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The effect of self-talk on the penalty execution in goalball

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ABSTRACT The purpose of this study was to examine the effectiveness and preference of the two different types of self-talk (instructional and motivational) on penalty execution skill in goalball and gain insight on the athletes' perceptions concerning self-talk use and its influence on their performance. The sample consisted of six female athletes, aged 26–40 years old (mean = 33 years), all members of the national goalball team representing Greece in the Paralympic Games in Athens 2004. In each experimental procedure, five athletes were the subjects of an instructional and a motivational self-talk test while executing 20 penalties, with a rest period following the first 10 penalties. One athlete was stable defending the other athletes' shooting and she was not involved in any test during each experimental procedure. Although non-parametric statistics indicated no difference on performance, the results revealed a percentage difference on performance ranging from 1.5 per cent to 26.1 per cent for each athlete in favour of instructional self-talk in all three experimental procedures. Finally, participants showed preference toward the use of instructional self-talk to improve their penalty execution skill.

KEY WORDS *goalball, penalty execution, self-talk, sport*

INTRODUCTION

Self-talk can be described as what people say to themselves either overtly or covertly (Moran, 1996). It is a cognitive technique that involves the activation of intellectual processes to change or influence existing thought patterns. Based on the assumption that focusing on the desired thought will lead to the facilitation and enhancement of task learning and execution (Hackfort and Schwenkmezger, 1993; Zinsser et al., 2001), athletes' use of self-talk has received a considerable amount of research interest in the field of applied sport psychology in recent years.

According to Sellars (1997) and Moran (1996) self-talk is categorized into three types: positive, negative and neutral. Weinberg (1988) stated that positive self-talk enhances self-esteem and motivation and helps athletes to concentrate more efficiently on the present target, whereas negative self-talk increases self-doubt and anxiety leading to lower performance (Weinberg and Gould, 1999). Neutral self-talk refers to task-specific instructions, keywords the athletes use that are relevant to the specific skill in practice (Landin, 1994).

Numerous studies confirmed the positive influence of self-talk on building confidence, reducing anxiety and improving performance in many sport areas including tennis (Ziegler, 1987; Landin and Macdonald, 1990; Landin and Hebert, 1999), basketball (Perkos et al., 2002; Theodorakis et al., 2001), football (Johnson et al., 2004), cross country skiing (Rushall et al., 1988), diving (Highlen and Bennett, 1983), golf (Harvey et al., 2002), water polo (Hatzigeorgiadis et al., 2004), ice hockey (Rogerson and Hrycaiko, 2002), and track and field events such as the 100 m run (Mallett and Hanrahan, 1997) and pole vault (Anderson et al., 1999).

Theodorakis et al. (2000) examined the effectiveness of different self-talk strategies on performance in different motor tasks, and concluded that when the task requires fine motor movements, an instructional self-talk strategy is more effective, whereas when the task requires predominantly strength and endurance, both motivational and instructional strategies are effective. Similar results were also reported by the study of Hatzigeorgiadis et al. (2004) in different water polo and basketball tasks. Based on the above-mentioned findings and the earlier works of Landin and Hebert (1999), Mallett and Hanrahan (1997), Ming and Martin (1996) and Ziegler (1987), further investigation regarding the dimensions and effects of self-talk is needed (Johnson et al., 2004).

A review of the literature reveals that self-talk has not yet been examined in the field of sports for athletes with disabilities. The studies of Hanrahan et al. (1990), Vecchi et al. (1995) and Eddy and Mellalieu (2003) only investigated imagery experiences in performers with visual disabilities, using imagery as a useful skill (Hanrahan, 1998) for cognitive and motivational purposes in both training and competition. According to Hardy et al. (2001), athletes use self-talk for the same reasons that they use mental imagery. The benefits of both cognitive strategies similarly include improving self-confidence and performance and reducing anxiety.

The present study intends to initiate research on self-talk with goalball athletes. So far, the existing literature concerning individuals with visual disabilities has mainly focused on their lower fitness levels compared to sighted peers (Lieberman and McHugh, 2001; Wyatt and Ng, 1997; Skaggs and Hopper, 1996; Tröster and Brambring, 1993) and the positive effects of physical education programs toward the improvement of their aerobic power, muscle strength, balance, flexibility and body posture (Lanchioni et al., 1997; Ponchillia et al., 1992; Moura e Castro et al., 1992; Seele, 1983; George et al., 1975). The finding of Eddy and Mellalieu (2003) that visual disability does not restrict the ability to use psychological interventions such as mental imagery, and that psychological interventions can be expanded to include the use of all the athletes' sensory modalities, creates an opportunity to examine whether the use of technical and motivational self-use can also influence performance of goalball athletes.

