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Some Comments on the Use of Psychological Tests in Sport Settings

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Running Head: TESTS IN SPORTS RESEARCH

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Abstract

Psychological testing has played a prominent part in the development of the field of Sport Psychology. This paper looks at the prevalence of testing in the research output of the field, the major areas being researched by use of tests, test development activity, and problems likely to arise if formal evaluations of the tests are not undertaken. Whilst the contribution of testing has to be recognized, it is argued that researchers in this new field of psychology have come to place too great an emphasis on testing as a research tool. Insufficient information about the tests being used, inherent weaknesses in self-report measures, and disregard for proper evaluation procedures will undermine attempts to establish firm theoretical foundations for this new branch of the discipline if corrective action is not taken soon. It is suggested that, where possible, new tests be subjected to formal review processes and that journal editors set aside dedicated space for the review of tests already in common use.

Some Comments on the Use of Psychological Tests in Sport Settings

Singer's (1988) article on the use of testing in sport psychology analysed applications of tests under the traditional headings of description, diagnosis/intervention, prediction, and selection/classification. Under "description", he pointed out that testing in sport was originally somewhat indiscriminate and atheoretical, becoming less so in the 1970's and 1980's as models of sporting performance were developed. His review of the "diagnosis/intervention" purpose of testing led him to believe that although somewhat less prolific in terms of research articles, the use of tests to diagnose athletes or to assess the effectiveness of intervention strategies represented perhaps the greatest contribution of the sport psychologists. He was less positive about the predictive validity of tests and their capacity to discriminate among various levels of athletes, although he did acknowledge that advances in these areas were a distinct possibility.

Singer concluded by suggesting that testing, whether viewed from the perspective of the academic or the practitioner, is an integral part of the application of psychological knowledge to sport. The data presented in the present paper support this view but at the same time raise concerns about the amount of testing that is carried out, the purposes for which tests are used, and the scanty psychometric information available on some of these tests.

Prevalence of Testing in Sport Psychology Research

One does not have to go to a lot of trouble to establish the fact that tests have played a major role in research in the Sport Psychology field. Consider the proportion of articles published in five of the major journals between 1989 and 1992 in which testing technology was employed as part of the study design. This information is reported in Table 1.

Table 1

Prevalence of Testing in Sport Psychology Journals from 1989 to 1992

Journal	Prevalence (%)
Journal of Sport and Exercise Psychology	63
Journal of Sport Behaviour	59
International Journal of Sport Psychology	42
The Sport Psychologist	33
Research Quarterly for Exercise and Sport	8

The table shows that 63% of the articles published in the Journal of Sport and Exercise Psychology reported research that used tests for purposes of evaluation, classification, or description. The Journal of Sport Behaviour and the International Journal of Sport Psychology were not far behind with 59% and 42% respectively. The situation appears much the same if one turns to conference activities: 56 out of the 110 conference papers presented at the First Asian South Pacific Association of Sports Psychology International Congress (Melbourne, 1991) reported on research in which psychological tests played a prominent role. It is reasonably certain that this percentage would be reflected in similar conferences held elsewhere during the 1990's. The journal figures proved to be reasonably stable over the three-year period and, following from Singer's (1988) article, they point to a continuing and consistently high level of test usage, at least in the research output of the discipline.

With such a high level of test usage, it is reasonable to ask where all this activity is occurring. What attributes of the athlete are being explored? Although previous researchers have examined changes in the types of studies employing tests (Martens, 1975; Morgan, 1988; Vealey, 1989), whilst others have written on the importance of testing to Sport Psychology (Singer, 1988), and still others have catalogued the types of tests being used (Anshel, 1987; Ostrow, 1990), there is no information available on the areas being investigated by use of psychological tests. This knowledge would be useful for a number of reasons: (a) it would enable us to judge the extent to which domains considered integral to other areas of Psychology are also considered important in Sport Psychology (eg. personality, intelligence, values), (b) following from this, it would help us to identify existing psychometric instruments which can be applied in sports settings, (c) by default, it would also help us to grasp the unique assessment needs of Sport Psychology which will have to be met by test development in this area, and (d) it would help to give clearer definition to the types of research problems tackled by researchers in this field; surely an important consideration given its embryonic stage in many countries. To find out more about the ways in which tests are used in Sport Psychology, a survey was conducted on recent journal literature.

