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A MENTAL SKILLS PACKAGE FOR SPECIAL OLYMPIC ATHLETES

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**A Thesis Submitted to the Faculty of Graduate Studies in
Partial Fulfillment of the Requirements for the Degree of
Master of Science**

University of Manitoba

Faculty of Physical Education and Recreation Studies

July, 2001

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BY

MELANIE JEAN GREGG

**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of
Manitoba in partial fulfillment of the requirement of the degree
of
MASTER OF SCIENCE**

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Table of Contents

Abstract	v
Acknowledgements	vi
1. Introduction and literature review	1
Mental skills packages	2
Goal-setting	7
Self-efficacy	11
Individuals with intellectual disabilities	12
Summary	14
Statement of the Problem	15
2. Method	16
Participants and setting	16
Experimental design	18
Setting and apparatus	18
Dependent variables	19
Off-task behaviours	19
Athletic performance	19
Self-efficacy	20
Goal achievement	20
Treatment integrity	20
Observers	20
Controlled variables	22
Training effects	22

Contamination effects	22
Process check	22
Coach-athlete interactions	22
Procedure	22
Preliminary phase	22
Baseline	23
Intervention	23
Social validity	25
Treatment of the data	26
3. Results	27
Off-task Behaviours	27
Figure 1	28
Figure 2	29
Performance	30
Work output	30
Competition Results	30
Figure 3	31
Figure 4	32
Goal Achievement	33
Self-efficacy	33
Figure 5	34
Inter-observer Reliability	33
Table 2	35

Training Effects	33
Coach-Athlete Interactions	35
Table 3	36
Social Validity	36
Table 4	37
4. Discussion	37
5. References	44
6. Appendixes	52
Appendix A: Script for initial meeting with participants	52
Appendix B: Consent form	53
Appendix C: Recording sheet	55
Appendix D: Intervention prompt	56
Appendix E: Social validity questionnaire	57
Appendix F: Self-efficacy assessment	59
Appendix G: Recording protocol	60
Appendix H: Log book	61
Appendix I: Instruction script	69
Appendix J: Assessment of level of support needs	71
Appendix K: Weekly Assessment	73
Appendix L: Table 1	74

Abstract

The primary objectives of this study were to involve Special Olympic athletes in a mental skills training program, replicate the findings of other researchers (Wanlin, Hrycaiko, Martin, & Mahon, 1997), and improve participants' track and field performance, while assessing both practice and competition outcomes. The study attempted to decrease frequency and duration of off-task behaviours, increase self-efficacy of participants, and teach participants mental skills. A single-subject, multiple-baseline design across individuals was used. Participants were four Special Olympic track and field athletes. Frequency and duration of off-task behaviours decreased. Consistency of athletic performance was enhanced as the intervention progressed. The findings of Wanlin et al. (1997) were partially replicated. Athletes had a high rate of goal attainment. There were no significant changes in level of self-efficacy. The social validity assessment indicated the athletes and coach felt positive about the mental skills package.

Acknowledgements

Thank you to my committee for their helpful suggestions and for being so accomodating: Dr. Hrycaiko, Dr. Mactavish, and Dr. Martin. Thanks to the athletes and coaches who were involved in the study, good luck with all of your future athletic endeavours. Special thanks to my friends Dermot and Kelly who provided invaluable assistance to me. Thanks also to the volunteer observers who very patiently helped with the collection of data.

Mental Skills for Special Olympic Athletes

Over the past few decades there have been vast technological advances made with regard to enhancing sport performance. Improved training techniques such as periodization and simulated wind resistance tunnels have allowed coaches to use these new developments in their everyday training plans. Technology has certainly advanced athletes to a level never thought possible. A sub-four minute mile used to be an impossibility, now any one of the male 1500m runners at the Olympic Games could execute such a feat. Despite these great advances many athletes feel their training could be brought to an even higher level. Mental skills training may be the best tool for the challenge of helping athletes achieve their potential.

Mental skills training involves developing psychological elements that enhance athletic performance (Gould & Damarjian, 1998). Recently, several mental skills have been combined and presented to athletes in a package form. Frequently these packages include systematic goal-setting as part of their program (e.g., Hanton & Jones, 1999; Smith, 1993; Straub, 1989).

To increase the external validity of their findings researchers encourage the application of their mental skills training programs to other sports, ages, ability level, and sex (Wanlin, Hrycaiko, Martin, & Mahon, 1997). Mental skills training has been applied to a variety of sports and environments (e.g., Barnett & Stanicek, 1979; Burton, 1989b; Hughes, 1990; Kendall, Hrycaiko, Martin & Kendall, 1990). The application of mental skills training packages to athletes with intellectual disabilities has been limited (Travis & Sachs, 1991). Travis and Sachs (1991) called for more studies with special populations, but few researchers responded (e.g., Ellis, Cress, & Spellman, 1992; Lavay & Mckenzie,

1991). Although the preliminary studies are promising, further research is needed. The present study examined the feasibility of conducting mental skills programs, with a focus on goal-setting, for Special Olympic athletes. There is a need to explore ways of increasing competence in order to achieve potential for all individuals (Compton, 1984). As well, the present study examined the relationship between goal-setting, self-efficacy, and performance to determine the possible benefits of providing such a program to Special Olympic athletes.

The following review of literature critically examines the relevant literature in sport psychology concerning mental skills training programs, goal-setting, self-efficacy, and individuals with intellectual disabilities. Early studies in the area focused on making comparisons between characteristics of special populations and athletes without disabilities (DePauw, 1988). There has been a move toward assessing mental skills using single-subject designs within an applied setting during the past decade (e.g., Kendall et al., 1990; Wanlin et al., 1997). Experimental designs of this nature allow the researcher to account for individual differences (Reboussin & Morgan, 1996). Thus, the opportunity and resources available suggest it is prudent to develop sport psychology interventions for a heterogeneous population such as Special Olympians (Dattilo, 1986; Shephard, 1998; Watkinson & Wasson, 1984; Wheeler, 1998). The review concludes with a summary of contemporary literature, followed by a description of the research questions and hypotheses suggested by the review and examined in the research study.

Mental Skills Packages

Azrin (1977) encouraged the use of an outcome-orientation to research rather than a method-oriented approach. The method-oriented approach is a tool in search of a

problem to solve, whereas an outcome-orientation identifies a problem and uses whichever tools are effective to find a solution (Azrin, 1977). Azrin's outcome-orientation places the emphasis on the practical results of the treatment. Outcome dimensions include the speed of treatment benefit, duration of benefit, accommodating individual variations, and social acceptability (Azrin, 1977). Thus, it is less important which components of a mental skills training program have the largest effect, but rather that the outcome dimensions are met.

Presently, it is fairly common for athletes to seek the assistance of a sport psychology professional to help them manage the mental side of their game. It is the task of this professional to develop ways to manage mental obstacles and to maximize the athletes' performance. Many sport psychologists are turning to standardized mental skills packages as a way of dealing with this task. Mental skills packages have several advantages over simply providing one mental skill at a time. First, a package approach is conducive to working with a group of athletes because it is more likely that some aspect of the package will provide a solution to an individual athlete's concern, than will one mental skill (Bacon, 1989; Patrick & Hrycaiko, 1998). Secondly, standardized packages are more time-efficient as most professionals do not have the time or resources to develop individual packages for each athlete they work with. Third, coaches may be more willing to have their athletes involved in an intervention as a group as this is less disruptive to practice time and may facilitate group cohesion. Mental skills training as a group may be integrated into a practice, thus preventing athletes from missing practice to work individually on mental skills. Furthermore, learning mental skills as a group requires the group members to cooperate and assist each other in

developing their mental skills. Finally, mental skills packages may be employed by the coach with the initial assistance of a sport psychology professional. Having a program for coaches to use on their own is helpful because they may modify the mental skills program to suit their physical training program (Bacon, 1989). Smith (1993) further suggested that the athlete's objective is to become self-sufficient, and be able to learn and use mental skills autonomous of the coach or sport psychologist. As a result of these benefits, a number of studies over the past twelve years have utilized the package approach.

To begin with, Straub (1989) conducted an interesting study in which three mental training packages were compared. The independent variable was one of three mental training packages and the dependent variable was dart throwing performance. Straub did not find any differences in performance between any of the mental training groups following the intervention. All three mental training groups scored higher than the physical practice alone group. Although the style of the mental trainers differed, the content of their mental training programs was essentially the same. All three mental training programs included some form of relaxation training, imagery, concentration, cognitive restructuring, goal-setting, and programming of the subconscious.

In a second study, the use of a mental skills package that emphasized imagery rehearsal, relaxation, and self-talk, resulted in enhanced basketball game performance (Kendall et al., 1990). The intervention package was effective in strengthening a basketball skill during games and social validity measures supported the data. This study was unique because of its package approach to teaching mental skills in an applied setting, with an open skill, in actual game competition.

Patrick and Hrycaiko (1998) studied the effects of a mental skills training package on the performance of elite endurance athletes and found a relationship between a runner's level of performance and his use of mental skills training. The intervention included imagery training, relaxation, self-talk, and goal-setting. In this study running performance was improved, but perhaps more important was the support of the program by the results of the social validation assessment. Expert coaches analyzed the results of the study and agreed that the findings were important. The results support the belief that a package approach to mental skill acquisition increases the likelihood of an effect, which, in turn, encourages the athlete to regularly use their mental training skills.

Hanton and Jones' (1999) intervention with swimmers included the skills of imagery, self-talk and goal-setting. The research design was a single-subject multiple-baseline design across individuals used over ten competitive races for four swimmers. The swimmers showed performance improvements. Improvements in competition times were further supported by social validation, as the swimmers perceived these improvements to be significant.

Controlling and directing thoughts and feelings required for skilled performance is a goal of mental skills training (Smith, 1993). Performing to our potential is the principle objective of mental skills development. According to Smith (1993) there are six basic mental skills; relaxation, mental rehearsal, staying positive, realistic goal-setting, on-task focus of attention and control of emotions, and becoming and maintaining the state of being energized.

Kirschenbaum (1987) hypothesized a five-stage model of self-regulation. This model is useful for designing, implementing and assessing effective mental skills training

programs. The first phase of the model is problem identification. This requires the athlete to decide what aspect of their performance needs improvement. The second stage demands commitment from the athlete. The athlete accepts responsibility to work toward behaviour change. Thirdly is execution; the athlete must attend to feedback about their performance, evaluate their performance against a mastery criterion, and sustain effort despite opposition. Managing one's environment is the fourth phase and refers to arranging our physical and social environments so they foster success. The fifth stage is generalization; this step will lead to long-term success. Sport psychologists and coaches can be involved in all of these steps and assist the athlete as they make their way through the phases. Specific mental skills may be taught to help the athlete achieve each phase of the model. If an athlete has a broad repertoire of mental skills, the athlete may be more prepared to integrate Kirschenbaum's self-regulation model into their mental training program. Kirschenbaum (1987) suggested that the most useful method of gaining these mental skills is through a package approach.

Grove, Norton, Van Raalte, and Brewer (1999) used a transtheoretical model to describe the stages of change as it relates to mental skills training programs. The transtheoretical model is similar to Kirschenbaum's five stage model. The transtheoretical model includes the following stages: precontemplation, contemplation, preparation, action, and maintenance. Both models view behaviour change as occurring in a progressive manner through a series of identifiable stages resulting in permanent behaviour change.

