-8.

A second question regarding figure focus was included on the CFSQ. Skaters were asked:

"If you make a mistake while skating a figure in front of the judges - what sorts of things go through your head?"

These responses were content analyzed following procedures outlined in the methodology and divided into three categories. The categories were labelled: Unfocused Thoughts; Acknowledging the Mistake; and Refocused Thoughts. These are described below with examples.

**Unfocused Thoughts.** Answers that fit this category indicated the skater was not responding well after making a mistake. The responses showed disbelief following the error and a concern for how the judges would view the error.

Examples: Oh! No! I wonder how much they will mark me down.

I can't believe I did that crap!

If I will get put down that far by the judges.

**Acknowledging the Mistake.** Skaters with this type of response were focused on correcting the mistake. They acknowledge the mistake, tell themselves to correct it, and in some cases remind themselves to relax about it.

Example: I made a mistake and I have to correct it on the next tracing, so it will look neat.

Table 12

Frequency of Skaters' Responses in each Focusing Category for a Figure Performance at the Pre-test, Post-simulation, and Follow-up

	Experimental 1			Experimental 2		
	Pre-test	Post-sim.	Follow-up	Pre-test	Post-sim.	Follow-up
Worrisome focus	3	1	2	5	4	2
Relaxed encouraging focus	1	1	0	1	2	2
Focused keywords	5	7	7	2	2	4

I have to fix it. Don't worry about it.

Remember to fix the next time through and not to panic.

**Refocused Thoughts.** The third category contains responses from skaters who appear to be refocusing their thoughts. These skaters acknowledge the mistake, are aware that a correction must be made, however, they are also able to return their focus to the immediate task at hand.

Examples: I refocus and continue to give myself messages about the figure.

That's all right. You can correct it on the next print. Bend, get rid of the nervousness.

Right after I make the mistake, I just say, fix it then forget about it. Concentrate on what I'm doing now.

**Analysis.** A comparison between the pre-test and post-simulation measures shows no change following the experimental 1 training. There is, however, a shift towards increased refocusing for the entire group at the follow-up. At the pre-test measure only 1 of the 17 responses ranked in the Refocused Thoughts category. Following mental training 10 of 16 skaters (one skater did not answer the question properly) responded

with an answer that indicated refocused thoughts. Table 13 shows the distribution of responses.

The result from the McNemar change test indicated a significant degree of association between the refocusing categories (pre-test - follow-up) at  $\alpha = .05$ . A larger proportion of the skaters had responses ranked in the Refocused Thoughts category following the training. The fourfold table used in the McNemar change test is available in Appendix F, Table F-9.

**Summary of Focusing Data.** Results from the focusing measures showed no changes for the skaters at the post-simulation. Results from the pre-test - follow-up comparisons indicated that the skaters as a group did not improve their focusing for figures. However, skaters showed some improvement in their ability to focus during a free-skating performance, and to refocus after a mistake in a figure performance at the follow-up measure.

### **Response to Poor Performances**

Skaters were asked the following question regarding poor performances:

"What sort of things have you learned from poor performances in the past?"

The answers to this question were content analyzed and confirmed following the procedures outlined in the methodology. The analysis generated five categories which are explained below.

**Continue Working.** Skaters with responses in this category were encouraging themselves to keep working and try harder next time.

Examples: Say you'll do better next time.

Try to do better next try maybe.

Just to pick up where I left off and keep working at it.

Not to get disappointed (discouraged) after poor performances. Keeping a smile on my face and my chin up.

Table 13  
Frequency of Skaters' Responses in each Refocusing Category for a Figure Performance at the Pre-test, Post-simulation, and Follow-up

	Experimental 1			Experimental 2		
	Pre-test	Post-sim.	Follow-up	Pre-test	Post-sim.	Follow-up
Unfocused thoughts	2	0	0	3	2	1
Acknowledging the mistake	6	6	2	5	6	3
Refocused thoughts	1	3	6	0	0	4

**Technical Correction.** These responses came from skaters who felt working on the technical aspects of their performance was the most important lesson they had learned from poor performances.

- Examples:
- I've learned that I am going to have to use my arms more.
  - To check hard when I come out of a jump, to use more artistic.
  - Never trust judges, keep my feet together, stand up straight. Try to have more spring in my jumps. Be more artistic.

**Arousal Control.** Answers placed in this category represented skaters who felt they needed to either stay more calm, or get themselves more "psyched up" before a performance.

- Examples:
- Not to get too nervous, or get more nervous.
  - I can't eat a lot before. I can't be too relaxed. I have to be mentally calm.
  - That (physical) warm-up exercise is important for me so that I skate well and try to not be nervous.

**Training Correction.** Responses categorized as a Training Correction were from skaters who felt their training habits were connected with poor performances. They learned that working on weaknesses and training correctly were important lessons.

Examples: That I should spend more time on my errors and maybe I should improve my training technique.

I've learned that what I do in practice free-skating has a tendency to happen under pressure too.

I have learned that the way I prepared myself was wrong, and that my training may have been wrong.

**Focusing Correction.** These responses indicated the skater felt staying focused or having the ability to refocus were important skills to learn.

Examples: Not to get excited when I've done something well or badly.

How to refocus and to get back into my solo if I fall.

To think more, refocus, to be neat in figures, watch out for easy stuff.

**Analysis.** Analysis of responses at the post-simulation showed no change in response to this question. At the follow-up measure there was a shift towards skaters answering this question with the Arousal Control, Training Correction or Focusing Correction categories. These categories describe responses that outline specific mental training skills that were taught during the sport psychology training. The answers given at the follow-up measure showed 16 of the 17 skaters giving responses that ranked in the Arousal Control, Training Correction, or Focusing Correction categories, compared to 6 of the 17 at the pre-test. Table 14 shows the distribution of responses in each category for this question.

The result from the McNemar change test indicated a significant degree of association between the response to poor performance categories (pre-test - follow-up) at  $\alpha =$

Table 14  
Frequency of Skaters' Responses in each Category Regarding Lessons Learned from Poor Performances at the Pre-test, Post-simulation, and Follow-up.

	Experimental 1			Experimental 2		
	Pre-test	Post-sim.	Follow-up	Pre-test	Post-sim.	Follow-up
Continue working	5	3	1	4	5	0
Technical correction	1	1	0	1	1	0
Arousal control	1	0	2	0	1	2
Training correction	0	3	0	2	1	3
Focusing correction	2	2	6	1	0	3

.05. A larger proportion of the skaters were giving responses that ranked in the Arousal Control, Training Correction, or Focusing Correction categories following the training. The fourfold table used in the McNemar change test is available in Appendix F, Table F-10.

**Summary of Responses to Poor Performances.** There were no changes in this measure at the post-simulation. At the follow-up measure the majority of the skaters gave responses that identified specific mental skills as having an influence on their performances.

**Interview Responses**

Skaters were asked to respond to interview questions at the pre-test and follow-up measuring points. Several of the questions were given at both the pre-test and follow-up measures. The purpose of the repeated interview questions was to assess any changes occurring in pre-competition mental preparation and goal-setting. All data gathered from the pre-test and follow-up interviews were content analyzed following

the procedures outlined in the methodology. The interview quotations were independently categorized, then consensus validation was used to confirm the resulting category systems. The responses to the repeated measures are discussed first.

**Repeated Measures.** Following introductions, the interviewer began the interview with two simple questions designed to stimulate conversation. These questions are listed in Appendix A. The first series of questions asked of the skaters had three parts and was focused on the pre-competition period. The questions included:

a)"How do you usually feel immediately before a competition?"

b)"What are you usually thinking about immediately before a competition?"

c)"How does your body usually feel immediately before a competition?"

Each skater's responses to this series of questions were combined and then assessed for positive and negative statements. A response was judged to contain a positive statement when the skater referred to any of the following: thinking about or preparing for the performance in a positive manner; doing something physical to prepare the body or to control arousal level; or expressing feelings of confidence and readiness for the performance. Statements judged as negative contained distracting thoughts that took the skater away from the correct pre-competition focus (e.g., doubting ability, worries about placing, concerns about other skaters), as well as evidence of feelings of nervousness or anxiety about the upcoming performance.

The skaters' responses were also judged for use of mental training skills. A mental training skill was judged to be evident when the athlete referred to one of the following: concentrating or focusing on their performance; keeping themselves calm; shutting out distractions; following some type of pre-competition procedure; or using imagery to prepare for the performance. Two researchers independently analyzed the skaters'

responses for positive and negative statements, and the use of mental training skills. The researchers then compared and discussed the analyses until agreement on the placement of statement was reached. Following the initial content analysis, subjects were placed in one of the three categories - Initially Focused Skaters, Refocused Skaters, and Still Stressed Skaters. Descriptions and examples of the skater categories are given below.

**Initially Focused Skaters.** Skaters in this category were judged to be "mentally together" prior to receiving the mental training program. They had a very low incidence of negative comments in their responses, and a relatively high incidence of positive comments. Their statements revealed the use of mental training skills even at the pretest measure. This positive profile was evident at both the pre-test and follow-up measures.

Example:      Pre-test Response

I think about my program, and if I'm having trouble with something- I think and fix it (in my mind). Just before I go out, I feel a little bit nervous, but I think of having fun and pleasing myself. My body is well rested and energized. I have a few butterflies, but that's natural - doesn't bother me.

Follow-up Response

I think of my whole solo, and think of making things look smooth and polished. Just before I skate, I feel a little nervous but I think of having fun and performing. My body feels pretty calm. I see other people getting hyper, but I stay calm - read a book.

**Refocused Skaters.** The Refocused skaters showed a change in their responses from the pre-test to follow-up. The pre-test response showed a high incidence of negative comments. Following the mental training program the negative comments decreased and the number of positive comments increased. Their responses also

indicated an increased use of mental training skills following the mental training program. Overall these skaters showed an improved state of mental preparation.

Example: Pre-test Response

My thoughts are about how I'm going to do, the other skaters, what my parents will think. Just before my stomach is sick. I'm nervous and get (physically) sick right before. My body gets all hyper and ready for it, except I feel sick.

Follow-up Response

I think about my solo, the jumps I'm going to do. I try to focus on those sorts of things. Just before I feel I'm going to do well, and I try to get myself in a good mood, a good humour. My body feels physically prepared to do the solo. Sometimes my legs have a bit of nervousness so I have to control them and get relaxed. I walk around a lot.

**Still Stressed Skaters.** These subjects had the opposite profile to the Initially Focused skater. Their responses at the pre-test showed a high incidence of negative comments, very few positive comments, and little or no indication of using mental training skills. If there was a change in their preparation for competition following the mental training, it was very slight.

Example: Pre-test Response

My thoughts are on falling all over the ice. Just before I feel scared and am wondering if I'll blow it. I have some butterflies and shaky legs.

Follow-up Response

I'm thinking about how I'm going to place and what if I fall or don't do anything. I wonder how other people are going to be. Just before I feel really nervous - but at Sectionals I wasn't nervous, but most of the time I am. My body feels like jelly.

**Analysis.** Results from the analysis of this interview question revealed: 4 skaters categorized in the Initially Focused category; 7 skaters categorized as Refocused Skaters; and 6 skaters fit the profile of the Still Stressed Skater.

The second interview question examined the skaters' goal-setting skills. The question was as follows:

"When you step on the ice for training, do you know what you want to accomplish that day? If yes, what would be an example of something you would like to accomplish today?"

All 17 skaters responded positively to the first part of this question (i.e., do you know what you want to accomplish) at both the pre-test and follow-up interviews. The responses from the second part of the question (i.e., what would you like to accomplish) were content analyzed following the procedures outlined in the methodology section. A comparison was then done between the pre-test and follow-up responses. From the content analysis two categories of goal-setters were established - Generalists and Specifics. These categories are described below with examples.

**Generalists.** The skaters categorized as Generalist goal-setters had a standard training routine that they followed each session. Their responses indicated they had unrealistic goals, and were unable to take large tasks and break them down into smaller more achievable goals. The examples below should help clarify the profile of the Generalist goal-setter.

Examples:

Ya, I think about it before I go on but usually it's the same thing. Like one day I go through all my jumps, easiest to hardest, and at the end I work on double axel. Every day I do that now, so I do the same thing every day.

I want to do my program, and I want to try and do all my jumps in my program and spins.

Today I want to get my jumps more consistent.

**Specifics.** The skaters categorized as Specific goal-setters had definite ideas about what they wanted to accomplish each session. They set smaller achievable goals involving various aspects of their skating, including jumps, spins, choreography, and consistency. The following are examples of Specific goal-setters.

Examples:

I wanted to work on getting my hips around in a certain way on my double lutz so that the jump gets higher.

Ya, I usually set goals for myself and I have a specific goal for that day. There is usually one spin that I want to work on so that it's as good as the others. I try to get everything equal - the spins, the jumps, the choreography- everything so that it's all at the same level.

Today I want to lay-out my three competition figures, and I'll run through my solo in sections - then start connecting the first and second section.

**Analysis.** Based on the analysis of pre-test responses, 10 of the skaters were categorized as General goal-setters, and 7 were identified as Specific goal-setters. At the follow-up measure, the analysis showed very little change in the skaters' goal-setting habits. Only 2 subjects changed to become Specific goal-setters, leaving 8 skaters in the Generalist category and 9 in the Specifics category.

**Single measures.** Several interview questions were asked only at the follow-up measure. These questions were focused on what the skaters felt they had learned from the mental training program, and which mental training skills they found most useful. As this was a one-time measure, no comparisons were done. The resulting analysis was purely descriptive. All content analysis was conducted following the procedures outlined in the methodology.

Skaters were asked the following set of questions that inquired about their use of mental training skills:

- a) "If I use the term mental skills, what does that mean to you?"
- b) "What mental skills did you use in training for this Sectionals?"
- c) "What mental skills did you use during this Sectionals?"

The first question in this series was asked to ensure the skaters understood what the interviewer meant by mental skills. The most popular response to this question was - mental imagery. Of the 17 skaters responding, 15 said they felt the term mental skill meant using mental imagery to help them in either training or competition. They mentioned using imagery for practising free-skating programs, getting feeling for a jump, or preparing for a competition.

I use it a lot to do my solo before competition, it's just another thing I can do to keep my mind off the other people.

Every night, I would do my solo about 10 times in my mind before I went to sleep. And I went to sleep doing my solo, and I would wake up in the morning doing my solo. So I did it a lot.

Six of the skaters felt mental skill training meant planning and working things through before doing them.

It's preparing how I would do at a competition or how I would skate my solo in a test or something. Just going over it, like simulating how it would be.

It's trying to work things out before you do it, and thinking about what you have to do. Remembering that you can do it and having confidence in yourself.

Only 4 of the skaters stated specifically that mental skills meant having the ability to block out distractions and focus just on skating.

Being able to block out the sort of things that are distracting me like skaters or if something is wrong with the ice. Concentrating just on skating, nothing else.

Other mental skills identified by the athletes included: pre-competition planning (3); improved confidence (2); focusing (2); and goal-setting (1).

The second part of this series of questions inquired about mental skills used in training for competition. Again the responses revealed that imagery was a very popular mental skill. Sixteen of the 17 skaters reported using mental imagery while training for competition. Of those skaters using mental imagery for training: 6 used imagery

either to practise jumps or to work on problem areas of a jump; 5 reported doing imagery rehearsals of their free-skating solos; and 3 skaters used imagery to prepare themselves for daily training sessions.

Some other mental skills were reported by the athletes, however, the frequency with which they were reported was quite low - focusing or concentration (4); refocusing (3); pre-competition planning (3); goal-setting (2); and positive self-talk (1).

The final question in this series asked the skaters which mental training skills they used during the Sectional competition. The mental skill reported most was mental imagery, with 12 of the 17 skaters using it during the competition. Most of them did imagery of their solos and jumps prior to their free-skating performance - "like right before competition I do a lot of imagery off the ice where I do solos on the floor." Using a pre-competition plan or warm-up plan was the next most cited skill (7 of the 17 skaters). Six of the skaters used focusing plans or what they termed "concentration" during Sectionals. This was reported by them simply as an attempt not to rush things, but to stay calm and "take it one step at a time." Only 3 skaters reported using refocusing. One used it during the competition - "I had to refocus at one point because I was starting to lose it." Another used refocusing to help her through a particularly difficult time in her skating. She had not been skating well for months prior to the competition.

This year has been really odd because before Sectionals I was really down and I couldn't do my jumps. I lost most of my jumps. Usually that happens a few days before competition but this was a month before and even in the summer. Finally I got to the competition and in the practices it all came together. I was lucky - usually when that happens I get really frustrated. I remember last year it happened 2 days before and I got really frustrated. It affected me but this year I didn't let it frustrate me. I'm glad I just took it and thought 'Oh well!' it will come together. So that made me really happy. It worked out much better.

Finally, 3 skaters mentioned using positive thinking during the competition, and 1 reported using goal-setting. Only 1 skater was unable to use any of her mental skills during the competition, although she used them prior to competing - "well, I used none really because I was so nervous I didn't really think about it during it, but I used them before."

Following the questions on mental training usage, the skaters were asked about their coaches' influence on their mental skills training. The following question was asked:

"Did your coach encourage you to use the mental skills that you learned in the program? If yes, how did your coach encourage you?"

The responses to this question were quite positive. Of the 17 skaters responding, 11 said they definitely received encouragement from their coach; 4 said they sometimes received encouragement; and 2 skaters said they received no encouragement from their coach. As for the type of encouragement received, according to the skaters the only skill that was reinforced was mental imagery. Ten of the 17 skaters indicated their coach encouraged them to do mental imagery during training and competition.

The next question inquired about the skaters' mental preparation for the last two Sectionals competitions they competed in. The skaters were asked the following question:

"If you think back to the Sectionals competition in Cornwall and the Sectionals competition in Ottawa - which competition were you better mentally prepared for? What was it that made you feel better mentally prepared?"

The majority of skaters (14 of 17) felt they were better mentally prepared for the Ottawa Sectionals competition (which occurred after the mental training program). Four skaters felt the reason for this was because they had improved their focusing skills. They were better able to relax and just concentrate on their skating.

Definitely more mentally prepared (this year) ...  
I told myself while I was skating to relax and I had a long rest before. And while I was skating I told myself to take it one step at a time. And when I was in Cornwall (last year) I kind of rushed through

everything. I didn't really do it consciously.

One of the athletes with improved focus was able to overcome a habit of being overly concerned about her competitors and how she ranked in comparison to them.

I was definitely more prepared (this year), I wasn't worried about the outcome. Like I had a problem with the outcome focus, I was always placing people and everything. It was a lot better this year. I wasn't nervous, and I wasn't uptight, and I didn't worry all about what the other skaters were doing.

Another 3 athletes felt they were more confident or positive for their Ottawa competition, and this resulted in their feeling more mentally prepared.

I gained a lot of confidence. Last Sectionals I was really worried, and I had a really negative attitude. Then this Sectionals, (the mental training instructor) was teaching us to like be positive and stuff. So that helped a lot.

There were also 3 skaters who felt that after learning about mental preparation, they had improved their training, which left them feeling better prepared. They were using such skills as pre-competition planning, imagery, and positive self-talk. One skater believed she was better mentally prepared because she did clean solos before the competition and this left her feeling really "ready to do it". Finally, there were 4 skaters who felt better mentally prepared but did not elaborate on their reasons for feeling this way.

Of the skaters who did not feel more mentally prepared for the Ottawa Sectionals, 2 reported having the same level of mental preparation they had at the Cornwall competition. However, their explanations for not having improved their mental preparation were quite different. One skater said she had already had enough "psychology stuff" from a previous coach. She felt mental preparation had never been a problem for her anyway, so her level of mental preparation for the Ottawa competition was about the same. The other athlete reported her mental preparation was at the same level but this was due largely to problems with her physical preparation. Her training

had not been going well prior to the Ottawa competition. Her coach felt many of the problems stemmed from a growth spurt, and the accompanying adjustment to the new height. The skater continued to work hard at her skating and maintained a positive attitude in spite of the unproductive training sessions. It appeared as though she was using her mental skills to the best of her ability, even though the physical problems were causing her great difficulty.

I think I was about the same, but I used mental skills differently. I was more mature in using them in that my (physical) preparation was worse than the other one, but it didn't affect me. I didn't let it affect me. So I just stayed in my shell and kept working at it.

Finally, there was 1 subject who reported feeling more mentally prepared for the Cornwall competition (prior to the mental training program). Her reasons for feeling this way were due mainly to her physical training as well.

I think I was more mentally prepared for Cornwall because I had all the jumps I could do . . . and I was totally mentally prepared because I was landing like 17 double flips that day, and I was so happy. This year I was really inconsistent and I hadn't got any other (more difficult) jumps.

The next interview question was as follows:

"Can you tell me what, if anything, has changed with regard to your skating, now that you have done the mental training program with (the mental training instructor)?"

The interviewer then showed the subjects a list of the mental training skills that had been taught during the program. The skaters were asked to look at the list for a moment and think about which mental skills had made a difference to them. Again the mental skill most often mentioned by the skaters was mental imagery. Ten of the 17 athletes felt their imagery practice had changed their skating for the better.

It helps me to be more consistent and helps me refocus.

I did have feeling for a jump, and I would have the rhythm but it (imagery) helps me to see the jump now and get the feeling of the jump. That's helped me a lot.

I was having trouble going through my solo. I was really tired, and I was in pretty good condition. I was tired after the first little part and all I had done was an axel and footwork. And I realized it was my breathing. So what I did was do my imagery, and at certain parts I thought of breathing so that when I (actually) did my solo, at those parts I thought of my breathing and now I'm fine.

Refocusing was the second most often mental skill that made a difference to the skaters. An improved ability to refocus was mentioned by 8 of the 17 skaters. They were able to refocus their attention if they had difficulties during performances.

Refocusing, I'd say that has definitely improved because I had to use it in one of my solos at Sectionals. At first I started off really well, and sometimes when I start things off well I get excited, and I get in a hurry. So I definitely used a refocusing plan and it helped me get back on track. In the middle of things I started to get a bit hectic and at the end I used a refocusing plan and everything got together again.

Now I don't get discouraged very easily - I just sort of take it. I used to get upset because if skating went badly then my whole day would be ruined, but not anymore.

Sometimes before I used to get frustrated and I could never do anything after that, refocusing really helps me to get back into it.

One skater learned to use refocusing combined with imagery to improve the consistency of her skating during training.

. . . consistency, imagery, refocusing. I learned about everything, but those are the major ones that I really used because I need to refocus a lot if I'm really having a bad day. Like now I can say to myself, okay, for certain reasons this is why you're having a bad day, or I can just get myself back into it. Like if I'm feeling really down, I know how to make myself feel better without having to stomp off the ice.

The third most frequently mentioned mental skill was pre-competition planning. Seven of the skaters began to use a pre-competition plan in order to prepare for performances. Many of the skaters said they employed simple individualized routines where they did imagery and warm-up exercises in order to feel "just right" for the competition.

My pre-competition plan made a real difference. I definitely needed one because when I was young it was nothing. I have really bad nerves at competition. My pre-competition plan has really helped me. Now I know that I need to be really low (meaning low activation during the event). My plan helped me because I do some skipping to keep me tired and sweating to feel like I've gone through a work-out before. And I have to do my imagery and run-throughs of my jumps off the ice, and it gets me going.

Although improved confidence was not a specific mental training skill taught during the program, it was hoped the skaters' feelings of confidence towards skating and performing would improve. During the post program interview 7 of the 17 skaters mentioned that their level of confidence had improved following the sport psychology training. One skater simply stated "it has given me a little more confidence, and I feel a little better about myself." Another athlete commented:

My confidence probably (improved) because I was very negative about myself before. You can ask (the mental training instructor). I was always saying ' No I can't do this or there's no way I can do that! ' Now I don't do that very much because it just makes me worse.

Improved goal-setting skills were identified as an area of change for 6 of the 17 skaters. They started using daily goals or long-term goals to keep themselves organized, and to prepare for competition.

I find I'm using my goal-setting and it makes me more consistent as I work. I do what I want to do and I don't give up all the time. Like every jump I don't open up on. I get back at it and keep trying. So that has changed for the better.

Five of the skaters reported an improved focus or higher level of concentration when they were training and performing in competition.

My focus in my figures has become a lot better, I used to daydream on patch, like in practice. It's a lot better now and I stay on track a bit more.

My focusing (improved) because before in competition if I fell on a jump I would kind of give up or something and I would go staring around at the walls.

There were also 5 skaters who reported feeling less pre-competition anxiety following the training. By learning the various skills taught in the sport psychology program, they were able to control nervousness they experienced at competition time.

I really enjoyed doing the (mental training) program and I learned a lot. I'm not as nervous going into competition, and I use practically all the skills.

Three of the skaters noticed they prepared better for their competitions by planning and working on things that needed improvement. One skater felt her biggest improvement was doing clean program run-throughs in training. Another commented that she would prepare for competition "2 months before Sectionals . . . instead of 3 weeks before."

Finally, 2 of the skaters felt they benefited greatly from reading the information on how other athletes trained. One skater felt her motivation improved - "I'm more motivated on the ice, I know new things now, like I learned . . . how I should be training." The other skater felt it was the best part of the sport psychology program for her.

The best part I liked was reading the interviews with the other people and what they did. Watching the videos was great, I loved it.

The final interview question asked the skaters to rate on a scale from 1 to 10 how much effort they had put into learning the mental skills. They were shown the following scale:

1	2	3	4	5	6	7	8	9	10
none		a		a		quite			really
at		little		medium		a			a
all		bit		amount		bit			lot

The average response to this question was 6.8, with answers ranging from 5 to 9 (SD=.81). The experimental 1 and experimental 2 groups both averaged the same on this question.

**Summary of Interview Data.** Based on the results from the repeated interview questions, there were 6 skaters who remained categorized as still stressed skaters following the mental training program. They were still having difficulty controlling their pre-competition emotional state. Seven other skaters were able to gain better control over pre-competition nerves and were identified as refocused skaters.

There was little evidence of improvement in the goal-setting skills of the athletes following the program. Most skaters remained with the same level of goal-setting habits as they had when they began the program.

Results from the single interview measures focused on the skaters' opinions of various components of the mental training program. Several questions inquired about which of the mental training skills were found to be most useful by the skaters during training and competition. Responses to these questions were varied, however, mental imagery was definitely the most frequently mentioned, and most useful mental skill. The majority of skaters (14 of 17) felt better mentally prepared for the Ottawa Sectionals competition after participating in the mental training program, although reasons for improved mental preparation were varied.

### **Performance Evaluations**

Skaters completed personal performance evaluations on two occasions, once immediately following the simulated competition and again after their Sectionals performances. The performance evaluation included three short-answer questions which inquired about the subjects' refocusing plans, pre-competition plans, and level of

mental preparation for the competition they had just completed. The short-answer responses were content analyzed following the procedures outlined in the methodology. Comparisons were done between the experimental 1 and experimental 2 groups at the simulation measure, and overall group responses are presented for the Sectional Competition measure. The first question on the performance evaluation was as follows:

"Did you use a refocusing plan at any time during this performance? If yes, tell me about it (e.g., were you able to actually use the plan, how did it work, what needs to be changed)."

**Simulation.** Of the 9 experimental 1 skaters participating, 5 used refocusing plans for their simulation performances. These skaters used refocusing to maintain concentration either before or after landing jumps, or to refocus after a fall. One skater used refocusing to settle back into the performance after landing her two most difficult jumps - the double lutz and double axel. Although the experimental 2 skaters had an opportunity to answer this question, they did not respond. They were not familiar with the concept of refocusing.

**Sectionals.** Refocusing plans were used by 12 of the 17 skaters during their Sectionals performances. Again their reasons for refocusing were related to either landing or not landing jumps and needing to return to the correct focus following a jump. The responses the skaters gave to this question are listed in Table 15.

The next question referred to the skaters' pre-competition planning.

"How did you feel about your pre-competition plan? Tell me about it (e.g., what was on, what was off, what needs work or adjustment)?"

**Simulation.** Three experimental 1 skaters did not comment on using their pre-competition plans. The other 6 skaters remarked on adjustments needed in their plans for future competitive performances. The skaters were pleased with the progress they had made with pre-competition planning. None of the experimental 2 skaters responded to this question. This was to be expected as they had not received the mental training.

Table 15

Skaters' Comments about Refocusing Plans Used During the Sectionals Competition

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Yes, after my miss on the double lutz, I came right back.

Yes, I tried to think about what I was doing and not what I had done.

Yes, if I made a mistake I just forgot about it. I thought about the next thing.

Yes, after I fell, I knew that I had to relax and concentrate on my next element and it worked.

Yes, it worked very well.

Yes, my figures, after the bracket I forgot one tracing. I was so embarrassed to go back out for my (free-skate) program. I made myself think (positively) just about free.