Goalball was selected, as it is considered the most popular and spectacular sport for athletes with visual disabilities that is suitable for all age groups and provides a novel experience as well as an excellent training in auditory perception (Davis, 2002). The penalty execution skill was similarly chosen as it represents an essential motor skill (along with shooting, blocking and passing the ball) that influences performance in goalball (Winnick, 2000). The purpose of this study was to examine the effectiveness of the two different types of self-talk (instructional and motivational) on penalty execution skill in goalball and gain insight on the athletes' perceptions concerning self-talk use and its influence on their performance.

METHOD

Participants

The sample consisted of six female athletes, with no remaining/residual sight present (total blindness), aged 26–40 years old (mean = 33 years). Participants were members of the national goalball team representing Greece in the Paralympic Games in Athens 2004. All athletes had no more than 2 years of goalball playing experience with formally organized teams.

Experimental design

An experimental procedure designed to examine the effects of self-talk on athletes' performance in the penalty execution skill took place three times. In each experimental procedure, five athletes were subjected to an instructional and a motivational self-talk test while executing penalties.

One athlete (different each time) was stable defending the other athletes' shootings and she was not involved in any test during each experimental procedure. The selection of the three athletes defending the shootings was not random. The participants were selected using the following criteria: they played as goalkeepers during previous training sessions or, according to their coach there was a strong possibility that they would become defenders.

In order to avoid confusion discriminating test results, the three experimental procedures were named as experimental procedure A, B and C, respectively. Following a typical warm-up period an athlete was placed in the goalkeeper position, facing the other athlete executing penalties. There was no particular plan concerning penalty execution on a specific order or direction, due to the nature of sport that requires goalkeeper movement according to the offensive player's movement and vice versa.

Prior to the onset of the study, the lead author met extensively with the coach in order to educate her on the experimental procedures and the assessment tests that would be used. Prior to experiment phase, all participants and their coach were introduced to the concept of self-talk through a meeting with the researcher. Each participant was made aware of self-talk and verbally taught the two-word self-talk sequence. Prior to each drill, participants were reminded of self-talk and how it related to the drill.

Initially, two keywords were given, one for each type of self-talk. These words were chosen following a discussion between the coach and the athletes. The coach suggested a number of keywords posed by the researcher and the athletes selected the keywords they most preferred. The keyword used for 'instructional self-talk' was 'low' – meaning bringing the waist and arm low during the shot to allow the ball to rotate smoothly on the ground space. For 'motivational self-talk' the keyword used was 'I can'. A pilot study was conducted with each athlete executing five penalties starting with the use of 'instructional self-talk' followed by one-minute break and the execution of another five penalties while using 'motivational self-talk'.

During the experiment phase, each athlete was subjected to instructional self-talk by inwardly saying the keyword 'low' while executing ten (10) penalties and to motivational self-talk by inwardly saying the 'I can' keyword while executing another ten shots. The ten penalties for instructional and 'motivational self-talk', respectively, were separated into two days so as to avoid tiredness of the two (defensive and offensive) players. On the