Kirschenbaum (1987) and Grove et al. (1999) have provided an outline for applying a mental skills training program. Other researchers have contributed specific

skills they feel are necessary to include in a mental skills training program (Grove et al., 1999; Hanton & Jones, 1999; Kendall et al, 1990; Patrick & Hrycaiko, 1998; Smith, 1993; and Straub, 1989). Wanlin et al. (1997) and Smith (1994) go even further to recommend methods of monitoring the program. Both recommend the use of log books to help monitor the athletes' frequency and quality of use of mental skills. On the basis of the literature reviewed, a successful application of a mental skills package to a group of athletes would entail utilizing Kirschenbaum's model as a guide, identifying the essential mental skills and using a log book to monitor the program (e.g., Wanlin et al., 1997).

Goal-Setting

Realistic goal-setting involves the skill of starting with small, incremental goals that guide learning and improvement, and continuing this process with intermediate and finally long-range goals (Smith, 1993). More simply, a goal indicates a level of performance toward which an individual or group should work (Martin & Pear, 1996). Goal-setting has been used in settings such as education, the workplace, and sport.

Goal-setting and contingency contracting have been used to improve children's homework performance (Miller & Kelley, 1994). The children's homework accuracy and on-task behaviour substantially improved. Together, the children and their parents set goals and monitored whether the goal was achieved or not. The children signed the goal-setting form, indicating they were committed to achieving the goal.

Weinberg and Weigand (1993) found over 400 studies from industrial and organizational literature that indicated setting specific, challenging goals leads to high levels of task performance. The importance of goal-setting is emphasized by Zardra

(1978) who reports that statistics show the most successful people in life always write their goals down. The results of the industrial and organizational literature are replicated in sport settings as 90% of 110 studies found positive goal-setting effects (Hall & Byrne, 1988).

Miller and McAuley (1987) studied the effects of a goal-setting training program on basketball free-throw performance and self-efficacy. The goal training group described significantly higher perceptions of success and self-efficacy than did the no-goal training group. However, this study found no significant differences between the groups on the measure of free-throw accuracy. The researchers hypothesized that if self-efficacy could be amplified through goal-setting training, subsequent sport performance should also improve. Furthermore, Miller and McAuley (1987) believed despite the absence of continuous performance improvements, goal-setting in sport is still important if it can succeed in making performance more consistent. The failure of Miller and McAuley's study to show differences in free-throw accuracy between the groups is likely because the athletes were already at a high level of skill performance and improvements would have taken more time to develop.

Participants in an undergraduate archery class were assigned to either a goal-setting group or to a no-goal group (Barnett & Stanicek, 1979). The program took place over a ten-week period. During group conferences participants in the goal-setting group used a goal-setting form to set specific numerical and verbal goals. Participants in the no-goal group took part in conferences with no specific goal-setting. The goal-setting intervention increased participant motivation and maintained task interest. The goal-setting group achieved significantly higher scores in archery than the no-goal group.

Although goal-setting has been shown to improve sport performance, some types of goals are better than others. For example, specific goals are better than do-your best goals (Burton, 1989a, 1989b; Dossett, Latham, & Mitchell, 1979); while goals with a focus on improving skill have a positive relationship with performance (Brett & VandeWalle, 1999). Furthermore, first setting a long-term goal and then setting short-term goals that will lead to the long-term goal is an easy method to plan goal achievement (Martin & Osborne, 1989). Finally, daily goal-setting by a roofing crew demonstrated increased safety behaviours and improved productivity (Austin, Kessler, Riccobono, & Bailey, 1996).

Perhaps more specific than the type of goal is the idea of outcome goals versus performance goals. Outcome goals are inflexible and are out of the athlete's personal control (Burton, 1989a, b). An example of an outcome goal is winning an Olympic gold medal. The problem with setting outcome goals is that the athlete is unable to control how their competitors perform. Basing goals on performance allows the athlete to evaluate their success based on the one part of competition that the athlete completely controls, their own performance. Even if the athlete's performance is not enough to allow them to win they are still experiencing the success of achieving their goal (Burton, 1989b). Hanton and Jones (1999) emphasized to a group of swimmers the importance of setting goals that are within the individual's control and not solely outcome goals. An individual's race times and swimming technique are examples of performance goals.

Goal commitment positively affects performance (Klein, Wesson, Hollenbeck, & Alge, 1999). The more attractive a goal is and the greater the expectancy of achieving that goal, the stronger the goal commitment (Klein et al., 1999). Athletes may show goal

commitment by recording their goals in a diary or on a goal-setting worksheet (Gould & Damarjian, 1998; Miller & Kelley, 1994; Smith, 1994; Wanlin et al., 1997). Diaries and goal-setting sheets are also useful tools for evaluating goal achievement. An evaluation process is essential for modifying goals, creating new goals, and determining the success of the goal-setting program (Boutcher & Rotella, 1987; Gould & Damarjian, 1998).

According to goal-setting literature, goals should be specific and measurable, difficult but attainable, short and long-range, focus on performance rather than outcome, be positive as opposed to negative, include a target date for goal achievement, identify methods to attain goals, keep a record of the goals, and continually evaluate progress toward the goals (Gould & Damarjian, 1998; Martin & Osborne, 1989; Martin & Pear, 1996). Burton, Weinberg, Yukelson, and Weigand (1998) found that highly effective goal setters use all types of goals and implementation strategies more often and effectively than ineffective goal-setters. Goals are a tool individuals can use to continuously measure performance through comparison processes of personal standards (Frierman, Weinberg & Jackson, 1990). It is clear that goal-setting is an important skill that can be easily implemented.

Hughes (1990) supports the idea that performance or process goals are more effective than outcome goals. Hughes also points out the negative effects of outcome goals; that is they often result in anxiety, poor concentration, and self-confidence problems. Winning is the result of many factors that the athlete is unable to control. As a result of inappropriate goals athletes learn to fear failure and develop self-doubts. Appropriate goals are important for an athlete's self-efficacy and cause the athlete to

spend more time in task-relevant practice (Boutcher & Rotella, 1987; Garfield & Bennett, 1984; Gould & Damarjian, 1998; Smith, 1993; Smith & Lee, 1992).

Self-efficacy

Self-efficacy is the belief of an individual that he or she has the capability of executing a behaviour required to attain a level of performance (Bunker, Williams, Zinsser, 1993; Wanlin et al., 1997). Bandura (1977) is a leading researcher on the role of self-efficacy. Bandura believes there are four major sources of information on which individuals base their personal self-efficacy: personal accomplishments, vicarious experience, verbal persuasion, and emotional arousal. Personal accomplishments influence self-efficacy the most because they are the result of successful experiences (Bandura, 1977; Gould & Damarjian, 1998). Setting appropriate goals allows athletes to experience some level of success, leading to increased self-efficacy. Miller and McAuley (1987) observed basketball free-throw self-efficacy improvements and attributed these improvements to goal-setting training. Miller (1993) adjusted the performance goals of competitive swimmers to create high efficacy situations. When the swimmers' efficacy was high, performance was enhanced, when efficacy was low, performance was impaired.

Self-efficacy, or self-confidence, is not what an athlete wishes to accomplish but what they realistically expect to accomplish (Gould & Damarjian, 1998). Bunker et al. (1993) maintain the greatest athletes are self-confident. Self-confidence may be best demonstrated through realistic goal-setting that is challenging at the same time. Success, competence, expectation, and effort function in a circular manner according to Ziegler (1980). This circle continues if goals are attained that are important to the

individual. Ziegler believes that if an individual continues to modify their goals and set increasingly more difficult goals, the circle then functions as a rising spiral. One's efficacy for a task determines the kind of activity pursued, the amount of effort put forth, the length of persistence, and the final outcome (Lee, 1982; Shelton, 1990).

Athletes must have knowledge of their present ability and be committed to the actions and effort required for improvement (Smith, 1993). Goal-setting is a core aspect of mental training programs. Supplementary skills such as self-talk and imagery serve to reinforce for the athlete the benefits of working toward and achieving their goal (Wanlin et al., 1997).

Individuals with Intellectual Disabilities

Although target groups must be clearly definable in order to examine the process and results of an intervention (Hargreaves, LeGoullon, Gaynor, Attkisson, & Bloch, 1984), individuals vary in their level of support needs. "Mental retardation refers to substantial limitations in present functioning. It is characterized by significantly subaverage intellectual functioning, existing concurrently with related limitations in two or more . . . adaptive skill areas" (Luckasson, Coulter, Polloway, Reiss, Schalock, Snell, Spitalnik, & Stark, 1992). Many researchers are comfortable using the terminology of the past, describing participants as having varying degrees of mental retardation (mild, moderate, severe and profound), rather than using the currently recommended ten adaptive skill areas to describe participants (Conyers, Martin, Martin, & Yu, 2000). Rather than providing researchers with specific IQ scores or achievement records, participants and caregivers may be more responsive to other approaches of assessing level of support needs (Reid, Dunn, McClements, 1993; Strean, 1998). Describing

support needs based on adaptive skills may be less invasive and more acceptable. Level of support needs may be described as performance in ten adaptive skill areas, such as: social, communication, and work (Luckasson et al., 1992).

More than 1,000,000 athletes with intellectual disabilities participate in Special Olympics each year (Travis & Sachs, 1991). Sport psychology techniques can enhance sport performance and the quality of the sport experience for this population. Hanrahan (1998) supports Travis and Sachs by suggesting that the goal-setting process is generally the same for athletes with and without disabilities. As with all athletes, motivation to achieve increases when athletes set their own goals!

Past research on athletes with disabilities has focused on descriptive profiles and reliability of specific assessment tools, rather than on how mental training techniques can be developed and implemented with this group (Asken & Goodling, 1986; Hanrahan, Grove, & Lockwood, 1990). Most research has dealt with making comparisons between athletes with disabilities and athletes without disabilities (DePauw, 1988). DePauw concluded there is more similarity than difference on psychological factors between athletes with disabilities and athletes without disabilities. Zoerink and Wilson (1995) assessed the competitive disposition of athletes with intellectual disabilities. They found, as DePauw hypothesized, that athletes with intellectual disabilities are more similar to, than different from, athletes without intellectual disabilities with regard to their perceptions of competitiveness, winning and setting goals.

For example, a fourteen week run/walk program was designed for five adult men with mild or moderate mental retardation (Lavay & McKenzie, 1991). Each individual participated in setting a distance goal with the help of an undergraduate running partner.

Twenty-three of twenty-five distance criteria goals were met or exceeded, indicating the men understood the concept of goal-setting. Finally, the men were able to set goals and engage in appropriate fitness activities with minimal supervision. A similar study involved five students with moderate or severe mental retardation (Ellis et al., 1992). The students engaged in a goal-setting program to enable them to exercise for a prescribed period of time or for a certain number of laps in a public school setting. At the conclusion of the study the students were able to self-manage a comprehensive exercise program. These studies demonstrate the feasibility of providing individuals with intellectual disabilities with mental skills training. However, it has been observed that some mental skills may be more beneficial for certain special populations than for individuals without disabilities. Surburg (1989), noted that imagery training may be most effective with special populations.

Summary

Previous research suggests that mental skills training packages are an effective tool for enhancing sport performance. Goal-setting combined with other skills, including self-talk and imagery, have been shown to be integral aspects of a mental skills training program. Goal-setting and self-efficacy have a reciprocal relationship, when self-efficacy is high and goals are appropriate the result is optimal performance. A dearth of research focusing on individuals with intellectual disabilities currently exists (Travis & Sachs, 1991). Past research has focused on assessing similarities and differences between athletes with intellectual disabilities and athletes without intellectual disabilities (DePauw, 1988). Current research needs to move away from simple comparisons and must seek methods of enhancing the performance of athletes with intellectual disabilities. This

study applied a mental skills training program, which has been shown to be effective in enhancing performance, to athletes with intellectual disabilities.