Yes, after I fell, I had a back-up plan.

Yes, just to keep control after I fell on my double lutz.

Yes, after I put my skates on, I didn't want to go skate my program. I wanted to go home. So I concentrated on jump landings until I was okay.

Yes, when I landed my double axel I had to make sure I didn't think of it when I did my other jumps.

Yes, I knew I was skating well but had to keep on thinking right.

Yes, just to feel right for each jump.

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**Sectionals.** Of the 17 skaters competing at Sectionals, 10 mentioned the use of a pre-competition plan. Five of the skaters were completely happy with their pre-competition plans, and 4 felt their plans still needed some adjustments. They commented on wanting more time to stretch, or needing to gain better control over their nerves prior to performing. One skater commented that she was very frustrated during the pre-event period because she was unable to follow her pre-competition plan. She indicated that her mother was late bringing her to the rink, and that this ruined her preparation time before the performance.

The last question asked of the skaters inquired about their level of mental preparation for the competitions. It was stated as follows:

"If you think back over your most recent competitive performances, and then think about the performance you just completed - which were you better mentally prepared for? What was it that made you feel better mentally prepared?"

**Simulation.** In response to this question, 5 of the 9 experimental group 1 skaters said they were better mentally prepared for the simulation performance. Three of the skaters cited mental training techniques as the reason for improvement - "I had a pre-competition plan and I knew what I had to do about blocking out other skaters." The 2 other skaters responding positively did not elaborate on the reason for improvement. Of the 4 skaters who did not feel better prepared, 3 claimed their lack of preparation was because the simulation did not seem like a real competition. One commented: "Because knowing that it was just a simulation, I didn't eat anything special, go to bed early, or prepare myself as well." The one remaining subject who felt less prepared said she had not been skating well, and the poor training had affected her level of mental preparation.

Of the 7 experimental group 2 skaters participating, 3 said they felt better mentally prepared for the simulated competition. They did not mention mental training skills as a reason for their improved preparation. They cited such things as familiarity with the ice surface, and knowledge of who their fellow competitors were as reasons for feeling less nervous and better mentally prepared. The remaining 4 experimental 2 skaters said they did not feel better mentally prepared for the simulation. Two of these skaters elaborated and said the simulation did not seem like a real competition and therefore carried less importance. One of the experimental 2 skaters was unable to participate in the simulation due to illness.

**Sectionals.** For the Sectionals Performance Evaluation the question was adjusted to focus on Sectional competitions. The question was phrased as follows:

"If you think back to the Sectionals competition in Cornwall (last year), and then think about the performance you just completed - which competition were you better mentally prepared for? What was it that made you feel better mentally prepared?"

Of the 17 skaters competing, 16 said they felt better mentally prepared for the Ottawa competition. The most common reason for improved mental preparation was related to the athletes' focus for the competition. An improved ability to focus and control their thoughts was reported by 11 skaters. Skaters whose responses were categorized as an improved focus are listed in Table 16.

Of the remaining skaters who felt better mentally prepared for the Ottawa competition, 2 felt mental imagery helped them, and 2 were able to use their mental skills to deal with the competitive pressures even though they had not been skating well prior to the competition. One the skater who felt better mentally prepared for the Ottawa competition did not elaborate on the reason for improvement. Finally, one remaining subject felt that in spite of the mental training program, she had the same level of mental preparation for both competitions.

**Summary of Performance Evaluations.** Information gathered from the simulation performance evaluations indicated that approximately half of the experimental group 1 skaters (those who received mental training) were attempting to use the mental skills of pre-competition planning (6 of 9 skaters) and refocusing (5 of 9 skaters) for the simulated performance. Responses to the Sectionals performance evaluation provided evidence that the skaters were using refocusing plans (12 of 17 skaters) during the competition situation, however, fewer of the skaters (10 of 17) used their pre-competition plan for the Sectionals performance. The majority (16 of 17) of skaters felt better mentally prepared for the Ottawa Sectionals (after receiving the mental training), and many (11 of 17) attributed the better preparation to improved focusing ability.

#### **Parents' Responses to the Mental Training Program**

As part of the evaluation procedure, parents of the skaters were asked for their comments regarding the mental training program. A letter was sent to the parents asking them if they had observed changes in their child (skater) in any of the following

Table 16

Skaters Responses that Indicated an Improved Focus for the Ottawa Sectionals

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I was focusing on what I was doing, I could feel my feet on the ice.

I had a lot more to think about.

I knew where to put my energy and my thoughts.

I had help with my mental preparation so I knew what to think about.

I was taught different ways of focusing and preparation to help me out.

I was able to remain calm before figures. I was able to turn my negative nervousness into positive focusing.

I had a competition plan that made me think better.

Last year I didn't really know what I was doing. Now I concentrated.

I felt together mentally for free-skating.

My thinking was mostly all about myself and my skating.

I was more into positive thinking - no distractions.

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areas:

- any indication of a loss of control due to feelings of nervousness prior to a competition, test or simulation.
- any indication of learning to control or an attempt to control nerves or feelings of nervousness prior to a competition, test, or simulation.
- any change of attitude about skating or competition or a particular situation.
- any attempt to analyze a performance, to determine what went wrong or right.
- any comments from their child about the sport psychology program. For example: I'm trying to do my imagery, focusing, goals . . . or any other sport psychology skill.
- any negative or positive comment made by their child with regard to the sport psychology training.
- any improvement or decrement in performance skills for figures or free-style during tests or competition.

Parents were also asked to comment on how they personally felt about the mental training program. They were encouraged to make suggestions for improvements or

changes. In order to attain honest responses, the parents were assured that all information provided would be held in complete confidence. The letters were coded prior to analysis, and any names or remarks that would clearly identify the skater or parent were adjusted. A copy of the letter to the parents is available in Appendix A.

Of the 17 sets of parents involved, 16 responded to the letter. The majority (13) of letters were written by mothers of the skaters. Only one response was written by both parents, and two were written by fathers of the skaters. Ten of the parents responded immediately (within one week), and the other 6 responded after receiving a phone call regarding the letter. The parent who did not respond received another letter and 2 additional phone calls, but there was still no response.

Information from the letters was content analyzed following the procedures outlined in the methodology. Two researchers examined the letters independently, and agreed upon a suitable categorization system following consensus validation. Based on the initial examination of the letters, the researchers found that 13 of the 16 letters contained positive evaluations of the mental training program. The remaining 3 letters were from parents who were not completely satisfied with the effects of the mental training program. In order to provide a thorough presentation of the data, the positive program evaluations will be presented separately from the negative evaluations.

**Positive Evaluations.** The content analysis of the 13 positive responses revealed 5 main themes - improved attitude, improved anxiety control, improved performance, skaters' enjoyment, and skaters' benefits. Each theme is described below.

**Improved Attitude.** The dominant theme occurring in the parents' letters was identified as an improved attitude towards skating. It was evident in 10 of the 13 letters. Quotations from the letters were placed in this category when the parent commented on such things as: a better attitude about testing and competition; an increased willingness to talk about skating (especially failure); quicker recovery from

failure; better ability to analyze skating skills and skating performances; and positive thinking.

An improved attitude about testing and competing was noted by 5 of the 13 parents. They felt that their children were approaching these situations with a better perspective. One parent commented that her daughter "learned to see tests and competitions in a 'healthier' way - as a one-time event in a series of events."

Four of the parents noticed an increased willingness to talk about skating, particularly the failures associated with skating. Based on the parents' comments it was apparent that the skaters were less emotional about the failures which allowed them to talk more freely. Some of the parents (4) noticed that their children recovered more quickly from the disappointment of a failed test or poor competitive performance. One parent commented that her daughter's "'lows' after tests and competitions were over with quicker, a matter of hours instead of days." Another felt her daughter recovered not only more quickly but in a "more mature fashion than in previous years."

An improved ability to analyze skating skills and skating performances was noted by 4 parents. Two of these parents reported that their children analyzed overall competition results to determine what changes in performance should be made. Other parents noticed their children analyzing skills or a specific area of skating, and this resulted in improved performance.

Finally, 3 parents commented on how their skaters' attitudes towards skating were more positive. One skater was always trying to "focus on the positive aspects of her performances" and made an effort to "focus on the successful elements of her sessions" if she encountered a bad day in training. Table 17 shows a list of the quotations from parents' letters that were categorized as indicating an improved attitude.

**Improved Anxiety Control.** Quotes that were placed in this category were from parents who noticed their child had gained some control over pre-competition anxiety. Eight of the 13 parents made reference to this theme. Two parents commented that prior

Table 17  
Parents' Responses That Indicated an Improved Attitude in Their Skater

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She felt more excited about competing and better prepared mentally for it. She felt her skating skills improved as a result of analyzing what she was doing with regards to the various skating skills performed.

[She] analyzed overall competition results to determine what changes in performance should be made. [She makes] comments like, ' Well [the mental training instructor] said to focus on the positive aspects of my performance'. If a bad day is encountered, she attempts to focus on the successful elements of her sessions.

Before Sectionals, she had been having trouble and was now finally landing her double lutz. When a couple of other parents complimented her on it, she commented that 'It was about time - I've been positive thinking for 3 weeks now'

During the time [the mental training instructor] worked with [skater 09] she learned to see tests and competitions in a 'healthier' way - as a 'one time' event in a series of events. Her lows after tests and competitions were over with quicker, a matter of hours instead of days. She could discuss tests and competitions more objectively, less emotionally.

Although she did not do well [at Sectionals] and was very disappointed, she recovered well and I found in a more mature fashion than in previous years.

[Skater 05] seems to have a better attitude about competition.

We have discussed the performances during our trip back from Toronto and she was much more objective than before.

[Skater 14] has matured a great deal since the program was given. She now will talk to me about skating and other problems. She still uses the [relaxation] tape, and is now occasionally going through her [mental training] book. She is gaining self-confidence about herself as a person. She is very determined to achieve the goals she has set for herself.

[She] reviews her performances after in order to improve certain areas. She also learned after she had skated in competition to 'let it go' whether it

was a good or bad performance, and start to work for the next.

Sessions I feel helped her deal in a positive manner with her attitude towards figures. [She] talked more freely about failures as well as successes. [She] focused more on what she did well rather than what she wasn't able to do at the time. And she analyzed her figures more. The sessions were a sounding board where [she could talk with] someone she liked, who was objective and who listened. In summary I feel that the sessions came at a good time for [Skater 17], a time when she wasn't having a lot of success with her figures. Sessions changed some of her thinking. In fact she would like to be involved with sports psychology as a career later in life.

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to the training it was extremely difficult to deal with their children in the time period immediately before the competition. One mother described how, following the training, her daughter was able to maintain a sense of humour and even have something to eat on the day of competition. Before receiving the mental training program, her daughter's usual manner was to turn into a "shrew" before major competitions. One father was extremely pleased with the changes in his daughter's pre-competition behavior:

Before [the mental training instructor] started working with [skater 05], she would become almost impossible to put up with before a competition or test. She was sick to her stomach before several competitions. Now she is more in control and seems to have a better attitude.

Another interesting case within this category was a skater who was able to refocus her attention from a distracting comment, and regain control before she went out to compete. On several occasions, the skater's coach had spoken of this skater's lack of ability to control anxiety under distracting circumstances, particularly prior to performances. The interesting point made by this skater's mother was that her daughter had learned the refocusing skill, and was using it to shut out the coach. The following quote from the mother's letter described a situation that occurred at the Sectionals competition.

The coach, in rather a negative way, was pointing

out the things [my daughter] had done wrong the previous day. This was minutes before she was to do her final competition. Finally she replied 'That was yesterday, Sir'.

One skater who suffered from extreme anxiety prior to any figure performance was able to hone her mental skills to the point where her anxieties were almost eliminated. Her mother commented:

She has always been upset or nervous when figures had to be done. She passed the 6th figure test recently and was not nervous at all. She did a marvelous job according to the coach and judges. [Skater 14] said she was really relaxed about the whole test.

In fact this skater was so relaxed during one of her figure performances, that she marked her figure after finishing the lay-out on clean ice. This is a common practice for skaters during their training ice but not in competition. After skating a figure on clean ice during training, the skater or coach will mark with a skate blade any mistakes that were made. Table 18 lists the comments that were placed in the improved anxiety control category.

**Improved Performance.** Of the 13 parents who wrote positive evaluations, 5 noticed their skaters were performing better under test and competition circumstances. Improvements were seen in both figure and free skating performances. The comments placed in the improved performance category are listed in Table 19.

**Skaters' Enjoyment.** Many (9 of the 13) parents felt their children enjoyed participating in the mental training program. They noticed their daughters doing the required readings prior to small group sessions. The skaters often spoke positively of the program and talked about the different mental skills they were learning to use. Comments from the letters that indicated the skater enjoyed the mental training are listed in table 20.

**Skaters' Benefits.** Eight of the 13 parents indicated they felt their child had received some benefit from participating in the program. A number of the parents were pleased their skater had been given the opportunity to participate in the program. The

Table 18

Parents' Responses that Indicated Improved Anxiety Control in their Skater

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On test days, she uses relaxation tapes during the morning for positive reassurance, and she used imagery in preparation for her free skates. At Sectionals she did the following: pre-competition plan, relaxation tapes, writes comments, concentrates on proper warm-up, etc.

Great dramatic changes were not visible but many little changes were noticeable. I would like to use an example of a conversation between a coach and our daughter. The coach, in rather a negative way, was pointing out the things [my daughter] had done wrong the previous day. This was minutes before she was to do her final competition. Finally she replied, 'That was yesterday Sir'.

Before [the mental training instructor] started working with [Skater 05], she would become almost impossible to put up with before a competition or test. She was sick to her stomach before several competitions. Now she is more in control, and seems to have a better attitude. The coaches tell me that [Skater 05] is working at her skating very hard now.

I found she was a lot more relaxed on Sectional days. She was nervous but did not turn into a 'shrew' as is her usual way before a major competition. She maintained her sense of humour, was able to relax on the day of competition, and also managed to eat which is unusual.

During the period of time she was working directly with our daughter, [Skater 12] had improved control over herself and thus improving her performances.

I would like to confirm to you that [Skater 13] seemed to benefit from the program with you in controlling her nerves before competition. My only indication was the Scarborough Skate at the end of April, where she competed on her own without any coaches. During the competition she seemed to me more in control of her emotions - especially in the qualifying round. She even watched the others competing against her and seemed to have a little more confidence in herself than previously.

I feel she learned positive skills in controlling nerves during competition.

She passed her Junior Competitive test in May and was not nervous for any part of the test. I say she

was not nervous, that is according to [skater 14], but she did go and mark her figure before the judges marked it. She didn't even realize what she was doing. It was a habit. Her coach couldn't believe that she had finished the figure, looked at it and then marked her mistake. She did listen to the [relaxation] tape constantly. She also tried her own experiment with using the tapes. She has always been upset or nervous when figures had to be done. She has passed the 6th figure recently and was not nervous at all. She did a marvelous job, according to the coach and judges. [Skater 14] said she was really relaxed about the whole test.

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Table 19  
Parents' Responses that Indicated Improved Performances for their Skater

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Improvements noticed in her free-style performance during a competition (although sometimes does her best performances on the practice ice!).

The proof of accomplishment for a Pre-Novice skater is Sectionals. [Skater 05] however, injured her wrist just before Sectionals this year and it would not be right to compare her performance to last year. She competed at Sectionals this year with a cast on her right arm. In general her competitive performance has improved considerably with [the mental training instructor's] help. The passing of the figure test was a result of the [mental] training.

[Skater 12] has improved performances while doing the program.

In Sectionals, she skated very well and her exact words to her pro were 'I focused' after she'd skated the first time. Before Sectionals; she had been having trouble and was now finally landing her double lutz.

[Skater 09] worked on her 4th figure for 2 years. She completed her 5th figure in less than 1 year. Sessions with [the mental training instructor] took place before [Skater 09] passed her 4th test. Skills learned with [the mental training instructor] were used during her 5th test. During this time [Skater 09] changed to a coach who had a more positive attitude towards sports psychology. [Skater 09] states she uses skills [the mental training instructor] taught her in school work.

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Table 20

Parents' Responses that Indicated the Skaters' Enjoyed the Mental Training Program

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She felt that the sport psychology training with [the mental training instructor] was very worthwhile and enjoyed it very much. She also felt very lucky to be able to take part in it.

My daughter never complained about these sessions. She certainly enjoyed her participation in this program and developed real respect and admiration for [the mental training instructor] both personally and professionally.

[Skater 16] enjoyed the program very much.

[Skater 11] has enjoyed the program very much . . .

During the time [the mental training instructor] worked with [Skater 09], she spoke of the group and individual sessions several times a week. Her comments were always positive. We occasionally had to come to the rink at an inconvenient time. [Skater 09] was highly motivated to attend these sessions as well. [Skater 09] used [the mental training instructor's] vocabulary - goals, focus, breaking down the skill into parts, etc.

My daughter very much enjoyed working with [the mental training instructor] and often spoke about things they had talked about, making reference to what [the mental training instructor] had said, or how she felt.

I cannot recall the exact words or phrases that [Skater 05] used in describing the program. She did, however, speak very positively about [the mental training instructor] and the material that she was learning. She spoke often about the skills she was learning, e.g., pre-competition plan etc.

. . . [Skater 17] enjoyed the sport psychology sessions with [the mental training instructor] so much.

My daughter never said one word to me about the program. However, I noticed she made an effort to do the reading that she was asked to do, and made an effort to participate in all the meetings that were arranged. She seemed to be enjoying it.

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parents as well as the skaters appeared to be receiving benefits from the program.

Parents' comments that were categorized as Skaters' Benefits are listed in Table 21.

Table 21

Parents' Responses that Indicated the Skaters Benefited from the Mental Training Program

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In general I feel the program offered by [the mental training instructor] was very beneficial to the skaters, including our daughter. The techniques taught were put to use in her skating to better what she was doing. She often mentioned that she was using techniques taught by [the mental training instructor]. In short, the experience was very beneficial.

As a parent I was thrilled that my daughter was able to take part in this program. I also felt it was a very valuable experience for her. Even though she has always looked forward to and enjoyed competing, I feel that the skills learned through working with [the mental training instructor] will help her to go on enjoying and looking forward to competing and testing. Thank you for this learning experience for my daughter.

. . . later in the competition, her pro heard her remark to a fellow skater that the other skater should have 'visualized - after all, a lot of effort was put into the program and she should have tried it' So I feel she used the program in her own way - just kept it to herself. I'm pleased with the results.

I found my daughter benefited from this program personally. She is not one to discuss school, skating, etc., so it is difficult to know exactly what she got 'skating wise' from the program.

[Skater 01] has developed a high respect for your teaching ability in the area of sports psychology. She has benefited from the opportunity of working with you during the past 10 months. We would like to express our sincere appreciation for the professional approach you used in conducting the mental training sessions with the skaters.

Sessions were worthwhile. [Skater 09] thrived on the individual attention during private sessions. [Skater 09], and her parents were pleased to benefit from the program as she was not headed for national level competition, and felt 'privileged' to be part of such a study.

In summary, I would highly recommend this type of training. Figure skating is an expensive sport. It seems foolish to spend a lot of money to train the body but not train the mind.

[Skater 14 ] is a very quiet person when it comes to skating and talking about it at home. I do not know much about skating so therefore I'm sure she feels that I wouldn't understand. She didn't say much about the program, but I do know she benefited from it. I think she was a little too immature to fully understand all aspects of it. She is getting more use out of it now, than at the time she took it. [Skater 14 ] said she did like [the mental training instructor] a lot and that she felt the program did help her and is still helping her."

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There were only two negative remarks reported by parents who wrote positive evaluations of the program. Two parents commented that their skaters found certain participants in the program to be disruptive during the small group meetings. One of the skaters said "it would have been better to be in a group with people that really wanted to do it, rather than people who were doing it just for fun."

**Negative Evaluations.** Three of the letters received from parents were identified as negative evaluations. The responses from these parents indicated their skater had gained very little benefit from participating in the mental training program. One parent believed her daughter had no need for the program because she "had never had a problem with nerves." Nevertheless this parent felt her daughter really enjoyed attending the sport psychology sessions, and actually used the skills she had been taught to "help her fellow skaters, who were getting uptight before a test or competition."

The other two negative evaluations were from parents who wished their skaters could have benefited more from the program. Both of these parents noticed their children had a better awareness of mental skills following the program, but were still unable to use the skills when necessary.

After a performance or test she can tell you what went wrong, but doesn't seem to be able to control it. She keeps things to herself and occasionally mentions something you said to her. When she does focus on something, she seems to be able to do it but [she] doesn't always take time to focus on things.

When she does think about what [the mental training instructor] has tried to teach her, I believe it has helped.

I have heard my daughter say when [the mental training instructor] was with her on the ice that what she told her to do did make it work. As far as focusing and imagery for my daughter, it doesn't seem to have improved her ability to land her jumps. When competing she seemed to have forgotten everything she had been taught.

Both of these parents did notice small improvements in their skaters. One found her daughter learned to control a bad habit of displaying her temper on the ice. The other felt her daughter improved her figure performances. The parents did not specify any reasons why they felt their skaters had not improved their mental training skills. These parents did comment however, that their daughters did not have the natural talent necessary to excel in figure skating.

... I believe you have to have the whole package. Be a true competitor, a natural talent, and have the money to bring out these talents.

I think she would really love to be able to do very well in the sport of skating but deep down she probably does know that she doesn't have the natural skills and talent.

**Summary of Parents' Responses to the Mental Training Program.** The positive responses received from parents regarding the mental training program were placed into 5 categories. Parents noticed that their skaters had: improved their attitude toward skating (10 of 13); enjoyed the mental training program (9 of 13); learned to control pre-competition anxiety (8 of 13); and improved their performances following the program (5 of 13). Three responses were received from parents who felt their skater had not benefitted from the program.

#### **Coaches' Responses to the Mental Training Program**

Following the completion of the mental training program, three of the four coaches who had skaters involved in the program were interviewed. One coach could not be interviewed due to medical reasons. The interviews were transcribed and analyzed following procedures outlined in the methodology. The information presented here is

purely descriptive. The purpose behind the interviews was to determine how the coaches felt about the mental training program intervention.

In order to preserve anonymity and present the information clearly, the coaches were labelled A, B, and C. Coach A was a female coach who had 6 skaters participating in the study. Coach B was a male coach who also had 6 skaters participating, and coach C was male with 1 skater involved in the study.

The first question asked of the coaches was:

"Based on your experiences, how did you find the mental training program helpful for your athletes?"

All 3 coaches felt the program had been beneficial for their athletes, and all coaches identified imagery and relaxation as mental skills they believed were helpful to the athletes. Coach A also mentioned that pre-competition planning and simply talking with the mental training instructor about skating were important to the skaters. She noticed that the discussions helped the athletes realize where they had gone wrong, and what type of corrections were necessary. According to this coach all 6 of her skaters told her they learned new skills from the mental training. Coach B also felt all 6 of his skaters benefited, however, he qualified this by saying the skater had to have the desire to learn the skills. "The going through it mentally, standing by the boards, closing their eyes, and doing the imagery work was exceptionally good for the ones that really wanted to learn."

Coach C felt the program gave structure to something coaches already did while working with their athletes.

I did a little bit of psychology in school, while at university, and naturally I tried to use it in my job. But even apart from that, if you have been teaching long enough as we all have here, you tend to subconsciously, even if you don't know what it's called, try to get the best out of your skaters. What this program did was give it form and a name.

The second question asked of the coaches was as follows:

"How did you find the mental training program hindered your athletes?"

Coach A and B both felt the program did not have any negative effect on any of their athletes. Coach C had some concerns regarding the effects of the program. He felt that certain athletes should be left alone when it came to mental training because they needed to do their performances spontaneously.

They don't know how they do it, but they are able to sum up the inspiration when the time comes, and analysis brings paralysis to this type of personality. I think there are some kids who don't want to know how they do it, and they are better off not knowing. I find these skaters have good work habits any way, and it may well be that they already subconsciously know what is expected and how to go about it. The very verbalizing of it, where somebody brings it out into the open can make it a little bit unattainable. . . . I can't really explain why having it spelled out to them [affects them] - how to relax, or how to deal with stress - maybe they don't want to deal with it. They don't want to know. The admission that it exists, makes it that much more formidable.

Coach C (who had one skater in the program) was unsure whether the program had hurt any of the skaters. His main concern was that the spontaneous type of skater not be hindered by a mental training program. His feeling was that the spontaneous skater did not want to know the "nuts and bolts" of how the mental machine works. He did add, however, that certain parts of the mental training program may benefit the spontaneous performer. Coach C also expressed some concern about the timing of when mental imagery should be done. "The mental rehearsal wouldn't hurt anybody, as long as it wasn't done too close to the actual event and started to spook them, and make them . . . not do what they're supposed to do."

The third interview question asked of the coaches was:

"Based on your experiences or observations, how did your athletes use the mental skills they were taught during the program?"

Each of the coaches made individual comments about their skaters' progress with the mental training program. Coach A found that her skaters did not talk about the mental

skills they were using. However, she was able to notice a difference in their skating. One of her skaters (Skater 09) had been particularly upset about her skating prior to the mental training program.

She was a very upset girl for a while, so talking to [the mental training instructor] helped her a lot . . . she doesn't get upset any more, she can analyze what her problems are, and at competition she doesn't seem to be as nervous.

Another of her skaters (Skater 08) initially appeared not to be using any of the skills taught in the program. "She was not using it a lot . . . and then come Sectionals she started to talk about it. She told some of the other kids to get busy and use it."

One of Coach A's best competitors, who went on to the Divisional competition following Sectionals, only realized the mental skills were helping her once the competitions were over.

[Skater 14 ] has had problems with her figures . . . she thought that maybe she was doing it [the mental training] but that it wasn't doing her much good because she tends not to concentrate. Anyway, this morning she said yes, I am starting to use it. She kept a tape with her, and she had it at Sectionals where she blew it in figures but she didn't use it properly there. Then we got after her and she used the tape properly. She said it didn't help her and now she says when she looks back she realized it has helped her.

Coach A had 2 skaters who had been injured for several weeks, one of whom (Skater 07), she felt had benefited from the program. She did not comment on Skater 15, who also had been injured. Coach A felt that her final athlete (Skater 16), who she had only been teaching for half the season, also benefited from the program.

Coach B felt that 2 of his skaters - Skater 02 and Skater 04 - had not made a real effort to learn from the program. Two of his other skaters (Skater 01 and Skater 13) spent a great deal of time doing imagery and preparing pre-competition plans.

They mainly tried to set up what they would do before they got to the rink. What they were going to do there, and what they would do before the program.

So you could see what they had been working on it.  
That was good.

Coach B's other 2 skaters (Skater 06 and Skater 12) also worked hard at their mental training. Coach B was concerned that Skater 06 may have been "a little immature . . . to grasp what was going on." Skater 06 did, however, manage to use imagery extensively during training, and "worked with [the mental training instructor] to decide what to work on and how to get herself set for the 4th figure test."

Coach C felt the skater (Skater 17) he coached, who participated in the program, fell into the category of skaters who needed to perform spontaneously. According to Coach C, these skaters do not generally benefit from mental training.

I don't think [Skater 17] did [benefit]. She falls into the category of the previously [described] skater who really participated, but I don't think she did it all credibly. I don't think she really tried as hard as she could have done. I think in part she did not want to face up to the kinds of stresses that there are there.

Coach C also commented on 4 other skaters who were involved in the program. These skaters (Skaters 03, 05, 11, and 10) were regularly taught by the coach who was unable to be interviewed. During this coach's absence, these skaters received instruction from Coach C. Coach C's assessment of the 4 skaters was very positive.

Of all the skaters in the program, to me [Skater 03] and [Skater 05] were the two who probably put the techniques that [the mental training instructor] brought into the club to the very best use. [Skater 11] too, made a marked improvement. It was her first year in the competitive program. She really showed from the time she started to the time she finished the most improvement of any skater, and I would ascribe some of that to the mental training program.

The fourth question asked of the coaches was as follows:

"What suggestions do you have for changing mental training development for future programs?"

Coach A did not have any suggestion for changing the program. She felt very positive about the mental training, and only wished that it could continue.

No [suggestions], I quite like what was done, [the

mental training instructor] came on the ice with the kids a lot. She always was available for them. She had a lot of meetings with them. No, I would just like more of it, and to continue it - that's what I would like.

Coach B was pleased with the program, but felt there should have been more parental involvement. He believed that skaters who received support at home for practising and learning mental skills probably benefited the most from the program. His suggestion was that parents should have met with the instructor, prior to the program, to learn how they could help their child with mental training.