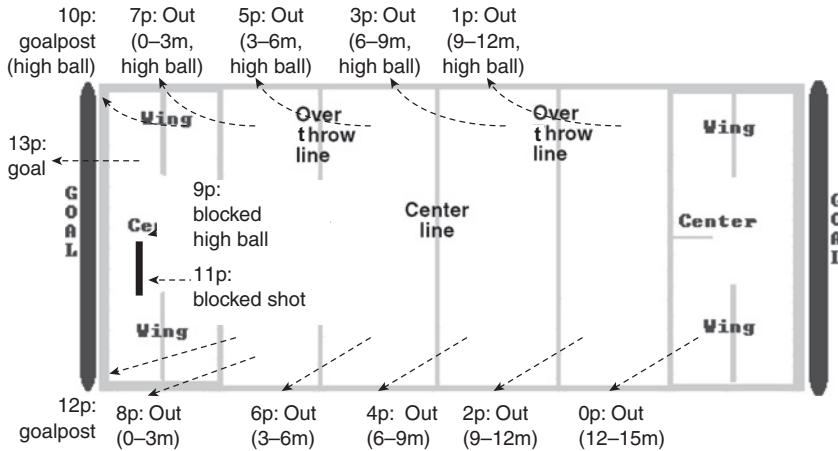


Figure 1. The goalball court

first day five penalties were executed starting with the use of 'instructional self-talk', followed by a one-minute break and the execution of another five penalties while using 'motivational self-talk'. On the second day, the order was reversed. In this way, the type of 'self-talk' did not affect the performance of each athlete executing penalties. The same course of action was repeated two more times to assess the performance of each participant across the three experimental procedures.

Measurement procedures

Performance

During the tasks, the researcher and the coach were the two observers assessing penalty execution of each athlete according to the location of the shots and rate shot effectiveness on a point scale from zero to 13 points (Figure 1).

Inter-observer agreement was calculated by dividing the lowest number of agreements by the highest number of agreements of the penalty execution performance. Inter-observer examination on the penalty execution skill demonstrated that the researchers were in 100 per cent agreement throughout the study, with an inter-observer reliability of at least 80 per cent considered as acceptable (Kazdin, 1992).

Post-experimental questionnaires

Following the execution of the 20 penalties by each participant and a 3-minute rest period, the athletes responded to a Likert format questionnaire designed to find out how often they made use of the word

'I can'/'low' when executing penalties, and how they thought use of 'self-talk; helped them to perform.

Statistical analysis

Statistical analysis included a non-parametrical t-test (Wilcoxon) in order to compare athletes' average performance in penalty execution skill across experimental procedures with the use of instructional and motivational self-talk, as well as to identify significant differences on athletes' answers between the two types of self-talk. Due to the small sample, emphasis was given to the percentage analysis of each participant's performance improvement. Descriptive statistics were used to examine athletes' preference towards a particular type of self-talk.

Credibility, transferability, dependability and confirmability of the study

The small sample size in this study sets limits on the reliability and validity of the results. A further limitation is that the researcher was simultaneously the observer who actively participated in the research process (McNiff, 1994) with the purpose of bringing further depth into the study (Robson, 1993: 402).

According to Habermas (1972; 1979) and Whitehead (1983) validation is in part a social process. Through analyzing findings, individuals can use the experience of other researchers, in order to reflect these experiences on their current understandings of their own situations (Ainscow, 1998). In this sense, research is seen as a community effort that profits most by critical discourse (Rudduck and Hopkins, 1985). The validity of what this study claims is the degree to which it was useful (relevant) in guiding practice for particular teachers, and its power to inform and precipitate debate about improving practice in the wider professional community (Lommax, 1986).

In this study, the triangulation technique suggested by Elliot and Adelman (1973; 1976), Lincoln and Guba (1985) and McNiff (1993; 1994) in order to enhance the credibility (internal validity) was included in the methodology.

Triangulation is the use of evidence from different sources or different methods of collecting data (Lincoln and Guba, 1985), and is a

potentially powerful technique in getting to the heart of the matter in pooling information and perceptions (Elliott and Adelman, 1973). According to Elliott and Adelman (1973; 1976), triangulation is commonly used to refer to the process of obtaining information on a subject from three or more independent sources, in this study those of the researcher, his pupils, and a participant observer. Similarly, McNiff (1994: 131) identifies three steps towards establishing the validity of a claim to knowledge: i) self-validation; ii) peer validation; and iii) learner validation.

In this study, the triangle (three or more independent sources) from which the information of the research was obtained, included:

The researcher as an observer, who took part in the selection of sample and introduced the athletes to the concept of self-talk through meetings prior to the start of the experimental procedures, participated in each experimental procedure, and evaluated the performance of each athlete during the whole research. The persistent observation suggested by Lincoln and Guba (1985), that is, the participation of the researcher in each experimental procedure and the persistent observation over a sufficient period of time, was included in order to bring depth to the study (Robson, 1993).

The goalball coach as a participant observer who helped the researcher to evaluate the performance of each participant throughout the experimental procedures. Inter-observer examination on the penalty execution skill demonstrating a 100 per cent agreement between the researcher and the goalball coach throughout the study was also crucial.