Statement of the Problem

The area of mental skills training should target consumers other than elite performers, as the largest proportion of the population are not elite performers. Many mental skills training programs are geared to elite athletes, who do not have intellectual disabilities, because their physical skills are well-developed and psychological factors are thought to play a major role in their performance (Vealey, 1988). To further the field of sport psychology and to enhance the performance of more individuals it is imperative that more research be done with a wider range of people within the general population (Crocker, 1993). The need is more evident when an extensive literature review of mental skills training with athletes with intellectual disabilities yielded no results (Travis & Sachs, 1991). Athletes with intellectual disabilities often display a lack of motivation, while successful sport experiences lead to improved self-esteem and independence. High self-efficacy is associated with better health, higher achievement, and more social integration (Schwarzer, Basler, Kwiatek, Schroder, & Zhang, 1997). As a result, a mental skills program may improve an athlete's overall level of independence (Travis & Sachs, 1991). Participation in research of this type supports the current educational philosophy of inclusion, fostering understanding of disabilities, and possibly increasing acceptance of special populations by society in general (Lavay & McKenzie, 1991; Reid et al., 1993).

Elite athletes with intellectual disabilities and elite athletes without intellectual disabilities may derive similar benefits from analogous psychological skill interventions. It

is assumed that Special Olympic athletes have had less exposure to mental skills training than athletes without intellectual disabilities. The goal of this study was to demonstrate that a mental skills training package is an effective intervention for improving performance of Special Olympic track and field athletes. The purpose of this study was to partially replicate and extend the findings of Wanlin et al. (1997). The present study is unique because the participants were Special Olympic track and field athletes rather than speed skaters from the general population. The study further contributes to the sport psychology literature because it assessed both practice and competition results.

Method

Participants and Setting

Participants were four Special Olympic track and field athletes. Three male athletes and one female athlete participated. The runners were members of a local track and field club, working with a qualified coach. They trained a minimum of two times per week and showed a minimum level of commitment to the sport. Commitment was defined as a minimum of two years involvement in a track and field club prior to the intervention. Runners were selected based on the following criteria: a) the coach's recommendation (i.e., the runner had not been performing to his/her potential or he/she had low self-efficacy), b) the athletes were competitive, meaning they did not limit their involvement to practices, but they also entered competitions, c) the athletes volunteered to participate. The selection of participants was subjective and primarily based on the coach's recommendation. An information session for participants and their caregivers was conducted prior to the intervention. At this information session the experimenter

explained the meaning of sport psychology, the benefits to participants, any potential risks of participation, and provided a brief description of the program requirements (Appendix A). At the conclusion of this session consent for participation was obtained from the runners and their caregivers. The consent form requested permission from the runners to participate in a sport psychology project that investigated ways to optimize performance (see Appendix B).

Participant 1 was 22-years-old and had participated in track and field for eight years. He had completed his grade twelve education and worked everyday. He was also a competitive swimmer and trained for swimming once per week. He liked to play video games and go to the mall.

Participant 2 was a 23-year-old woman who had competed in track and field for three years. She worked at a cleaning job in the shopping mall three days a week. She had completed high school. She took the bus to work and track and carried a cellular phone with her. She did not participate in other sports but enjoyed playing nintendo and going bowling. Sometimes she enjoyed going to the library and to the movies.

Participant 3 was 21-years-old and had been involved in track and field for ten years. He was also competitively involved in swimming and nordic skiing. He worked three times a week and was involved in a special education program at a local high school. He liked to rollerblade and play video games. He had travelled to many places within Canada, mainly as a result of his involvement with the Special Olympics program.

Participant 4 was a 27-year-old man who had been participating in track and field for eleven years. In addition to training two times per week with the track club, he also trained with another track and field club two times per week. He worked full-time sorting

wood, and enjoyed his job because it never got boring. He liked watching television and listening to music. He also went to church, to the shopping mall, and watched scary movies. All of the participants lived with foster parents. All participants could read and appeared to comprehend what they were reading. They were all able to communicate easily with the experimenter.

Experimental Design

A single-subject multiple-baseline design across individuals was used to examine the effects of the intervention on off-task behaviours, athletic performance variables, goal achievement, and self-efficacy. Participants were observed during baseline and intervention phases. Data was collected at practices, with the exception of running times which were collected from competitions. The duration of the study period was eleven weeks.

Setting and Apparatus

Data was collected at the runners' practice site, a fieldhouse with a 200m, 6 lane, rubberized track. This was the athletes' regular practice site. Data from competitions was collected at the same site. Data was collected during baseline and intervention phases in both practice and competitive settings.

Observers used a recording sheet to record the frequency of off-task behaviours, number of laps and drills completed as prescribed by the coach, and the number and type of coach-athlete interactions (Appendix C). Observers were provided with stop watches to record the duration of off-task behaviours. Race times were obtained from official meet results. Athletes used a logbook to record their goals. Athletes received an intervention prompt to post on their refrigerator at home to remind them to complete their

log books and to set their practice goals (Appendix D). Finally, a social validity questionnaire was used to assess coach and athlete satisfaction with the program following the intervention (Appendix E).

Dependent Variables

Off-task behaviours

Behaviours were considered off-task when they disrupted the performance of specific tasks to be addressed. Off-task behaviours were assessed because they may influence rate of improvement and subsequent performance.

The frequency and duration of off-task behaviours was recorded. Each time an off-task behaviour occurred observers started their stopwatches and when the athlete returned to on-task behaviours observers stopped their stopwatches. At the conclusion of the practice observers recorded the total duration of off-task behaviours for that session. Each instance of off-task behaviour was recorded and the total frequency was listed at the end of the practice session (Appendix C). Frequency of off-task behaviours was the variable used to determine the point of intervention.

Athletic Performance

Performance was assessed by work output and racing times:

1) Work Output

Work output was determined by the number of laps and drills completed as prescribed by the coach. The number completed was recorded as a percentage of the number prescribed.

2) Competition Results

Only two competitions took place during the intervention. The experimenter had

planned to compare results from the start of the intervention to the end, however this did not happen because of the timing of the competitions in relation to the intervention schedule. Therefore, results were compared from the two competitions during the intervention to participants' best indoor competition results ever, prior to the intervention.

Self-efficacy

A self-efficacy scale (adapted from Schwarzer et al., 1997) was used to examine the goal-setting effects (Appendix F). Athletes rated how confident they felt in different situations. Self-efficacy was assessed during each phase of the study for a total of three assessments.

Goal achievement

Actual performance results were compared to the goals set in the athlete's log book to determine goal achievement. Participants set both long-term and short-term goals. Long-term goals were for the final competition of the indoor season and consisted of performance goals (e.g., participant 3 set a goal of running 26.0 seconds in the 200 metres). Short-term goals were practice goals and consisted of process goals (e.g., participant 2 set a goal of using her arms a lot while she ran). Goals were assigned an outcome level on a five-point scale (-2 to +2), which ranged from the least favourable treatment outcome thought possible (-2) through the expected level of treatment success (0) to the most favourable outcome (+2) (Smith, 1988). The individual scale scores were summed to provide an overall score for goal attainment.

Treatment Integrity

Observers

Behaviours were observed by eight university undergraduate students. The

observers were recruited as part of a credit toward a course. Observations were made twice per week for approximately 1.5 hours per session. Observers were given definitions of the behaviours to be observed. Prior to the study, student observers were trained to identify and record the frequency of laps, skill completion, off-task behaviours, and the type of coach-athlete interactions. During training, observers were shown the recording sheets and practiced recording the dependent variables for athletes not involved in the study. Observers were provided with two practice opportunities to collect data prior to collecting baseline data on the participants to ensure that they were comfortable with the procedures and definitions. To develop a recording protocol and make sure all observers were observing the same thing, observers were able to ask questions and discuss with the experimenter what was to be recorded (Appendix F). Once the observers felt comfortable with the protocol they practiced recording the variables independently until interobserver reliability (IOR's) scores were at least 85% (Rife & Dodds, 1978).

IOR's for each variable were calculated by dividing the lowest number of recorded instances of a dependent measure by the highest number of that specific measure recorded by a second observer during a session, and multiplying the dividend by 100%. IOR's for frequency and duration of off-task behaviours, frequency of laps, skill completion, and type of coach-athlete interactions, were calculated separately for each variable by determining the total frequency of each variable during practice. IOR checks were done in both baseline and intervention phases for 70% of the practices.

Controlled Variables

Training effects

During the baseline phase all participants received standard coaching. To control for possible training effects one participant remained at baseline for the duration of the study. This participant received the intervention at the conclusion of the study.

Contamination effects

The importance of not discussing the intervention with the other participants was stressed to the athletes. At the weekly sessions with the experimenter, athletes were encouraged to discuss their goals with their coach and reminded to avoid talking about the program with the other participants.

Process Check

Coach-athlete interactions

Observers monitored coach-athlete interactions across all phases of the experiment. Each incident and type of interaction between coach and athlete was recorded during baseline and intervention (Appendix G). Interactions were instruction or correction, and positive or negative feedback. IOR's were also calculated on this data. Process checks ensure that the athletes are not being treated differentially by their coaches, as this could influence the outcome of the intervention. Criteria for identifying behaviour that could receive feedback was based on recommendations by Rushall and Smith (1979).

Procedure

Preliminary phase

Five athletes and their caregivers were invited to meet with the experimenter to

discuss the intervention and to address any questions or concerns. Interested participants and caregivers signed the consent form, indicating their desire to participate in the study.

Observers were recruited from an undergraduate psychological skills class as part of their practicum requirement. Observers were given a list of practice dates and times. Observers were trained prior to the first week of baseline data collection.

Baseline

Data was collected at all sessions in which each athlete participated. During baseline and throughout the intervention, participants received standard coaching. Standard coaching involved verbal skill instruction, feedback, and correction.

Observers recorded the following information during baseline: number of off-task behaviours, number of laps and drills completed as prescribed by the coach, and the number and type of coach-athlete interactions. Self-efficacy of participants was determined prior to the intervention, by having the runners fill out the self-efficacy scale once during baseline.

Baseline data was collected until the data was either stable or in a direction opposite to that expected as a result of the intervention. Frequency of off-task behaviour was used to determine the time of the intervention. Stable baselines are necessary to determine causality and to assess whether behaviour change occurred between phases (Bryan, 1987; Rife & Dodds, 1978).

Intervention

Once a stable baseline of off-task behaviour was achieved the first athlete was provided with a comprehensive mental skills training package which included a log book.

The package included the following sections: 1) mission development, 2) long-term goal-setting, 3) subgoal and practice goal-setting, 4) self-talk, 5) goal visualization (Appendix H). The experimenter worked through the initial stages of the program with each participant. To ensure participants received the same instructions the experimenter followed a script when providing explanations (Appendix I). The experimenter's first meeting with each athlete included an assessment of the athlete's level of support needs. An oral interview was conducted to provide a qualitative assessment of level of support needs (see Appendix J for the interview script). The interview questions were developed based on the recommendations of several authors (Mactavish, Lutfiyya, & Mahon, 2000; Matikka & Vesala, 1997; Sigelman, Schoenrock, Budd, Winer, Spanhel, Martin, Hromas, & Bensberg, 1981).