I think the parents need to learn about what it's all about and how to help the child. And at a competition let the kids do whatever they want to do because sometimes the parents run after them too much, and the kid doesn't want the parent or the coach there. They want to go through their imagery work. So I think a couple of meetings with the parents, maybe separate from the kids or even with their own child.

Coach C's suggestion for changing the program was to have only athletes who were committed and serious about their skating in the program. He felt the program became "diluted by skaters who did not go at it whole-heartedly."

My suggestion would be to have a meeting prior to beginning the program between coaches and who ever was conducting the program to determine which skaters were most likely to benefit from it . . . I would think that a small committed group would probably attain better results.

The next question asked of the coaches was:

"If you had all the mental training program information, how would you feel about running a sport psychology program on your own?"

Coach A felt that she would not be able to run a mental training program herself. She believed even though she had a vast knowledge of coaching methods and figure skating, she did not have the expertise to run a mental training program. Coach B also felt he would not be able to run a sport psychology program. "Not unless I had the education to go with it - you can help but I ultimately wouldn't feel 100% comfortable doing it."

Coach C was the only coach who believed, if given the materials, he would be able to run a mental training program. "Yes, I would run it on competitive skaters. I wouldn't run it on the average run-of-the-mill skater, even though they do come into stress situations. I would just keep it for the elite skater."

Next the coaches were asked about the training methods they used prior to the mental training program.

"Did you use sport psychology techniques with your athletes prior to the program?"

Based on what she learned about sport psychology during the study, Coach A said she did use sport psychology methods while working with the athletes.

From what I've learned from [the mental training instructor] and the kids, I do use it. In fact I think I was using it all along but I didn't realize what I was using. You start to break it all down and realize this is what it is. Yes, I do use it.

Coach B also felt he had been using mental training methods in his teaching. He was very interested in learning the mental training techniques himself, and tried to "use whatever [he] grasped with the different kids."

I think with watching [the mental training instructor], and listening to her, and from some of the information she gave us, I do put it in my teaching. But I think you need to go to university to be good at it.

Coach C said he was using sport psychology techniques in his coaching prior to the mental training program. His preference was to use these methods only with high-level skaters.

The final two interview questions focused on the coaches' use of the mental training manual.

"Did you read the sport psychology training manual given to you at the beginning of the program? If so, what is your opinion of the contents of the manual?"

Coach A did not read the entire training manual. She read certain sections of it, and chose to discuss a number of the techniques with the instructor. She did not identify any

items in the manual as being particularly helpful. However, she did comment again on how she found the "course enjoyable" and wished it could continue.

Coach B did read the entire training manual, and was very pleased with the information he learned. He commented that during his own skating career, there were no sport psychologists available for help. He found that many of the current mental training skills were actually things he did by chance as a competitive skater.

At night I would go through my program with my eyes closed, and I would do it but not really understand why I was doing it. I found it was imagery work. Before competition, I would have to be there and do my set things. I'd have to get to the rink and always do my left skate before my right. I'd always warmup, so it's kind of the same thing [the mental training instructor] is going through.

After reading the information in the manual, Coach B was able to "feel 100% sure" about reinforcing mental skills with his skaters.

I know now that it's good for them. Though doing imagery especially is about the best thing you can do. You can really train your mind almost as good as your body. So yes, it [the mental training manual] was very helpful.

Coach C did not read the entire training manual. He reported lending it to the skating club and not receiving it back for a long period of time. He felt the psychological tools outlined in the manual were quite valuable. As he had taken a number of coaching courses, he believed he had already covered the material in the manual. "I think most of it, I've come across with the associated reading from the level 2 Coaching Association of Canada courses. I don't know if all of it [the mental training manual] is as up-to-date as that."

**Summary of Coaches' Responses to the Mental Training Program.** The coaches' responses to the interview questions provided a generally positive view of the mental training program intervention. Overall the coaches believed the skaters benefitted from the program. A variety of reasons were given for the improvements,

with imagery and relaxation being the most frequently mentioned mental skills.

Suggestions for future mental training program interventions included having the parents become more involved in the mental training, and reserving the teaching of mental skills for the more committed elite level skater.

### **Mental Training Program Evaluations**

As part of the follow-up measures, participants were asked to complete two Mental Training Program Evaluations. The first form inquired about the usefulness of various aspects of the program. The parts of the mental training program rated as most helpful by the skaters included: individual meetings with the mental training instructor; on-ice work with the mental training instructor; and practising imagery on the ice. Table 22 lists the parts of the mental training program rated by the skaters, and the rating given to each part.

The second form evaluated the effect of the program on mental training skills (Partington & Orlick, 1986). The mental skill ranked as most improved following mental training was refocusing. All mental skills rated by the skaters showed some improvement. Table 23 lists the average ratings of the effect of the mental training program on various mental training skills.

**Summary of Mental Training Program Evaluation.** The two most highly ranked aspects of the mental training program intervention were the individual meetings the skaters had with the instructor, and the individual on-ice mental training work done with the instructor. Several methods were used during the program for teaching each of the mental training skills (e.g., practising imagery on the ice, readings on imagery, and the imagery video were all used for teaching imagery). At least one of the methods used for teaching each mental skill (i.e., imagery, focusing, refocusing, goal-setting, and pre-competition planning) was ranked a 3 or above (with 5 being the highest ranking) on the scale. Parts of the program ranked the lowest on the scale included many of the readings, videos, and small group activities.

Table 22  
Average Ratings Given to Each Part of the Mental Training Program

	Mean	SD
Individual meetings	4.35	.702
On-ice work with instructor	4.12	1.27
Practising imagery on ice	3.76	1.35
Reading the athlete interviews	3.71	1.05
Doing pre-competition plans	3.69	1.35
Using goal-setting sheets	3.47	1.07
Changing negative self-talk	3.47	1.13
Learning about success elements	3.41	1.42
Using relaxation exercises	3.35	1.22
Readings on pre-competition plan	3.13	1.63
Warm-up, stretch information	3.06	1.43
Using focus plans for figures	3.06	1.44
Readings on relaxation	3.00	1.41
Readings about refocusing	2.92	1.44
Using focus plan for solo	2.87	1.51
Video of Brian Orser	2.86	1.54
Small group meetings	2.59	1.66
Practising imagery in class	2.59	1.70
Readings on focusing	2.40	1.30
Readings on goal-setting	2.35	1.62
Imagery video	2.19	1.68
Readings on imagery	2.06	1.39
Video of World team simulation	2.06	1.43

Video of skater using imagery 1.56 1.41

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Note. Subjects responded on the following scale:

Hindered                      No Effect                      Helped a Lot  
 - 5    - 4    - 3    - 2    - 1    0    1    2    3    4    5

**Table 23**  
Average Ratings of Effects of the Mental Training Program on Various Mental Training Skills

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Over the course of the season, did you experience any changes in your ability to:

	Mean	SD
Constructively refocus when needed?	3.47	1.66
Focus on your task during the event?	3.06	1.20
Control your mental imagery so that your imagined performance is perfect?	3.06	1.64
Feel the actions and sensations in your imagery as if you are actually performing?	2.59	1.66
Focus on your task immediately before the event?	2.41	1.66
Draw constructive lessons from setbacks by doing post-competition evaluations?	1.94	1.43
Communicate openly with coaches and teammates?	1.52	1.66
Get the most out of each training session by mentally preparing for them?	1.41	1.21

How much do you feel the overall Mental Training Program affected:

	Mean	SD
Your mental readiness for competition?	3.24	1.56
The positiveness of your thinking?	3.12	.993
Your feelings of personal control?	3.06	1.09

The consistency of your performance? 2.41 1.50

Note. Subjects responded on the following scale:

Hindered		No Effect		Helped a Lot
- 5	- 4	- 3	- 2	- 1
		0	1	2
			3	4
				5

The mental skills ranked as most improved (ranked a 3 or above on the scale) by the skaters included: refocusing; mental readiness for competition; positive thinking; feelings of personal control; task focus; and mental imagery. Rankings for improvements in performance consistency, task focus immediately before the event, and developing feeling for mental imagery received lower rankings (between 2.41 and 2.59).

### Quantitative Analyses

**Pre-Test - Post-Simulation Comparisons.** Results from the mixed-model ANOVAs indicated there were significant differences on two CFSQ questions. CFSQ question #2 asked the skaters if they felt overwhelmed by the work they needed to complete in preparation for competition. On the post-simulation measure, the skaters as a group scored statistically significantly lower  $F(1,15) = 8.84, p < .01$  than the pre-test measure, indicating they were feeling less overwhelmed. There was no main effect of group and no interaction effect on this question.

The second CFSQ question (CFSQ #14d) which showed a significant difference inquired about the skaters' self-talk. The skaters were asked to rate on a scale how often they put themselves down (i.e., I'm lousy, I'll never be able to do this) during their inner dialogue. The skaters as a group showed a statistically significant decrease in their amount of negative self-talk  $F(1,15) = 8.97, p < .01$  from the pre-test to post-simulation measure. There was no main effect of group and no interaction effect on this question.

Although the significant differences between the pre-test and post-simulation measures did not differentiate between the two groups of skaters, an examination of the

means reveals that the majority of change occurred in the experimental group 1. The small sample size and related lack of power may explain why the differences between the groups was not statistically supported. A larger sample size is needed to detect an interaction effect than is needed to detect main effects (B. Zumbo, personal communication, October 30, 1991).

Analyses done on the Sport Competition Anxiety Test (SCAT), and Commitment to Sport and Self-Control Scales showed no significant differences from pre-test to post-simulation measures. See Table 24 for the means of the significant CFSQ questions.

Table 24  
Means for CFSQ Analyses Showing Significant Differences Between Pre-Test - Post-Simulation Comparisons

CFSQ #2	Pre-Test	Post-Simulation
Experimental 1	6.2 (3.35)	3.3 (1.94)*
Experimental 2	7.3 (2.07)	6.5 (2.40)*
CFSQ #14d	Pre-Test	Post-Simulation
Experimental 1	5.2 (2.68)	3.0 (2.06)*
Experimental 2	6.5 (2.20)	5.5 (2.10)*

Note. On a scale of 0 - 10, 0 = Never, 10 = Always. Standard deviations are in parentheses.

\*  $p < .01$

**Pre-Test - Follow-Up Comparisons.** Results from several of the pre-test - follow-up analyses conducted on the CFSQ also proved to be statistically significant. Analysis of CFSQ question #2 (i.e. Do you feel overwhelmed by the work you need to complete prior to competition) showed significant improvements for the skaters as a group from the pre-test to follow-up measure  $F(1,15) = 26.06, p < .01$ . At the

follow-up measure skaters in both groups (after receiving the mental training) reported feeling significantly less overwhelmed by the improvements they needed to make in their skating prior to competition.

Analysis of two CFSQ questions which required a ranked response also showed significant changes from pre-test to follow-up. The first ranking question (CFSQ #5) asked skaters to rank a number of factors on the extent to which each was responsible for their less successful performances. The following factors were listed: injury or illness; poor ice conditions; improper training; and nervous tension. Improper training  $F(1,15) = 9.18, p < .01$  was viewed as a significantly more important factor influencing poor performance in the follow-up measure. The second question (CFSQ #7) which required a ranked response asked the skaters which factors contributed most to a skater's success. The factors listed included: natural talent; good training habits; a positive attitude; good coaching; and good mental preparation for competition. At the follow-up measure, the skaters significantly increased their view of the importance of good training habits  $F(1,15) = 8.69, p < .01$  for a skater's success.

Two CFSQ questions which inquired about the skaters' focusing (CFSQ #16) and refocusing skills (CFSQ #18) were also found to change significantly. When asked how their attention was focused during a figure performance, results indicated that after mental training the skaters focused significantly less of their attention on the judges  $F(1,15) = 11.67, p < .01$  while performing a competition figure. In addition, the skaters showed a significantly increased ability to positively refocus their attention following an error during a figure performance  $F(1,15) = 10.44, p < .01$ .

Finally, analysis of the CFSQ question on self-talk (CFSQ #14d) showed a significant positive change during the course of the study. The skaters revealed they used less negative self-talk during training sessions  $F(1,15) = 20.26, p < .01$  after participating in the mental training program. See Table 25 for the means of the significant CFSQ questions.

Table 25  
Means for CFSQ Analyses Showing Significant Differences Between Pre-Test - Follow-Up Comparisons

CFSQ #2	Pre-Test	Follow-Up
	6.77 (2.80)	2.06 (1.14) *

CFSQ #5	Pre-Test	Follow-Up
nervous tensions	1.59 (.939)	
injuries and illness	2.82 (1.33)	
improper training	3.00 (1.12)*	
poor ice conditions	3.35 (.996)	
other	4.24 (1.35)	
	Follow-Up	
nervous tensions	2.29 (1.05)	
injuries and illness	2.59 (1.23)	
improper training	1.94 (1.20)*	
poor ice conditions	3.41 (.870)	
other	4.77 (.664)	

CFSQ #7	Pre-Test	Follow-Up
positive attitude	2.24 (1.30)	
good coaching	3.41 (1.46)	
good training habits	2.29 (.920)*	
good mental preparation for competition	3.06 (1.44)	
natural talent	4.00 (1.23)	
	Follow-Up	
positive attitude	2.18 (.728)	
good coaching	3.59 (1.37)	
good training habits	1.52 (.624)*	
good mental preparation for competition	3.47 (1.07)	
natural talent	4.24 (1.20)	

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CFSQ #14d

Pre-Test	Follow-Up
5.8 (2.48)	2.7 (1.45) *

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CFSQ #16

Pre-Test	Follow-Up
3.59 (2.09)	2.00 (1.54) *

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CFSQ #18

Pre-Test	Follow-Up
5.29 (1.99)	3.64 (1.84) *

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Note. For questions 2, 14d, 16, and 18, on a scale of 0 - 10, 0 = Never, 10 = Always. For questions 5 and 7, subjects were asked to rank in order of importance from 1 to 5, with 1 being the most important. Standard deviations are in parentheses.

\*  $p < .01$

The analysis of the pre-test - follow-up data from the SCAT, and Commitment to Sport and Self-Control Scales showed no significant differences.

**Summary of Quantitative Analyses.** Analysis of the quantitative measures at the post-simulation showed no significant differences for SCAT or the Commitment to Sport or Self-Control Scales. Two questions from the CFSQ (one assessing goal-setting, and the other self-talk) showed significant changes, however, the improvements could not be attributed to the training as there was no group main effect.

An examination of pre-test to follow-up analyses for the entire group, again revealed no changes for the SCAT, Commitment to Sport, or Self-Control Scales. Several of the CFSQ questions showed significant improvements following the training. The two questions (one assessing goal-setting, and the other self-talk) which approached significance at the post-simulation showed significant improvements at the follow-up. In addition, two CFSQ questions which assessed the skaters' attitudes towards training and performance showed improvements. Two questions which inquired about focusing and refocusing during a figure performance also showed significant improvements. The

skaters were focusing less attention on the judges and were better able to refocus after making a mistake.

**Summary of All Qualitative and Quantitative Measures.** An overall summary of the results first focuses on the data related to the three mental skills examined from Orlick's theory of human excellence (imagery, focusing, and refocusing). This is followed by a summary of the data related to goal-setting and pre-competition planning. Finally, a summary of data which assessed the entire mental training program intervention is presented. As there were only minimal changes evident between the pre-test - post-simulation measures, the summaries focus on the pre-test - follow-up data.

**Mental Imagery.** A number of data sources were used to assess the effect of the mental training on mental imagery. The majority of the data was positive with respect to learning, improving and applying mental imagery skills. Information gathered from the CFSQ short answer questions revealed improvements in the quality of mental imagery practised during the pre-competition period. There were also improvements in the quality of imagery descriptions and focus during imagery rehearsal. In responses to interview questions which inquired about which mental training skills were most useful, mental imagery was the most frequently cited mental skill. The skaters used imagery during training and competition situations for a variety of reasons. The coaches of the skaters felt mental imagery had been a very useful mental training technique for their athletes. Imagery was also one of the mental skills ranked as most improved on the Mental Training Program Evaluations, and practising imagery on the ice was ranked as the third most useful aspect of the mental training program.

**Focusing.** Results from data sources examining the mental skill of focusing were mixed. CFSQ short answer data indicated that as a group the skaters did not improve their focusing for figure performances, but did improve their focusing for free-skating performances following the mental training. Focusing was not frequently mentioned by the skaters in their responses to the interview questions which inquired about which

mental training skills had been most useful. However, following their Sectionals performance, many of the skaters (11 of 17) felt their improved focusing skills had assisted with their mental preparation for the competition. In turn, two mental skills related to effective focusing, namely positive thinking and task focus, were both identified on the mental training program evaluation as skills that had improved. Analysis of the quantitative measures revealed that the skaters were focusing less of their attention on the judges during a figure performance, and had improved their self-talk (a mental skill related to focusing).

**Refocusing.** Results from the analysis of data on refocusing were also mixed. When the skaters were asked during the interview, which mental skills they used most during Sectionals, only 3 reported using refocusing. In a subsequent interview question, 8 of the 17 skaters said using refocusing had made an overall difference to their skating. On the performance evaluation, 12 of the 17 skaters reported using refocusing plans during the Sectional competition. The CFSQ short answer and quantitative measures both indicated improvements in ability to refocus after a mistake in a figure performance. Refocusing was the mental skill ranked as most improved by the skaters on the mental training program evaluation.

**Goal-Setting.** Data gathered from the interview responses indicated there were no changes in the goal-setting habits of the skaters, and goal-setting was not mentioned as a useful mental skill in response to the other interview questions. However, one of the measures from the CFSQ quantitative data relating to goal-setting showed a significant improvement. This question related to the extent to which the skaters felt overwhelmed by the work they needed to complete in preparation for competition. The use of goal-setting sheets also received a fairly high ranking (3.47 out of a possible 5) on the mental training program evaluation.

**Pre-Competition Planning.** Data gathered on pre-competition planning revealed that not all skaters were using plans to prepare for performance following the mental

training program. Based on the interview responses, 7 of the 17 skaters said they used pre-competition plans for competition, or that they had changed to using one as a result of the mental training program. Responses to the performance evaluations revealed 10 of the 17 skaters had used pre-competition plans at Sectionals. However, much of the information gathered from the mental training evaluations, relating to pre-competition planning (i.e., doing pre-competition plans, readings on pre-competition planning, warm-up and stretch information) received fairly high rankings (3.06 or above) with regards to how useful it was to the skaters.

**Overall Mental Training Program.** Information gathered from parents' responses to the mental training program provided a generally positive view of the training. However, three parents indicated that their skaters had not benefitted from the program. Based on the interview responses it was clear that some of the skaters (6 of 17) were still unable to control feelings of pre-competition stress even after receiving the training.

Information from the coaches' interviews provided a positive assessment of the program. Data gathered from both the interview and performance evaluations indicated that the majority of skaters felt better mentally prepared for their Sectional competition after participating in the mental training program. The skaters found the individual on-ice work with the instructor and individual consultations with the instructor to be the most useful aspects of the program. Data from both the CFSQ quantitative measures and short answer responses indicated a change in attitude for the skaters following the training. The skaters seemed to be more aware of the importance of good training habits, and they had an increased awareness of how specific mental training skills may influence performance.

## Chapter 5

### Discussion

The purpose of this study was twofold. First, to determine whether a group of young competitive figure skaters could effectively learn and use mental training skills for sport introduced during a mental training program intervention. Second, to examine whether the skaters could learn and use the three primary mental training skill components (i.e., imagery, focusing, and refocusing) from Orlick's heuristic model of personal excellence. The discussion will first examine whether the skaters were able to develop the mental skills effectively (i.e., imagery, focusing, and refocusing from Orlick's model, plus the additional skills of goal-setting and pre-competition planning). An examination of the overall mental training program is then presented.

The discussion of each individual skill is based on the information gathered from the pre-test - follow-up comparisons. The design of the present study allowed for certain comparisons between the experimental 1 and experimental 2 skaters at the post-simulation measure. At this point in time, experimental 1 skaters had received 8 weeks of mental training, and experimental 2 skaters had not yet received the mental training program. Thus, it was possible to assess the effects of the mental training by comparing the two groups of skaters.

If one looks only at these data, (i.e., results from the post-simulation Performance Evaluation, and the post-simulation CFSQ questions) there is little evidence that experimental 1 skaters improved their mental skills after receiving the mental training program. The imagery descriptions (waltz jump, stroking, and solo) provided by the experimental group 1 showed slight improvements in quality, and there was also a small increase in the number of experimental 1 skaters beginning to incorporate pre-competition planning and refocusing into their competition routines.

It is likely that the experimental 1 skaters had not yet had enough time to assimilate all of the skills into their training and competition routines. The training up until this

point may have only increased their awareness of the importance of mental factors. This increased awareness would be the start of the learning process. The ability to implement the mental skills at appropriate times during a stressful event, may have been beyond the skaters at the time of the simulated competition. Another possible explanation or confounding variable is that many skaters did not approach the simulated competition as if it were a real competition. If they did not feel as though they were participating in a serious competition, they may not have employed their mental training strategies for competition. Given the results from the analysis of pre-test - post-simulation measures, it seems more appropriate to discuss the mental training skills based on the pre-test - follow-up results.

**Mental Imagery.** The analysis of pre-test to follow-up comparisons revealed meaningful improvements in the skaters' imagery skills. After receiving the mental training program, all 17 skaters used imagery as a method to prepare for performances. For many (13 of 17), their pre-competition imagery improved to the point of including detailed rehearsal of the competitive setting, execution of the more difficult parts of their upcoming performance, as well as imagery rehearsal of their complete free-skating solo. Rather than simply visualizing their solos prior to a performance, the skaters had learned to use imagery to prepare themselves for all aspects of the competition situation. The skaters were demonstrating a more sophisticated approach to imagery rehearsal, similar to the type of imagery practised by elite level athletes (Orlick & Partington, 1986).

An improved quality of imagery was also apparent following training based on the skaters' personal descriptions of their imagery experiences. The imagery descriptions (stroking, waltz jump, and solo) revealed that the athletes were experiencing more control over their images, and increased kinesthetic sensation. The McNemar change test done on the stroking imagery description question indicated the skaters did not significantly improve their imagery for stroking. There was some change in the

responses to this question (an increase from 3 to 11 of 17 subjects had Controlled Kinesthetic Imagery following training), however, the improvement was not large enough to reach significance. This non-significant result may have been due to using the McNemar test with a small subject sample. Responses to the follow-up interview revealed that the skaters were using imagery extensively. Mental imagery was the most cited skill in response to interview questions which inquired about the usefulness of the different mental training skills. In turn, on the mental training program evaluation forms, imagery was one of the mental skills ranked as most improved, and on-ice imagery practice was ranked as the third most useful aspect of the mental training program. Given these results, it is clear that the skaters learned how to use mental imagery, and found it to be a very useful mental skill.

**Focusing.** Information gathered on the mental skill of focusing was not as clear-cut as the imagery data. In response to interview questions, the skaters did not cite focusing as a most useful mental skill for training and competition, and based on CFSQ short answer responses, the skaters did not show improvements in their focusing for figure performances. However, 11 of the 16 skaters stated that they believed focusing had assisted in their mental preparation for the Sectionals competition. In addition, qualitative measures indicated that focusing had improved for both imagery of the free-skating solo, and while actually performing the free-skating solo for 14 of the 17 skaters. Skaters were focusing more effectively by maintaining their attention on specific skating cues which assisted them in staying mentally connected with their performance.

Additionally, analysis of two quantitative measures related to focusing provided some support for the skaters improved use of focusing. On one measure, the skaters were found to show improvements in their self-talk. There was a significant decrease in negative self-talk during training. Unproductive inner dialogue such as - "I can't do this" or "I'm lousy" - was reduced substantially. Interpretation of this measure is

difficult because it is not a precise measure of the skill of focusing. It is related in the sense that how one speaks to oneself internally can direct one's focus or concentration.

The other quantitative measure related to focusing that showed a significant improvement indicated that during a figure performance, the skaters were focusing significantly less of their attention on the judges marking the figure. Research has shown that performance is enhanced when athletes concentrate on performance cues rather than external distractors such as judges (Bunker & Williams, 1986; Orlick & Partington, 1986). The fact that the skaters were focusing less attention on the judges is an improvement. However, given that there was no subsequent increase in attention to performance cues (the other part of this question), it is difficult to tell where the skaters shifted their focus to. Thus interpretation of this result is also difficult.

Finally, the skaters' responses to the mental training program evaluation identified two mental skills related to focusing, positive thinking and task focus, as mental skills that had improved. Although all the data sources did not support the improved use of focusing by all skaters, the majority of information was positive.

**Refocusing.** Results from the open-ended interview questions did not generate responses supporting the skaters' use of refocusing. However, data from other sources were quite favorable. Both the CFSQ short answer and quantitative measures revealed improvements in ability to refocus following a mistake in a figure performance. The skaters also ranked refocusing as the most improved mental skill on the mental training program evaluation. When asked if they used a refocusing plan during their competition performance, 12 of the 17 skaters indicated they used refocusing skills to maintain their concentration during distracting circumstances. They used refocusing to maintain the correct focus in the competition and to regain their concentration when faced with difficulties. The ability to refocus when facing a distraction has been cited as one of the most important (Orlick, 1991), and most difficult mental training skills to learn (Orlick & Partington, 1988). Given many Olympic-level athletes have difficulty with

this skill, it is promising to see that with practice young athletes are able to improve their refocusing skills. Aside from the interview data, information related to refocusing from other data sources indicated that many of the skaters were using refocusing strategies.

**Goal-setting.** The interview question specifically designed to assess goal-setting did not produce support for overall changes in patterns of goal-setting. Skaters were asked about daily goals in training, and based on their responses, two categories of goal-setters emerged - Generalists and Specifics. Generalists tended to set large, sometimes unrealistic goals for themselves, while Specifics concentrated on realistic, achievable daily goals. Following the mental training, 8 skaters remained in the Generalist goal-setting category, not showing any improvement in their approach to goal-setting. Only two skaters shifted from the Generalist category to becoming Specific goal-setters after receiving the mental training.

It is difficult to determine why more skaters did not shift to specific goal-setting. Results from the Mental Training Program Evaluation indicated that for many skaters the use of goal-setting sheets was viewed as quite valuable. It is possible not enough time was spent actually using goal-setting effectively on the ice. The skaters may have been listing and organizing their goals on the goal-setting sheets, but failing to pursue them properly during training. Perhaps more emphasis should have been placed on precisely how to implement the goal-setting process in a practice situation. More involvement by the coaches of the skaters with the goal-setting process may also have helped to reinforce this mental skill.

One of the quantitative measures related to goal-setting did show a significant change following the training. Responses to this question revealed that the skaters felt significantly less overwhelmed by the work they needed to complete prior to competition after the mental training. This particular CFSQ question, along with three related questions, was originally intended to assess changes in goal-setting. Given that the other

three questions did not show significant improvements, it would be difficult to attribute the changes in this question to the mental skill of goal-setting. The fact that the skaters were feeling less overwhelmed may have been due to the use of one or more of the other mental training skills. Thus it appears from the results that the skaters were not completely successful at learning goal-setting.

**Pre-Competition Planning.** The mental skill of pre-competition planning also received mixed results in the evaluation. Based on both the open-ended interview and performance evaluations, few skaters mentioned using pre-competition plans for performance preparation. However, responses to the mental training program evaluations, which listed the various methods used to teach the mental skills, revealed that the skaters found receiving information related to pre-competition planning to be very useful.

One factor that may have influenced the skater's responses regarding pre-competition planning is that many of the skaters believed they had pre-competition plans prior to the program. The skaters revealed to the mental training instructor that they already had routines or sequences of activities that they followed prior to a performance. Although the skaters enjoyed receiving the information on pre-competition planning, and possibly incorporated newly learned mental skills into their plans, it is possible they did not think of the pre-competition plan as a new mental skill. After all they already had plans they had developed prior to the training.

The pre-competition plan was also the mental skill practised least by the skaters during the mental training program. Many of the mental skills were used daily (e.g., imagery, focusing), but pre-competition plans were only followed during serious performance situations. The frequency with which the pre-competition plan was used may have influenced the skaters' perceptions of its effectiveness. In spite of these explanations, the data reveal that many of the skaters were not using pre-competition plans in a systematic way.

The results discussed thus far have been related to the three key mental skills from Orlick's heuristic model of excellence, and two additional mental skills included in the mental training program. Imagery appears to be the mental skill put to the best use by the skaters. All data sources examining mental imagery provided positive support for its value and use by the skaters. Focusing and refocusing did not receive as strong support, however, there was substantial evidence that most skaters were beginning to use these skills effectively. Based on these results, it appears that the skaters were able to learn and use the mental skills of imagery, focusing, and refocusing after participating in the mental training program. Results from analyses which examined goal-setting and pre-competition planning did not provide support for the overall improvement in the skaters use of these skills.