Research Topics Investigated by Use of Tests

Sport Psychology, as is typical of an emerging branch of a well-established discipline, has its research output scattered among a wide range of journals. It is only in recent times that a core of sports-related journals has been established to cope with the growing research output of the area. Given that articles are scattered over a wide range of journals and that very few libraries now stock anywhere near to the full range of journals, computerised CD-ROM databases were used as the main vehicles for reviewing the literature. The two used were PsychLIT (covering 1974 - Sept. 1992) and Sport Discus (covering 1975 - Dec. 1991). Because of the vast span of these two databases, covering some 1,500 journals, all well-established sports journals were included in the search. Among the most prominent were:

- Journal of Sports Psychology
- Research Quarterly for Exercise and Sport
- Journal of Sport Behaviour
- International Journal of Sport Psychology
- The Journal of Applied Research in Coaching Athletes
- The Sports Psychologist

Which is where most of the articles on testing in sports appeared, but many other articles appeared in journals such as:

- Journal of Personality
- Perceptual and Motor Skills
- Journal of Personality Assessment

The first stage of data analysis involved an examination of the abstracts of all articles to determine the topic being investigated. Where this could not be ascertained from the abstract, the original article was obtained. After eliminating duplications, a list of 367 articles remained dating from 1974 to September 1992 in which testing methodology was employed. The complete list of topics was long, so subsets were formed of those topics which appeared at least five times in the research literature. Table 2 shows the results of this search.

Table 2
Research Topics in Which Tests Most Frequently Employed

Topic	No. of Studies
Anxiety	82
Personality	50
Attentional Style	23
Motivation	21
Self-Concept/Self-Esteem/Confidence	19
Achievement Motivation	17
Sex Role	13
Cognition	13
Attitudes/Values	13
Motor Performance	12
Physiological	9
Stress	9
Health/Well-being	8
Aggression	7
Leadership	7
Perception	6
Confidence	5
Cohesion	5

The table entries, thus grouped, covered over 319 of the articles selected by the initial search. Based on this sample, the major category of research appears to be anxiety, followed by personality, attentional style, and motivation. Together, these categories accounted for almost half of the articles covered in the literature search. Not surprisingly, some popular topics in sport psychology, such as goal setting, did not appear presumably because they have proved less amenable to psychometric investigation.

This analysis was based upon the area of research, not necessarily upon the type of test being used, although the two are undoubtedly related. Thus, it is possible that the many articles on anxiety used a very small number of tests. To check on this possibility, Anshel's (1987) catalogue of tests used in sports research - the only such catalogue available at the

outset of this study - was consulted. This catalogue is a list of some 126 tests for which some psychometric data is available. The comparison indicated some similarities. Topics which are heavily researched often contain a variety of new tests, although not necessarily. Table 3 shows the number of tests listed in Anshel's catalogue according to the above categories. Where there are less than three tests in the category, the category is omitted from the list.

Table 3

Number of Tests in Different Areas According to Anshel's (1987) Catalogue

Area	Number of Tests	
	Total Listed	Sport Specific
Anxiety	10	5
Motivation	11	4
Personality	5	0
Self-Concept/Self-Esteem/Confidence	13	4
Aggression	5	1
Leadership	5	2
Locus of Control	6	1
Attention	3	3
Achievement Motivation*	9	6
Sex Roles	4	0
Cognition	6	2
Attitudes/Values	5	4

*Note: Achievement Orientation combines Anshel's (1987) Achievement Motivation and Fear of Success/Failure and Competitiveness categories of tests.

In terms of sheer numbers of tests, the main areas appear to be motivation, self-efficacy, and anxiety. Researchers in these fields have a range of measurement options. How many of these tests have been developed for use in the sports field? This is an interesting question. Singer (1988) spoke of a trend towards more situation-specific tests in recent years. Ostrow (1990, p. 8) includes a graph which shows a quite steady increase in the number of sports-specific tests after 1975. The third column in Table 3 shows the number of sports-specific tests in Anshel's catalogue. Quite clearly, there has been some attempt to develop

situationally-based tests, especially in areas like achievement motivation and anxiety. Some of these tests, such as the Competitive State Anxiety Inventory-2 (CSAI-2) (Martens, Burton, & Vealey, 1990) and the Test of Attentional and Interpersonal Style (Nideffer, 1976) have generated a lot of research in their own right. Personality research, on the other hand, although a major category of research (see Table 2), still relies mostly on four of the traditional personality inventories: the 16PF, the MMPI, the California Personality Inventory (CPI), and the Edwards Personal Preference Schedule (EPPS). The trend may be changing, however, with the publication of sports-specific scales by researchers such as Loehr (1982) and Mahoney, Gabriel, and Perkins (1987). The latter is a particularly good example of the trend towards situational specificity. This scale has itself served as the stimulus for other researchers to develop similar scales for use not just within the sports environment but within a particular sport (eg. Thomas & Over (1992)). These sport-specific tests will undoubtedly become more numerous.

The publication of Ostrow's (1990) Directory of Psychological Tests in the Sport and Exercise Sciences during the early stages of the present study enabled an additional index of the development of sport-specific tests in the period between Anshel's (1987) and Ostrow's (1990) publications. Ostrow's directory of 175 sport-specific tests was used as the basis for Table 4 which contains a subset of the categories used in Table 3 with separate columns showing the number of sport-specific tests in a given category in Anshel's catalogue compared with the equivalent number in Ostrow's directory. The discrepancy between the figures in the two columns cannot be taken as a direct index of the growth in test development in the intervening period, however, as the Ostrow review was more comprehensive and included some tests which were overlooked in Anshel's catalogue. Different classification systems are also used by the two researchers. The comparison is, at best, a rough guide.