Athletes were asked to set practice goals in their log books prior to each practice. The log book served two purposes, it was feedback for the athlete and it was a qualitative measure for the intervention. The experimenter taught the athletes to set appropriate goals and a goal-setting checklist was included in their log book (Appendix H). At the end of practice the athletes were asked to evaluate their goal achievement for that practice and to indicate how they felt about the practice. The athletes used this information to set goals for the next practice. It was also recommended that the athletes share their goals with their coach. The coach was able to make recommendations as to how appropriate the goal were, but the final judgement was the athlete's.

Once a week the athletes met with the experimenter to make program adjustments as needed and to ensure that the athletes were fully complying with the instructions provided. The experimenter met with participants once a week for

approximately 5-10 minutes before or after practice. The meetings served to answer any questions the participants may have had, to check participant compliance, and to ensure that the participants were using the intervention as described. During assessment sessions the experimenter followed a prescribed script of questions (Appendix K). The experimenter checked the participant's log book to confirm it was completed. The experimenter also asked the participant questions about the intervention to determine if they were using their mental skills. The coach was asked if the athletes shared their goals with them. The athletes were encouraged to ask questions related to the intervention package whenever they arose. To facilitate participant compliance athletes were reinforced for compliant behaviour using praise and the participants were provided with an intervention prompt (see Appendix D). If a participant was not compliant she/he was asked why they were not compliant, how compliance might be increased, and reminded that compliance was necessary for the program to be effective. Following the intervention the experimenter met with the athletes and coach to discuss the findings of the study and to answer any further questions and address concerns.

Social validity

Social validity was assessed following the intervention using a social validity questionnaire for athletes and coaches (Appendix E). Even though the study did not produce statistically significant results for all dependent measures the coaches and athletes may have perceived the results of the intervention as important. The study accommodated all three levels of social validity (Hrycaiko & Martin, 1996) through the use of a social validity questionnaire. The first level was whether the behaviours influenced by the intervention are really the most important for the participant. In an

effort to achieve this aspect of validity athletes set their own goals. By setting their own goals it was expected that the goals would be important to them and that the participants would be willing to work towards them. The second level of social validity answered the question, are the procedures used in the study acceptable to the participant? This was addressed throughout the study by allowing and encouraging the participants to ask questions and express concerns. In addition, an oral interview was conducted to determine level of support needs, rather than using IQ scores or other psychological tests. Athletes and caregivers are likely to be more accepting of this type of inquiry. The third level of validity questioned whether the coach and participants were satisfied with the results of the intervention. The questionnaire also provided the opportunity for coaches and athletes to indicate which components of the program they felt were most and least effective.

Treatment of the data

Off-task behaviour, work output, and self-efficacy are displayed graphically. This data was assessed as per the instructions of several researchers (Baer, Wolf, & Risley, 1968; Hrycaiko & Martin, 1996; Rife & Dodds, 1978). These guidelines include the sooner the behaviour change occurs following the intervention, the fewer the overlapping data points, the longer the behaviour change can be maintained, the larger the effect size, and the more times the effect is replicated, the stronger the intervention. Goal achievement is reported in two forms; as the percentage of goals achieved out of the number of goals set and as a summary score of the individual scale scores. Finally, social validity questionnaire results are presented as quantitative data with a qualitative description.

Results

Both scientific and practical evaluations of the effectiveness of the intervention were made. Scientific criteria were used to determine if the treatment was responsible for producing a reliable change in the dependent variable (Baer et al., 1968; Hrycaiko & Martin, 1996; Rife & Dodds, 1978). Data from the dependent variables were graphically displayed for visual inspection; off-task behaviour (both frequency and duration), work output and self-efficacy. Social validity measures served as the practical criteria for assessing the effectiveness of the intervention.

Off-task Behaviours

Off-task behaviours were measured by two variables; frequency of occurrence and duration of incident. The average frequency of occurrence is displayed in Figure 1 and the average duration of off-task behaviour is presented in Figure 2. For all participants there was an immediate decrease in the frequency and duration of off-task behaviours following intervention. There was a 50% reduction in frequency of off-task behaviours from baseline to intervention for all participants. During the intervention participant 1's engagement in off-task behaviours decreased and became less variable. Participant 2 had only one incident of off-task behaviour during the intervention and participant 3 reduced his off-task behaviour to zero following intervention. With regard to duration of off-task behaviours participant 1 demonstrated considerable variability during intervention. Participants 2 and 3 had few overlapping data points on the measure of duration as they reduced their time spent off-task by 50%. Participant 4's frequency and duration of off-task behaviour fluctuated throughout the study.

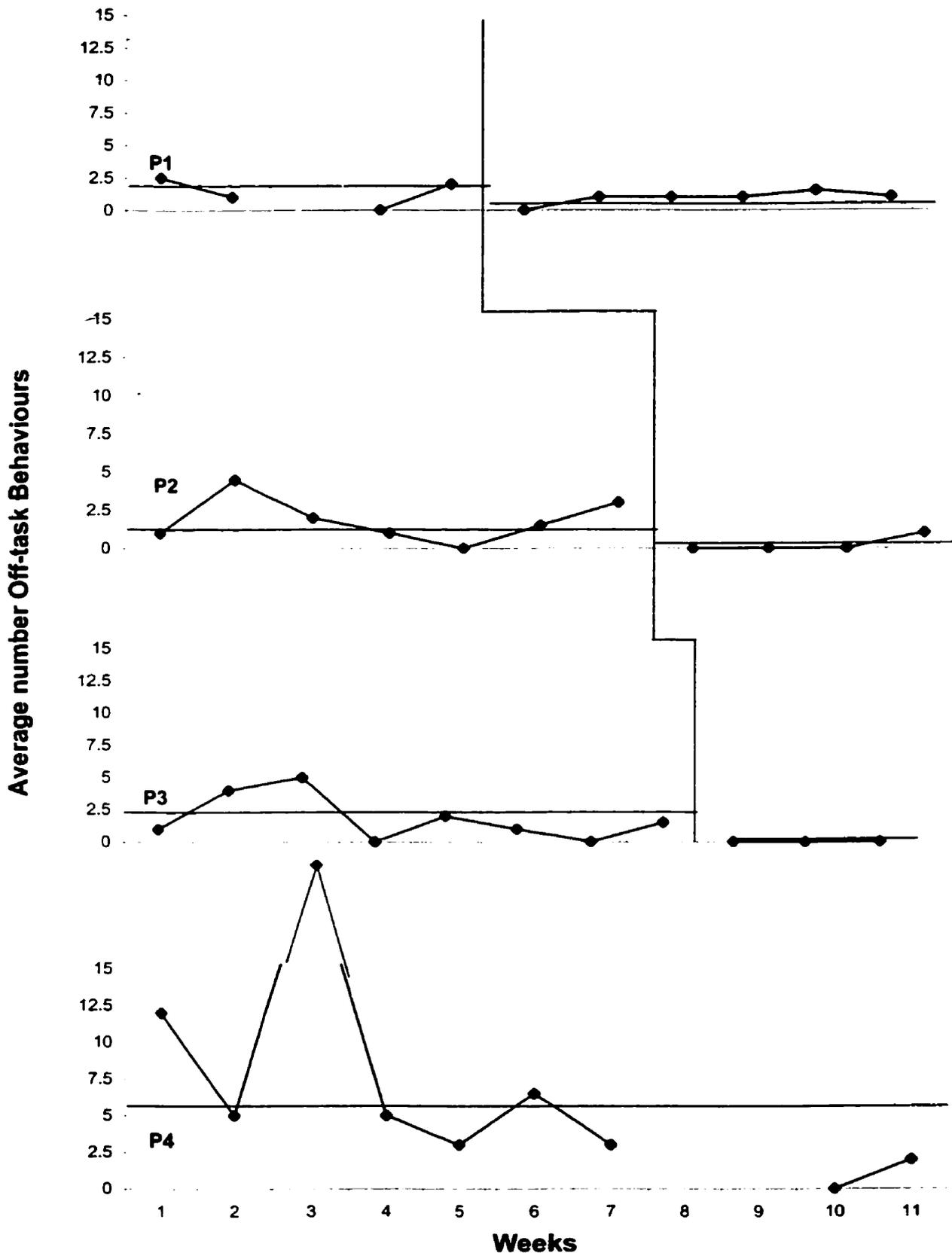


Figure 1. Average number of off-task behaviours per week.

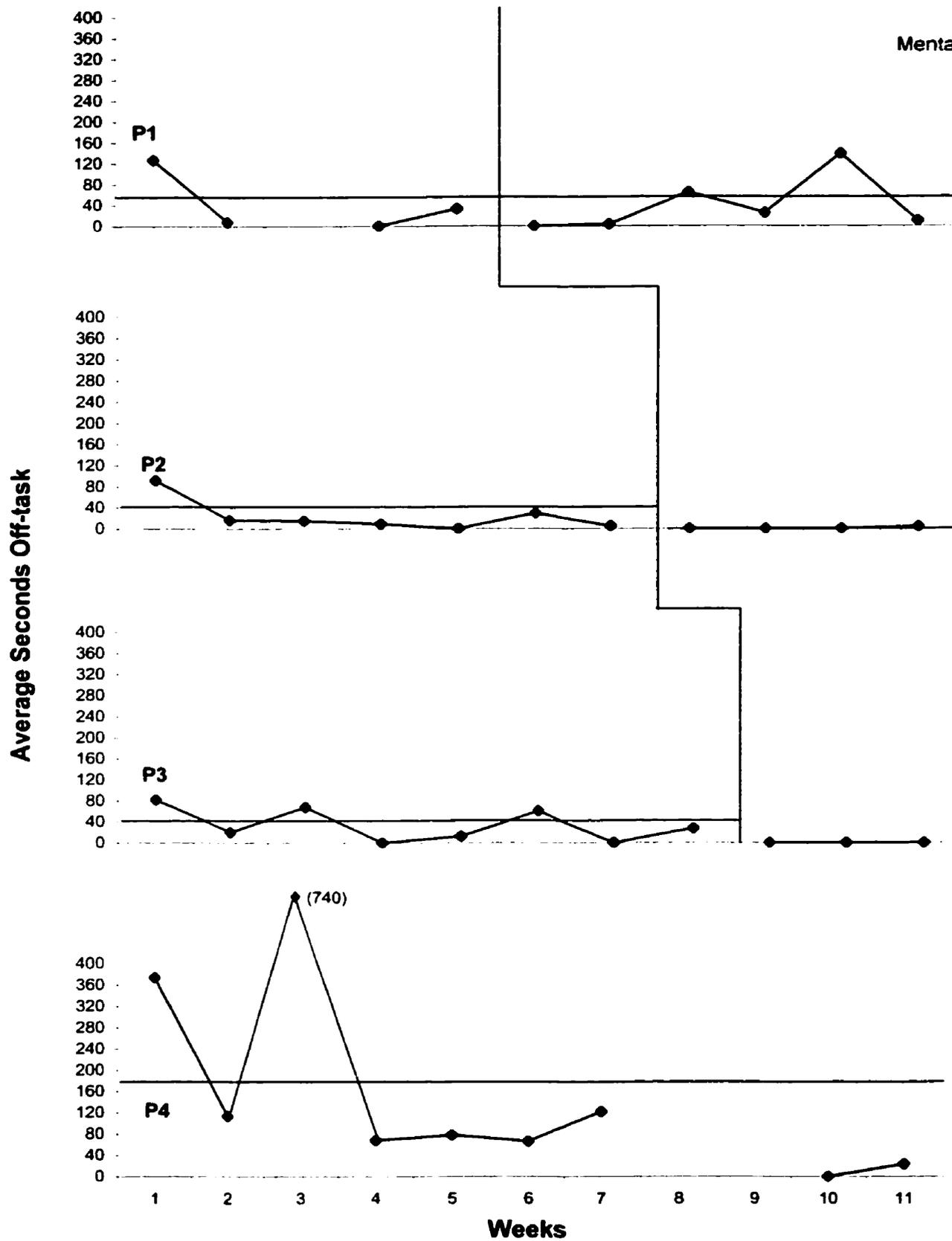


Figure 2. Average duration of off-task behaviours per week.