**Overall Mental Training Program.** Several data sources can be brought together in order to examine the overall effects of the mental training program. In particular, the parents' responses to the program proved to be an extremely interesting source of information. Parents saw their children at times when the expression of anxiety regarding skating was most likely to occur (e.g. the night before the competitive performance, the morning of, and during the days that followed). They were able to watch their child respond, thus providing unique insight into the way each child was dealing with the stresses of the competitive experience.

The parents also had an idea of how their child typically responded to competitive situations prior to the mental training program. Having this pre-program knowledge put them in a unique position to assess possible changes that resulted from the mental training. The changes they noticed such as improved attitude towards skating and increased control over pre-competition nerves, are the type of changes that are difficult for the experimenter to operationalize (Patton, 1980). Parents of the skaters were in an ideal situation for monitoring these types of changes. The parents' informal

observations and comments regarding the mental training program, provide support for the positive effects of the program on the skaters' development of mental training skills.

Also evident from several data sources were changes in the skaters' attitudes towards training. Over the course of the study, the skaters significantly increased their ranking of the importance of positive training habits. When asked what factors contributed most to a skaters's success, good training habits moved up significantly in the rankings following the mental training program. When asked which factors had contributed most to their poor performances in the past, the skaters significantly increased their ranking of non-productive or negative training habits.

Recognition of the importance of developing positive training attitudes and habits was also apparent in open-ended responses about lessons learned from poor performances. Following the mental training program, the skaters recognized that factors such as quality training, full focus, and arousal control influenced them during poor performances. At the follow-up measure, skaters were less likely to explain away the cause of a poor performance with vague reasoning such as - "it just wasn't my day". The skaters seemed to have developed an increased awareness of the importance of positive, well-focused training, and its role in the success of an athlete. These changes in attitude towards training are certainly positive. What remains to be seen is whether the skaters can actually put the knowledge to use by developing better training habits for skating.

The skaters were also asked to comment on their overall level of mental preparation for their Sectional competition this year (in Ottawa) as compared to the previous year (in Cornwall). The majority of skaters revealed that they felt better mentally prepared for the Ottawa Sectionals. This question on mental preparation was repeated again two weeks after the Sectionals performance during an interview. Responses to the interview question indicated the majority (14 of 17) of skaters still maintained they were better mentally prepared for the Ottawa competition. Confirmation of improved mental

preparation, two weeks after the completion of the competition, provides further support for the effectiveness of the mental training program.

**Negative Cases.** "Where patterns and trends have been identified, our understanding of those patterns and trends is increased by considering the instances and cases that do not fit within the pattern" (Patton, 1980, p. 328). It is clear from the parents' responses, that all skaters did not benefit from the mental training intervention. There were three parents who believed their children had not improved their mental skills after participating in the program. It is interesting to note that other data sources on those particular athletes support the parents' beliefs. Based on responses to the interview questions, all three of these skaters were categorized as Still Stressed Skaters and Generalist Goal-Setters. Skaters placed in these categories showed the least amount of improvement following the mental training program. In addition, the coaches of these three skaters did not give favorable evaluations of their progress with the mental skills.

Attempts to determine why these athletes did not improve their mental skills are purely speculative. Other researchers (Orlick, 1989; Ravizza, 1988) have reported that not all athletes respond positively to mental training interventions. Orlick (1989) has found during his years of mental training consultation that while some athletes become completely devoted to honing the mental side of their performance, others "need to fall flat on their face first" before recognizing the importance of mental training. Perhaps the three skaters who did not benefit from the mental training, simply were not committed or interested in learning the skills, or did not see the value in doing so. It has also been suggested by Vealy (1988) that many young athletes need assistance with their personal development first, before attempting to master the performance enhancement skills.

**Athletes' self-worth or self-value (self-esteem) and perceptions of their ability (self-confidence) have been shown to critically influence sport behavior.**

It seems inappropriate to begin specific psychological skills training methods (e.g., relaxation or imagery) until athletes attain a certain level of proficiency in the foundation skills (e.g., self-awareness, self-confidence) (Vealy, 1988, p.328).

It is possible the three skaters identified as not benefiting from the program, required assistance with their personal development or simply needed more time with the skill development phase. The parents noted an increase in awareness of the mental skills, however, there was an inability on the part of the skaters to actually use the skills. Perhaps these children lacked the self-confidence required to take control and apply the mental strategies to themselves.

One of the interview questions asked of the skaters also produced results that did not entirely support the positive effects of the mental training program intervention. When skaters were asked to comment on their physical and mental state immediately prior to a free-skating performance, three categories of skaters emerged from the analysis - Initially Focused Skaters, Refocused Skaters, and Still Stressed Skaters. Following the mental training, 6 skaters remained in the Still Stressed Skater category. This category described skaters who did not respond well to the stress of the pre-competitive situation even after receiving the mental training. Three of the skaters in the Still Stressed group have been identified as the skaters who did not benefit from the mental training intervention. The remaining three skaters in the Still Stressed category implied in their interviews that they were still stressed under competition conditions. However, other measures of mental skill training (i.e., CFSQ short-answer responses) indicated that these athletes did experience improvements in their mental skills, and parents and coaches also felt they showed improvements. It is possible that these skaters were using mental training skills during training, but had difficulty transferring or utilizing them fully under the more stressful pre-competition situation. The period of time immediately prior to a competition performance can be intensely stressful. It would not

be surprising if some young skaters continued to have difficulty channeling their pre-competition anxiety even after the mental training.

**Mental Training Program Evaluation.** Skaters completed two Mental Training Program Evaluations which were used to evaluate the contents of the mental training program, and determine which aspects of the mental training were perceived as most useful to the skaters. One evaluation examined the individual components of the program, and the other assessed the perceived effects of the program.

The skaters' ratings of the various parts of the mental training program indicated that all components of the program were viewed as helpful for developing mental training skills. Skaters reported gaining the most benefit from working on the ice with the mental training instructor, and having individual mental training consultations. On-ice imagery practise also received a high rating. These parts of the mental training program provided the most practical methods for learning and using mental training skills. During one-on-one consultation with the mental training instructor, the skaters received immediate individualized feedback regarding their mental skills. The on-ice work helped the skaters incorporate the mental training skills into their regular training.

The skaters found watching the mental training videos, and reading the mental skills information sheets the least helpful parts of the mental training. The intent of the readings and videos was simply to provide some basic information about mental training to the skaters. The only readings that received a high rating were the athlete interviews. The athlete interviews provided real-life examples of elite athletes using mental training skills during training and competition. Three of the interviews profiled popular Canadian Olympic-level figure skaters. The young skaters read these interviews with great interest and highlighted success elements evident in each interview. The high rating of the athlete interview readings suggests the interview profile may be a useful method for conveying information to young athletes.

These results are similar to those found in other studies on mental training program interventions with young athletes (Gould et al., 1990; Hellstedt, 1987b). Young athletes seem to relate best when actively involved in the learning process. This could explain the relatively low ratings given to the small group sessions. Important information was discussed during the small group sessions, however, it seemed to acquire practical significance for the skaters during the on-ice mental training. It is also possible that differences in the ratings may have been influenced by the amount of time spent on each component of the program. The three areas rated the highest by the skaters, were ones given the most time.

The second Mental Training Program Evaluation Form (Partington & Orlick, 1986) examined the perceived effects of the program on various mental skills. One section of the evaluation form asked the skaters whether they experienced any changes in their ability to use the different mental training skills. Skaters reported that they experienced the greatest improvements in their refocusing and focusing skills. Perhaps these two areas of mental skill training required the most improvement at the outset of the program.

The three mental skill areas the skaters rated as least improved included: learning from post-competition evaluations; communication; and mental preparation for training. These areas showed minimal improvement perhaps because they received less emphasis during the mental training program. Other aspects of mental training assessed such as: positiveness of thinking; mental readiness for competition; feelings of personal control; and consistency of performance were all rated as improving after participating in the mental training program.

**Factors Which Contributed to Program Success.** The extent to which the mental training program was successful can be attributed to several factors. First, the program was designed and structured to meet the needs of young athletes. Information from pilot work, and other researchers and practitioners was used to develop the

program and make it suitable to a young age group. In order to accommodate the attention span of the skaters, the small group meetings were brief, and each session contained a variety of activities related to the topic being covered. During small group meetings, lecturing was kept to a minimum, and skaters were actively involved in discussions, readings or exercises related to mental training. A variety of relaxation and imagery exercises were practised each session in order to assist the athletes in developing these skills.

A second factor believed to have influenced the acceptance of the program was the mental training instructor's background and positive approach to the skating club. Several authors (Orlick & Partington, 1987; Partington & Orlick, 1987; Ravizza, 1988) have outlined suggestions which are essential for mental training consultants who wish to successfully implement a mental training program. Ravizza (1988) identified three factors that must be dealt with when gaining entry to a sport setting: 1) the negative connotation associated with psychology; 2) knowledge of the sport; and 3) an awareness of any political constraints within the setting. During the initial stages of the current study, the mental training instructor dealt with the negative connotations associated with psychology by holding meetings with the skating club executive, and the parents and coaches of the skaters involved in the study. During these meetings a clear explanation of what should be expected from the mental training program was given, and emphasis was placed on the educational aspects of the program. It was made clear that the mental training instructor was not a psychologist or psychiatrist, but a consultant who would be working with a group of healthy young athletes, helping them to learn performance enhancement skills. With regard to having knowledge of the sport, the mental training instructor had a solid understanding of the sport of figure skating, and had worked previously as a mental training consultant with figure skaters. Political constraints within the skating club environment were limited, although some problems did exist between the coaches and the skating club executive. The mental training

instructor maintained good communication with each of the two groups, thus avoiding any major conflicts.

To enhance the mental training instructor's probability of being accepted by the athletes and coaches, guidelines for working with coaches and athletes during mental training consultation were followed (Orlick & Partington, 1987; Partington & Orlick, 1987). The mental training instructor was easily accessible to the athletes, provided multiple individual contacts for each athlete, and worked with the skaters well in advance of their Sectionals competition. Follow-up assistance with the mental training skills was also readily available for the skaters.

When working with the coaches, the mental training instructor was able to provide practical suggestions for implementing mental training strategies. The coaches were provided with a copy of all the materials covered during the mental training program, and good communication was maintained with each coach regarding their respective athlete's progress with the mental skills.

Based on Hellstedt's (1987b) work, it is believed that coaches should be given every opportunity to become involved in the mental training program. One weakness mentioned by the coaches in their subjective evaluations of Hellstedt's mental training program was their lack of involvement. The coaches' felt they were not directly involved in the program and were not following their athletes' participation closely enough. In the present study, opportunities to become involved in the program were made available to the coaches. Interestingly, only 1 of the 3 coaches actually took time to read the mental training manual, however, 10 of the 17 skaters in the study reported their coach encouraged them to practise mental training skills.

It is possible that time constraints prevented coaches from becoming more involved in the mental training. Alternatively, those coaches who did not read the manual may have felt they already had good knowledge of mental training. All coaches in Canada who teach at registered skating clubs do receive some information on sport psychology during

a compulsory coaching theory course. The course contains basic readings on mental training skills. This course combined with the availability of sport psychology literature, may have caused the coaches to feel they already had a sufficient understanding of mental training. Support for this reasoning is evident in Hall and Rodgers' (1989) study on teaching mental training techniques to coaches. They found that many of the coaches in their study reported using mental training techniques and finding them helpful prior to receiving any formal training in sport psychology skills. Following the training, the coaches in Hall and Rodger's study reported finding the mental training workshops very informative. Apparently they learned additional useful information about the sport psychology techniques, and were able to learn how to better apply mental skills in their coaching.

**Suggestions for Future Research.** Continued research on mental training skills for young children involved in sport is certainly warranted. Mental training consultants are facing demands to provide services for young athletes (ages 10-16 years) at the elite and junior elite levels (Gordin & Henschen, 1989; Orlick, 1989; Salmela, 1989), and more children are becoming involved in competitive sport at progressively younger ages (Magill, Ash, & Smoll, 1982). Results from the present study provide some useful directions for researchers who wish to pursue this area. There are a number of methodological issues that must be considered when studying mental training skills with young athletes.

Researchers examining the effects of a mental training program with children must seriously consider what methods they plan to use for evaluation. Vealy (1988) has suggested the use of multiple criterion measures when evaluating psychological skills training programs. Improvements in performance are a good measure of the effects of a program, however, most mental training programs are aimed at enhancing more than just performance outcome. Measures that assess a variety of effects should be incorporated into the research design.

For example, in the present study data gathered from the parents was not focused on performance improvement, nevertheless, the information was valuable. Parents' provided insight by observing changes in their children's attitudes and approach to competition. Few parents commented on performance improvements, yet it was clear they were genuinely pleased with the results of the mental training program. If the evaluation methods in the present study had been dependent solely on performance improvements, a great deal of valuable process information would have been missed. It is suggested that researchers evaluating the effects of a mental training program with children use multiple criterion measures.

If the researcher wishes to evaluate performance improvement as a result of mental training, the measure used to evaluate performance must be carefully selected. Measures of performance improvement which have used win/lose as the criterion for success, or between-subjects comparisons have been criticized. These measures do not control for individual differences in skill or ability level, therefore it is not possible to determine whether performance improvements are due to improved mental skills or differences in skill level (Burton, 1990).

Burton (1988) has recommended the use of intraindividual measures of performance improvement. These measures compare what the athlete is doing presently with an average or best previous performance. For example a golfer's present score could be regularly compared with an average score for the season. The use of intra-individual measures provides a more sensitive measure for evaluating small changes in performance that may have been influenced by mental training. A few strokes cut from a golfer's score, or one stroke under pressure, may not mean the tournament is won, but it could be the beginning of improved mental control over the game.

The researcher must also consider what type of data will be used to evaluate program effects. The qualitative data collected in the present study provided valuable information regarding the mental training program intervention. The quantitative analyses were

less successful. Zaichkowsky (1980) has put forth several reasons why quantitative methods may be ineffective for evaluating mental training program interventions. It is often difficult for the researcher to obtain a large enough sample size for a group design, and a large group of subjects may be inappropriate for this type of research. A high quality mental training program study requires one-on-one consultation between the experimenter and each subject, thus a smaller sample size may be more suitable. Furthermore, if group means are used for comparison when evaluating a mental training program, the effects of the intervention on specific individuals is not taken into consideration. Some subjects may improve and some may not, when everything is averaged together it may appear as though the intervention had no effects or effects on everyone. In addition, subjects may experience performance improvements that are of practical significance but are not strong enough to reach statistical significance. When planning to conduct a mental training program evaluation study, the researcher must weigh the benefits and drawbacks of both qualitative and quantitative research approaches.

One method that may be effective for monitoring and evaluating the effects of a mental training program with athletes is the informal conversational interview. Patton (1980) has described the informal conversational interview as a more flexible approach to interviewing. No predetermined set of interview questions is prepared, instead questions and responses flow from the immediate context of the conversation. This approach is useful when the evaluator will be in the situation for an extended period of time, and does not wish to be dependent on a single interview to collect all the information. The informal conversational interview is designed to gather information that both expands and elaborates previous interview data. It would allow the interviewer to respond to individual differences in athletes, which is particularly important with youngsters who may be reacting differently during training and competition situations.

The interview data collected in the present study may have provided more detailed information (i.e., less emphasis on imagery) had an informal conversational interview approach been used. An examination of the interview responses revealed that mental imagery was the mental skill being used most consistently by the skaters. When the skaters were asked what mental training meant to them, 15 of the 17 skaters said it meant using mental imagery. When asked what mental skills they used in training for the Sectionals competition, 16 of 17 skaters said they used mental imagery, and 12 skaters cited mental imagery as the mental skill they used during the Sectional competition. Other mental training skills were mentioned by the skaters, but none with the frequency of mental imagery.

The predominance of this response is not surprising considering the extent to which imagery was used. Mental imagery was a part of virtually all the mental training skills taught during the program. Skaters were taught to use imagery when refocusing, it was also an important part of the pre-competition plans that were developed. Imagery was used daily in training to make corrections or to rehearse free-skating solo run-throughs. It is possible that skaters referred to imagery as a "catch-all" term for all mental training skills. Support for this is apparent in the interview responses. When the skaters referred to imagery, they commented on how they used it to prepare for daily training, to refocus their attention after a fall, or to rehearse a skill. It is clear the skaters were using other mental training skills, however, because imagery was an essential part of the skills they learned, it became the predominant response.

Using a less rigid approach to interviewing, such as the informal conversational interview, would allow the researcher to ask more relevant questions about the mental skills being used. For example, if a researcher attending a training session, approached a young skater who just completed some imagery practice, the researcher could ask: "What did you just do in your image"? The skater may reply: "I fell really hard the last time I tried my double axel, so I imagined the landing of my jump feeling perfect and

smooth." The skater may label this form of mental practice simply as imagery, while the researcher may see it as using imagery to refocus. Opportunities to obtain more detailed data from athletes on an ongoing basis would assist researchers in examining when, how, and why, young athletes are using mental skills. An informal conversational approach to interviewing may allow the researcher to catch the youngster at the appropriate moment, ask the right question, and tap into the young athletes way of thinking.

One final suggestion concerns the long term effects or maintenance of mental skill training. Mental training studies with children (Hume, Martin, Gonzaliz, Cracklin & Genthon, 1985; Wrisberg & Anshel, 1989) have measured the effects of mental training immediately following the intervention. At the time of measurement the programs may have produced positive results, however, there is no measure of the lasting effects of the training. Mental training may begin when the consultant arrives but to be effective must continue once they depart. The athlete needs to view mental skills training as an integral part of the complete training system (Ravizza, 1987). Research on mental training programs for young athletes which focuses on both the incorporation of mental training into regular training, and the maintenance of mental training skills is needed. Ideally, the mental skills gained from participating in a mental training program at a young age, should fit solidly into the young athlete's repertoire, and stay with them throughout their athletic career, and beyond.

**Summary.** In summary, the overall findings of this study provide support for the capacity of young athletes to learn and gain from mental skills training. Results from the evaluation of this mental training program provide the most complete information to date on how young athletes respond to and learn from participation in a mental training intervention. The measures used in the current study revealed that skaters were learning and using the mental skills of imagery, focusing, and refocusing taught during the program. The skaters were less successful at learning and using the mental skills of

goal-setting and pre-competition planning. It is possible that the measures included in the present study did not provide a fair or detailed enough evaluation of the skills, or that not enough emphasis was placed on this aspect of the program. Researchers examining mental training program implementation with young athletes need to further investigate these skills.

The analyses of mental training program components revealed that the skaters most enjoyed aspects of the program where they received individual attention. Working individually on the ice with the mental training instructor, or receiving one-on-one mental training consultation were found to be the most helpful aspects of the program. These results concur with the current literature on mental training consultation with older athletes. Many mental training consultants have advocated an individualized approach to working with athletes (Nideffer, 1989; Orlick, 1989; Seabourne, Weinberg, Jackson & Suinn, 1985). Athletes are viewed as unique individuals with specific needs, and the mental training consultation is believed to be most productive when these needs are met. The results from this study suggest consultants working with young athletes should provide individualized attention, and focus on what is perceived to be the athlete's most important mental training need.

With regard to the three primary mental skill components examined from Orlick's heuristic model of personal excellence, the skaters did not appear to have learned these skills in a significant way within an 8-week experimental design. However, measures taken at the follow-up measuring point (after 11 months of training) did reveal improvements in these mental skills. The skaters experienced the most success with learning and applying mental imagery. The skills of focusing and refocusing were also successfully employed by the skaters but to a lesser degree. The fact that athletes were able to begin developing these skills from Orlick's model at an early age is valuable information for researchers and practitioners wishing to study young athletes within this heuristic framework. There is evidence now that young athletes can develop at least

three of the primary mental training skills from Orlick's model. The results also suggest that 8 weeks of training is probably not a long enough training period for most young athletes. It is hoped the information from this study will assist practitioners and stimulate researchers to further examine mental skills training with young athletes.

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## **Appendix A**

### **Experimental Measures**

General Information Form

Sport Competition Anxiety Test

Competitive Figure Skaters's Questionnaire

Commitment to Sport Scale

Self-Control Scale

Skaters' Interview Questions

Performance Evaluation Form

Mental Training Program Evaluation Forms

Coaches' Interview Questions

Letter to Parents of the Skaters

General Information Form

Name: \_\_\_\_\_

Age: \_\_\_\_\_ Birth Date: \_\_\_\_\_

Address: \_\_\_\_\_  
(Home)

Address: \_\_\_\_\_  
(Away)

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_  
(Home)

Phone: \_\_\_\_\_  
(Away)

Name of Coach(es): \_\_\_\_\_

Name of Coach(es): \_\_\_\_\_

(Home) \_\_\_\_\_

(Away) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

What is the highest test you have passed in:

Figures: \_\_\_\_\_

Free-Skating: \_\_\_\_\_

Competitive Tests: \_\_\_\_\_

What category are you planning on competing  
in this year? \_\_\_\_\_

Will this be your 1st, 2nd, or 3rd year in this category? \_\_\_\_\_

How many years have you competed at Sectionals? \_\_\_\_\_

How many years did you compete at clubs and interclubs before going to  
Sectionals? \_\_\_\_\_

Sport Competition Anxiety Test for Children

ILLINOIS COMPETITION QUESTIONNAIRE

Form C

Directions: We want to know how you feel about *competition*. You know what competition is. We all compete. We try to do better than our brother or sister or friend at something. We try to score more points in a game. We try to get the best grade in class or win a prize that we want. We all compete in sports and games. Below are some sentences about how boys and girls feel when they compete in sports and games. Read each statement below and decide if you **HARDLY-EVER**, or **SOMETIMES**, or **OFTEN** feel this way when you compete in sports and games. Mark A if your choice is **HARDLY-EVER**, mark B if you choose **SOMETIMES**, and mark C if you choose **OFTEN**. There are no right or wrong answers. Do not spend too much time on any one statement. Remember choose the word which describes how you usually feel when competing in sports and games.

	Hardly-Ever	Sometimes	Often
1. Competing against others is fun.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
2. Before I compete I feel uneasy.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
3. Before I compete I worry about not performing well.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
4. I am a good sportsman when I compete.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
5. When I compete I worry about making mistakes.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
6. Before I compete I am calm.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
7. Setting a goal is important when competing.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
8. Before I compete I get a funny feeling in my stomach.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
9. Just before competing I notice my heart beats faster than usual.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
10. I like rough games.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
11. Before I compete I feel relaxed.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
12. Before I compete I am nervous.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
13. Team sports are more exciting than individual sports.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
14. I get nervous wanting to start the game.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
15. Before I compete I usually get up tight.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>

(Martens, 1977, p.94)



- \_\_\_\_\_ a positive attitude
- \_\_\_\_\_ good coaching
- \_\_\_\_\_ good mental preparation for competition

8. Please rate how you usually feel during each of the times listed below.

Positive Nervousness means that excited feeling you have when you are ready to go out and compete.

Negative Nervousness is the feeling where you are worried and do not really feel ready to go out and skate your best.

	Negative Nervousness					Positive Nervousness					
	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
a. One week before an important competition.	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
b. The day before an important free-style competition.	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
c. The night before an important free style event.	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
d. One hour before your free-style event.	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
e. While lacing your boots before a free-style event.	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
f. During your on-ice warm-up for free-style.	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
g. While waiting your turn to skate (after warm-up).	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
h. When it's your turn they have called your name.	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
i. Standing in your pose, waiting.	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5

9. Take a minute now, close your eyes and relax, and try to imagine yourself skating. Do this for 30 seconds -- then answer the following questions.

a) Describe what you experienced while you were stroking in your mind:

-----

-----

-----

-----

b) Did you have a feeling in your body as if you were actually doing it?

0 1 2 3 4 5 6 7 8 9 10

I had no

Yes, it felt like

feeling at all

I was really doing it

c) Were you able to control your imagery so that things happened the way you wanted?

0 1 2 3 4 5 6 7 8 9 10

No, couldn't

Yes, very easy to

control image at all

control image

10. Take a minute now, and try to imagine yourself skating into a waltz jump and then doing one. Close your eyes and relax. Do this for 30 seconds -- then answer the following questions.

a) Describe what you experienced when you did the waltz jump in your mind:

-----  
-----  
-----  
-----

b) Did you have a feeling in your body as if you were actually doing it?

0 1 2 3 4 5 6 7 8 9 10

I had no

Yes, it felt like

feeling at all

I was really doing it

c) Were you able to control your imagery so that things happened the way you wanted?

0 1 2 3 4 5 6 7 8 9 10

No, couldn't

Yes, very easy

control image at all

to control image

11. Close your eyes and relax for a moment. I want you to imagine yourself standing on the ice ready to begin your solo. Now, in your head, go through your solo from start to finish.

a) Describe what you experienced in your imagery while you were doing your solo:

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-----  
-----  
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b) Did you have a feeling in your body as if you were actually doing it?

0 1 2 3 4 5 6 7 8 9 10

I had no

Yes, it felt like

feeling at all

I was really doing it

c) Were you able to control your imagery so that things happened the way you wanted?

0    1    2    3    4    5    6    7    8    9    10

No, couldn't

Yes, very easy to

control image at all

control image

d) What sorts of things were going through your mind, or what were you saying to yourself while doing the imagery of your solo?

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-----  
-----

12. Do you use imagery prior to skating in competition?

\_\_\_\_\_ Yes    \_\_\_\_\_ No

13. If yes, what do you do?

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-----  
-----

14. When you talk to yourself during training, how often do you:

a) Give yourself technical instructions (i.e. lift, press, hold)?

0    1    2    3    4    5    6    7    8    9    10

Never

Sometimes

Very  
often

b) Criticize other things (i.e. this jump is stupid, I hate this arena)?

0    1    2    3    4    5    6    7    8    9    10

Never

Sometimes

Very  
often

c) Praise yourself (i.e. alright, that was really good)?

0    1    2    3    4    5    6    7    8    9    10

Never

Sometimes

Very  
often

d) Put yourself down (i.e. I'm lousy, I'll never be able to do this)?

0    1    2    3    4    5    6    7    8    9    10

Never

Sometimes

Very  
often

15. When you are training on your own at a normal session, how much of your attention is focused on each of the following?

a) During Patch I focus on:	never	hardly ever		some-times		often		always			
-other skaters	0	1	2	3	4	5	6	7	8	9	10
-people watching	0	1	2	3	4	5	6	7	8	9	10
-what I'm doing now	0	1	2	3	4	5	6	7	8	9	10
-what I plan to do next	0	1	2	3	4	5	6	7	8	9	10
-other things: _____	0	1	2	3	4	5	6	7	8	9	10

b) During Free Skate I focus on:	never	hardly ever		some-times		often		always			
-other skaters	0	1	2	3	4	5	6	7	8	9	10
-people watching	0	1	2	3	4	5	6	7	8	9	10
-what I'm doing now	0	1	2	3	4	5	6	7	8	9	10
-what I plan to do next	0	1	2	3	4	5	6	7	8	9	10
-other things: _____	0	1	2	3	4	5	6	7	8	9	10

c) During my solo I focus on:	never	hardly ever		some-times		often		always			
-other skaters	0	1	2	3	4	5	6	7	8	9	10
-people watching	0	1	2	3	4	5	6	7	8	9	10
-what I'm doing now	0	1	2	3	4	5	6	7	8	9	10
-what I plan to do next	0	1	2	3	4	5	6	7	8	9	10
-other things: _____	0	1	2	3	4	5	6	7	8	9	10

16. When you are skating a figure in front of the judges, how much of your attention is focused on each of the following?

	never	hardly ever		some-times		often		always			
a) the judges	0	1	2	3	4	5	6	7	8	9	10
b) people watching	0	1	2	3	4	5	6	7	8	9	10
c) what I'm doing now	0	1	2	3	4	5	6	7	8	9	10

d) what I plan to do

next 0 1 2 3 4 5 6 7 8 9 10

e) other things: \_\_\_\_\_

\_\_\_\_\_ 0 1 2 3 4 5 6 7 8 9 10

17. Can you think of some of the things that go through your head when skating a figure in front of the judges? If yes, write them down?

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-----  
-----

18a. If you make a mistake while skating a figure in front of the judges, how often do you think about the mistake during the rest of the figure?

0 1 2 3 4 5 6 7 8 9 10  
Never Sometimes Always

b) What sorts of things go through your head?