Peer debriefing (Lincoln and Guba, 1985), that is, the exposing of the analysis of the study, the co-operation, and the discussion of the results on a continuous basis with the Professor responsible for the applied psychology courses at the Department of Physical Education and Sport Science of the University of Thessaly, was another way of fostering the credibility of the study.

In terms of transferability – corresponding to external validity or generalizability in quantitative research (Lincoln and Guba, 1985) – this study takes into account that it is clearly inappropriate to seek to make the same kind of statistical generalization with such a small sample. However, this study follows a second decision span (Kennedy, 1976),

Table 1. Performance in penalty execution skill with the use of instructional and motivational self-talk

| Penalty execution skill | Instructional self-talk | | | Motivational self-talk | | p |
|-------------------------|-------------------------|-------|------|------------------------|------|-------|
| | N | M | SD | M | SD | |
| Experimental procedures | | | | | | |
| A | 5 | 10.34 | 1.16 | 8.92 | 1.41 | 0.138 |
| B | 5 | 10.24 | 0.84 | 9.08 | 1.38 | 0.068 |
| C | 5 | 10.44 | 0.31 | 9.36 | 1.57 | 0.225 |

which is concerned with applying the findings about a goalball athlete who participated in the experimental procedures to a second case, which is considered to be sufficiently similar to the first to warrant that generalization (Kennedy, 1976).

Additionally, the dependability (analogous to reliability) (Robson, 1993), and the confirmability (objectivity) of this study was enhanced by following acceptable, clear, systematic, and well documented processes, all linked to the purpose of the study (Halpern, 1983), which can constitute a dependability test (Robson, 1993: 406).

RESULTS

Results of the non-parametric t-test (Wilcoxon) revealed no significant differences regarding athletes' performance in penalty execution skill across experimental conditions (use of instructional and motivational self-talk) (Table 1).

The data for each athlete's performance across experimental conditions was displayed graphically. Visual inspection of the participants' average performance with the use of instructional and motivational self-talk in all experimental procedures, revealed a difference in favour of instructional self-talk use ranging from 1.5 per cent to 26.1 per cent from athlete to athlete (Figure 2).

Participant 3 displayed a performance difference in penalty execution skill across all experimental procedures in favour of instructional self-talk use. The data of participants 1 and 2 were also relatively similar regarding the first two experimental procedures. Participants 4, 5 and 6 were not involved in one out of three experimental procedures as they were defending in turn other athletes' shootings. Participant 4 demonstrated