Performance

Work Output

Work output was measured by percentage of laps and drills completed per practice. Figure 3 graphically displays percentage of laps completed per week, for each participant. Percentage of drills completed per week is displayed in Figure 4. Work output of the participants was very high throughout the study and remained relatively stable during both baseline and intervention. There were numerous overlapping data points. There was no immediate effect at the point of intervention, however, participant 1 (100%) and participant 2 (100%) improved their drills completed following intervention. Across the baseline and intervention phases the percentage of laps completed out of the number assigned by the coach was calculated to be 98.6%. The percentage of drills completed of those assigned was 95.9%. After the intervention the athletes had an extremely high level of compliance. The only time they did not perform a lap or drill was if they were injured. If an athlete was late for practice, or for some other reason failed to complete a lap or drill, they caught up with the group, thereby completing all assigned laps and drills.

Competition Results

Performance results from competition were compared to personal best results. Although there were no personal bests, all participants were very close to their best results. For example, participant 2 was within one-one-hundredth of her personal best in the 200m and one centimetre below her best in the long jump. See Table 1 (Appendix L) for competition results.

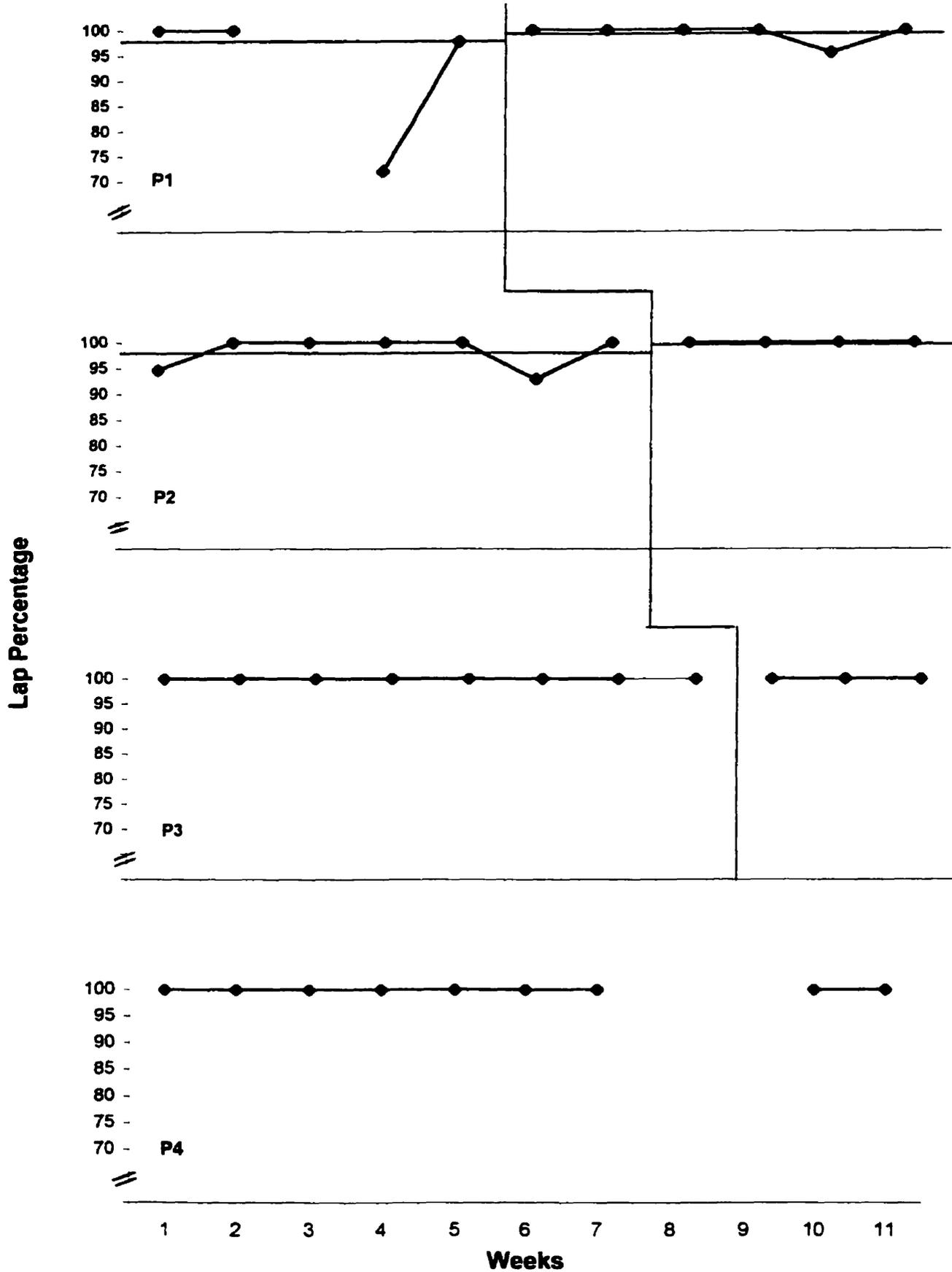


Figure 3. Percentage of laps completed per week.

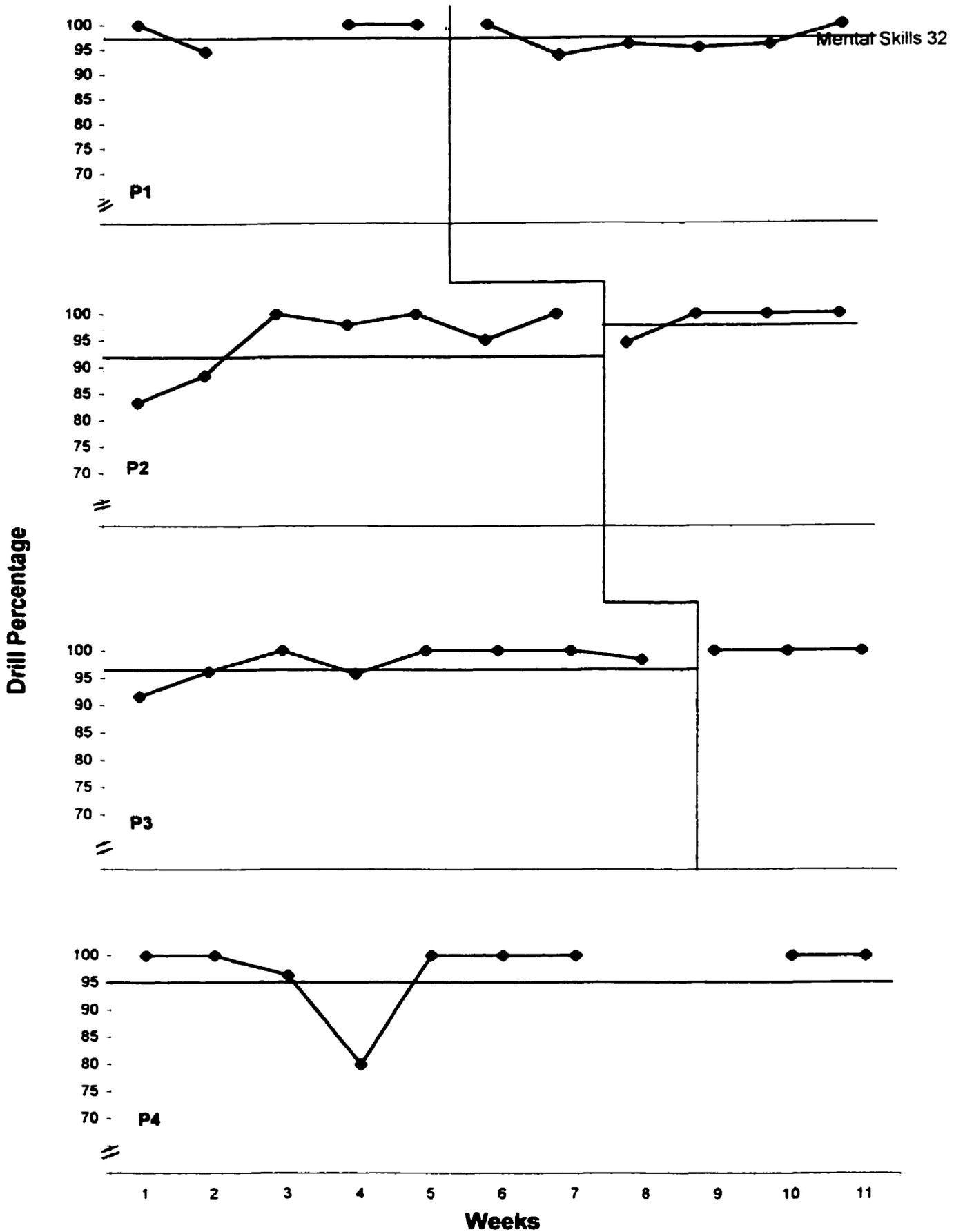


Figure 4. Percentage of drills completed per week.

Goal Achievement

The overall scores for goal attainment for each participant were as follows; P1 = +1, P2 = -1, P3 = +2. All participants indicated all of their practice goals were met. However, none of the participants met their competition goals, although all were extremely close.

Self-efficacy

Self-efficacy scores were determined through an instrument with a maximum possible score of 30. Self-efficacy data is presented in Figure 5. Time 1 is during baseline, time 2 is during the intervention, and time 3 is post-intervention. Participant 4 was only assessed once during the study for a few reasons. First, because he was on vacation. Secondly, he was twice asked to meet with the experimenter and he forgot. Finally, at other possible meeting times he was unavailable to meet. Efficacy scores on the questionnaire were high throughout the intervention for participants 1 and 2. Efficacy scores on the questionnaire for participant 3 were somewhat lower prior to the intervention and increased during and after the intervention.

Inter-observer Reliability

Inter-observer reliability checks were completed for 70% of the data to ensure observer bias did not occur when collecting data on the dependent variables. Average IOR scores for each participant and dependent variable are shown in Table 2.

Training Effects

To assess training effects participant 4 remained in the standard training condition (baseline) for the duration of the study. Training effects would show a relatively steady improvement in performance in the baseline condition, but training effects were not observed.