-----  
-----  
-----

19. When you are skating a free-style program in front of the judges, how much of your attention is focused on each of the following?

	never	hardly ever	some-times	often	always						
a) the judges	0	1	2	3	4	5	6	7	8	9	10
b) people watching	0	1	2	3	4	5	6	7	8	9	10
c) what I'm doing											
now	0	1	2	3	4	5	6	7	8	9	10
d) what I plan to do											
next	0	1	2	3	4	5	6	7	8	9	10
e) other things: _____											
_____	0	1	2	3	4	5	6	7	8	9	10

20. Can you think of some of the things that go through your head when skating a free-style program in front of the judges? Write them down:

-----  
-----  
-----  
-----



Commitment to Sport Scale

	not really		some- times		yes always
1. a) Are you willing to sacrifice other things (i.e. social activities, holidays) to do your best in skating?	1	2	3	4	5
b) List the things you are willing to sacrifice: _____ _____					
2. Do you really want to become an outstanding skater? (e.g. a well-known and recognized athlete)	1	2	3	4	5
3. Do you take personal responsibility for mistakes and work hard to correct them.	1	2	3	4	5
4. Do you give 100% effort in practice?	1	2	3	4	5
5. Do you give 100% effort during competition?	1	2	3	4	5
6. Do you push hard even when you are tired?	1	2	3	4	5
7. a) Do you feel more committed to improvement in skating than to anything else?	1	2	3	4	5
b) Is there something else you feel more committed to? If so, list it here: _____ _____					
8. Do you put in extra preparation time or training time (i.e. off-ice training or mental training) before or after regular practice sessions?	1	2	3	4	5
9. Do you think about skating in every day situations (i.e. outside of practice)?	1	2	3	4	5

				not really		some- times		yes always	
10.	Do you really want to become	1	2	3	4	5			
	the best skater you could								
	possibly be?								

11. How important is skating in your life?

not very important					important					the most important thing
0	1	2	3	4	5	6	7	8	9	10

12. How important is it for you to learn the mental skills in this sport psychology program?

not very important					important					the most important thing
0	1	2	3	4	5	6	7	8	9	10

Self-Control Scale

	not really	2	some- times	4	yes always
1. Do you get so absorbed in your training that everything else disappears?	1	2	3	4	5
2. Can you control yourself if you become too nervous in competition?	1	2	3	4	5
3. If you get upset about something can you pull yourself together and still have a good session.	1	2	3	4	5
4. Do you have a feeling of "yes, I know can do it"?	1	2	3	4	5
5. Do you get frustrated on the ice?	1	2	3	4	5
6. Do you take criticism well and learn from it?	1	2	3	4	5
7. Can you stay motivated when you are having a bad day?	1	2	3	4	5
8. When you are skating, can you maintain your focus of attention in the present? (e.g. thinking about what you just did, or what's coming up)?	1	2	3	4	5
9. Can you stay motivated when your placing is low early in competition?	1	2	3	4	5

(adapted from Orlick, 1980)

## Skaters' Interview Questions

Introductory Instructions for Interviewee. I would like to ask you some questions about your skating experiences. The answers you give are for some researchers at the University of Ottawa. They are interested in how young athletes, like yourself, feel about their sport experiences. The answers you give will be transcribed (written out) and coded, so you won't be identified by what you say. I would like to tape record your interview if this is alright with you. If at any point you don't want the tape running just shut it off. Using the tape recorder makes my job easier because I can listen closely to what you are saying and not miss anything.

Note: Following the interview, the tape recorder was shut off, and interviewees were given an opportunity to ask questions or speak with the interviewer about their interview.

### Repeated Interview Questions

Just to get started, I wanted to ask you a couple of questions about how you feel about your skating.

- 1) When you think of skating, what kind of things pop into your head?
- 2) Is skating mostly fun or mostly work for you?

I'm going to ask you a series of 3 questions about how you feel before you skate in competition.

- 3) How do you usually feel immediately before a competition?
- 4) What are you usually thinking about immediately before a competition?
- 5) How does your body usually feel immediately before a competition?

Now I want to ask you a question about your training.

- 6a) When you step on the ice for training, do you know what you want to accomplish that day?
- b) What would be an example of something you would like to accomplish today?

### Additional Follow-Up Questions

Just so that I know you will understand my next two questions, I was wondering:

- 7) If I use the term "mental skills", what does that mean to you?

Okay, can you tell me:

- 8) What mental skills did you use in training for this Sectionals?
- 9) What mental skills did you use during this Sectionals?

10a) Did your coach encourage you to use the mental training skills that you learned in the program?

b) How did your coach encourage you?

11a) If you think back to the Sectionals competition in Cornwall, and the Sectionals competition in Ottawa, which competition were you better mentally prepared for?

b) What was it that made you feel better mentally prepared?

I just have two questions left to ask you. They are about what you learned from doing the mental training.

12) Can you tell me what has changed with regard to your skating now that you have done the mental training program with the mental training instructor?

13) How much effort did you put into learning the mental skills?

1	2	3	4	5	6	7	8	9	10
none			a			a		quite	really
at			little			medium		a	a
all			bit			amount		bit	lot



## Mental Training Program Evaluation Forms

Please rate each part of the mental training program on the scale provided. Before answering, take time to recall the part of the program you are rating.

	Hindered			No effect			Helped a Lot				
Using relaxation exercises	-5	-4	-3	-2	-1	0	1	2	3	4	5
Readings on relaxation	-5	-4	-3	-2	-1	0	1	2	3	4	5
Practising imagery in class	-5	-4	-3	-2	-1	0	1	2	3	4	5
Practising imagery on ice	-5	-4	-3	-2	-1	0	1	2	3	4	5
Readings on imagery	-5	-4	-3	-2	-1	0	1	2	3	4	5
Using focus plan for figures	-5	-4	-3	-2	-1	0	1	2	3	4	5
Using focus plan for solo	-5	-4	-3	-2	-1	0	1	2	3	4	5
Readings on focusing	-5	-4	-3	-2	-1	0	1	2	3	4	5
Small group meetings	-5	-4	-3	-2	-1	0	1	2	3	4	5
Individual meetings	-5	-4	-3	-2	-1	0	1	2	3	4	5
Using goal-setting sheets	-5	-4	-3	-2	-1	0	1	2	3	4	5
Readings on goal-setting	-5	-4	-3	-2	-1	0	1	2	3	4	5
Warm-up, stretch information	-5	-4	-3	-2	-1	0	1	2	3	4	5
Doing pre-competition plan	-5	-4	-3	-2	-1	0	1	2	3	4	5
Readings on pre-competition plan	-5	-4	-3	-2	-1	0	1	2	3	4	5
Changing negative self-talk	-5	-4	-3	-2	-1	0	1	2	3	4	5
Readings about refocusing	-5	-4	-3	-2	-1	0	1	2	3	4	5
Learning about success elements	-5	-4	-3	-2	-1	0	1	2	3	4	5
Reading the athlete interviews	-5	-4	-3	-2	-1	0	1	2	3	4	5
Video of skater using imagery	-5	-4	-3	-2	-1	0	1	2	3	4	5

Video of World team simulation	-5	-4	-3	-2	-1	0	1	2	3	4	5
Video of Brian Orser	-5	-4	-3	-2	-1	0	1	2	3	4	5
Imagery video	-5	-4	-3	-2	-1	0	1	2	3	4	5
On-ice work with instructor	-5	-4	-3	-2	-1	0	1	2	3	4	5

Over the course of the season did you experience any changes in your ability to:

	Got Worse					Same					Much Improved				
Focus on your task immediately before the event?	-5	-4	-3	-2	-1	0	1	2	3	4	5				
Focus on your task during the event?	-5	-4	-3	-2	-1	0	1	2	3	4	5				
Constructively refocus when needed?	-5	-4	-3	-2	-1	0	1	2	3	4	5				
Control your mental imagery so that your imagined performance is perfect?	-5	-4	-3	-2	-1	0	1	2	3	4	5				
Feel the actions and sensations in your imagery as if you are actually performing?	-5	-4	-3	-2	-1	0	1	2	3	4	5				
Get the most out of each training session by mentally preparing for them?	-5	-4	-3	-2	-1	0	1	2	3	4	5				
Draw constructive lessons from setbacks or errors by doing post-competition evaluations?	-5	-4	-3	-2	-1	0	1	2	3	4	5				
Communicate openly or effectively with coaches and/or teammates?	-5	-4	-3	-2	-1	0	1	2	3	4	5				

How much do you feel the overall Mental Training Program affected:

	Hindered				No effect				Helped a Lot		
The positiveness of your thinking?	-5	-4	-3	-2	-1	0	1	2	3	4	5
Your mental readiness for competition?	-5	-4	-3	-2	-1	0	1	2	3	4	5
Your feeling of personal control?	-5	-4	-3	-2	-1	0	1	2	3	4	5
The consistency of your performance?	-5	-4	-3	-2	-1	0	1	2	3	4	5

## Coaches' Interview Questions

First, I would like to ask you three questions about how the mental training program affected your skaters.:

- 1) Based on your experiences, how did you find the mental training program helpful for your athletes?
- 2) How did you find the mental training program hindered your athletes?
- 3) Based on your experiences or observations, how did your athletes use the mental skills they were taught during the program?

I would like to ask you about your recommendations for the program.

- 4) What suggestions do you have for changing mental training development for future programs?
- 5) If you had all the mental training program information, how would you feel about running a sport psychology program on your own?
- 6) Did you use sport psychology techniques with your athletes prior to the program?

I just want to ask you two more questions. They are about the mental training manual you were given at the beginning of the program

- 7) Did you read the sport psychology training manual?
- 8) What is your opinion of the contents of the manual?

Dear Parents,

During the last 10 months I have been teaching mental training skills to the competitive skaters at the Nepean Skating Club. My work with the skaters is now completed, and I am in the process of trying to evaluate each skaters' progress. At this point, I would like to ask for your assistance with my evaluation. Your daughter may have said or done things at home that would indicate how she felt about doing the sport psychology training with me (particularly during Sectionals). If you could take the time now to think about this, and write down any information you have about your child, it would be very helpful.

Here are some examples and suggestions that will give you an idea of what I'm looking for:

- any indication of a loss of control over feelings of nervousness prior to a competition, test or simulation.
- any indication of learning to control or an attempt to control nerves or feelings of anxiety before a competition, test or simulation.
- any change of attitude about skating or competition or a particular situation.
- any attempt to analyze a performance, to determine what went wrong or right.
- any comments from your child about the sport psychology program (i.e. I'm doing my imagery, pre-competition plan etc.).
- any negative or positive comment they made with regard to the sport psychology training.
- any improvement or decrement in their performance skills for figures or free-skating during tests or competitions.
- and any of your comments with regard to the program and how you felt about it. Suggestions for improvements or things that you felt should have been included.

Please do not be afraid to respond as you wish. I will not know who the responses are coming from, and all information provided will be held in complete confidence. All responses will be typed and coded before I get a chance to see them. The expression of your honest feelings is essential in order to get an accurate evaluation of the program.

Please use the sheets of paper supplied. The envelope containing your responses can be sealed and left in the office with Claire Brody any time next week. I would also like to take this opportunity to thank you for letting me work with your daughter. I thoroughly enjoyed all the kids. If you would like to speak with me about the program, please call me at 231-5588.

Thanks so much

Blaize Mumford

## **Appendix B**

### **Mental Training Program Manual**

Success Elements

Mental Preparation Checklist

Relaxation

Goal-Setting

Mental Imagery

Pre-Competition Planning

Proper Warm-up

Focusing and Concentration

Refocusing

# SUCCESS ELEMENTS



When you sit down and talk with so many great athletes in their homes and in training centres across the country you cannot help but be impressed by some of their common and yet unique qualities. We often compared notes on our impressions of these vibrant young Canadians who had already accomplished so much in their chosen field of excellence.

They were all highly committed individuals with clearly established success goals. They were open and receptive to us, to developing their mental strength, and to what their coaches had to offer. At the same time they were very selective in terms of drawing out what might work for them as unique individuals, when developing technical, physical or mental strengths. Perhaps most important, they reflected an experimental, "Let's try," attitude. They were willing to try, and to learn from those trials.

A striking result from the interview portion of this study was the surprising consistency of certain success elements for virtually all of our best performers in all sports. An overview of each of these success elements follows under the headings, Quality Training and Mental Preparation for Competition. A more complete appreciation for what is meant by each element of success will be gained when you read the athletes' own stories in the remainder of this book.

## I. Quality Training

The most common and probably the most important element of success was quality training. I know what you are thinking, "Of course you need quality training, that's obvious. I do that, doesn't everybody?" There were notable differences between what most of our athletes thought was "quality training" and the actual high quality training that has helped our best athletes get to the top. Several athletes put it this way, "Everybody thinks that practice makes perfect, but 'perfect practice makes perfect.'" The best athletes don't just go through the motions in training. They have discovered that the only way to establish the winning patterns they want to draw upon in the competition is to go through the motions with the highest degree of quality or with absolute intensity.

The best ones mentally prepare for training. They are thinking about what they want to accomplish the night before, the morning of, and even on the way to training. Before they arrive at training they have already committed themselves to their best effort in accomplishing those goals. They train with the highest quality of effort or the highest degree of intensity and they mentally prepare themselves to do this. They also rest well between training sessions so they can continue to give their best effort.

**Simulation Training** — The very best athletes use a lot of simulation training. They approach training runs or go through routines in practice as if it was the competition, wearing what they would wear, preparing like they would prepare. They take the time to mentally prepare to do it well.

**Imagery Training** — All the best athletes have very well-developed mental imagery skills and use them on a daily basis. They use imagery to prepare themselves to get what they want out of training, to perfect skills within the training sessions, and to "see" themselves being successful.

The refined imagery they have developed for running through skills and performances in their mind, is one which takes an "inside" view, as if actually doing the skill, and one which involves feeling the action and excitement, as if actually being there. Most of these athletes call up these inside images or perfect feelings before every attempt at executing a skill.

It is interesting to note that these athletes did not initially have good control over their mental imagery. It was through persistent daily practice that they perfected these skills.

**Clear Daily Goals** — The best athletes have clear and usually simple, targeted daily goals. They know what they want to accomplish each day, each workout, each sequence or interval. They are determined to accomplish these goals and focus on doing so, daily. They also maintain excellent year round conditioning.

**Total Commitment** — Athletes who reach the top have an incredible commitment to excel in their sport. For a significant chunk of time everything in their entire life revolves around their training. Their athletic goal is the most important goal in their life. Family and friends are still important, but the central and most meaningful focus and goal is the pursuit of excellence in sport. They didn't begin sport with this total commitment. It grew as they began to recognize their own potential. Several years before becoming Olympic or world champions all of these athletes had very clearly established goals of reaching the top. The goal was to win an Olympic gold, to be world champion, to be the BEST in the world. Most "saw" themselves achieving that goal, in their minds, long before it became a reality.

## II. Mental Preparation for Competition

The quality of effort in training, the simulation training, the imagery training and clear daily goals have moved these athletes along the path of excellence. But in addition to this quality training, the best athletes have developed very sound procedures for drawing upon their strengths in important competitions.

**Pre-Competition Plan** — The best athletes have a well-established and well-practised pre-competition procedure which they follow consistently. The pre-competition plan includes the use of mental imagery, a good physical warm-up, positive thoughts, and reminders to focus on what has worked. When an athlete arrives on-site she knows what she is going to do, and when she is going to do it. By following a well-developed and refined pre-competition plan, a constructive focus is maintained going into the event.

**Competition Focus Plan** — The best athletes have taken the time to discover what kind of focus works best for them in a competition. They have developed a refined plan to draw upon this focus during the competition. In almost all cases the best focus is one which keeps the athlete connected to what he is doing, his job. In contrast, the worst focus is one in which the athlete is connected to factors over which he has no control, such as competitors, final outcome, or other distractions.

**Competition Evaluation** — The best athletes pull out the important lessons from every competitive experience and adapt or refine their mental approach based upon these lessons. If the performance was excellent, they will note the mental factors or focus associated with that best performance. In this way, they integrate important lessons into their plan for subsequent competitions. If the performance was "off" they will try to assess why, paying particular attention to their mental state or focus, before and during the competition. They are extremely good at drawing out the important lessons and then letting the performance go, especially if it was less than their best. Many of the best athletes use their diaries, logs, or some other post-competition evaluation procedure to write down the lessons learned. Some go back to these notes to help direct their focus for subsequent competitions.

**Distraction Control** — For the success elements discussed thus far, virtually all of our great athletes have a common strength. However, in terms of mental skills for dealing with distractions or setbacks, which is extremely important for the consistency of high-level performance, there is greater variation. Some of the best athletes have excellent strategies for getting back on track quickly when things don't go well, or when faced with distractions. Others appear to need work in this area to improve the consistency of their high-level performance.

**Learning the Elements of Success** — It was clear from our study that great athletes did not begin their sports careers with all of these success elements. They learned quality training, simulation training, quality imagery, daily goal setting, pre-competition planning, competition focus planning, competition evaluation procedures and distraction control. These success elements are developed and refined through practice. Without practice these skills will not be learned, and without persistent use they may be forgotten.

As a result of listening to others and themselves, watching, talking, reading, experimenting, practicing, performing, thinking, experiencing, recording and evaluating, each athlete recognized the importance of these elements. Each then began to develop, implement and refine his or her own unique plans, sometimes in conjunction with a coach and sport psychology consultant.

Many of these highly successful athletes felt that they could have reached the top much earlier if they had worked on strengthening their mental skills earlier in their careers. Some mentioned that they had had the same technical and physical skills honed to perfection four years before becoming world champions, but they had not yet learned how to hold their best focus in important competitions. Once their focusing skills were refined, their dreams became a reality.

Finally, it is interesting to note that almost all of the athletes who performed to potential at the Olympic Games had a very close personal bond with their coaches. They worked out programs, problems and strategies together. These athletes respected their coaches, and their coaches respected them, to the point of being flexible enough to individualize training programs and feedback based upon the athlete's input. Creating an atmosphere of mutual trust, mutual respect, and a genuine concern for individual athletes, appears to be a necessary requirement for helping Canadian Olympians to achieve their highest level of excellence.

Every great athlete may not have possessed every single success element we have discussed in this chapter, but the more elements they had working for them, the higher the probability of performing to their potential on a consistent basis.

# Orser's out to prove he's world's top skater

Here is an excellent example of a World Champion taking the time to evaluate, and learn from his mistakes!!!

What is the point of going back and doing the same thing again, if it doesn't work?

By Martin Cleary  
Citizen staff writer

CINCINNATI — The 1986 world men's figure skating championship was there for the taking for Orser as Brian Orser in Geneva.

Defending champion Alexander Fadeev of the Soviet Union, the leader after the short program, crumbled in his 4¼-minute freeskating program.

Czechoslovakia's Josef Sabocik, sitting second, was worse.

Brian Boitano of the United States was an outsider in fourth.

All Orser had to do was take the Fulier Brush approach, sell the judges on a technically demanding, balanced program and do it with gusto.

But his time on the ice seemed like an eternity as he missed his signature jump — the triple Axel.

See you next year, Brian.

For the third straight year Orser was second to a third different champion. This time Boitano was perfect in performance after being a pauper in practice.

Orser backed away from this title both on and off the ice.

While his competitors skated, Orser hid in a dressing room waiting his cue.

"I was in a back room with the shower on so I couldn't hear the crowd cheering or the marks.

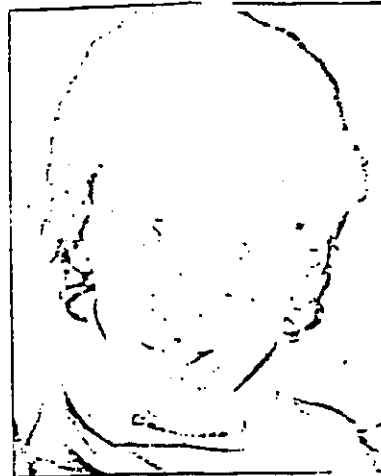
"It wasn't that I was afraid to win. I've just never been in that position before.

"In 1985, I went out knowing it was impossible to win overall."

In 1984, he buried himself in seventh place after the compulsory figures. You can't do that and expect to beat four-time winner Scott Hamilton.

Orser, who takes the first step towards the title today with the scheduled figures, says this is the year he sheds his image as the No. 1 contender.

"Being second hasn't discouraged me," he said Sunday. "I've said I won't retire until I win the title. The more I come second the more I want to win."



Brian Orser  
"I won't retire until I win."

Winning means beating Boitano, who is skating in his home country and attempting to become the first skater to land a clean quadruple jump, and Fadeev, who was brilliant at the European championships.

"Everyone will be nervous," Orser said. "Last year, I wasn't nervous enough and I talked myself out of it. I tried to think of other things and I didn't think enough about the long program."

Orser might have won the title, had he had sports psychologist Dr. Peter Jensen of Toronto there to look into his eyes to read his fire power level.

Before each stage of a competition, Orser now goes through a mental rehearsal routine with Jensen to rev the engines. They work on imagery, walking through the program step by step, and building his readiness.

Orser predicted the competition will be close after today's compulsory figures and Tuesday night's short program. The champion will be the skater who executes a clean free skating program Thursday.

He said he's also ready if Fadeev is impeccable and if Boitano hits the quadruple toe loop.

"If I hear the clapping for Brian Boitano's quad, I'll hear it and deal with it," Orser said matter of factly.

← He didn't keep the correct competition focus.

← Pre-competition plan

He remains determined and stays focused on his goal. →

He understands himself better now, and realizes he must face the situation and not be afraid of it.



### Why Can't I Relax at Competition?

When it actually comes time to compete, and you step onto the ice to skate you would have to be made of stone not to feel something in your gut -- butterflies or a rush of adrenaline. At this time, telling yourself to relax is not likely to make you feel relaxed. The tension you continue to feel, even if you shift to "relax" is normal. It is natural to feel nervous before a competition. If you believe you shouldn't be nervous, and you start to worry that your relaxation strategy is not working, then you will become more nervous.

The important thing to remember is that being nervous does not have to hurt your performance as long as you can focus on what you must do to perform. If you take your focus away from distractions and results, and concentrate on your skating, the butterflies may even help. If your focus is in the right place -- for example, take it one step at a time, and stay connected with my performance -- the feeling of being nervous will not bother you.

### Using "Relaxation" for Skating

Relaxation at the rink in the middle of competition does not come easily. To use relaxation properly, it must be practiced during training sessions, before and during competitions, and in everyday stressful situations. You must practice relaxing in non-stressful times first (i.e. during training), then try to use it in a little more stressful time (i.e. before an exam). If you don't take this step, the relaxation approach will not work for you.

The most commonly used way for teaching basic relaxation is progressive muscle relaxation. It works by first tensing or squeezing a

muscle, and then relaxing it. The tension you make in the muscle helps you understand what it feels like to relax it. It is possible for you to sit or lie down quietly and think yourself into a relaxed state. Let the relaxation spread through your body as you breathe slowly. You can use relaxation in this way to get energized when your tired, for self-suggestions, for relaxation breaks, for doing imagery before bed, or for going to sleep.

## Learning to Relax

In order to bring on a relaxation response, some athletes like to focus on relaxing different muscles in their body (for example starting at the toes and coming up through the legs, buttocks, back, shoulders, neck, face and head). Others like to focus on their breathing by consciously trying to follow their breath into their chest and by then attempting to totally relax with each exhalation. Others like to visualize themselves in a very relaxing scene lying in the sun on a beach as the waves wash in gently.

Still others like to chant to themselves or listen to relaxing music, and the list goes on. There is no *right* way to relax. Whatever makes you feel more relaxed and more in control is *right* for you.

Once you become familiar with different relaxation procedures you tend to personalize relaxation so that it works best for you. A few simple cue words such as "relax," or "calm," can bring your anxiety level down almost instantly, if you think of them as soon as you start to feel tense. Self-induced relaxation procedures, as well as those assisted by your physical environment (for example, a warm bath, a long hot shower, a sauna) can be helpful in easing you down if anxiety drags on after the event.

Two things happen during most relaxation procedures. First, there is a physiological relaxation response. The heart slows down, the breathing becomes more regular, there is a decreased oxygen consumption, the muscles become less tense and so on. Secondly, there is usually a shift in focus to something other than that which caused the increased tension in the first place. You may shift from thoughts

## Relaxation

We often fail to achieve peak performances because we are "too tight," too nervous, too anxious or too tense. We may end up tensing almost every muscle in the body instead of just contracting those necessary. Peak performances and personal bests often occur when mind and muscle combine in free flowing experiences.

It is interesting to note that Trixie Schubert, former world and Olympic figure skating champion had a heart rate of 60 during her compulsory figures at the world figure skating championships. This state of relative calmness undoubtedly contributed to her ability to perform so well, "when it really counted," particularly in her forte, the school figures.

Uptight and a relaxed efficient flow do not occur at the same time. The ability to physically relax and calm yourself mentally is important because it allows you to reach an optimum level of activation which enhances performance. Not only pre-event and within event anxiety can be helped through relaxation procedures, but also post-event anxiety and general sleeping patterns.

Individuals have different bodily responses to the onset of stress. Some feel a tenseness in their neck or shoulders, others feel their legs shaking, queasy in their stomach, a rapid increase in heart rate, sweaty palms, a pounding in their head, and so on. What do you personally feel when you start getting uptight? Think about it! That's your first step to anxiety control. As you become more aware of your early signals of stress, they can be used as cues to relax. The trick is to look for your own patterns and begin to manage them before you get too uptight.

about, how you are "scared," "out of your league," or "blowing it," to thoughts about your flow of breath, the movement of your rib cage, the feeling of specific muscles relaxing, calming yourself, quieting sounds in a song, or the pleasant sensations of relaxation. In short, the focus shifts from the fear of failure, the fear of rejection and *terrible* consequences, to a relaxation focus. The shift away from self-evaluation itself renders you less anxious and the focus on bodily relaxation further complements the reduction in tension.

When going through a relaxation session in my office I remember an athlete saying to me "I don't need to relax in here, it's out there that I need it." It is out there when the stress begins to build that we all need it. However, if any coping strategy is to be effective under high stress conditions, then that strategy has to be well learned and practiced. You have to be able to plug in that response in one second flat, not 15 minutes later. In order to be able to do this you have to practice first under low stress conditions, then under medium stress and finally under high stress conditions.

People who take the time to learn to relax, will in the process become more aware of their internal environment and more able to adapt to their external environment. It is one more way of putting themselves in control.

## One - Breath Relaxation for Skating

Once you are able to fully relax your body, it is possible to start using one-breath relaxation. One-breath relaxation is simply using one very deep "signal breath" to signal your body that it is time to relax.

Try the following:

- sitting comfortably, focus your attention on your breathing.
- notice how easily slow deep breathing alone can help produce relaxation.
- let your body breathe itself, according to its own natural rhythm.
- slowly and deeply
- your body feels more relaxed with each breath you take.
- now blow everything out and take a long slow breath in through your nose.
- then blow out all your oxygen through your mouth.
- do this several times in a row, and couple the exhalation with the thought "relax", and let your body relax.

You may notice a kind of tingling feeling when you take the signal breath. Whatever you feel is a signal or message to your body that will become connected with relaxation as you practice this exercise over and over again. Soon, simply taking one signal breath will produce a nice relaxed feeling.

For one-breath relaxation to become your natural response to stresses at competition and the arena, you must take every opportunity to practice it. One-breath relaxation is one of the most useful mental skills to use on a day to day basis at the rink. You can use it -- before figure lay-outs; to get settled before beginning your solo; to

relax for a moment during a busy practice; or to refocus your attention after a distraction. Using one-breath relaxation should clear your mind and leave you feeling relaxed yet alert and focused.

### Butterflies and Shaky Legs

Some athletes have been able to relieve butterflies in the stomach by tensing and relaxing the abdominal muscles, several times in a row. Others have been able to reduce shakiness in the legs by tensing and relaxing the thigh muscles. One way to relieve these feelings is to apply pressure by squeezing part of your body and then relaxing it (eg. the part of the thighs that might get shaky, the part of the stomach that might get butterflies). Use this muscle tightening as a signal to relax that particular area of the body. Continue to squeeze for about 10 seconds before easing your grip and letting the relaxation flow.

(adapted from Orlick, 1980)

## Stomach - Abdominal Breathing

Due to rather complex reasons, people develop poor breathing habits. The most common problem is that we tend to breathe more through expanding our chest and upper lungs, rather than using our stomach and lower lung lobes.

The key to stomach or abdominal breathing is simple: As you inhale, expand the abdomen (blow it out like a balloon); as you exhale, contract the abdomen (pull it in towards the spine).

Stomach breathing lets the air coming in be drawn in to the lower lung lobes, rather than simply into the middle and upper lung areas.

When doing breathing exercises, it is more important to breathe fully out, than it is to breathe fully in. Pulling in the stomach-abdomen as one exhales will empty the lungs most completely of stale air.