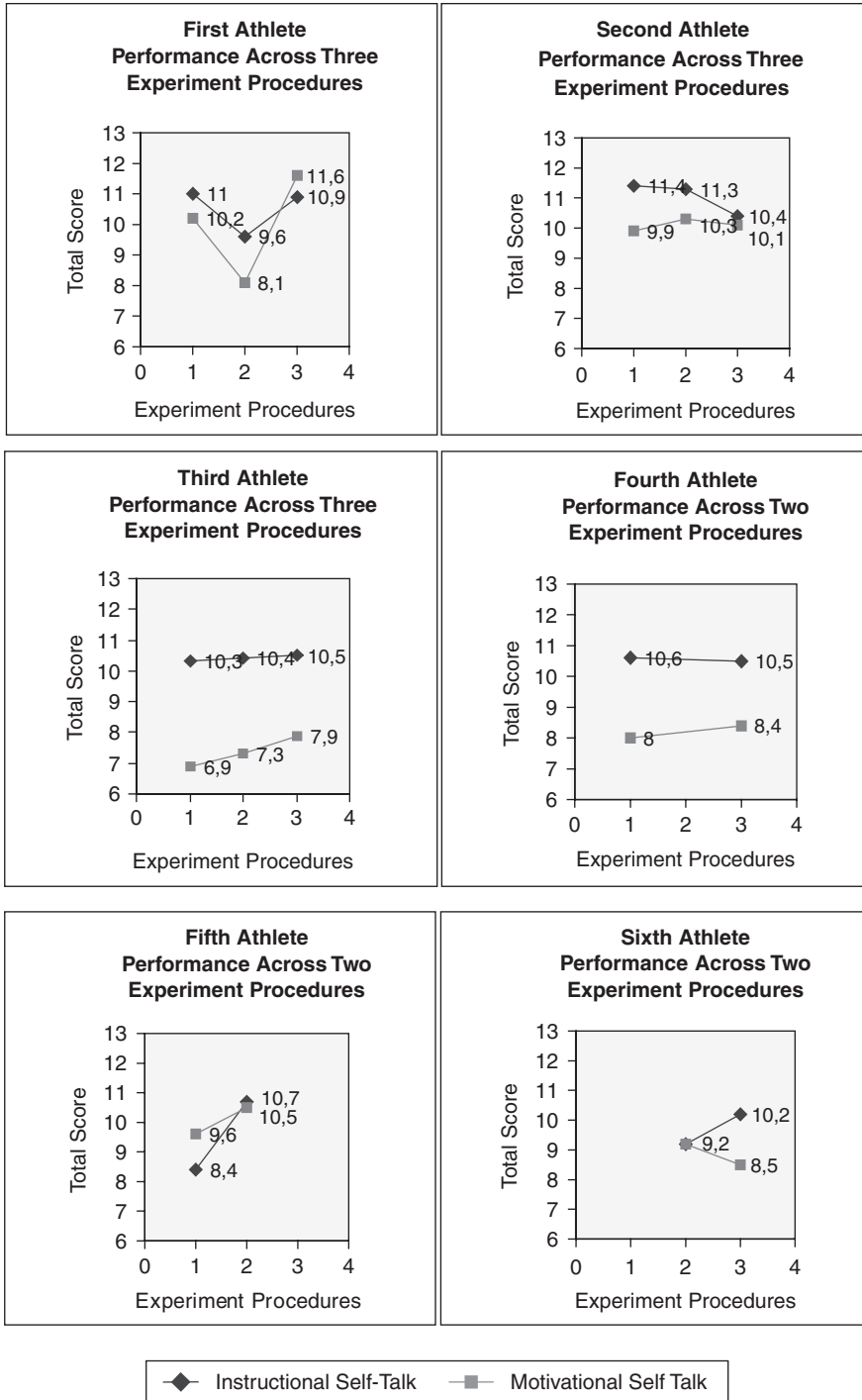


Figure 2. Performance across experimental procedures

Table 2. Preference toward instructional and motivational self-talk

| Penalty execution skill | Keyword | | Preference |
|-------------------------|---------|---|------------|
| Instructional Self-Talk | 'Low' | 4 | 66.6% |
| Motivational Self-Talk | 'I can' | 2 | 33.3% |

Table 3. Comparisons between instructional and motivational self-talk use

| Question | Penalty execution skill | N | M | SD | p |
|--|-------------------------|---|------|------|-------|
| How often did you use the word when executing penalties? | Instructional self-talk | 5 | 6.80 | 1.64 | 0.58 |
| | Motivational self-talk | 5 | 5.60 | 3.13 | |
| How much did you think that it helped you perform? | Instructional self-talk | 5 | 7.00 | 2.23 | 0.129 |
| | Motivational self-talk | 5 | 4.20 | 2.86 | |

along with participant 3 the highest performance difference in favour of instructional self-talk use, whereas the performance of participants 5 and 6 favoured respectively motivational and instructional self-talk use.

With regard to the question, 'which one of the two keywords did you like the most?', four participants showed a preference toward instructional self-talk, whereas two participants answered that they favoured motivational self-talk (Table 2).

With regards to the questions 'How often did you use the word "I can" (or "low") when executing penalties? How much did you think that it helped you perform?', no statistical differences were found concerning athletes' use of instructional and motivational self-talk (Table 3).

DISCUSSION

The purpose of this study was to examine the effectiveness of instructional and motivational self-talk on penalty execution skill in goalball and gain insights on the athletes' perceptions concerning self-talk use and its influence on their performance. The initial research hypothesis that instructional self-talk would produce better results in penalty execution skill performance compared to motivational self-talk was not found to be significant by using non-parametric statistics.

Differences between the two types of self-talk were located only by descriptive statistics. In particular, results revealed that despite lack of practice time, 'instructional self-talk' showed precedence over motivational self-talk in terms of effectiveness reported by the majority of athletes in all experimental procedures. Although not statistically significant, descriptive statistics of this study revealed a difference in favour of instructional self-talk use, ranging from 1.5 per cent to 26.1 per cent from athlete to athlete. Participants reported that their use of instructional self-talk with the keyword 'low' contributed to better concentration, confidence and penalty execution technique. Two-thirds of this sample gave a preference toward instructional self-talk use. Although success of self-talk treatment varied across participants, all positive effects of task-specific instructional self-talk of this study as reported by the majority of athletes are viewed as important.