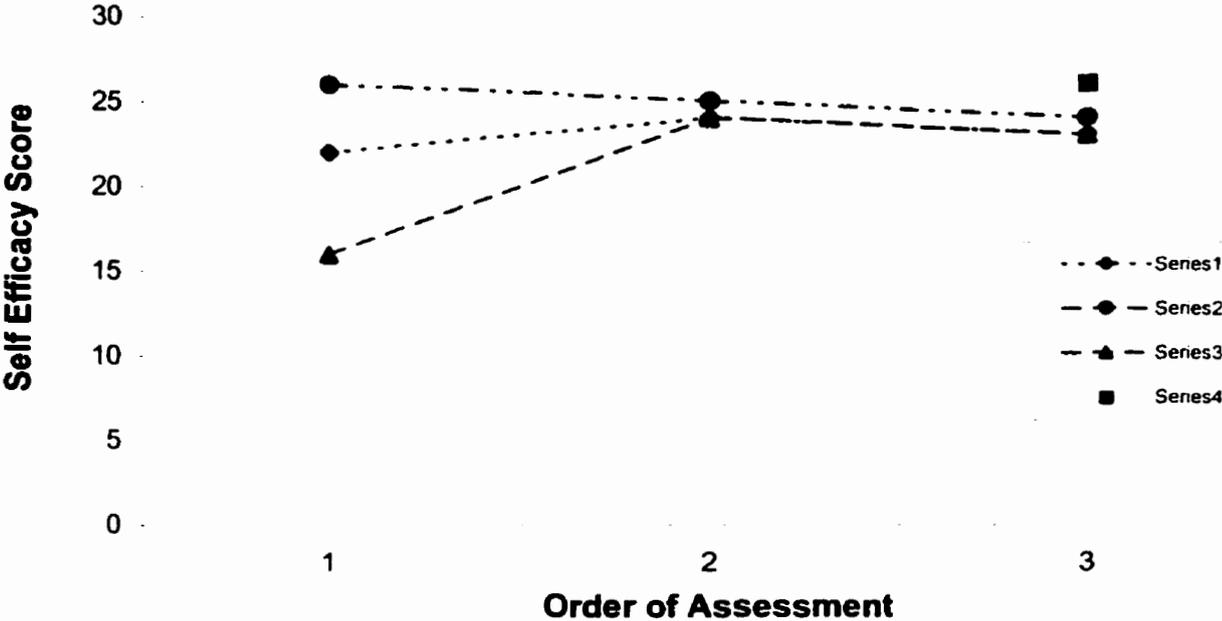


Figure 5. Participants' self-efficacy scores.

Note: high score indicates high level of self-efficacy.

Table 2

Average IOR Scores

Participant	Off-task Behaviours Frequency	Off-task Behaviours Duration	Number of Laps Completed	Drill Completion	Coach/athlete interactions
P1	100%	100%	100%	97.7%	73.7%
P2	100%	100%	96.8%	100%	84.6%
P3	100%	99.1%	100%	100%	91.7%
P4	100%	100%	68.4%	100%	100%

Coach-Athlete Interactions

Recording coach-athlete interactions served as a measure of control to ensure that the coach interacted in a similar manner with each athlete. The total number of each type of interaction was divided by the number of practices attended by each participant to determine the mean number of interactions per practice in baseline and intervention phases. Table 3 displays the data.

Participant 4 received slightly more instructions and corrections from the coaches than the other participants. The other participants received a fairly equal amount of instructions and corrections. Feedback remained relatively constant for all participants from baseline to intervention. However, participant 3 received more positive feedback during the intervention period than during baseline, this may have influenced his behaviour. There was a minimal amount of negative feedback. Feedback increased slightly when the number of athletes present at a practice was lower than usual.

Table 3

Average Number of Coach-Athlete Interactions Per Practice

Participant	Instructions Corrections		Negative Feedback		Positive Feedback	
	Baseline	Inter-vention	Baseline	Inter-vention	Baseline	Inter-vention
P1	4.5	5.7	0	0	3	3.4
P2	4	3.7	0	0	2	1.3
P3	4	3.1	0	.2	1.8	4.5
P4	5.7		.5		2.2	

Social Validity

The participants' perception of the intervention was assessed through the social validity questionnaire. Two of the three participants in the intervention rated the experience as positive, the third found the experience to be neutral. The coach assessed the experience as being positive. The coach commented that she "believes mental strength skills are very important".

Participants' ratings of each component of the intervention are displayed in Table 4. Each component was rated on a three point scale. Participants 1 and 3 indicated that they would not change anything about the log book. Participant 2 indicated that she would "maybe change the log book", but did not make any suggestions for how it could be changed. Participants 1 and 2 indicated that they would continue to use the skills they learned from the intervention. Both said they would continue to set and visualize their goals. Participant 2 indicated that she would also continue to use self-talk. Participant 3, who was neutral about the experience of participation, indicated that he

may continue setting goals. The coach indicated that she plans to encourage her athletes to continue to use all of the skills they learned from this program.

Table 4

Ratings of Individual Components in the Mental Skills Training Package

Component	Participant 1	Participant 2	Participant 3	Coach
Using the log book	3	3	3	3
Setting goals	2	3	2	3
Talking about goals with coach	3	3	1	3
Using self-talk	2	3	2	3
Visualizing goals	3	3	2	3

Note. 1= felt negative; 2= felt neutral; 3= felt positive

Discussion

Most often, mental skills training programs target elite athletes. For the field of sport psychology to continue to develop, mental skills training must be applied to a greater range of people. There is a lack of research in the sport psychology literature that involves individuals with intellectual disabilities as research participants (Travis & Sachs, 1991). However, there is evidence that successful sport experiences lead to improved self-esteem and independence (e.g., Miller & McAuley, 1987; Travis & Sachs, 1991). Athletes with intellectual disabilities and athletes without intellectual disabilities may experience similar benefits from similar psychological skill interventions. Thus, it was hypothesized that a mental skills training program, which had been shown to be effective in enhancing performance of athletes without intellectual disabilities, would

improve performance of Special Olympic track and field athletes. The study attempted to partially replicate and extend the findings of Wanlin et al.'s 1997 study. As did Wanlin et al. (1997), the present study sought to assess the effectiveness of a mental skills training package on the off-task behaviour, work output, competition performance, and self-efficacy of athletes in both practice and competition settings.

This study demonstrated that it is possible to involve Special Olympic athletes in a mental skills training program. The participants' involvement in setting goals, completing log books, and asking questions provided evidence that they became actively involved in the mental skills training program. Although the athletes did not display significant competition performance improvements, as did the athletes in Wanlin et al.'s (1997) study, they did indicate similar reactions to their involvement in the study on the social validity questionnaire.

With regard to behavioural change, progress was made in the reduction of off-task behaviours. Off-task behaviours were identified by the coach, prior to the intervention, as a problem behaviour. Frequency and duration of off-task behaviours were significantly reduced from baseline levels. The results had a pattern similar to Wanlin et al. (1997).

Wanlin et al. (1997) found a significant increase in speed skater work output as a result of using goal-setting, self-talk, and visualization. The present study did not demonstrate similar results, likely because the athletes were already engaged in a high frequency of work output. A ceiling effect appears to have occurred with this variable as laps and drills completed approached or reached 100%. Although this variable was identified as a problem behaviour in Wanlin et al.'s (1997) study, work output was

already substantial for the Special Olympic track and field athletes in this study.

Patrick and Hrycaiko (1998) demonstrated significant improvements in running times for elite athletes who used a mental skills training package during practice runs. However, Miller and McAuley (1987) found no significant improvement in basketball free-throw performance when they examined the effects of a mental skills training program. Similar to Wanlin et al. (1997) and Miller and McAuley (1987), the present study did not find significant improvements in competition results. Miller and McAuley (1987) observed that mental skills training is important if it is able to make performance more consistent. Wanlin et al. (1997) did see consistency in performance times, as did the present study. Although the participants did not show an improvement in personal best performances their results were all very close to their bests and these results appear to be consistent across events. As with Miller and McAuley's (1987) and Wanlin et al.'s (1997) studies it is likely performance levels of the track and field athletes were already at a high level of skill performance and improvements would have taken more time to develop.

The athletes set a combination of outcome goals and performance goals. When the athletes set practice goals which were performance based they could still experience the success of achieving their goal even though they may not have placed or been the best athlete (Burton, 1989b). The athletes met the majority of their goals, as did the athletes in Wanlin et al.'s (1997) study. The participants in this study demonstrated high self-efficacy and a slight increase in time spent on task-relevant practice. This may have been the result of setting appropriate goals. Many researchers have concluded that appropriate goals positively influence an athlete's self-efficacy and result in the athlete

spending more time in task-relevant practice (Boutcher & Rotella, 1987; Garfield & Bennett, 1984; Gould & Damarjian, 1998; Smith, 1993; Smith & Lee, 1992).

Wanlin et al. (1997) found only minimal improvement in self-efficacy for the participants who received the intervention. Similarly, the present study did not find significant changes in self-efficacy. As with Wanlin et al. (1997), it is likely the program's lack of impact on the variable of self-efficacy was influenced by the participants' initial high level of self-efficacy. The participants had reached the upper limit of the self-efficacy measure. More sensitive assessment tools for measuring level of self-efficacy are needed. It is difficult to find measures of self-efficacy, particularly tools that would be effective in an applied setting and in the area of elite sport. Tools high in reliability and validity would be more sensitive and more likely to demonstrate change.

The assessment of social validity indicated that the athletes and coach found the program to be worthwhile. This finding supports Wanlin et al. (1997) and may be as important as demonstrating significant results. If the athletes and coach believe what they are doing is beneficial then they should continue to engage in those activities as they will likely increase self-confidence which may eventually improve performance (Ziegler, 1980).

The log books provided valuable insights into the thought patterns that led athletes to their goal attainment, failure to reach goals, and justification for setting specific goals. The log books were an invaluable tool for providing feedback for setting future goals. The use of log books for monitoring a program is recommended by several researchers (e.g., Burton, 1989b; Kendall et al., 1990; Smith, 1994). However, athletes find log books time-consuming and bothersome to complete (e.g., Wanlin et al., 1997).

Although all three of the athletes who received the intervention used the log books only participant 2 did so diligently. This lack of commitment may have impacted negatively on the intervention and contributed to the competition results.

The results of this study do not appear to support the proposed position that mental skills packages are effective for enhancing athletic performance. Numerous researchers (e.g., Bacon, 1989; Kendall et al., 1990) argue that a package approach is best when working with a group of athletes because it is more likely some aspect of the package will provide a solution to the problem, than will a single mental skill. Several researchers have demonstrated the effectiveness of using mental skills training packages to enhance performance, including Wanlin et al. (1997) and Patrick and Hrycaiko (1998). Similarly, Hanton and Jones (1999) showed performance improvement by swimmers who learned the skills of imagery, self-talk and goal-setting. However, the overall influence of the mental skills in the present package was not strong.

It may be more effective to use a single mental skill approach rather than a package approach with this population. There appeared to be too many components in the package for the athletes to master within the time allowed. Rather than attempting to learn many skills in a short amount of time the athletes may receive greater benefit from learning one or two skills very well and integrating them into their regular training program. This may help to avoid the difficulty of attempting to master an overwhelming number of mental skills associated with the package approach. Many researchers have found components of the package used in this study to be effective, including; goal-setting (e.g., Hall & Byrne, 1988; Miller & Kelley, 1994; Weinberg & Weigand, 1993), self-talk (Kendall et al., 1990) and imagery (e.g., Surburg, 1989).

Patrick and Hyrcenko (1998) argue that mental skills packages should be more time-efficient, because unique individual packages do not need to be developed. However, in this study the researcher found it necessary to go through each step of the logbook with the athletes. When the athletes did work ahead on their own they still had questions for the experimenter. The package approach did not appear to conserve a significant amount of time, at least with this population and this particular package.

The coach has indicated she will continue to use the package in the future, with both the study participants as well as other athletes. A coach's ability to use a mental skills program without the assistance of a sport psychology professional is important (Bacon, 1989). Only participant 2 demonstrated she had become self-sufficient in her use of mental skills, thus achieving the athlete's objective (Smith, 1993). Participant 2 was very talkative and outgoing, she seemed to have a higher level of social skills than the other participants. This difference in level of support needs may be the reason participant 2 was able to use the mental skills on her own, whereas the other participants did not reach this level. Long-term assessments of the participants would determine whether the athletes continue to use the mental skills they learned after the researcher no longer asks to see their logbooks each week. Also, a long-term assessment would show the influence of the program on the athletes' level of independence.