If you want to be really good at breathing: you would breathe completely expanding first the lower, then the middle and finally the top portions of the lungs: just as one would fill a cup.

### Simple Stomach Breathing

Lie flat on your back with knees pulled up, feet slightly apart. Inhale deeply allowing stomach and abdomen to relax and balloon out.

At first, concentrate simply on filling out your lower lung lobes.

Inhales might last about 5 seconds, exhales about 10 seconds.

Continue to breathe with your stomach but now after filling the lower lungs, concentrate on filling lower, middle and upper lung areas.

Inhalations and exhalations can almost be rolled with a wave like motion; as stomach and then chest expand in turn on inhalation. While first the chest and then the stomach fall on exhalation.



Month \_\_\_\_\_.

MONTHLY GOALS

Figures

Free Style

Fitness and Psychology

DAILY GOAL EXAMPLES

Figures

Free Style

Fitness and Psychology

Date \_\_\_\_\_

\_\_\_\_\_

Daily figures goal \_\_\_\_\_

Got it \_\_\_ still working \_\_\_

Daily free-style goal \_\_\_\_\_

Got it \_\_\_ still working \_\_\_

Daily mental goal \_\_\_\_\_

Got it \_\_\_ still working \_\_\_

What did you do for fitness training today? \_\_\_\_\_

\*\*you can tick off got it, but still working when you want.

Date \_\_\_\_\_

Daily figures goal \_\_\_\_\_

Got it \_\_\_ still working \_\_\_

Daily free-style goal \_\_\_\_\_

Got it \_\_\_ still working \_\_\_

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Got it \_\_\_ still working \_\_\_

Daily mental goal \_\_\_\_\_

Got it \_\_\_ still working \_\_\_

What did you do for fitness training today? \_\_\_\_\_

End of week assessment - Look over your week - Ask yourself, what worked, what didn't, and what needs more attention. Make notes to yourself on what action you will take.

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specific goals seems to get me moving. When my goals and tentative completion dates are set down on paper, they help even more. At this moment in time I'm a little behind with respect to meeting my goals — but they were somewhat unrealistic. Several things took slightly longer than expected and I had some inter-personal concerns to sort out. No reason to panic, just re-adjust the goals to bring them in line with reality. Sometimes I move ahead of my stated goals — usually when things seem to flow just right. If some day I really don't feel like writing (or running), I don't; but the next day I usually work twice as hard, particularly if I know that my goal is to complete a certain amount by the end of the week.

I get a good feeling from fulfilling *my goals*. Self-directed achievement gives me a feeling of self-control. It tells me I can decide to do something which is important to me. Then I do it. It feels good, even if it's only a short-term goal. Often this feeling is enough to keep me going on to the next goal. I tell myself that I am pleased with myself . . . and I mean it! That's a simple form of self-reinforcement. But sometimes I reinforce myself beyond this, particularly if the goal has been difficult to meet, if I'm tired or if I need a lift. In this case I take a few days off to go to the mountains, spend time with family and friends, ski, canoe, go to a movie or just relax. I "treat" myself when I think I need or deserve a treat.

Once you decide something is worth pursuing, goal-setting and self-reinforcement can be applied in virtually any area. Whether you want to gain self-control, win a championship, run for your health, improve communication, or write a book, the basic procedure is the same. Only the focus and specific goals are different.

In attempting to establish realistic, but challenging short-term and long-term performance goals in your sport, your coach or other athletes may be able to assist you in translating your overall goals into specific tricks, moves, times, programs, routines, scores, performance levels, etc. A series of short-term goals which relate to long-term goals should be established, with specific target dates for achievement. An achieved goal (even a short-term-goal) acts as a reinforcement and as a stimulus to pursue the next goal, thereby helping you to maintain motivation and build self-confidence.

Short-term goals can include skills wanted by a certain time, days of desired consecutive workouts, number of completed programs wanted today, by the end of the week, by the end of the month and so on. Short-term goals should be related to both physical preparation as well as psychological preparation (e.g., simulation, mental practice, relaxation, control of self-statements, concentration).

Long-range goals may include consistent improvement in competitive performance; the routine or program wanted for the championships; the speed, distance, time, or lift wanted by the end of this year and for the following year; qualifying for a particular competition and performing under control in that event; placing, winning, or doing your best in a particular competition.

If you can write down your objectives in concrete terms — I want to do this by this time . . . you will have a much greater chance of accomplishing your objectives and in less time than might normally be the case. How many practice days are left before your first game, your trials, your championships, your most important goal? Sometimes simply keeping a

record of the number of days remaining, can spur your action.

If you have not already done so, try making up a self-record progress chart. Set something realistic for yourself, such as practicing self-control skills two or three times a week. Put the chart up on the wall and place a checkmark beside each completed practice session or completed goal. You can follow this same procedure with the physical skills you want to get, but be realistic. Make a list of the skills, set proposed dates for learning or doing them, and check them off as you complete, improve or perfect them. A personal progress chart can also be used to record such things as laps per workout, routines completed per day or week, improvements in scores, times, distances, etc. It is an objective means of clocking progress, and can act as a stimulus to get you into action.

It is important that you have input in setting your own goals, rather than have someone else setting goals for you. This in itself tends to increase commitment. Shared goal-setting, for example between you and the coach, or you and your partner, is valuable as long as you have personally weighed the situation and feel that this is what *you* want.

Self-selected goals, self-reinforcement and positive self-thoughts tend to be more effective for helping most people reach their goals than directives from others. I know this is true for me and I think it is largely because I know better than anyone else, what I have done and what I want to do. I also know what will help me or reinforce me at a particular moment in time, better than others. This is not to suggest that input and feedback from others is unimportant. It is extremely important and can be very meaningful *if* it is constructive and well placed.

Setting and pursuing your own goals has a way of helping you to know yourself better, to extend yourself a little more, and to offer what you are capable of offering to yourself and to others. If you really want to improve and explore your own potential, you must set some goals. Perhaps they will become less formal as you become more experienced with the process, but they are still there and can work for you.

## Mental Imagery for Figure Skating

### What is it?

- mental imagery / visualization / mental rehearsal are all the same thing.
- it means using your imagination to practice your skating in your mind.

### How do you do it?

- when you do your imagery, you want to practice it from the inside view, as if you really doing it (looking out through you own eyes). Sometimes you will have a video view too - so you might pop in and out of your body while imagining. If your inside, you get a better feeling for the image.
- you want to try and get the feel of the movement you are imaging in your muscles. It helps if you put your body in the position you need to perform the skill and make small movements with the body parts you will be using. Or walk-through the skill first and concentrate on the muscles you need to use.
- start with easy skills that you don't have much difficulty with and develop strong feeling images for them. Try to feel the lift of the free leg coming through, the lift in your tummy when you go into the air, and a solid landing position. Once you can do the basics, start working on more difficult skills.
- if you have trouble controlling an image - you can:
  - walk-through it.
  - make it simpler (i.e. work on a strong single salchow image, then try the double).
  - concentrate on the feel you want for each part of the image (i.e. take-off, in the air, and landing), and put your body in these positions.
  - run it in slow motion and try to feel the details.
  - if you make a mistake, rewind the tape, and always leave it with a positive image.
- when you do your imagery, try to get as much detail as possible. Feel the cold arena air, the wind blowing in your face, the pressure of your blade gliding over the ice, the scund of your take-off.
- don't practice imagery just on the ice, spend time off the ice working on your skills (10 - 15 minutes/day). The best athletes use imagery every day at every opportunity - when their waiting in line, on a bus, in the car on the way to practice, during floods.

## Mental Imagery Continued

- it takes time to develop clear images, and you may have to break down a skill and image each part before it comes clear. For example, ask your coach what the most important points are for your double axel. They may come up with 10 or more things for you to work on. Take each point in a logical order (take-off before landing) and try to feel it in your imagery. Eventually each of these points will become automatic.
- another way to practice imagery is to watch videos of a good skater completing a skill your working on. This can help give you the rhythm and flow you want for a jump. Or watch videos of your own past performances that were good. Don't bother reviewing videos that have nothing but mistakes over and over again. Learn from your mistakes, then erase it, and replace it with a perfect image. You always want to keep the most positive image in your head. If your working with someone on a jump and they continually wipe out, chances are you will too. Take the time to run a successful image in your head.

### What can you use it for?

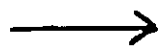
- practicing a skill in figures or free-style, either on or off the ice.
- rehearsing your free-style program and concentrating on the focus you want to take while skating it.
- learning to stay focused on your performance while skating. For example, imagine laying out a figure in competition and remaining relaxed and focused on your performance, while shutting out the judges and other competitors.
- use it to refocus your attention if you are distracted. For example, say you had a poor free-style warm-up, re-run your jumps in imagery feeling nice solid landing positions. Or if your first figure in competition is not great, use imagery to shut it out and focus on the plan for the next figure.
- seeing yourself being successful - doing a perfect performance, hearing the applause, and feeling the good feelings that accompany a good performance. See yourself standing on the podium and receiving your medal - all the best athletes do this.
- seeing yourself performing in a relaxed controlled way in a competition atmosphere. For example, picture the arena, the crowds, your competitors, you in your competition outfit, doing your warm-up and staying focused on yourself. All these details may cause you to feel some anxiety but face the anxiety, then picture yourself taking control and feeling calm. This will make you familiar with the competition atmosphere. The mental rehearsal makes it easier for you to enter real world situations feeling better prepared and more confident.

- making a correction that your coach has given you. When you do the image focus in on the "right feeling" your coach wants.
- use it as part of your pre-competition plan to remind you of the right focus and to create the pre-competition feeling you want. It also helps keep negative thoughts from interfering with your positive focus.

Mental skills must be trained the same way physical skills are - so it's up to you, and only you to practice, practice practice your mental imagery!!!!

## Mental Imagery Examples

Barbie Underhill



I think a good way of teaching concentration is the mental imagery that I use a lot. A good concentration exercise for skaters is to take them off the ice, sit them down, play their music and have them close their eyes and go through their program in their head. They have to focus on every little thing. Initially you could sit them down and have them talk it out: "Okay I'm starting now, I'm skating backwards into my double flip jump, I've got to think of this, I've got to think of this, etc." They could talk out the program so they know what they are supposed to think about, so they don't just go through the motions without using their head. As an experienced skater, I look back at some performances I went through when I first started. I went through many without really thinking. I was just kind of going through by feel. It is a scary kind of feeling! You get off and go "Woo, is it over?" Because you weren't really there. You weren't actually concentrating each step of the way. You have to learn to be able to do that because with the pressure in that situation, you really have to know how to handle it. You get so hyped up, the adrenalin is flowing, you get so tense and say, "Oh my God, here I go". You have to try and stay calm and relaxed, so that you can think and focus properly.

Lori Fung  
Rhythmic  
Gymnastics



In mental imagery, you have to see how the apparatus is coming down. If the club is coming down this way, I would grab it this way in my imagery. Sometimes I would think about the last time I actually did it, "Why did I miss that one move? Okay, I know what happened, I pulled the body in too close to the apparatus and it knocked my shoulder and it went off. Okay, now how do I avoid that?" Then I try to see myself doing it correctly in imagery. I can actually see the apparatus coming down; I can see the stripe on the club as it rotates the same way you'd see it when you're doing the routine, that's the best way. Sometimes you look at it from a camera view, but most of the time I look at it as what I see from within, because that's the way it's going to be in competition. It is natural because I do the routines so many times that it's drilled into my head, what I see and how I do it. So if I think about a certain part of my club routine, or my ribbon routine, I think of it as the way I've done it so many times, and that's from within my body.

Brian Orser



Ever since I've been young I have always done imagery. That is how I learned how to do a lot of my own jumps. I would be working on a triple toe loop for instance; I would be thinking about it so much and I would be at home in bed thinking about it and all of a sudden I would get the feeling of it in my head. The feeling is what you are after, rather than just picturing it. It was through actually feeling it in my mind that I started to make all my jumps consistent. It was just self-discovery. I guess I just wanted to land these jumps so badly. It was like when you have a dream about something and you think you have actually done it. Initially it was just specific elements that I was working on. It was never ever something that was impossible to do, it was always something that I was very close to doing but not quite there. I can remember one specific jump, the triple toe loop. I was thinking about it in bed and when I went to the rink the next day, I was thinking about the feeling and all of a sudden I landed my first one. The night before I had the feel of it. I couldn't wait to get to the rink the next day so I could try it, to see if that would work. There was a certain feel I was thinking of and I said, I will try that tomorrow, and it worked.

Brian Orser



We did a lot of imagery in training. We also work with video a lot, looking at perfect jumps. We made a video of a perfect program and of all the elements in my program individually, perfect elements, and we had them repeated a number of times, sometimes up to 10 times with the more difficult ones, so I would get a picture of a perfect element and a perfect program in my mind. If I am having problems with a jump, we'll go back to a video, for example of the Olympics or World Championships where that jump was successful. We will watch it a few times to see exactly what we are doing there. Even watching I get the feeling of it.

The videos we used at the 1984 Olympics were definitely very useful. Going to the Olympics with the very limited ice time and practice time, I watched the tape probably 4 or 5 times. It was almost like having an extra practice session. I would sit in my room and watch it with my coach. There were a couple of jumps I was having problems with, and watching the perfect one on tape 10 times over, just one after another, bang, bang, bang, I got the feeling back. So for me I benefit from it, but the program on tape has to be really clean, so what you have to tape is exactly what you want to do at the event. It has to be a perfectly clean program. If there is a flaw in that program and you see it over ten or twenty or thirty times, the chances are that you will do that flaw again just by watching it. Subconsciously, all of a sudden, you have that same mistake before you can realize it has happened.

When I was younger, I didn't realize what imagery was, I just knew it helped me with my jumps. I never talked to anybody about it. If I was working on a new jump, I'd be lying in bed or sitting in the car almost ready to go into the rink. I would be sitting there and thinking about that jump, because I wanted to land it so badly. So I'd go through it in my mind and get the entire feel of it from the beginning to the end.

In skating, doing the elements is more of a feeling. People do jumps technically different. For instance, I do an axle jump, on a very tight circle, whereas some people do it on a very large circle. It can be successful both ways, but with me it is more the feeling that I get, and it is combined with adrenalin.

My imagery is not so much visual. It is more just feel. I don't think it is visual at all. When I'm watching it on video I look visually at it and then I get this internal feeling. When I'm actually doing it I get the same feeling inside. It is a very internal feeling that is hard to explain. You have to experience it, and once you do, then you know what you are going after. I can even get a feeling for an entire program. Sometimes in a practice I get myself psyched into a program that will win the Olympics, like I won the long program last year. I step on the ice and go to my starting position and I get this feeling, "I'm at the Olympic Games," and I sort of get the whole program flashed before my eyes and I get this internal feeling of how this program will be and usually I'm fresh and usually it will be a perfect program. I don't just step out there in training and just say, here we go, another program.

Sylvie Bernier  
Diving



I did my dives in my head all the time. At night, before going to sleep, I always did my dives. Ten dives. I started with a front dive, the first one that I had to do at the Olympics, and I did everything as if I was actually there. I saw myself on the board with the same bathing suit. Everything was the same.

Kelly Kryczka  
Synchronized  
Swimming



Before the Olympics we did a lot of mental preparation. Our support psychology consultant was trying to prepare us for when we would actually swim. She would sit us down and say, "Picture the morning of the day when you get up, what it is going to be like. Picture the crowd, the audience, the whole scene of the village, how you are going to deal with it, how you are going to block it out, or how you are going to use it to your advantage." When we went back to San Diego after the opening ceremonies we knew exactly what the picture was. We knew what the dorms were like, we knew where the pool was and what it was like with all the crowds.

When we got back to San Diego we (Sharon Hambrook and I) wrote out our own mental imagery script using very descriptive words. It included everything that you feel, the water, the sun, the hotness, the crowd, the roar and the excitement. After we wrote that script, our psychologist got us to relax and then she ran through that with us. A lot of times when she started us going, we would branch out from her talking and we'd take it from there. That was not the first time she had done it. We worked on that before.

The scripted imagery was just for the day of the competition. It began with on-site warm-up (half an hour) and continued through the next hour and a half where we put make-up on and get ready before the actual competition started, right up to the medal presentation.

Sharon and I composed the script together. It was our own scene. Our consultant read it back to us about four days before the competition. From then on, I could lie there and just picture it. Earlier in the year, we would do things like that, thinking about any sort of competitive situation, and feeling your heart rate rise and the anxiety building up. Then you had to figure out how you were going to cope with it. So it wasn't like this was a new thing. It was just much more focused on the actual Olympic situation.

Kelly Kryczka



We did a lot of imagery during training sessions, especially as the competition approached. When we were doing compulsory figures in practice, a minute before doing certain ones the coaches would say, "Okay, you are going to do a 'best one'. You are going to do a whole compulsory figure." So before we went out there and did it we would sit on the edge of the pool and picture ourselves doing it, and how it feels. You picture yourself doing it "right on," perfectly. Then go out there and do it. There were times when Debbie, our coach, would tell us to do the same kind of imagery for our routine.

Doing a lot of imagery was the major difference in our preparation last year, not just the duet, but also the compulsory figures. About half an hour before we actually did a competition routine we would go through the routine once together on dry land doing the movements. The two of us would do the movements, moving our arms, and feeling the moves while the tape was playing our music. When you do that you can usually tell whether there are good vibes going through the two of you.

Mental imagery is actually a form of simulation but the simulation takes place entirely in your head. Almost everyone has used it at some time or another but usually not in a refined or systematic way. Frequently before making an important phone call people will mentally rehearse what they are going to say. Less often, people who expect to receive a phone call rehearse what they will say. Sceldom will people rehearse what they might say if they receive a totally unexpected phone call. Let's say that a young man calls a young lady unexpectedly and asks her to do something. She may stumble around groping for a response — sometimes consenting to do what she really does not want to do; other times not consenting to do what she wants to do. If she rehearses an approach or a response in her head, and then a person calls unexpectedly, she does not have to stumble around as much and can respond more in line with the manner in which she would like to respond. What's more she will feel more comfortable, more relaxed, more in control. I've used this approach effectively in preparing to deal with unexpected requests for talks or workshops.

Mental imagery gives you a chance to deal with a problem or event in your head before you are confronted with it in the real world. If the circumstance does arise you are better able to handle it or cope with it. This is largely because you have already been confronted by the problem, practiced some means of coping with it, and have overcome it in your mental reality, if not your physical reality. This seems to allow you to enter a variety of situations, including competitions, feeling like "I've been here before," "no big surprise," "no reason to panic," "I can handle it."

### Mental Practice of Physical Performance Skills

Mental practice is used by many superior athletes to practice physical skills such as jumps, shots, lifts, tricks, plays, routines, strategies, and so on. Virtually any physical skill or combination of physical skills can be practiced in imagery once an athlete becomes adept at using imagery. However the effective use of imagery requires practice, just as learning to perfect physical skills requires practice. It is important to note that the major difference between mental imagery *working* and *not working* relates to the athlete's ability to vividly imagine himself executing the desired skill or response.

For many years an Olympic figure skater had experienced difficulties with a compulsory figure (the loop). I asked her to try to visualize herself doing the loop while she was sitting in a chair in my office. She was unable to see herself complete the loop. She would either see herself making an error (the same one she usually made in the real world) and stop at that point, or the image would break up. I asked her to mentally practice doing the loop every night for a week (approximately 10 minutes per night). We took it in steps. First she had to try to get past the breaking point without worrying about her form — just get through it.

It took several nights of mental practice just to get by the breaking point in imagery. Once she got past this point, she began working on consistently getting through the complete figure (in imagery) without breaking. Finally she focused on visualizing doing the loop as perfectly and fluidly as possible several times in a row. As soon as she began to see herself doing the loop correctly in imagery, she also started to do it

correctly in real world practice situations. Within two weeks of our initial session she was doing the best loops that she had ever done (as assessed by her coach and herself).

This athlete usually did her mental practice in the evening just before going to sleep. She would lie in bed, close her eyes and try to call up the desired image as clearly as possible. Later she began to run through the figure (in imagery) just before actually doing it in practice situations. Finally, while standing before the judges in a competition, she was able to look at the ice map out her figure and see herself going through it. For her this seemed to set the stage for a good performance.

Many athletes find it helpful to visualize themselves performing perfectly, immediately before their competitive performance. High jumpers see their ideal jump, divers their perfect dive, skiers their ideal run, gymnasts their perfect routine, archers follow their arrow to the center of the target, and so on. This process seems to be one way of focusing full attention to the task at hand. For some athletes it serves as a last minute reminder of the pattern they wish to reproduce: for others it takes their mind off any thoughts of worry or self-doubt, gives a last second feeling of confidence and frees their body to perform. Engaging in mental practice after a successful experience can also be valuable. It allows you to see and hang on to successful aspects of a recent performance, which is often helpful in subsequent positive imagery and performance. Some athletes find mental practice particularly attractive when there is limited practice time available, (e.g., at international events), or when recovering from an injury.

### How to practice Mental Imagery

When doing mental imagery some athletes tend to automatically view themselves as if they are watching themselves in a movie, being outside of themselves. Others tend to view themselves from the inside, feeling their way through, seeing what they would see as the performer. Still others actually learn to jump back and forth from seeing themselves, to being inside of themselves seeing out. Most athletes do mental imagery with their eyes closed but some also do it with their eyes open, particularly in situations where they are in front of large numbers of people.

The manner in which you view yourself is a matter of personal preference. The important point is that you clearly see yourself and feel yourself executing the skill correctly. Once you are capable of doing this there is often a slight firing of the neural pathways which are actually involved in performing these skills. It can be viewed as a way of *testing the circuits*. What you are trying to do is plug a positive performance program into your head and nervous system so that your body and being can follow it. This is simply one way of establishing a performance pattern and of giving yourself more assurance that you can perform in the real world in the manner in which you would like to perform. Mental imagery alone is usually not enough, but combined with physical practice and other approaches to self-control, it can increase your overall effectiveness.

Some athletes seem to have a knack for mental imagery while others need to really work at it. I can recall a very talented 8-year old gymnast who was capable of incredibly clear imagery. She first began mental imagery completely on her own with no

knowledge that it was practiced by many great athletes. She would lie in bed at night running through her routines. For her it seemed like a natural thing to do. She was able to see the people around her, feel the moves and experience the emotion.

I can think of a 19-year old university basketball player who was on the other end of the continuum. She had been experiencing difficulty with a particular play in games. I asked her to try to visualize herself executing the play properly and driving in for a successful lay up. She closed her eyes and quietly executed the play in imagery. When she was asked to relay what had happened in the imagined scene, she said she had seen a bunch of X's and O's, on a chalk board going through the pattern of the play. That was certainly not a very vivid mental replication of a skilled athlete executing a fast moving play on the court and driving in for a lay up, but nevertheless it was a start.

If you have never done mental imagery before, it is probably best to start with very simple, familiar scenes and to gradually increase the complexity of the image. Shut your eyes. . . Not yet! . . . first read the next sentence. Try to visualize the place where you usually workout. . . O.K.? Now try to visualize the equipment you use to play your sport (e.g., balls, racquet, shoes, apparatus, etc.). If you are able to do this, try to see yourself doing very simple skills in your sport (running, passing, swinging, etc.). As this becomes easier, move into more complex skills. Keep in mind that the clearer and more complete the picture and the better you perform (or function) within that picture, the higher the probability of performing well or replicating this image in the real world. With practice, a scene can become very real

just as dreams are very real.

If you experience problems calling up the image you would like, it sometimes helps to use a prop. For example, hold your hand out in front of you with fingers spread wide. Look at your hand for a few seconds, then immediately close your eyes and reproduce the image of your hand. Try it!

This same process can be used to call up correct images of sports skills. You can watch someone do the skill, close your eyes and replay it in your mind. I once used a film of a world champion sprinter in this way, to help a promising young athlete get the feel of blasting off the blocks and driving through the finish. She watched the film, tried to hold onto the image, then visualized herself moving in the same way. Subsequently she attempted to replicate this speed and action during her own workout session.

Regardless of how good or poor your mental imagery skills have been in the past, they can be improved. (Try a few of the exercises in Appendix C). Vividness can be increased by really trying to put yourself into the gym or into the stadium. What do you see? What are you aware of? Are there people around? What is the surface like? Is it warm or cold? An example of how vivid a scene can become was relayed by a world class figure skater who could see, feel and hear everything going on in the arena. She was aware of the spectators, the other skaters, the coach, the judges, her name being called, her increased heart rate, along with accompanying self-talk. With a little prompting she even became aware of the temperature. Could you feel the cold in the air? "No." You know how sometimes on a really cold day you breathe in through your nose and the cold air is sharp inside your nostrils and they almost stick

so they know exactly where to start doing each technique (e.g., for climbing hills or sharp downhill turns). They could then try to visualize the course, and perhaps draw the course from memory and compare it to the actual course layout, as suggested by one leading cross country coach.

In addition to helping you improve skills and prepare for an upcoming event, Mental imagery can be used in conjunction with the self-control interview to further clarify or pinpoint a *problem*, or desired area of improvement. The process goes something like this. Think of the last time the problem occurred in practice or competition. Now close your eyes and try to replay what happened. What were you saying to yourself or paying attention to at different points of time within the competition (or practice)? What were you saying to yourself or focusing just before the *problem* occurred? Then think of the last time the problem did not occur in practice or in competition. Close your eyes and try to replay what happened.

This process can help you become more aware of your self-talk (or attentional focus) both when the problem is *most troublesome* and *least troublesome*. It can lead to a more accurate assessment of what you said to yourself (or did) to make yourself feel or perform in a particular way. Awareness of self-statements allows you to assess their value and gives you specific behaviors upon which you can focus for improvement. Think about what you could have said to yourself in order to feel better or to perform in a more controlled way. Then begin to practice replacing unproductive thoughts with more appropriate ones through the use of mental rehearsal.

Although many athletes have experimented with the mental practice of physical skills (or routines), few

together? Go back to the ice and imagine yourself taking a sharp breath through your nose . . . see what that feels like . . . and feel the breeze on your face. . . . Yeah! Boy, it was cold."

Japanese gymnasts have made good use of mental imagery. Take the iron cross, as an example. First they will think of contracting only those muscles required to do the cross, and actually contract them. Then they will visualize themselves doing the skill, feeling only those muscles contract. Perhaps this is one procedure that enables them to do difficult strength moves with a totally relaxed expression. It is not necessary to contract neck and facial muscles to do an iron cross, but you have to learn to relax them, while tensing other working muscles.

In some sports, mental imagery can be done while physically engaging yourself in a semi-simulation of the activity. For example, a gymnast can physically walk through a floor exercise routine imagining all the moves, while actually doing arm and body gestures, turns, pauses and simple moves. A swimmer can bend over and imagine a race, while actually moving arms at the appropriate pace. An alpine skier can visualize a slalom run while in a standing position and actually bend his knees and move his body slightly, as if he were doing the run. Some athletes are able to replicate the sensations and feelings more vividly while engaging in associated physical movements.

Mental imagery can also be used in helping to learn new routines, plays, patterns or in familiarizing yourself with a particular course or race track. In cross-country skiing, for example, the athletes and coach could begin by skiing the track together, at a leisurely pace. They could try to take note of the difficult parts,

have focused upon the mental rehearsal of competitive coping skills. Mentally rehearsing different ways to cope with and overcome competitive anxiety, negative self-talk, expected or unexpected stresses is extremely important and yet largely overlooked in sports.

### **Mental Rehearsal of Psychological Coping Skills**

Mental rehearsal allows you to enter scenes or situations which you can never fully replicate in simulated practice conditions. You can mentally simulate virtually any situation which might arise or which you would like to approach in a more positive manner including a stadium filled with 80,000 people. *In your mind* you can learn to see yourself, hear yourself, feel yourself, think yourself through situations in a constructive manner, which better prepares you to approach these situations the way you would like to approach them. Mental rehearsal allows you to prepare for and practice coping before actually being confronted by a problem or before the problem crops up again. It is a buffered kind of learning which can feel real (in your mind) and yet does not have the serious consequences of failure which sometimes occurs in the real world situation.

The mental rehearsal process makes it easier to enter real world situations feeling better prepared and more confident. At least you have rehearsed your coping strategy(ies) in your mind, thereby mentally simulating real world conditions. This in itself can guard against, reduce or eliminate problems which might have otherwise cropped up. Mental rehearsal can be used to practice any of the coping strategies discussed in this book. You can attempt to see *yourself* setting goals, achieving goals, reinforcing

yourself, saying supportive things to yourself, relaxing just before a big event, overcoming critical points in a game, paying attention to the task at hand instead of comparing yourself to others, speaking out in a situation where you want to express your view, and so on. Whatever your concern might be, you can practice seeing yourself overcome it through mental rehearsal.