Table 4
Growth in Sports Specific Tests

Area	Number of Tests (Anshel, 1987)	Number of Tests (Ostrow, 1990)
Anxiety	5	12
Motivation	4	27
Self-Concept/Self-Esteem/Confidence	4	19
Aggression	1	7
Attention	3	4
Achievement Orientation	6	12
Sex Role	0	5
Attitudes/Values	4	18
Cognition	2	7
Cohesion	not mentioned	7

Table 4 highlights the fact that the major research areas identified in Table 2 are spawning a variety of new, situationally-based psychometric instruments.

Some Comments on these Trends

The most striking feature of these data, apart from the continuing widespread use of tests, is that many of the tests appear to be new, often developed for the purpose of a single study. Furthermore, because most of these new tests are not fully validated, they are not released for commercial publication and consequently do not find their way into the major distribution channels. They certainly do not appear in any of the catalogues of the major test distributors in Australia. More importantly, they are not subjected to the formal review processes which most commercial tests have to undergo. Few, if any, of the new tests appear in traditional review volumes such as the Mental Measurements Yearbooks, published by the Buros Institute of Mental Measurements. This source, as most will know, provides reviews of most psychological, educational, and vocational tests published in English.

To some extent, these problems have been alleviated by people like Anshel (1987) and Ostrow (1990), both of whom have compiled directories of psychological tests used in sports settings for which there is some evidence of validity and reliability. Unfortunately, both

directories stop short of providing reviews although Ostrow in the Preface to his book notes that it is his intention to edit a volume including such reviews sometime in the future.

Suggestions for Improvement in Use of Tests in Research

There is no doubt that testing is one of the mainstays of sport psychology. This is understandable since we are dealing primarily with individual differences and these are often best measured through standardized psychometric instruments. At the same time, we must acknowledge that testing has serious limitations, particularly when we are forced to rely upon self-report instruments. The lack of normative data and flimsy technical information is a serious drawback and will hinder attempts to advance the state of knowledge in sport psychology. The reality of the situation is that such change will be slow in coming, as it has been in fields such as intelligence, education, and occupational psychology. Tests will continue to play a major role in our research effort for some time to come. In the meantime, what can we do to improve the quality of tests used in sports settings?

Singer (1988) has mentioned such things as being less exploratory and less atheoretical, Vealey (1989) encourages the use of tests in experimental designs. Perhaps a third goal should be added: hasten efforts to disseminate knowledge of available tests, including test reviews. Anshel (1987) took a big step in this direction with his publication of a catalogue of 126 tests. Ostrow (1990) has taken this work further and expressed his own desire to see a "clearing house" established for tests developed in the sport psychology field.

These efforts are recent and very commendable: both publications addressed a clear need, but we should not stop at this point. The sheer magnitude of test usage in our field demands that we continue efforts to establish formal review processes - or use existing ones - and encourage researchers to submit their tests for evaluation. Journal editors could help by inviting reviews of popular tests, perhaps even setting aside areas in journals for research notes on the psychometric properties of tests used. This was a practice that proved effective in the educational field. Finally, it is to be hoped that those who do choose to publish their tests will do so through the normal channels. It would be very disappointing to see the sports area follow the occupational testing line which has seen the gross commercialisation of what are probably very good tests, but which most psychologists will never get to see or use.

References

- Anshel, M. (1987). Psychological inventories used in sport psychology research. The Sport Psychologist, 1, 331-349.
- Loehr, J.E. (1982). Mental toughness and training for sports. Lexington, MS: Stephen Greene Press.
- Mahoney, M.J., Gabriel, T.J., & Perkins, T.S. (1987). Psychological skills and exceptional athletic performance. The Sport Psychologist, 1, 181-199.
- Martens, R. (1985). The paradigmatic crisis in American sport personology. Sportwissenschaft, 1, 9-24.
- Martens, R., Vealey, R. S., & Burton, D. (1990). Competitive anxiety in sport. Champaign, IL: Human Kinetic Publishers.
- McGrath, R.E., O'Malley, W.B., Dura, J.R., & Beaulieu, C. (1989). Factor analysis of the verbalizer-visualizer questionnaire. Journal of Mental Imagery, 13(1), 75-78.
- Morgan, W. P. (1980). The trait psychology controversy. Research Quarterly for Exercise and Sport, 51, 50-76.
- Nideffer, R. M. (1976). Test of attentional and interpersonal style. Journal of Personality and Social Psychology, 34, 394-404.
- Ostrow, A. C. (1990). Directory of psychological tests in the sport and exercise sciences. Morgantown: Fitness Information Technology, Inc.
- Singer, R. N. (1988). Psychological testing: What value to coaches and athletes? International Journal of Sport Psychology, 19, 7-106.
- Thomas, P., Over, R. (1994). Psychological and psychomotor skills associated with performance in golf. The Sport Psychologist, 8, 73-86.
- Vealey, R. S. (1989). Sport personology: A paradigmatic and methodological analysis. Journal of Sport and Exercise Psychology, 11, 216-235.