The applied nature of this research is important, yet several problems specific to a field situation arose. These included lack of commitment by the athletes to use their log books, participant absences from practice, and the small number of competitions the athletes had the opportunity to compete in. Further challenges developed, these

included communication difficulties between the participants and the researcher and the slow, tedious rate at which the mental training skills could be acquired.

Conducting this intervention program was important because it assessed variables in both practice and competition settings. Also, the results showed that it is possible to use and apply mental skills with Special Olympians. Further research in the field of sport psychology that involves Special Olympians as research participants and seeks to enhance their performance is needed. Although the intervention process was time consuming, the effort appears to be worthwhile and viable. Special Olympians are a unique subgroup of the population who should be provided with opportunities to maximize their performance and reach their potential.

In summary, the present study replicated the findings of Wanlin et al. (1997) to a limited degree. There was a significant reduction in the number of off-task behaviours. However, due to high baseline levels, there were no significant improvements in work output nor competition results. Similar to Wanlin et al. (1997), the present study found that the athletes had a high level of self-efficacy throughout the study. Overall, the social validity assessment showed that the athletes and coach found the mental skills training program to be a positive experience. Furthermore, the study was unique because it assessed variables in both practice and competition settings and involved Special Olympic athletes as research participants.

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Appendix A

Script for Initial Meeting with Participants

Hi everyone, my name is Melanie. I am a student at the University of Manitoba and as you may have already noticed I am doing a study that involves watching how Special Olympic athletes do workouts for track and field. If you decide to be a part of my study you will continue to do your regular workouts with your coach, but I will give you a workbook to do as well. I will meet with each of you individually and help you go through the workbook. I want to see if sport psychology will help your track and field performance. A lot of other athletes, like Donovan Bailey, use sport psychology to help them run better. Sport psychology is the scientific study of people and their behaviour in sport activities. Sport psychology is not only for "problem" athletes, all athletes can benefit from developing their mental skills. Sport psychology does not provide a "quick fix" for problems, but it will help athletes reach their potential and maximize their abilities. Sport psychology can be learned but must be practiced over time and integrated into a person's regular training program. You and your coaches will see how you are progressing in the study but no one else will know who you are when I report the results. Your names will not be included. You can stop being a part of the study whenever you want, you don't have to be a part of the study if you don't want to. Take this form home with you, read it over and ask your parents to read it too. If you decide you would like to be a part of this study sign the form and bring it back to me next practice. Does anyone have any questions for me? Thanks.

Appendix B

Dear Participant,

Thank you for your interest in my study. This study is being done as part of the requirements for a masters thesis. I have selected you because I am interested in learning more about using mental training skills to improve the running performance of Special Olympic athletes. Because you participate in track and field as a Special Olympian I would like to invite you to be involved in the study.

Your participation in the study will involve about 1.5 hours of your time and will occur over about a two-month period. At each of these weekly sessions you will be requested to think about what you want to do in track and field and fill out some forms. These forms will tell me what you are learning from participating in this program. A student will observe you at practice and will write down on a form what they see. This information will be shared with you so you know how you are progressing. You have the right to withdraw from the study at any time. All the information you provide will be treated with confidentiality. Findings from the study will be reported so that you cannot be identified. When the study is finished I will meet with you and your coach to discuss the results of the program. The data that I collect will be kept in a locked drawer in my home so that it is secure and no one else can look at it. After I have finished presenting the results of my thesis the data will be destroyed.

I am looking forward to your participation in the study. Please feel free to contact me, or my advisor, before, during, or after the study if you have any concerns.

Melanie Gregg, B.P.E.
Faculty of Phys. Ed. and Rec. Studies
University of Manitoba
Phone: 453-4839

Dennis Hrycaiko, Ph.D.
Faculty of Phys. Ed. and Rec. Studies
University of Manitoba
Phone: 474-8764

This study has been approved by the Education/Nursing Research Ethics Board (ENREB). any complaint concerning a procedure may be reported to the Human Ethics Secretariat (474-7122), or to the Dean of Physical Education and Recreation Studies (474-6953).

Thank you for your interest.

Melanie Gregg, B.P.E.

Consent Form

As a Special Olympian, I have been asked to participate in a study to help improve the performance of Special Olympic Track and Field athletes through the use of a mental skills training package. This study which will be conducted from approximately February, 2001, to April, 2001. The first session will last approximately 30 minutes and the other 10 weekly sessions will take about 5 minutes each.

Consent to Participate

I agree to participate in this study and know that:

- my participation in this study is voluntary
- all information I give will be treated with confidentiality.
- I will not be identified personally when the results from the study are presented.
- I can stop participating in the study at any time I chose, without consequence.

Athlete Name (please print): _____

Signature: _____

Date: _____

Legal Guardian Name (please print): _____

Signature: _____

Date: _____

Researcher Signature: _____

Date: _____

Appendix C
Recording Sheet

Athlete: _____

Observer: _____

Date: _____

1. Off-task behaviours

Frequency:

Total Frequency: _____

Total Duration: _____

2. Laps

Total number of laps assigned: _____

Total number of laps completed: _____

3. Drills

Total number of drills assigned: _____

Total number of drills completed: _____

4. Coach/Athlete Interactions

Instructions/Corrections

Negative Feedback

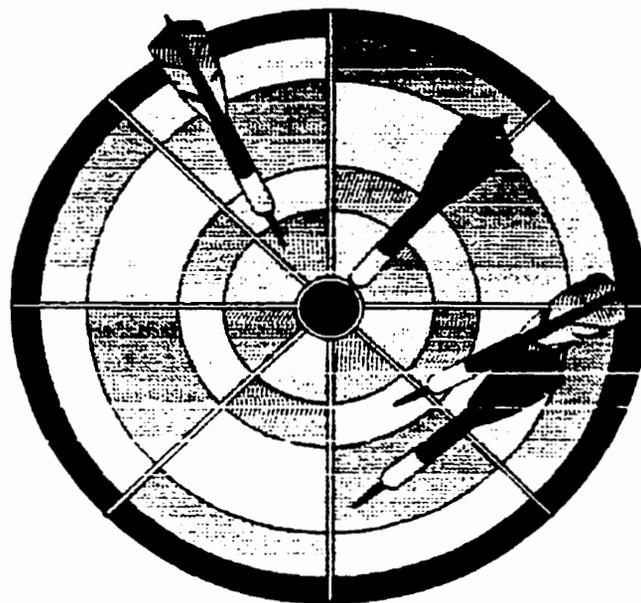
Positive Feedback

Appendix D

Don't forget to:

- 1. Write your practice, weekly, and long-term goals in your log book.**
- 2. Assess your practice and make changes to your goals.**
- 3. Tell your coach about your goals.**

WAY TO STAY ON TARGET!



Appendix E

Social Validity Questionnaire

Name: _____
 Date: _____

1. Overall, how would you rate this experience?

Negative Neutral Positive
  

Comments:

2. How did you feel about each of these?

	Negative	Neutral	Positive
a) Using the log books			
b) Setting goals			
c) Talking about goals with coach			
d) Using self-talk			
e) Visualizing your goals			

Comments:

3. Would you change the log book if you could?

No Maybe Yes
  

Comments:

4. Will you keep using any of the skills you learned from this program?

No


Maybe


Yes


Circle the ones you will keep using:

- a) log books
- b) setting goals
- c) talking about your goals with your coach
- d) using self-talk
- e) visualizing your goals

Do you have any more ideas to make the experience better, or any other comments?

Comments:

Appendix F

Self-efficacy Assessment

	Not at all True	Sometimes True	Exactly True
1) I can always manage to solve difficult problems if I try hard enough.			
2) If someone says no to me, I can find ways to get what I want.			
3) It is easy for me to stick to my aims and accomplish my goals.			
4) I am confident that I could deal well with unexpected events at the track.			
5) Thanks to my imagination, I know how to handle surprising situations.			
6) I can reach most goals if I put in enough effort.			
7) I can stay calm when facing problems because I have coping skills.			
8) When I have a problem with my training I can usually find several answers.			
9) If I am in a bind, I can usually think of something to do.			
10) No matter what comes my way, I'm usually able to handle it.			

Appendix G

Recording Protocol

Laps:

Only count laps if they are a full 200m.

Off-task behaviours:

Count each instance of the following behaviours:

- Not paying attention when the coach is talking, e.g., talking to someone else while the coach is talking, looking around, playing with equipment.
- Standing around or walking when they are supposed to be running or doing a drill.
- Talking while running the workout or doing drills (talking is okay during the warm-up jog or while stretching).

Time the duration of each instance of off-task behaviour. Do not reset the watch after each instance, at the end of practice you will record the total time spent on off-task behaviours for the entire practice.

Coach/Athlete interactions:

Record each coach/athlete interaction as positive or negative feedback, or instructions and/or corrections. Only record occurrences when the coach speaks to the specific athlete whose behaviour you are recording. Positive feedback is defined as praise. Negative feedback is defined as reprimands. There are 6 classes of behaviour that can receive feedback; effort, skill, task execution, performer interaction, work volume, and time of performance.

Appendix H

Log Book

First we need to learn how to set goals.

By working through these 5 phases you will learn to be good at setting goals.

Phase 1 - The Mission

The first step in goal-setting is developing a mission. A mission statement is your personal philosophy. It is your private reasons for wanting to accomplish a special goal in track and field.

Think about the questions and write down what you think as you go.

What feelings do you experience when you are most enjoying track and field? e.g., feelings of peace, being in control, satisfaction?

Do you have any athletic heroes or heroines? Think about what they, and what they've done, mean to you. How did they change you and what do you admire about them?

Is there someone you are close to, like a friend, parent, training partner, or coach who has influenced your interest in sports? What is it about your relationship with this person that makes you want to accomplish whatever it is you want to do in your sport?

Think about these questions and your answers.

Put these thoughts and feelings together and you will have your very own mission

statement!

e.g., "I loved jumping so much because I could do it so well. Something was coming from deep down inside me. . . . I had something positive to do." - Bob Beamon (world record holder; long jump)

MISSION STATEMENT:

Phase 2 - Long-term Goals

Long-term goals are stepping-stones that lead us to achieving our mission statement.

Deciding to work toward a long-term goal is a risk, it means you need to do something that is beyond your limits right now.

1. All the races for the indoor season are listed in the calendar in this log book.
2. Read through the goal-setting checklist in the log book.
3. Consider your best time from last year for the 400m. Based on this time and your mission what would you like to achieve by the end of the indoor season?

4. Work from this goal backwards, so you have a goal for each race. These are your long-term goals. List your long-term goals here:

RACE	GOAL
1	

2	
3	
4	
5	
6	
7	
8	
9	
10	

Phase 3 - Subgoals and Practice Goals

To achieve your long-term goals you need to set subgoals or practice goals. Use this log book to write down one or two things you want to accomplish for the next practice. After each practice evaluate your goals and set new goals for the next practice. The goal-setting checklist can help you set good goals. The practice goal section in this book has space for you to write down your practice goals and to evaluate them.

Phase 4 - Self-Talk

Self-talk is a tool that can help you reach your goals. Self-talk is, of course, talking to yourself.

There are three basic kinds of self-talk:

1) task-relevant statements: these are words that help to remind you what you're supposed to be doing.
e.g., look up (while running)

Can you think of anything like this you might say to yourself?

2) mood words: these are words that remind you how to feel.
e.g., explode

Can you think of any examples of mood words?