A world class water skier complained of becoming extremely anxious during important competitions, just as she passed the first buoy on the way to the slalom run. As soon as she passed this buoy she would say to herself "Oh no, here it comes," and a tenseness would overcome her body. She used mental rehearsal to practice seeing the buoy as a signal to relax. She imagined herself skiing by the buoy, saying to herself "relax," at which time she would relax her shoulders and think a supportive thought such as "you're ready . . . just let it happen." This process proved to be helpful in alleviating her problem in the real situation.

A skater complained of becoming extremely anxious in compulsory figures during important international competitions. She was particularly distraught just before starting, when nine judges were actually on the ice peering over her, and during the first tracing which follows immediately. She tried to visualize herself in that situation beginning from the time she heard her name being called through to the end of tracing the first figure. Merely standing before those 18 peering eyes in imagery, raised her anxiety level. As those anxious feelings began to surface she saw herself *relax*, focused on her breathing, and said to herself, "nice and smooth . . . flow." She then imagined herself doing the first figure in a calm and controlled manner.

Her major focus here was upon practicing her chosen coping strategy in minute detail and upon seeing the effectiveness of her strategy. Some athletes find it helpful to call up the feelings which accompany the actual competitive situation, and to let these feelings grow, before plugging in their specific coping strategy. Most do not find it necessary. Regardless of whether you do this or not, the key is on ending up in self-control.

There are many examples of athletes using mental rehearsal to reduce anxiety, to improve performance and to more effectively cope with a variety of situations. Some of the most creative uses of imagery were relayed to me by archers attending a National Training Camp in Ottawa, Canada. During an all-day workshop which I was conducting on psychology preparation for shooting, I asked the archers about some of the strategies they had been using. A former world champion in the group spoke of how she was able to get herself into the world championship at her practice site. Instead of seeing the one target which was actually in front of her, she saw targets stretched across the field. She was fully aware of her competitors. On her right was the leading Polish archer, on her left a German. She could see them, hear them and feel them. She shot her rounds under these conditions in the same sequence as she shoots in the real situation. She prepared herself for the competition by creating the world championships in imagery and by actually shooting under mentally simulated world championship conditions.

A member of the men's national team did just the opposite. In the actual competition, he was able to mentally simulate practice conditions. As he prepared to draw his bow to shoot his first arrow at the world

championships, his heart was thumping. He glanced down at his tackle box (which holds equipment, odds and ends) and noticed the words "go, go, go," which one of his home town buddies had painted in red. That note triggered another reality -- a flashback to familiar grounds. From that point on in the competition he was at home on the practice range, with one small battered up target in front of him. He could even hear some of his friends on the practice field at home chattering and joking in the background, instead of the chatter of many different nations around him. He shot in a very steady, collected and relaxed manner, as if he was at home.

In most cases mental imagery is used as a first step in attempting to overcome an immediate problem or an anticipated problem. It gets you started; it is not that time consuming and you can do it yourself, wherever and whenever you want. Sometimes mental rehearsal in itself leads to overcoming a particular problem or improving performance. However the sequence generally followed is to begin with mental imagery, then practice the coping strategy in a real world workout situation, in a simulated competitive situation and finally in the competitive situation itself. These latter two examples in archery which combine simulation and imagery, simply point out how creative a person can become in putting together workable strategies.

## Imagery Exercises

### Non-stressful Free-Style Practice

- your standing by the boards waiting to step on the ice for free-style
- picture the rink, the walls, the ice surface, the stands
- you feel strong and compact in your skating clothes
- your body is warm and energized, and ready to skate
- take off your guards, and step onto the ice surface
- slide your blades back and forth, and get the feel of the ice
- begin stroking forward
- feel your knees bending and your blades pressing into the ice
- the wind is blowing against your body
- your body feels strong and powerful
- you flow gracefully across the ice surface
- continue with your normal warm-up for 5 minutes

(5 minutes of imaging on their own)

- your warmed-up now, take a moment to relax, slow your breathing down
- take some long deep breaths
- skate to your starting position for you solo -- while skating, focus in on your program
- nothing else matters
- take one deep signal breath
- you're in your starting position
- begin

## Free-Style Competition

Setting: picture either the last competition you were in for free-style or the next one coming up. You are the first skater after warm-up.

- picture the arena you are competing in, the crowds, the ice surface, the judges
- you are there in your competition outfit, with your skates on -- waiting to step on the ice for warm-up
- take time to feel the whole competition atmosphere
- your competitors are standing with you, waiting to begin warm-up
- focus entirely on yourself, you are well-prepared for this competition
- concentrate only on you and your performance
- take a long deep signal breath, and relax  
warm-up is beginning -- they are calling out the names as you step onto the ice
- you have 5 minutes to warm-up

(imaging on their own)

- there is one minute left in warm-up
- slow down, skate to the boards for your final preparation before the performance
- relax, and review the focus you want to take for the performance
- the other skaters are clearing the ice
- it's your turn -- they call your name
- skate to your sport -- long deep breath
- take your position, and begin

## Figures Competition

Setting: Picture either the last competition you were in for figures, or the next one coming up. Decide what figure you will be skating.

- picture the atmosphere at the arena during the figures competition
- the arena seems large and almost empty except for the judges and skaters on the ice
- there are a few people in the stands watching
- two skaters are warming-up their figures on the warm-up patch at the end of the rink
- it's silent, except for the blades cutting into the ice
- you are standing by the boards, waiting to step on the ice
- you feel strong and compact in your competition outfit
- they are calling out the marks from the last skater
- it's your turn to warm-up, step onto the ice
- focus only on yourself and your figure -- nothing else matters
- start your warm-up -- you have 3 minutes

(imaging on their own)

- you have finished your warm-up
- you're standing by the boards with your coach
- the announcer is calling out the marks for the skater before you
- the referee calls you and shows you where you can skate your figure
- you examine the ice, pick the spot for your center
- take a long deep breath, and feel centered and solid in the ice
- begin your figure

## Pre-competition Planning

If we talk to skaters about their best performances, they usually tell us the following things:

- they trained hard and well, and did everything they could to prepare for the competition.
- they arrived at the arena feeling positive. This means their self-talk was positive, and they believed in their ability to perform their best.
- before and during the competition, they did not let negative or worrisome thoughts enter their minds.
- because of all the positive thinking, they were not distracted by high levels of worry -- and this freed their bodies and minds so they could focus simply on skating.
- they were highly activated (up and ready) before the competition, and not overcome by worries.

The reason you want to have a good pre-competition plan is so you can get yourself feeling good, like the skaters described above.

If you can understand what sort of things make you feel more confident, then you can use them in your pre-competition plan. And if you have a good plan, you always follow, you will always be ready to go out and perform -- CONSISTENTLY.

Each skater's plan will be very different. Some of you will want to use activating thoughts, some of you will want to use calming thoughts, some of you will be very organized, others less organized.

A good pre-competition plan has the following things:

### 1) Realistic Self-Talk:

- reminders about -- how well-prepared you are, your own ability, previous times you have performed well -- will leave you feeling confident.
- remind yourself that on any given day (provided you have trained well), you have the ability to skate your best, no matter what.
- it is amazing how your self-talk affects how you carry your body. If your telling yourself during a practice that your out of your league, everyone watching will know without you saying a word.
- negative self-talk that leads to worry and concern over factors beyond your control should be zapped.

- if you catch yourself focusing on how good your competitors look, or who is sitting in the audience -- zap it. Zapping should begin the moment you arrive at the arena for your first practices.

## 2. Imagery:

You can use imagery to remind yourself of:

- the good training you have done.
- good performances from the past.
- reviewing the focus you want for your solo or figure.
- to commit yourself to push it 100%
- to prepare yourself for the things you find stressful at the arena during competition

The closer you get to your skating time, the more important it is to focus specifically on your skating. Imagery helps you do this.

Using imagery to review your solo or your figures will help you concentrate on the focus you need to perform well.

If you get by yourself, in your "own space", it is easier to get yourself focused.

## 3. Final Positive Reminders:

These are the final positive thoughts you can use to help you stay connected with your performance.

Final thoughts can:

- i) help you stay focused: "stick to your plan, take it one step at a time".
- ii) they can reassure you: "I am totally prepared, I know I can do it".
- iii) they can affect your activation level: "Breathe deeply and relax, or this is it, let's go for it".

These final positive reminders assume you have prepared well for your competition. You want to train so that you can say these things at the competition site and believe them.

- I have prepared extremely well, both psychologically and physically.
- Nothing will disturb me, nothing will distract me.

- I've done my homework, I'm prepared.
- Follow my plan, let it flow.
- I am in control of me.
- Nothing that happens matters, except focusing on my performance.

To prepare your plan:

- look at your responses from the competition reflections form.
- try to think of how you focused during the best past performances.
- start by writing down a plan based on the type of focus that has worked for you in the past.

"If a skater trains properly, they will not choke" (Carlo Fassi, 1987  
PSGA convention in Hawaii)

To prepare for my competition performance, before the short and long program I always go out for a walk, an hour or two hours before, regardless what the weather is like, even if it is raining or snowing. We had the Canadian Championships in Brandon, Manitoba one year and it was forty below. I went out for a walk and took a few deep breaths and went through my program in my mind again, while I was walking. Sometimes I get to a fast part in my program and start skipping and picking the pace up and doing a lot of mental things. I know a lot of people try not to think about the event, try to keep their mind away from it, but I'm more into it when I'm down there. My mind is on it the whole way. When I was at the Worlds last year in Ottawa, I had a lot of friends there and they came to see me the day of the long program. I was sitting in my room and it was two or three hours before I had to go to the rink. We were sitting there watching a television program and they were talking to me and I didn't even hear them. They were laughing, because they couldn't believe I was so much into the event, "Nobody was home!"

At Olympics and at Worlds this year and last year, when I was in my room by myself, I put my costume on and went through my program with my costume on, just to get the feeling of that. I'm moving and doing landings and even trying to do some cuts on the floor. If somebody could see me doing that, they would think I was out of my mind. At that time I'm by myself in my room and just go through it. After that is usually the point where I take off my costume, pack it in my garment bag and start getting ready.

This year in Toyko before the short program I went to the ice rink early and didn't even go to the actual ice surface. I went to the dressing room, dropped off my stuff and went out for a walk. After my walk I put on my warm-up suit. What I do most times is go into the rink and go directly out to the ice surface, with all the TV lights on. There will be somebody skating, or they will be flooding the ice. I just go in and stare at the lights and the audience and get the feel of that and get myself into that scene. Last year at the Olympics, the change rooms were down this little stairway. It was like going down to a basement or dungeon, and what was happening upstairs was like a totally different world. So I put my skates on and went upstairs early enough for warm-up so I could get the feel of everything. After warm-up I had probably 10 to 15 minutes before I did my program. I stayed upstairs in that whole scene. There were some curtains. I even walked behind the bleachers, but I stayed up there. Once I'm there and I'm into it, and I see the lights and the audience, don't do anything to take me away from that.

For my on-ice warm-up I usually do just one of everything. The adrenalin is flying and there is no stopping me. I constantly go over to the coach more than anybody else in the whole competition, and it is only a 6 minute warm-up. I just coast by him and he just gives me a nod. I very rarely have problems with any elements at a warm-up so I

never have to go over and say, "What is wrong with this jump?" I just go over, and actually he never says anything. I just go over and he just gives me a nod. I guess I go over there for that nod.

I keep a very blank mind. I just go through the motions and don't think of anything. In a warm-up there are 6 or 8 skaters on the ice. You are aware of where they are so that you don't get in their way or they don't get in your way. That sort of thing keeps your focus so I don't start thinking negative things. It just kind of keeps me busy.

In 1982 I skated first after warm-up. That was the year I never slowed down and kept going to the last minute. Then, "The first skater is Brian Orser," and I went out and never really had time to bring myself down and talk to Doug and get my thoughts together and get myself psyched. The next year I skated first again, so Doug told me to get off the ice a minute and a half early and I came right off the ice. Most people stay on the ice. I got right off the ice and pretended I was skater #2 or #3 and I went around and paced around a little bit, and got myself psyched up and that worked. I skated much better. I learned from that experience.

Sometimes there are up to 6 skaters in a group. With a 4½ minute program and with the time it takes for marks, you can skate up to half an hour later. So you have to keep yourself warmed-up, but you can't keep yourself moving too much or you will burn up too much energy. Sometimes I will go off on my own and my coach just stands there so that I know where he is, if I need him. He never follows me around or discusses things. I see that with other coaches and skaters. The skater would just love to say, "Get off my back right now!" but don't want to say it at that point. I just go off on my own. I know exactly where he is and I will come back to him and give him a little nod and he'll come walking with me. Then all of a sudden I will just hang a left and go off on my own again, and he'll know exactly what to do. Stay there. Sometimes I will spend the whole time with him, sometimes I will spend very little time with him, sometimes if I have half an hour to wait I will take my skates off and put my shoes on and jump around a little bit and stretch. When the skater before me is on, I always sit down in a chair, and not move around too much. I feel good doing that, so I do it. If I had to stand on my head before I skated, I would do it.

Before the event I normally get to the rink and immediately get changed into my training clothes. I go up to the top of the rink, above the audience where the ice looks clear. I just look at the ice and trace out our program on the ice in my mind. I'm looking at the ice and seeing us skating the routine and going through every move, tracing it out. People must think I'm crazy. What is she doing staring out at the ice? I usually jog around for a while to get warmed-up. I start doing my stretches and my normal routine. I do a lot of stationary jumping and jogging on the spot. It gets my heart rate up and just gets me warmed-up. Then I get quiet and go to my dressing room.

I've always done that mental tracing in the rink. It helps me to get the right feel and also the feel of the lighting. Inside the dressing room, the lights are much dimmer. If you go out onto the ice, without having gone out earlier, the lights are so bright that it is very shocking and it is scary. So I have to kind of get adjusted to that lighting. I also like to walk out when the crowd is in the audience and the judges are there, just to kind of get a feel for the audience, the air. Without that adaptation period, going from such a quiet dressing room onto the ice is difficult. It is a big contrast and sometimes it

throws you off a little bit. So you have to know what to expect when you get out there.

When I am finished doing my hair and my make-up and everything, I do a little bit more warming up in the dressing room, usually stretching on the floor. After that, it is usually time to get my skates on. My skates go on about fifteen minutes before we go out onto the ice. Then I do a couple of things with my skates on, in the dressing room or in the hall closer to the ice, just basically to get my body loosened up. I like to do a lot of jumping on the spot, because I find it gets my adrenalin going and my heart rate up.

Then it is time to go out for the warm-up. We usually go out, do a couple of laps together, then break off and do our own single jumps, and warm-up on our own for a couple of minutes. We get together and talk about it. We discuss what we are going to warm-up before we go out onto the ice. If we have extra time left over, we decide whether we need to warm-up anything else. If we are first to skate, then when we have a minute left, we go over to our coach by the boards and rest. If we are not first, I get away from everybody. Usually I walk in the back hall. I go through the program in my mind. I go from the beginning, and I can hear the music. Sometimes I even go through the movements when I stand there.

Usually I go through the moves in my mind, really concentrating. If a certain thing is not going properly, then I think about everything going into that certain element. Say it is the double flip I was having problems with. Well, I look through everything in my mind that I should think about on that jump. Stay straight edge going in, keep my foot back, etc. etc., just little things that I have to think about when I go out there.

I'm visualizing as well as thinking that I've got to do this or that. Paul is usually pacing around, and every once in a while he says, "Remember to do this, remember to do that." Little comments here and there. But normally we don't talk that much before we skate.

## Kelly Kryczka Synchro Swimming

### Pre-Competition Plan

We are totally prepared for the duet competition. With our glamorous make-up on we look stunning and attractive. As we pin each other's hats on we feel the aura of each other's excitement. We feel confident and classy as we slip our lean and muscular bodies into our designer red-and-white suits. As we execute a land-drill in perfect synchronization, we feel as one! The Lean-Mean-Swim-Machine is totally ready! As we leave the locker room, we feel awesome in the eyes of the envious on-lookers. Stepping onto the deck we happen to notice a ridiculously lethargic, outward-looking penguin and sea lion. . . We look absolutely smashing! Walking out to our starting position, we can feel the positive anticipation of the wildly applauding audience. We feel light, cool, and bouncy as our feet skim over the deck. As we address the audience, we take a deep breath and feel our jaws relax. We sparkle and captivate the audience with our smiles. As the whistle blows, we take our pose with confidence and determination. We are ready to begin! A burst of energy fills us as the music blares through the huge speakers. As we flip into the water with grace and athleticism, we feel enjoyably revived by the cool, refreshing water. We feel strong and powerful as we perform our first stunt with precision. The end boost explodes with energy. We feel powerful, sharp and effervescent as our stream-lined bodies move in unison through the water. With the bubbly change in the music, our energy continues to grow. Our expression is frisky and fun-loving and entices the audience and the judges to follow every move. We hear the overwhelming applause of the appreciative audience. We see their smiling, supportive faces. The piano begins - making us feel relaxed and seductive as we slither through the water in euphoria. Our eyes express our alluring feeling. We are in another world. . . We are even more graceful and fluid. We feel like we are walking on water. The audience is mesmerized. We feel as straight as arrows as we execute our spins perfectly and with perfect synchronization. We are revitalized by the electricity in the air. The judges are in awe. The music changes and everyone comes alive. We are frisky and happy as we swim energetically through the water. True "show-offs!" We sparkle as we bring everyone to their feet, including them in our fun! As we go under for the last boosts, we feel victorious. Once, twice, we come flying through the air! The crowd is standing and cheering wildly as we surface for the end paso. We are popular and admired. We are obviously "THE BEST!" We get out of the water and confidently await our final marks. The marks flash across the giant screen - a brilliant display of 9.9's. We hug each other in ecstasy. The Canadian on-lookers are going wild! We wave thankfully to the crowd. As we walk off and wait for the presentations, we know that we have won the Gold Medal! The Olympic theme blares for the medal ceremony. We walk out to the podium triumphantly. As they announce the gold medal winners, we hear our names. The audience goes berserk! The presenter slips the colorful ribbons over our heads. We feel the weight of our prize. The sparkling gold medals dangle from our necks for all the world to see. We wave victoriously to the standing, cheering crowd. We hear, "Ladies and gentlemen, please rise for the playing of the national anthem of CANADA!" We begin to sing proudly as we see our red and white flag being hoisted to the top. We feel proud to be Canadians and to know that our country is proud of us. As we parade around the deck, we stop to share our moment of glory with our Canadian supporters. Tears of joy fill our eyes as we realize what we have accomplished - we are the

Charlene Wong Pre-competition Plan For Free-Style

International Competition -- 2:15 p.m. (1 skate first in the 2nd Flight -- no flood)

8:30 get up  
9:00 breakfast -- good one  
dress  
9:30 stretch  
9:45 leave for rink -- get there early to do visualization from the stands  
10:15 get skates on  
10:30 practice - warm up fast but well, do 2 sections of program (endings important) go over eye focus points and recall suggestions.  
11:45 light stretch, light lunch (almost nothing)  
12:15 go for easy walk, relax, get down, clear mind as much as possible, and just repeat positive self-suggestions if anything negative comes in  
12:45 make-up, and do my hair (my way of keeping busy)  
1:15 have concerns about triple salchow -- every time a bad vision or feeling comes -- I replay it in my head with feel.  
1:15 Alone time -- in mirror -- go over expression  
1:25 self-talk for trouble spots in program  
1:30 leave for rink  
1:45 stay loose -- do walk-through with walkman on. Go out and look at the ice -- sense the energy from the crowd, but stay focused.  
Don't talk to anyone negative or jumpy. Keep going through jump feels.

(If I happen to see anyone of the first flight skaters do something good, I imagined it was me and the crowd was clapping for me)

2:40 get skates on  
be sensitive to my body -- if I feel something that's not quite right (i.e. stiff muscle -- stretch it, negative thought -- replay the feel in my body.  
2:50 Warm-up -- My warm-up was already planned -- I knew almost exactly how many of what I would do, where I would do it etc. I got totally off the ice 1 minute before the end of warm-up. I didn't talk to anyone. I just stood staring at the ice seeing and feeling my triple salchow and combination. I stayed loose but focused.  
My turn As I skate out to my place, I pay attention to how steady I feel, and try to get into the ice.

Get to my place -- look at the judges -- take a deep breath and as I exhale I can usually tell right there if I'm with it. If I'm not, I just say this is going to be great, I'm ready, I love it out here, be with it, make them smile.

## Skating Performance Reflections

These questions are designed to help you reflect upon your personal competitive history and to help you refine your competitive focus and strategies.

1. Think of your all-time best performance(s) and respond to the following questions keeping that image in your mind.

How did you feel just before that performance?

No activation  
(mentally & physically flat)

0 1 2 3 4 5 6 7 8 9 10

highly activated  
(mentally & physically charged)

not worried or  
scared at all

0 1 2 3 4 5 6 7 8 9 10

extremely worried  
or scared

2. What were you saying to yourself or thinking to yourself shortly before the start of the performance?

3. How were you focused during the performance (e.g. what were you aware of or paying attention to while on the ice)?

4. Now think of your worst competitive performance(s) and respond to the following questions keeping that image in mind.

How did you feel just before that performance?

No activation  
(mentally & physically flat)

0 1 2 3 4 5 6 7 8 9 10

highly activated  
(mentally & physically charged)

not worried or  
scared at all

0 1 2 3 4 5 6 7 8 9 10

extremely worried  
or scared

5. What were you saying to yourself or thinking to yourself shortly before the start of the performance?

6. How were you focused during the performance (e.g. what were you aware of or paying attention to while on the ice)?

7. What were the major differences between your thinking (or feelings) prior to these two performances (i.e. best and worst)?

8. What was the major difference in your focus of attention during the performances (i.e. best and not so best)?

9. How would you prefer to feel just before an important competitive performance?

no activation  
(mentally & physically flat)

0 1 2 3 4 5 6 7 8 9 10

highly activated  
(mentally & physically charged)

not worried or  
scared at all

0 1 2 3 4 5 6 7 8 9 10

extremely worried  
or scared

10. How would you prefer to focus your attention during an important performance?

11. Is there anything you would like to change about the way you approach a competition or training?

12. Is there anything you would prefer to change about the way the coach approaches you during training or competitions?

What does Warm-Up do to  
Help Skating Performance?

- 1/ It makes the body perform better and more efficiently. When the body is warm, muscle temperature increases and this causes the muscles to lose their stiffness.

If muscles are not stiff, then they will be able to move more quickly. When the muscle speed increases, then the skater can develop more force and this means there will be more power in the jumps and spins.

- 2/ The mechanical efficiency of the body improves because opposing muscle groups are more relaxed and less stiff. This means if you want to do an axel and your legs are warmed-up, your free-leg will move more freely into the jump because the muscles you aren't using are relaxed.
- 3/ When your muscles are warm, the blood that is circulating around them will give up more oxygen. This is important because you need oxygen in your muscles to give them energy. Also more blood will flow through your muscles when they are warm, so again you get more oxygen.
- 4/ Warm muscles are less likely to become injured muscles. When your muscles are warm, they become more elastic and easier to move. Therefore any injuries that might occur from stiff joints or tight muscles are less likely to happen.

Static and Dynamic Stretching:  
What they can do for you!!!

Static Stretching

- Static stretching is slow movement into a position of full stretch, which is usually held momentarily (approximately 15-30 seconds) then released and repeated (see diagrams for examples).
- Static stretching effectively improves flexibility, and works best when muscles are warm.
- Static stretching does not effectively lubricate joints or warm up muscles in preparation for physical activity (dynamic stretching does this), however it is still an important part of any warm up.
- In summary, static stretching can improve flexibility and maintain muscle elasticity.

Dynamic Stretching

- Dynamic stretching is characterized by continuous movement through a full range of motion.
- Dynamic stretching has been called a dangerous flexibility technique which exposes the athlete to possible muscle pulls or joint strain. While these types of injuries may occur in cold muscles, they are not likely to occur in a properly warmed up muscle.
- \*\* - The important point to remember about dynamic stretching is that it should not be used as the first series of exercises in a workout.
- Dynamic stretching does little to improve flexibility, however there are 2 reasons why athletes should use it.
  - 1. On the ice, skaters use their flexibility in dynamic actions - in other words they move in and out of stretch positions fairly quickly. Performing dynamic stretches which simulate the movements skaters do on the ice will help prepare the muscles for sport-specific movements.
  - 2. Also, gentle movement of a limb around a joint stimulates joint lubrication and makes the joint better prepared to handle sport activities. In addition, the heat generated by dynamic muscular activity reduces resistance in joints and muscles.

## Additional Points on Stretching

### Why Should You Stretch?

- it reduces muscle tension and makes the body feel more relaxed.
- helps coordination by allowing for freer and easier movement
- increases your range of motion throughout the joints.
- prevents injuries such as muscle strains. (A strong, pre-stretched muscle resists stress better than a strong, unstretched muscle).
- it makes strenuous activities easier because it prepares you for activity; it's a way of signaling the muscles that they are about to be used.
- it helps loosen the mind's control of the body so that the body moves for "its own sake" rather than for competition or ego.
- promotes circulation.

reference: Stretching by Bob Anderson

### 3 Precautions to Take:

1. Always stretch a warm muscle, never a cold one.
  - do at least a couple minutes of light jogging to increase the circulation. Muscle tissue is like honey in that it becomes more pliable when it's warm, and therefore less likely to tear or strain.
2. Stretch smoothly - never bounce.
  - bouncing a stretch invites muscles to respond by tightening up to protect themselves, so the purpose of the stretch is defeated. Muscles prefer to be coaxed rather than jolted.
3. Pain in a stretch is self-defeating.
  - you're working against the body's loosen-up mechanisms by arousing pain during a stretch. Always ease yourself into a stretch, and hold it only as long as feels comfortable.

- In order to warm up the body properly, skaters should:

- i) do an overall body warmup to increase muscle temperature (i.e., 5 minutes of easy jogging, hopping or skipping).
- ii) begin with static stretching for all body parts.
- iii) once the body feels loose, start performing dynamic stretches which simulate your on-ice movements.

Pre-Competition Plan

At Home

Physical warm-up and Psychological preparation at home/hotel on the day of competition. (you can include the night before too)

At rink

You have arrived at the rink. List your physical and psychological preparation from your time of arrival - up to the on-ice warmu

Last night I was driving down a little dirt road in the countryside near my home. Something darted out of the darkness onto the road in front of me. My heart pounded as I lurched for the brakes. A large large rusty-colored car was in pursuit of a little grey field mouse. The cat was focused on that mouse, as if nothing else in the world existed. It was like some kind of energy beam connected the cat to the mouse. If I had not hit the brakes I would have run over that cat but she pursued that mouse as if I didn't exist. It was only after the cat had the mouse firmly clenched in her teeth that she acknowledged my existence before sauntering off into the woods. That is an example of concentration the uninterrupted connection between two things a cat and a mouse, a man and his thoughts, an athlete and her goal.

Did you ever watch a young child playing? I'm sometimes amazed at their ability to concentrate. When I watch a three-year-old friend playing, I would swear that during that time, the only thing that exists in his world is his favorite truck. He is oblivious to the chaos around him. His connection is very similar to that cat and mouse scene on the road. If a little kid and a cat can concentrate so completely, why can't we? I wonder how we lose that connection!

Let's suppose that the cat began to worry about being judged on her form as she stalked the mouse: do you think the connection would remain? If my little friend began to worry about being assessed on his truck maneuvering ability, would the flow be broken? A fourteen-year-old competitive figure skater came to see me a few years ago precisely because she had lost this connection. She entered her first major competition when she was 11 years old. At that time, she just went out and "did her program" let it

happen." She skated in the same way that my little friend played with his truck, totally absorbed in her performance and oblivious to the outside world. It was only later on that she started to think about judges, and other skaters, and the audience, friends, and getting upright. "When people said I was expected to win, the feeling of pressure started." Her thoughts began to drift to others' expectations of her. She began to worry about her performance and about how it would effect her acceptance by others. That is when her anxiety began to rise and her performance began to slide. That is when she lost her concentration her natural connectedness.

In attempting to regain this connection, what seemed to work best for her was to try to recreate the thoughts and feelings that were taken into her sport in her earlier years.

When athletes do not feel pressured or expected to do something, when they know they will remain valuable human beings regardless of numerical outcomes; worry thoughts are less likely to intrude and disrupt performance. That is when concentration is free to flow naturally. Worry is one of the greatest inhibitors of skilled performance. If you can learn to view competition in a less worrisome way, or if you can come up with concentration strategies which are more absorbing than the worry, you will be well on your way to consistent performance at your optimum level.