The study of Theodorakis et al. (2000) demonstrated similar positive effects of task-specific instructional self-talk on skills that require accuracy and high coordination, such as penalty execution in football and service in badminton. Johnson et al. (2004), showed improvement of performance on low soccer shot for participants using instructional self-talk keywords. Perkos et al. (2002), reported similar findings with participants using instructional self-talk in basketball dribbling and passing skills. Harvey et al. (2000), noticed analogous results with golfers, as well as Rushall et al. (1988) and Highlen and Bennett (1983) for athletes using instructional self-talk in cross-country skiing and diving respectively.

In this study, possible causes for the absence of a statistically significant difference with the use of instructional and motivational self-talk include lack of practice time, lack of training experience (no more than two years) and the low level of technical abilities of the athletes combined with the nature of sport that requires accuracy and speed, all factors that made successful shots a difficult task to accomplish especially for defensive position athletes. Further familiarization with goalball, an improved level of skills and a larger sample of athletes is needed to reveal possible differences between instructional and motivational self-talk use.

CONCLUSIONS

In summary, the priority of this study was to investigate athletes' preference toward a certain type of self-talk (instructional or motivational) and to examine their perceptions concerning its use and influence on their performance on penalty execution skill in goalball. Although not statistically significant, the results revealed that participants showed

preference toward the use of instructional self-talk to improve their penalty execution skill.

This is the first time that an examination of instructional and motivational self-talk use for goalball athletes has been undertaken hence it is inevitably limited in its exploratory nature. Furthermore, circumstances such as the teacher (lead author) being the researcher at the same time observing and evaluating each athlete throughout each experimental procedure were also factors that put further restrictions on the research. Additionally, the lack of literature in terms of self-talk use in goalball has placed further limitations on this study.

As noted above, whilst a major limitation of this study is its small sample size, which limits the generalizations concerning self-talk use for goalball athletes that can be made, it can be argued that for this specific sample of goalball athletes, the findings suggest a positive effect of instructional and motivational self-talk. Future studies should use larger samples to examine the effectiveness of instructional and motivational self-talk. Further research is also needed regarding the application of intervention programs to examine the effectiveness of the two different types of self-talk in the specific sport. Hopefully, the information provided in this research will enable future sport researchers to further investigate the use and influence of instructional and motivational self-talk on the performance of goalball athletes, especially in Greece where goalball is still at a stage of early development.

A key purpose of this study is to disseminate the findings to goalball coaches, to encourage them to investigate their own situation and practice and adapt their procedures accordingly. It is hoped that this will enable them to bring about improvements in the development of future training programs that will include the use of both instructional and motivational self-talk in goalball.

References

- AINSCOW, M. (1998) 'Would it Work in Theory? Arguments for Practitioner Research in the Special Needs Field', in C. Clark et al. (eds), *Theorising Special Education*. London: Routledge.
- ANDERSON, A., VOGEL, P. & ALBRECHT, R. (1999) 'The Effect of Instructional Self-talk on the Overhand Throw', *Physical Educator* 56(4): 215–21.
- DAVIS, R. W. (2002) *Inclusion through Sports*. Champaign, IL: Human Kinetics.
- EDDY, K. & MELLALIEU, S. D. (2003) 'Mental Imagery in Athletes with Visual Impairments', *Adapted Physical Activity Quarterly* 20(4): 347–68.
- ELLIOTT, J. & ADELMAN, C. (1973) 'Reflecting Where the Action is: The Design of the Ford Teaching Project', *Education for Teaching* 92: 8–20.