3) positive self-talk: these are positive statements you can say to yourself to give yourself encouragement.
e.g., "I can do this!"

What statements do you make to yourself to stay positive?

Use self-talk in practices to remind yourself of what your goals are.

Use self-talk in a race. Think back to your best race ever. What did you say to yourself at the beginning of the race? During the middle? At the end? Use the oval in this log book and write your key words down as you go around the track.

Phase 5 - Goal Visualization

Visualizing your goal means making a mental picture of your goal, or seeing your goal in your mind.

- 1) Go to one of the goals you've written down.
- 2) Describe everything involved in reaching that goal. Be as descriptive as you can, include the day, place, what you're going to do, say, etc., and finally, see yourself being successful! (There's room beside each goal to do this in the practice goal recording section of the log book).

Visualize your goals before practices and races. See yourself reaching your goals!

Remember to fill your log book out before practice and to evaluate each practice. You can talk about your goals with your coach and she can give you advice. Remember, you get the last decision on what goals you should set! Try not to talk about the program with anyone else, its important that everyone has their own ideas about the program.

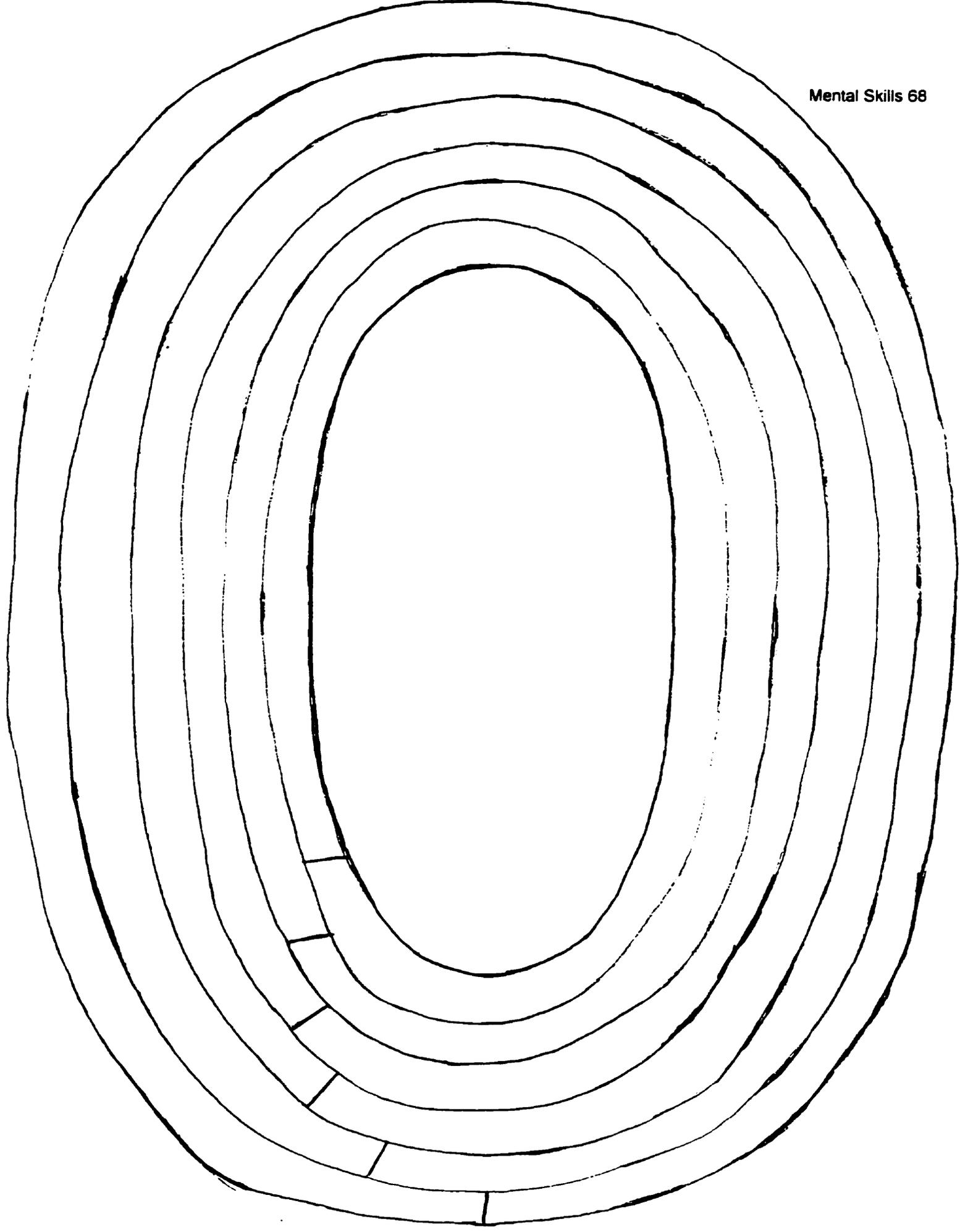
Good luck!

Goal-Setting Checklist

- 1) Goal is specific. e.g., I will complete all the drills assigned by the coach this practice.
- 2) This is a reasonable goal, it is difficult yet attainable.
- 3) This goal is flexible, if something happens like I get sick or injured I can adjust my goal.
- 4) This goal is based on how my last practice went.
- 5) When setting my short-term practice goals, I am keeping in mind my long-term goal and mission.
- 6) I am descriptive about my goals, so I can develop a mental picture (visualize them).
- 7) I use self-talk as a tool to help me achieve my goals.
- 8) I state my goals using positive words and use positive self-talk at all times.
- 9) I visualize my practice goals before I get on the track for practice.
- 10) I visualize my race goals before I get on the track for the race.

Practice Goals

Date:	Willingness to train Low 1 2 3 4 5 High Training Intensity Low 1 2 3 4 5 High
Practice goals: (Before Practice)	Description of goal for visualizing:
Practice Assessment: How did practice go?	Were practice goals met? To what degree were the goals met? (circle one) Not at all -2 ☹️ ☹️ Almost -1 ☹️ As expected 0 😐 More than expected +1 😊 Way beyond expectations +2 😊 😊 Goals were: Too easy 1 2 3 4 5 Too hard



Appendix I

Instruction Script

Hi, my name is Melanie Gregg, I am a student at the University of Manitoba. Thank-you for agreeing to be involved in this program. I am going to help you work through this log book and learn to use skills such as goal-setting, self-talk, and visualization.

Phase 1 - The Mission

The first step in goal-setting is developing a mission. A mission statement is your personal philosophy. It is your private reasons for wanting to accomplish a special goal in track and field.

Let's follow the instructions in the log book and write down what you think as we go. What feelings do you experience when you are most enjoying track and field? e.g., feelings of peace, being in control, satisfaction?

Do you have any athletic heroes or heroines?

Think about what they, and what they've done, mean to you.

How did they change you and what do you admire about them?

Is there someone you are close to, like a friend, parent, training partner, or coach who has influenced your interest in sports?

What is it about your relationship with this person that makes you want to accomplish whatever it is you want to do in your sport?

Think about these questions and your answers.

Put these thoughts and feelings together and you will have your very own mission statement!

e.g., "I loved jumping so much because I could do it so well. Something was coming from deep down inside me. . . . I had something positive to do." - Bob Beamon (world record holder; long jump)

Phase 2 - How to Set Long-term Goals

Long-term goals are stepping-stones that lead us to achieving our mission statement. Deciding to work toward a long-term goal is a risk, it means you need to do something that is beyond your limits right now.

1. All the races for the indoor season are listed in the calendar in the log book.
2. Let's read through the goal-setting checklist in the log book.
3. This is your best time from last year for the 400m. Based on this time and your mission what would you like to achieve by the end of the indoor season?
4. Work from this goal backwards, so you have a goal for each race. Those are your long-term goals.

e.g., run 57 seconds for the 400m at the last meet this season.

Phase 3 - Subgoals and Practice Goals

To achieve your long-term goals you need to set subgoals or practice goals. Use your log book to write down one or two things you want to accomplish for the next practice. After each practice evaluate your goals and set new goals for the next practice. The goal-setting checklist can help you set good goals. If you are having trouble you can ask me for help. Let's set goals for the next practice right now.

Phase 4 - Self-Talk

Self-talk is a tool that can help you reach your goals. Self-talk is, of course, talking to yourself.

There are three basic kinds of self-talk:

1) task-relevant statements: these are words that help to remind you what you're supposed to be doing.

e.g., look up (while running)

2) mood words: these are words that remind you how to feel.

e.g., explode

3) positive self-talk: these are positive statements you can say to yourself to give yourself encouragement.

e.g., "I can do this!"

Use self-talk in practices to remind yourself of what your goals are.

Use self-talk in a race. Think back to your best race ever. What did you say to yourself at the beginning of the race? During the middle? At the end? Use the oval in the log book and write your key words down as you go around the track.

Phase 5 - Goal Visualization

Visualizing your goal means making a mental picture of your goal, or seeing your goal in your mind.

1) Write down the goal.

2) Describe everything involved in reaching that goal. Be as descriptive as you can, include the day, place, what you're going to do, say, etc., and finally, see yourself being successful!

Let's use one of the goals you've already written down and practice visualizing it.

Good work today!

You can take your log book with you, remember to fill it out before practice and to evaluate each practice. You can talk about your goals with your coach and she can give you advice. Remember, you get the last decision on what goals you should set! Try not to talk about the program with anyone else, its important that everyone has their own ideas about the program.

Thanks for your help!

Appendix J

Assessment of Level of Support Needs

Name: _____

Does the athlete greet the researcher appropriately?

Is the athlete able to follow written workouts?

Date of birth: _____

Level of Education: _____

Job Status: full-time/part-time?

Brief job description:

Living arrangements: alone/with parents/group home etc.?

Does the athlete help with daily food preparation and cooking at home?

What is the athlete's primary means of transportation?

Amount of training time:

number of years in sport:

number of training days per week:

list other sports played:

Other interests/hobbies outside of sport:

What do you do when you spend time with friends?

Do you go to: church?library?parks?theaters?shopping?

Who do you usually get help from when you need it?

Where have you travelled?

Does the athlete already keep a diary/log (may be training or another type): describe

Is there anything else the athlete thinks the researcher should know?

Do you have any questions you'd like to ask?

Reinforce the following points immediately before the interview begins:

- 1. Not a test, no right or wrong answers.**
- 2. Everything said will be kept a secret.**
- 3. The interview will not change your life in any way. Won't make you do something you don't want to do.**
- 4. Some of the questions may sound silly, but we need to ask all of them.**
- 5. Don't have to answer any question you don't want to, and can end the interview at any time.**
- 6. If you need to stop to get a drink or go to the restroom, feel free to say so.**

Appendix K
Weekly Assessment

Athlete: _____

Date: _____

Questions:

1. How is the program going?
2. Do you have any comments or concerns?
3. May I see your log book?
4. Praise verbally if log book is completed.

If not completed ask why it is not complete.

5. If there are any problems or concerns with the intervention, go over the goal-setting checklist at the beginning of the log book to ensure the athlete understands the program.

Appendix L

Table 1

Performance Results

Event	P1		P2		P3		P4	
	PB	CR	PB	CR	PB	CR	PB	CR
Long Jump			2.74	2.73	4.08	3.91		
Shot Put	6.26	5.90	6.57	6.29				
200m	38.96	41.1	35.33	35.1	27.9	28.4		
400m			1:23.0	1:32.3	1:04.3	1:06.2	58.97	58.7
800m							2:16.5	2:25.3
1500m							4:34	4:39.1

Note: PB = personal best result, CR = competition result during intervention