Focusing your attention involves becoming aware of one thing or one important area of focus, and shutting everything else out. Concentration for skating must be adjustable, like a zoom lens on a camera, capable of zooming in and zooming out. In figures we must zoom in and focus on each important aspect of the figure. And we must shut out any distracting thoughts that might take our concentration away from the figure (i.e. judges, other skaters, mistakes from previous figures, whose watching us and wondering what they're thinking). A good focus is needed for a free-style performance too. Even though there may be lots of activity going on around you -- when it comes time to perform -- you need to be in your own little focused world.

### Relaxed Concentration

Most skaters have a "program" in their brain for doing their skills. In many cases they can do things without even thinking. The challenge comes when we are under pressure during a test or competition. If our heads are full of worry and there is tension in our body, it is difficult for us to connect with the automatic "program". In order to tune in to the "program", many skaters need relaxed concentration. They want their bodies relaxed, but ready, and their minds calm but focused. They want to get rid of tension and to focus their attention specifically on that "program" stored in their brain. Getting tuned in is like turning on the television and getting an excellent picture. When we aren't tuned in, the picture and sound are fuzzy and we don't have clear viewing or a good connection. Without a clear view it's hard to let the skills happen.

Relaxed concentration is a learned art which must be practiced to be perfected. Here are some exercises involving both relaxation and concentration which you can try for skating.

- sit quietly and think about skating a perfect skill. Picture the perfect execution (e.g. position, form, style, technique, flow). Then empty your mind and let your body perform automatically. If you can learn to do this, you will free your mind of technical clutter and let the "program" flow.
- on the ice for figures, practice controlled breathing, slow, deep and relaxed (try for one-breath relaxation). Practice taking your concentration back and forth from your body (see if you are relaxed and centered into the ice), to your piece of ice (focus on where you want to skate). Relax, then focus in on your figure.
- after a bad figure or jump, practice immediately shifting your concentration to proper preparation for the next attempt. Take control of your mind, no one else can.
- use cue words (e.g. stretch, hold, lift, focus) or thought repetition (e.g. press, press, press) to keep your mind on skating. And have a cue word that quickly zaps you back on track.
- use your focusing plans for figures and your free-style program every day in practice.

### Focusing Plan for Figure Warm-Up

In Competition and test situations, the way you plan and think through your warm-up is essential to your performance.

On-Ice Warm-up Plan - write down all the steps you wish to complete for a good figure warm-up. Include all details (i.e. measuring circles, doing imagery, how many practice lay-outs, laying out the first print, breathing, relaxing, speaking to coach, looking over to the ice where you expect to perform).

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The referee has called you - write down all the steps you need to complete before beginning the lay-out (i.e. examing and choosing your ice, finding a long axis, acknowledging the judges, relaxing, imaging the figure, getting focused, switching to your focusing plan).

Focusing Plan for Figures

Draw your figure, and label the key points you need to focus on for your figure.

Figure: \_\_\_\_\_

---

Figure: \_\_\_\_\_

Free-Style Plan

On-ice Warm-up plan

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What do you want to do during the  
wait after warm-up?

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Your standing on the ice waiting for  
your name to be called - what are your  
final positive thoughts and feelings?

## Focusing Plan for Free-Style

This is your plan of what you want to concentrate on while skating your free-style program. The form is divided into 3 sections - you can make more divisions if you wish. Your focusing plan should contain thoughts, themes, cue words, feeling words, energizing words, technical cues - anything that will make you stay focused on the performance.

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Opening Section

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Middle Section

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Ending

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## Refocusing

### Refocusing at Practice - Parking

Let's say on your way to the rink in the car you have a disagreement with your Mom. You know it will not help you to think about it during skating. You want to set it aside - "park it" for the next 2 hours while your at the rink training. As you enter the arena, you can even touch the boards and think, "park it". At that point you smile and say to yourself - "I am going to be here for 2 hours and I am going to get the most out of being here". When you leave, you should probably consider how you will deal with the argument. Or if you want to feel miserable again, you can touch the boards and recapture that "parked" spirit and mope around for the rest of the day. \*\* Remember, if your in a bad mood, rather than blame someone else for it - take control of your emotions - you are responsible for how you feel.

A hassle that is beyond your immediate control is not worth wasting emotional energy over and should be parked. This does not mean that you will never deal with the problem. Instead, it means you will set it aside for now because it's distracting you - and you will deal with it at a better time later.

You can use "parking" on the ice, in the dressing room, or during your travels to and from the rink. Start using it with small things first, then build towards the bigger distractions. It's easier to park a little Honda than it is to park a Mac truck. And don't believe that it doesn't matter that much if you get upset at practice. If you practice upsetting yourself during training sessions, there's a very good chance it will carry over into competition.

### Refocusing Before Competition

One reason skaters don't always perform their best is they let unimportant thoughts or hassles distract them. It is important to work on holding you best focus for skating and on preventing little negatives from becoming a big deal.

For example: Let's say there has been a one hour delay in the competition and you are warmed-up and ready to compete now. What should you do?

- 1) you can become bothered and upset and let the delay affect your mood and probably your performance.
- 2) you can say to yourself - okay what can I do about this situation?
  - i) it is beyond my control, I can't change it - so I must accept it.
  - ii) what is within my control - my reaction to the situation
  - iii) you can park it - which makes alot of sense for events beyond your control. Everyone is delayed so I must make the best use of this time - maybe relax, then start my pre-comp. plan over again.

### Refocus if Your Having a Bad Day

If you wake up feeling tired, and thinking "I'm not going to have a good day", - this will probably interfere with your performance. Because you already know that you won't perform well, you don't perform well. Your mind is telling your body that today will be an "off" day, and your body will follow these instructions.

If you think you can't possibly have a good performance because you woke up feeling a little tired, or because your warm-up wasn't perfect, keep it a secret from your body. Your body won't know, and it will perform as it has been trained \*\*\* (provided you have trained properly)\*\*\*\*.

1. shift away from negative images.
2. remind yourself of your best performance focus.
3. stay positive, look at all the work you have done.
4. commit yourself to putting out 100% effort and you will feel more in control.
5. your body has the ability to perform well on any given day, so let your mind tell it so - you have control over your thoughts, so go for it.
6. have courage:

"Courage is when you know you might be licked before you begin, but you begin anyway and see it through, No matter what!!!"

### Refocusing on You

Sometimes competitors can draw our focus away from where it is likely to do the most good:

- they look extremely confident on practice and around the rink.
- they act like "this is my competition".
- they land jumps you can't do.
- they don't seem to notice you gawking at them.
- they are in their own world focusing on themselves, and this is where you should be too.

Worrying about your competitors will not help your performance - catch yourself before it starts. All athletes are made of the same flesh and blood and emotion, regardless of what they show publicly. They are not super-human. The only way you will perform your best is if you focus only on yourself and your performance. Focus only on what is within your control.

### Refocusing During a Performance

The best way to focus while skating figures or free-skating is to concentrate entirely on what you are doing - to stay connected to your performance. If we make a mistake during a performance (i.e. miss a jump, miss a center ) we must

refocus and continue skating as if it never happened. Yes - this is hard to do, but if you practice it during training it will not be difficult to snap back to your focusing plan under pressure.

Also if we are successful during a performance (i.e. land our first double axel, or skate an excellent figure) we must refocus and think for the remainder of our performance.

Make a list of situations where you may need to refocus:

## Refocusing Stories with Questions

1. Susan is competing in Pre-Novice ladies for her second year. Last year she came 8th in figures, but free-skated fantastic and pulled herself up to 2nd spot. This year she is 3rd after figures and can almost feel the gold medal around her neck. Her Mom thinks she has the competition in the bag because Susan can do a double axel, and the girls in first and second can not. Also Susan's Dad has come to watch her free-skate for the first time ever.
  - a) What should Susan do to keep her mind focused the right way?
  - b) What sort of things might distract her?
  
2. Karen has been away for the summer training with a coach in Toronto. Many of the skaters she has been training with have been to compete at the Canadian Championships, and some have won national titles. She has been working hard all summer and will be competing in an invitational free-style competition before she goes home. All her friends from her home club will be there competing too. They all want to see Karen's new solo to see if she has improved. Karen's Mom, Dad and Grandparents are coming to see her skate for the first time since the summer too.
  - a) What things do you think will distract Karen?
  - b) What should she do so that she can concentrate on her skating?
  
3. Patty and Tara have been competing against each other for years. They skate together at the same club and go to the same school. Patty feels quite envious of Tara because of all the attention she gets. Tara almost always seems to beat Patty, even though they are pretty evenly matched. Tara has excellent figures and always gets a big lead after the figure competition. Patty's figures aren't so great, and even though she is a good free-skater, she can't pull up to beat Tara. At this particular competition Patty has placed in 3rd spot after figures and Tara is 1st. Patty is surprised by her high placing but realizes that for the first time she really concentrated on her figures. Everyone is telling her that now she has a chance to catch Tara. For the first time, for sure she will be able to beat Tara.
  - a) What sort of things might distract Patty?
  - b) How should she focus to skate well?

4. During free skating practices, Patty gets really angry with Tara. Tara seems to skate as if she owns the rink and no one else on the ice exists. She never gets out of anyone else's way, always asks for her solo first -- and once she starts her solo there is no stopping her. All this makes Patty extremely angry when she is free-skating. Even Tara's coach seems to get in Patty's way. Tara's coach is always standing right where Patty does her double axels.

a) What should Patty do to make herself concentrate better during free-style?

Changing Negative Self-Talk To Positive

List any situations  
that upset you  
this week:

How did you feel  
when this happened?

What did you say  
to yourself when  
it happened?

Can you think of a  
better thing to say to  
yourself if this  
happens again?

The athlete interviews used for the study were taken from the book *Psyched: Inner Views of Winning*. The following interviews were used: Brian Orser, Barbara Underhill, Sylvie Bernier, Paul Martini, and Lori Fung.

**Appendix C**

**Pilot Work**

**Pilot Work.** The following section outlines pilot work the mental training instructor completed on developing and implementing a mental training program for young figure skaters. The content of the program was drawn from a review of literature on mental training programs for athletes, and mental skills used by elite level athletes. The purpose of the pilot work was to determine which methods of mental training were most suited to youngsters involved in figure skating. Although only 10 skaters were officially involved in the pilot work, the mental training program was developed based on consultation work with approximately 150 young figure skaters over a 2 year period.

**Pilot Subjects.** Ten female skaters who were attending the summer skating school at the Regional Training Center for Figure Skating in Ottawa were selected to participate in the pilot project. The skaters ranged in age from 11 - 13 years (average age = 12.3 years), and none of the youngsters had received any previous mental training instruction. All of the skaters were competing at either the Pre-Novice or Novice competitive level.

**Mental Training Sessions.** The group of skaters met once a week for a total of eight 45-minute classes during the 8 week summer skating session. During the early mental training classes, the skaters practised relaxation methods either by listening to a series of relaxation tapes (Unestahl, 1983), or by listening to the instructor guide them through the progressive relaxation exercises outlined by Orlick (1980). Following several relaxation sessions, one-breath relaxation was introduced. One-breath relaxation proved to be a very practical mental skill for figure skating because it could be used in many on-ice situations. Prior to beginning a school figure, it was used to maintain a relaxed focus, and allowed the skaters to settle into the ice for the figure. During free-skating practices the skaters were able to use it to relax tension in their bodies prior to attempting a skill. The skaters also used one-breath relaxation before beginning their free-skating program run-throughs. The relaxed centered feeling they achieved from the exercise served as a cue to switch into their focusing plan for the

free-skating program. At each of the mental training classes, some form of relaxation was practised in combination with an imagery exercise. Skaters were also encouraged to use relaxation outside of the mental training classes, both on and off the ice.

Imagery skills were practised for a portion of each mental training class. Initially, the imagery exercises focused on non-stressful skating conditions (i.e. the skaters imagined themselves skating during a regular practice session). The mental training instructor guided the skaters' through imagery exercises with very detailed instructions. The detail of the instructions helped the skaters develop vivid realistic images. The skaters discussed their imagery experiences after each exercise. This gave them an opportunity to share and compare the sensations they felt while practising the imagery. Skaters were told to work toward developing their images from an internal perspective with an emphasis on control and kinesthetic feeling for the imagined skill.

Once the skaters felt comfortable with the basic imagery exercises, gradually more stressful situations (i.e., free-skating competition, test day) were introduced into the imagery exercises. One example of such an exercise was the "creating a figure test day" imagery. The guided imagery directions included such details as: the quiet arena atmosphere; the noise of the skater's blade cutting the figure into the ice; and the three judges standing on the ice. Skaters would also use one-breath relaxation prior to beginning the figure in imagery. This allowed them to narrow their focus of attention for the imagery of the figure. The skating of the figure in imagery was timed with a stop watch to ensure the skaters were going the right speed while rehearsing the image. The skaters were told the closer they could make their imagery time to real skating time, the more accurate their imagery would be. The more stressful imagery exercises increased the skaters' awareness of the proper focus required for a performance. This new understanding of focusing led to an appreciation of the importance of refocusing as well.

Refocusing was introduced during a group discussion. The skaters developed a list of possible distractions that could occur during training and competition situations. Prior

to developing the list, the instructor gave a detailed explanation of what constituted a distraction or a situation where refocusing would be required. Excerpts from the athlete interviews in the book *Psyched* provided examples of elite level figure skaters experiencing distractions and dealing with them. The young skaters related well to these examples. In many cases, the skaters seemed to be realizing for the first time that distracting thoughts could influence how they performed.

Once the list was made, the group discussed possible ways of dealing with each distraction, and whether they had control over its occurrence. Further examples of refocusing taken from *Psyching for Sport, Mental Training for Athletes* were also discussed. The examples helped emphasize the importance of practising refocusing during training and daily activities in order for it to transfer to more stressful situations.

A final exercise which assisted the athletes in understanding refocusing, involved reading short stories about competitive figure skaters who were facing potentially distracting situations. The following is an example:

Susan is competing in Novice Ladies for her second year and is in third position after the figure portion of the competition. Last year in Novice ladies she placed 8th in figures and pulled up to 2nd place after performing extremely well in free-skating. She went into this competition favored to win and now she can almost feel the gold medal around her neck. She and her mother both believe Susan has the competition in the bag because Susan can do a double axel, and the girls in 1st and 2nd place cannot. Also Susan's Dad will be coming to watch her free-skate for the first time in over a year.

After reading this excerpt, the skaters were asked to discuss the situation and determine what Susan should do in order to properly mentally prepare for her performance.

Group discussions were also used when the skaters were asked to read the athlete interviews from the book *Psyched*. In small groups of 3 or 4, they were given the same interview and asked to identify different mental training skills in the reading. They looked for examples of: refocusing; competition evaluation; goal-setting; quality

training; learning from mistakes; pre-competition planning; and imagery. After this exercise, the group discussed the interview and shared their examples of mental training. This enabled the skaters to get a better grasp of all the information contained in the reading.

The group work done with the skaters helped to motivate the youngsters and assisted in their learning, however, it was necessary to meet with each athlete individually. All pilot subjects received 4 individual sport psychology consultations with the mental training instructor during the summer session. One-on-one time was used to work out individual concerns and to reinforce concepts presented in the group sessions. Goal-setting, pre-competition planning and focusing plans were also developed during individual meetings.

No formal evaluation of the program was done, however, during discussions following the pilot program, both coaches and athletes were very positive about the experience. The two mental training methods which elicited the most interest from the skaters were muscular relaxation and mental imagery. The skaters found these skills the most fun to learn, and they reported using imagery and relaxation daily during training. One area of difficulty identified by the coaches was their inability to monitor each athlete's progress with the mental training skills. For this reason, it was suggested that a skaters' training log for mental skills be incorporated into the program.

## **Appendix D**

### **Mental Training Program Description**

## **Mental Training Program Description**

**Relaxation Training.** Based on the response from the pilot work, it was decided that the subjects initial exposure to mental training would focus on learning mental imagery and relaxation skills. The pilot subjects reported these skills as being the most fun to learn, and learning imagery assisted the skaters in developing other mental training skills. Skaters were introduced to relaxation methods during small group meetings with an explanation of what it was, and how it could assist their sport performance. Following this, each small group session either began or ended with some form of muscular relaxation exercise. The teaching of basic relaxation skills followed a modified version of the Jacobson (1938) program. The program taught the skaters to identify tension in the body, and relax the various body parts. Once the subjects learned some basic relaxation skills, stretching and breathing exercises that promoted relaxation were introduced and combined with the relaxation exercises. Skaters were taught very practical relaxation methods for use during training, competition, and imagery practice. Several readings (Orlick, 1980; 1986b) which explained relaxation were discussed during small group meetings. A copy of the relaxation readings is available in Appendix B.

**Imagery.** The subjects received imagery training exercises throughout the training period. As an introduction, there was a discussion on the uses of imagery, and examples were given of elite athletes employing imagery in training and competition preparation. It was stressed with the skaters that imagery had to be practised on a daily basis in training for it to become most effective.

Guided imagery exercises which focused on non-stressful training images (i.e. the instructor guided the skaters through images of warm-up during a typical free-skating session) were taught during early imagery practices. The non-stressful exercises allowed the skaters to experiment with the imagery. The mental training instructor emphasized the importance of trying to feel the image as if it were really happening. The

skaters worked at developing controlled images with an internal perspective. Once subjects were able to develop images in non-stressful settings, gradually more stressful circumstances were introduced into the exercises. Guided competition and test imagery were practised, as well as timed imagery. During timed imagery, the skaters were asked to rehearse their free-skating solos in their minds while the mental training instructor timed their imagery with a stop watch. Each skater's goal was to have the solo imagery time match their real free-skating solo time as closely as possible. Several readings (Orlick, 1980; 1986b) pertaining to mental imagery were discussed with the skaters. Copies of the imagery exercises and readings are available in Appendix B.

**Success Elements.** During the discussion on the elements of success, the mental training instructor explained how elite level athletes used sport psychology methods in training and competition. Practical examples of the success elements were taken from the athlete interviews in the book *Psyched*. Copies of several athlete interviews (i.e., interviews from Brian Orser, Barbara Underhill, Lori Fung, and Sylvie Bernier) were included in the skaters' mental training manual. These readings were assigned to the skaters at various times throughout the training. During small group sessions, the interviews were discussed in detail to ensure the skaters understood all the information contained in them. Copies of the interviews, and the readings about the success elements are available in Appendix B.

**Goal-Setting.** During small group meetings the purpose of goal-setting, and the various methods of setting goals were discussed. Skaters worked on their goal sheets during both small group sessions and individual meetings with the mental training instructor. Long-term and short-term goals were set for free-skating, figures, fitness, and mental training. The skaters showed the goal sheets to their coach, who in turn added additional goals or made adjustments. Goal-setting was an on-going process throughout the entire experimental period. Readings (Orlick, 1980, 1986b) used for goal-setting are available in Appendix B.

**Pre-Competition Planning.** Pre-competition planning was introduced during small group sessions with an explanation of its purpose, and examples of plans used by elite athletes. The Competitive Reflections Form (Orlick, 1986b), which is used to analyze personal past performances, was completed. During the group discussion which followed, the skaters discussed both good and bad performances, and the related pre-competition activities that may have influenced the performances. The skaters were also taught the importance of an adequate physical warm-up, as this is an essential part of the pre-competition plan. The details of each skater's pre-competition plan were worked out during individual meeting times. Copies of the information sheets and planning sheets for pre-competition planning are available in Appendix B.

**Focusing and Refocusing.** Readings and information sheets related to focusing and refocusing were presented during the small group sessions. Examples of other athletes' experiences with these skills were used to help the skaters understand the importance of maintaining the correct focus. As a group, the skaters developed a list of possible distracting situations and opportunities where refocusing would be required. The skaters also did exercises for monitoring self-talk, and discussed how negative self-talk could be changed to positive self-talk. The skaters completed a chart which increased their awareness of self-talk and its influence on proper focusing. Copies of the focusing and refocusing information sheets and readings are available in Appendix B.

**Videos.** Four videos on mental training were shown to the subjects during the program. The first video was on Brian Orser's win at the 1987 World Figure Skating Championships in Cincinnati. It contained his figure and free-skating performances, as well as an interview with Brian and his coach. The second video was on the learning and training of mental imagery for sport (Botterill & Orlick, 1987). The third video contained a discussion with a local international competitive figure skater on her use of mental imagery during training. The final video showed the 1986 Canadian World figure skating team performing in a simulated competition setting. The purpose of these videos

was to motivate the subjects and further reinforce the use of mental training. The skaters were also fortunate to have an opportunity to hear Charlene Wong, a former international level competitive figure skater, speak about sport psychology training. Wong, a member of the 1988 Canadian Olympic team, was an advocate of mental training, and used mental imagery extensively during her training. She spoke on a very personal level about the various methods she used to deal with the pressures of competitive skating.

**On-Ice Mental Training.** Throughout the experimental period, the instructor spent individual time with each subject during training ice. This time was used to reinforce mental skills taught in the off-ice sessions, and to make sure the skaters understood and were using the skills properly. During figure sessions, skaters were asked to perform figure lay-outs using imagery, one-breath relaxation, and focusing. On free-skating sessions, subjects performed individual jumps using imagery, and attempted free-skating solo run-throughs using their focusing plans. The instructor spent equal time on the ice with all skaters. A record of each skater's progress with the mental skills was recorded, and this was discussed with the appropriate coach regularly.

**Appendix E**

**Letter and Consent Form**

Dear Parents and Skater:

Starting in January, I will be conducting a research study on mental training. The purpose of the study is to implement a mental training program with a group of competitive skaters and measure the effectiveness of the program. Skaters will be asked to participate in a number of small group meetings and individual consultations with me. During these sessions I will be teaching mental training skills to use in training and competition. Our sessions will be scheduled so as not to interfere with any of the on-ice or off-ice training.

The following is a list of the skills that will be taught:

- relaxation training for both on-ice and off-ice use.
- extensive use of mental imagery - it will be used to practice figure and free-skating skills, simulate test and competition situations, improve concentration, to correct errors, and to develop focusing plans for figures and free-skating programs.
- goal-setting - long term, short term and daily goal-setting skills will be taught.
- pre-competition planning- a mental training method used to prepare for test and competition performances.
- refocusing skills for competition and training.

The skaters will have a series of required readings (very short in length) to do, and these will be discussed in the small group sessions. I will also be spending individual time on the ice with each of the skaters. The purpose of the on-ice mental training is to assist the skaters with their focusing and imagery skills during daily training. My on-ice work will not interfere in any way with regular training time.

If you decide to participate in the study, the following things will be required of you:

1. To complete a number of questionnaires and answer some interview questions before the program begins. These are simple measures and should not take long to complete.
2. To participate in the 8-week mental training program by attending all small group meetings and individual consultations. There will be approximately 2 small group meetings per week (30 minutes in length), and 6 individual meetings over the 8 week period.

3. To participate in a competition simulation at the end of April.
4. To answer some questionnaires and interview questions regarding the program after its completion.

The Board of Directors of the Nepean Figure Skating Club has approved my study. I will be most appreciative if you decide to become a subject for the project, but do not in any way feel obligated to participate. I'm sure the skaters who do become involved will receive a very valuable learning experience.

Due to the number of skaters who are eligible for the program, I will be conducting two separate mental training sessions. Ten skaters will receive the mental training starting February extending through to the end of April. A second group of 10 skaters will receive the training starting in May and ending during the summer session. Once you have returned your subject consent form, you will be assigned to either the first or second group. I am attempting to balance the two groups with regard to level of skating, so that an equal number of high and low test skaters are in each group. Both groups of skaters will receive exactly the same mental training program, except that it will be given at two different times.

There will be no cost for the program, as the skaters will be assisting me in my research. In January, there will be an information meeting specifically for the parents of the skaters. At this time, the program will be described in more detail, and there will be an opportunity to ask any questions you may have. Coaches from the club have been informed of the study, and it is imperative that you consult with them before making your decision to participate. If you do decide to participate, please bring the completed Subject Consent Form to the information meeting. I look forward to working with you, and learning with you!!

This research is being done as part of the requirement for a doctoral degree in the area of sport psychology under the supervision of Dr. Terry Orlick. If there are any concerns or questions, you may contact Blaize Mumford at 231-5588, or Dr. Orlick at:

University of Ottawa  
School of Human Kinetics  
550 Cumberland  
Ottawa, Ontario,  
K1N 6N5  
(613) 564-9131

Yours sincerely,

Blaize Mumford

**Department of Education, University of Ottawa  
Subject Consent Form**

The purpose of this study is to develop a standardized mental training program for young figure skaters. This research is being done as part of the requirement for a doctoral degree in the area of sport psychology. The student/researcher (Blaize Mumford) is being supervised by Dr. Terry Orlick.

Skaters who participate in the study will be involved in an 8-week mental training program. Skaters will also be asked to participate in a competition simulation in April. Participants will be required to complete a number of questionnaires, and will be asked to participate in tape-recorded interviews regarding their use of sport psychology techniques.

When a research project that studies individuals is undertaken by a member of the University of Ottawa, the Ethics Committee of the University requires the written consent of the participants. This does not imply that the project is risky. The intention is simply to assure the respect and confidentiality of the individuals concerned.

The procedures involved have been fully explained to me, and I understand that a refusal to participate or a withdrawal will be treated without jeopardy or prejudice. Furthermore, the data collected will be held in confidence and used only for statistical purposes. If I wish feedback concerning my specific results, this will be provided. I am free to deny my consent or to request the return of my results at any time. If there are any concerns or questions Dr. Orlick can be contacted at :

University of Ottawa  
School of Human Kinetics  
550 Cumberland  
Ottawa, Ontario  
K1N 6N5  
(613) 564-9131

Please print subject's  
name: \_\_\_\_\_

Subject's signature: \_\_\_\_\_

Parents' signature: \_\_\_\_\_  
(if subject is under 18 years, the signature of a parent or responsible adult)

Date: \_\_\_\_\_

## **Appendix F**

### **McNemar Change Test Fourfold Tables**

In order to conduct the McNemar change test, all groups of categories developed from the qualitative analyses were collapsed to two individual categories per question. For example, based on the qualitative analysis the responses to the question: "What did you practice in your images prior to skating in competition?" were placed into 3 categories - no imagery, free-skating solo imagery, and multiple use imagery. For the McNemar change test, the no imagery and free-skating solo imagery categories were collapsed and became one category. This category was re-labeled poor imagery. The multiple use imagery category became the second category and was re-labeled good imagery. The terms good and poor were used in all the new labels for all the mental training skills (e.g., poor focusing, good refocusing, etc.). For each question the observed frequencies for each of the two new categories were then placed in fourfold tables and the McNemar test was conducted. The fourfold tables used for the analysis are shown in Tables F-1 to F-10.

Table F-1

Fourfold Table Used for the McNemar Change Test Based on Frequencies from Table 5

	No	
	imagery	Imagery
Imagery	0	11
No imagery	0	6

Binomial (p = .016)

Table F-2

Fourfold Table Used for the McNemar Change Test Based on Frequencies from Table 6

	Poor imagery	Good imagery
Good imagery	1	4
Poor imagery	3	9

X = 4.9 (p < .05)

Table F-3

Fourfold Table Used for the McNemar Change Test Based on Frequencies from Table 7

	Poor imagery	Good imagery
Good imagery	2	2
Poor imagery	4	9

X = 3.27 nonsignificant

Table F-4

Fourfold Table Used for the McNemar Change Test Based on Frequencies from Table 8

	Poor imagery	Good imagery
Good imagery	1	6
Poor imagery	2	8

Binomial (p = .02)

Table F-5

Fourfold Table Used for the McNemar Change Test Based on Frequencies from Table 9

	Poor imagery	Good imagery
Good imagery	2	4
Poor imagery	1	10

$X = 4.08$  ( $p < .05$ )

Table F-6

Fourfold Table Used for the McNemar Change Test Based on Frequencies from Table 10

	Poor focus	Good focus
Good focus	0	6
Poor focus	3	8

Binomial ( $p = .004$ )

Table F-7

Fourfold Table Used for the McNemar Change Test Based on Frequencies from Table 11

	Poor focus	Good focus
Good focus	0	6
Poor focus	3	8

Binomial ( $p = .004$ )

Table F-8

Fourfold Table Used for the McNemar Change Test Based on Frequencies from Table 12

	Poor focus	Good focus
Good focus	2	5
Poor focus	4	6

Binomial ( $p = .145$ ) nonsignificant

Table F-9

Fourfold Tables Used for the McNemar Change Test Based on Frequencies from Table 13

	Poor refocus	Good refocus
Good refocus	0	1
Poor refocus	7	9

Binomial ( $p = .002$ )

Table F-10

Fourfold Table Used for the McNemar Change Test Based on Frequencies from Table 14

	Poor lessons	Good lessons
Good lessons	0	8
Poor lessons	1	8

Binomial ( $p = .004$ )