- ELLIOTT, J. & ADELMAN, C. (1976) *Innovation at the Classroom Level: A Case Study of the Ford Teaching Project*, Unit 28, Open University Course E 203: Curriculum Design and Development. Milton Keynes: Open University Press.
- GEORGE, C., PATTON, R. & PURDY, G. (1975) 'Development of an Aerobics Conditioning Program for the Visually Handicapped', *Journal of Physical Education and Recreation* 46(5): 39–40.
- HABERMAS, J. (1972) *Knowledge and Human Interests*. London: Heinemann Press.
- HABERMAS, J. (1979) *Communication and the Evolution of Society*. Boston: Beacon Press.
- HACKFORTH, D. & SCHWENKMEZGER, P. (1993) 'Anxiety', in R. N. Singer, M. Murphy & L. K. Tennant (eds), *Handbook of Research on Sport Psychology*, pp. 328–64. New York: MacMillan.
- HALPERN, S. (1983) *Auditing Naturalistic Enquiries: The Development and Application of a Model*. Unpublished Doctoral Dissertation: Indiana University.
- HANRAHAN, S. J. (1998) 'Practical Considerations for Working with Athletes with Disabilities', *The Sport Psychologist* 12: 346–57.
- HANRAHAN, S. J., GROVE, J. R. & LOCKWOOD, R. J. (1990) 'Psychological Skills Training for the Blind Athlete: A Pilot Program', *Adapted Physical Activity Quarterly* 7: 143–55.
- HARDY, J., GAMMAGE, K. & HALL, C. (2001) 'A Descriptive Study of Athlete Self-talk', *The Sport Psychologist* 15: 306–18.
- HARVEY, D., VAN RAALTE, J. & BREWER, B. (2002) 'Relationship between Self-talk and Golf Performance', *International Sports Journal* 6(1): 84–91.
- HATZIGEORGIADIS, A., THEODORAKIS, Y. & ZOURBANOS, N. (2004) 'Self-talk in the Swimming Pool: The Effects of Self-talk on Thought Content and Performance on Water-polo Tasks', *Journal of Applied Sport Psychology* 16: 138–50.
- HIGHLLEN, P. S. & BENNETT, B. B. (1983) 'Elite Divers and Wrestlers: A Comparison between Open- and Closed-skill Athletes', *Journal of Sport Psychology* 5: 390–409.
- JOHNSON, J. M., HRYCAIKO, W. D., JOHNSON, V.G. & HALAS, M. J. (2004) 'Self-talk and Female Youth Soccer Performance', *The Sport Psychologist*, 18: 44–59.
- KAZDIN, A. E. (1992) *Research Design in Clinical Psychology* (2nd edn). Needham Heights, MA: Allyn & Bacon.
- KENNEDY, M. (1976) 'Generalizing from Single Case Studies', *Evaluation Quarterly* 405: 661–78.
- LANCHIONI, G. E., GIGANTE, A., O'REILLY, M. & OLIVA, D. (1997) 'Evaluating Mild Physical Exercise with Two Persons with Profound Multiple Disabilities', *Journal of Visual Impairment & Blindness* 91: 53–60.
- LANDIN, D. (1994) 'The Role of Verbal Cues in Skill Learning', *Quest* 46: 299–313.
- LANDIN, D. & HEBERT, E. P. (1999) 'The Influence of Self-talk on the Performance of Skilled Female Tennis Players', *Journal of Applied Sport Psychology* 11: 263–82.
- LANDIN, D.K. & MACDONALD, G. (1990) 'Improving the Overheads of Collegiate Tennis Players', *Journal of Applied Research in Coaching and Athletics* 5: 85–100.

- LIEBERMAN, L. J. & MCHUGH, E. (2001) 'Health-related Fitness of Children who are Visually Impaired', *Journal of Visual Impairment & Blindness* 5: 72–287.
- LINCOLN, Y. & GUBA, E. (1985) *Naturalistic Inquiry*. Newbury Park and London: SAGE.
- LOMMAX, P. (1986) 'Action Researchers' Action Research: A Symposium', *British Journal of In-Service Education* 13: 42–50.
- MCNIFF, J. (1993) *Teaching as Learning: An Action Research Approach*. London: Routledge.
- MCNIFF, J. (1994) *Action Research: Principles and Practice*. London: Routledge.
- MALLET, C. J. & HANRAHAN, S. J. (1997) 'Race Modelling: An Effective Cognitive Strategy for the 100 m Sprinter', *The Sport Psychologist* 11: 72–85.
- MING, S. & MARTIN, G. L. (1996) 'Single-subject Evaluation of a Self-talk Package for Improving Figure Skating Performance', *The Sport Psychologist* 10: 227–37.
- MORAN, A. P. (1996) *The Psychology of Concentration in Sport Performance*. East Sussex, UK: Psychology Press.
- MOURA E CASTRO, J., COSTA, O. & FREITAS, F. (1992) 'Evaluation of the Aerobic Capacity of Blind People, By Direct VO₂ Maximal Measurement', *Revista Portuguesa de Cardiologia* 11(6): 525–29.
- PERKOS, S., THEODORAKIS, G. & CHRONI, S. (2002) 'Enhancing Performance and Skill Acquisition in Novice Basketball Players with Instructional Self-talk', *The Sport Psychologist* 16: 368–83.
- PONCHILLIA, S. V., POWEL, L. L., FELSKI, K. A. & NICKLAWSKI, M. T. (1992) 'The Effectiveness of Aerobic Exercise Instruction for Totally Blind Women', *Journal of Visual Impairment & Blindness* 86: 174–7.
- ROBSON, C. (1993) *Real World Research: A Resource for Social Scientists and Practitioner Researchers*. Oxford: Blackwell.
- ROGERSON, J. L. & HRYCAIKO, W. D. (2002) 'Enhancing Competitive Performance of Ice-hockey Goaltenders using Centering and Self-talk', *Journal of Applied Sport Psychology* 14: 14–26.
- RUDDUCK, J. & HOPKINS, D. (1985) *Research as a Basis for Teaching: Readings from the Work of Lawrence Stenhouse*. London: Heinemann Educational Books.
- RUSHALL, B. S., HALL, M., ROUX, L., SASSEVILL, J. & RUSHALL, A. C. (1988) 'Effects of Three Types of Thought Content Instructions on Skiing Performance', *The Sport Psychologist* 2: 283–97.
- SEELE, W. (1983) 'Physical Fitness of the Visually Impaired in Detroit Public Schools', *Journal of Visual Impairment & Blindness* 77: 117–18.
- SELLARS, C. (1997) *Building Self Confidence*. Leeds, UK: National Coaching Foundation.
- SKAGGS, S. & HOPPER, C. (1996) 'Individuals with Visual Impairments: A Review of Psychomotor Behavior', *Adapted Physical Activity Quarterly* 13: 16–26.
- THEODORAKIS, Y., WEINBERG, R., NATSIS, P., DOUMA, I. & KAZAKAS, P. (2000) 'The Effects of Motivational Versus Instructional Self-talk on Improving Motor Performance', *The Sport Psychologist* 14: 253–72.
- THEODORAKIS, Y., CHRONI, S., LAPARIDIS, K., BABETSOS, V. & DOUMA, I. (2001) 'The Effect of Self-talk on a Basketball Shooting Task', *Perceptual and Motor Skills* 92: 309–315.

- TRÖSTER H. & BRAMBRING, M. (1993) 'Early Motor Development in Blind Infants', *Journal of Applied Developmental Psychology* 14(1): 83–106.
- VECCHI, T., MONTICELAI, M.L. & CORNOLDI, C. (1995) 'Visuo-spatial Working Memory: Structures and Variables Affecting a Capacity Measure', *Neuropsychologia* 33: 1549–64.
- WEINBERG, R. S. (1988) *The Mental Advantage: Developing your Psychological Skills in Tennis*. Champaign, IL: Human Kinetics.
- WEINBERG, R. S. & GOULD, D. (1999) *Foundations of Sport and Exercise Psychology* (2nd edn). Champaign, IL: Human Kinetics.
- WHITEHEAD, J. (1983) 'Developing Personal Theories of Education', *British Journal of In-Service Education* 9(3).
- WINNICK, J. (2000) *Adapted Physical Education and Sport* (3rd edn). Champaign, IL: Human Kinetics.
- WYATT, L. & NG, G. Y. (1997) 'The Effect of Visual Impairment on the Strength of Children's Hip and Knee Extensors', *Journal of Visual Impairment and Blindness* 91: 40–6.
- ZIEGLER, S. G. (1987) Effects of Stimulus Cueing on the Acquisition of Ground Strokes by Beginning Tennis Players', *Journal of Applied Behavioral Analysis* 20: 405–11.
- ZINSSER, N., BUNKER, L. & WILLIAMS, J. M. (2001) 'Cognitive Techniques for Building Confidence and Enhancing Performance', in J. M. Williams (ed.) *Applied Sport Psychology*, pp. 270–95. Palo Alto, CA: Mayfield.

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