**Title:**

**Whatever happened to the third paradigm? Exploring mixed methods research designs in Sport and Exercise Psychology.**

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**Abstract**

In the past, quantitative and qualitative approaches to research were portrayed as being incompatible, if not mutually exclusive. More recently, however, researchers have explored the possible complementarity of these approaches through mixed methods research (MMR) – the so-called "third research paradigm". The purpose of this paper is to explore the nature and implications of mixed methods designs for research in sport and exercise psychology. Having sketched the nature and origins of MMR, we highlight some advantages it offers to researchers in sport and exercise psychology. After that, we conclude by identifying some barriers to progress in using mixed methods research in this latter field.

**Keywords:** *mixed methods research, quantitative research, qualitative research, sport and exercise psychology*

## Introduction

Many investigators (e.g., Leech, Dellinger, Brannagan, & Tanaka, 2010) believe that research methods may be arranged along an hypothetical continuum ranging from quantitative, at one end, to qualitative, at the other. Historically, quantitative research designs are rooted in a logical positivist epistemology (Ayer, 1959) in which "the goal of research is to produce objective knowledge; that is, understanding that is impartial and unbiased … without personal involvement or vested interests on the part of the researchers" (Willig, 2008, p. 3). By contrast, qualitative research designs have been influenced mainly by "naturalistic inquiry" (Lincoln & Guba, 1985) which seeks "to 'resolve' the problem in the sense of accumulating sufficient knowledge to lead to understanding or explanation" (p. 227). Influenced by this form of inquiry, qualitative research is concerned with "how people make sense of the world and how they experience events … with the quality and texture of experience, rather than with the identification of cause-effect relationships" (Willig, 2008, p. 8).

In the past, quantitative and qualitative approaches to research were portrayed as being incompatible, if not mutually exclusive (e.g., see Guba, 1990). More recently, however, researchers have acknowledged that the boundaries between these two approaches are often fuzzy and permeable rather than discrete. For example, Bergman (2011) claimed that quantitative researchers sometimes use small samples and non-random data sets and that qualitative researchers may not always adhere to constructivist principles in interpreting interview data. Perhaps not surprisingly, therefore, the possible complementarity of quantitative and qualitative research designs has been recognised by advocates of "mixed methods research" (MMR) – the so-called "third research paradigm" (Johnson & Onwuegbuzie, 2004) which may be placed in the middle of the continuum of research methods mentioned at the beginning (Leech et al., 2010).

In general, MMR is involved whenever an investigator "collects and analyses data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or program of inquiry" (Tashakkori & Creswell, 2007, p. 4). A similar definition of this paradigm is offered by Leech and Onwuegbuzie (2009) who refer to "collecting, analysing, and interpreting quantitative and qualitative data in a single study or in a series of studies that investigate the same underlying phenomenon" (p. 236).

Although mixed methods research designs have attracted increasing research interest in sport and exercise psychology over the past decade (especially since the publication of a seminal paper by Giacobbi, Poczwardowski, & Hager, 2005), they are still considerably less popular in this field than are either quantitative or qualitative designs. To illustrate, although Culver, Gilbert, and Trudel (2003) reported that about 7% of the empirical papers that they included in their review had used *both* quantitative and qualitative techniques – none of these papers actually used the term "mixed methods" in the title. This trend is still evident. Thus in June 2011, we searched the PsycINFO database for any peer-reviewed papers published in 4 well-known sport and exercise psychology journal (*Journal of Applied Sport Psychology*, *Journal of Sport & Exercise Psychology*, *Psychology of Sport & Exercise* and *The Sport Psychologist*) that listed the term "mixed methods" in the title. *None* was evident – even though a total of 275 peer-reviewed papers in other fields of psychology had used "mixed methods" in their titles.

Against this background, and influenced by the Giaccobi et al. (2005), the purpose of the present paper is explore the nature and implications of mixed methods designs for research in sport and exercise psychology. In order to achieve this objective, we shall proceed as follows. To begin with, we shall trace the origins of the "mixed methods" approach to a pragmatic alternative (Felitzer, 2010) to the "paradigm wars" between quantitative and qualitative researchers (Gage,

1989). Next, we shall highlight some key advantages of using mixed methods research designs in sport and exercise psychology. Finally, we shall consider briefly some barriers to progress in using mixed methods research in sport and exercise psychology.

**Origins of mixed method research**

According to Brustad (2008), positivism has been the dominant influence on research methods in sport and exercise psychology. Thus he claimed that of all epistemologies, the positivist approach to knowledge "has had the greatest singular influence on the course of science in general … and the sport sciences" (p. 33) in particular. Similar sentiments were expressed by Gilbourne and Richardson (2006) who claimed that positivism has influenced the "stylistic framework around which most sport psychology literature is based" (p. 327). To illustrate the extent of this latter influence, Culver et al. (2003) analysed the research designs used by almost 500 data-based papers published in three leading sport and exercise psychology journals (*Journal of Applied Sport Psychology*, *Journal of Sport and Exercise Psychology*, and *The Sport Psychologist*) during the 1990s over a ten year period (from 1990 to 1999). They found that 401 out of 485 (approximately 83%) of these papers had used traditional quantitative methods. More recently, Conroy, Kaye, and Schantz (2008) conducted a content analysis of the empirical papers published in the first 26 volumes (1979-2004) of the *Journal of Sport and Exercise Psychology*. Of these empirical papers, approximately 93% were based on quantitative data. Taken together, these trends highlight the hegemony of the quantitative approach in sport and exercise psychology.

Despite the dominance of this latter approach, there has been a steady growth of interest among psychologists in *qualitative* methods over the past twenty years. For example, in their survey of research methods used in sport and exercise psychology in the 1990s, Culver et al.

(2003) identified 84 articles (about 17% of their empirical dataset) that were based on qualitative data. More generally, this interest in qualitative methods is attributable to a combination of theoretical and pragmatic factors. Theoretically, a disenchantment with the positivist paradigm can be traced back at least as far as Allport (1937) who distinguished between two different scientific traditions in psychology – the "nomothetic" and "idiographic" approaches. Whereas the nomothetic approach attempts to establish general laws of behaviour using quantitiative data obtained from group comparisons, the idiographic approach is concerned mainly with the intensive study of individuals over time. Later, Allport (1962) argued that that the uniqueness of people cannot be reduced to, or validly represented by, average values. Similarly, Frank (1986) proposed that "nomothetic science can never escape the individual" (p. 24). Clearly, investigators who favour the use of qualitative methods in psychology align themselves implicitly with an idiographic approach to research. Pragmatically, qualitative methods appeal to many researchers because they enable investigators to use small samples in natural settings in an effort to reconstruct the personal perspectives and experiences of individual participants. Qualitative methods also enable researchers to use inductive methods for the generation of theories and to gain an in-depth understanding of people's interpretations of common psychological constructs (e.g., self-efficacy, Johnson and Onwuegbuzie, 2004; Pitney & Parker, 2009).

Just as the limitations of quantitative research designs strengthened the appeal of qualitative approaches, so also have the weaknesses of the latter approach spawned increased interest in alternative approaches such as mixed methods designs. To illustrate, Brustad and (2008) and Culver et al. (2003) cautioned against over-reliance by qualitative researchers on a single technique – the once-off, individual interview. Specifically, in Brustad's (2008) view,

"although this form of knowledge generation offers many benefits, other forms of knowledge generation using different qualitative methods continue to be overlooked" (p. 43). Similarly, Smith (2010) pointed out that many qualitative researchers use interviews rather like "oral questionnaires" (p. 94) whereby a highly structured set of standardised questions is asked of all participants. As alternatives to the interview, qualitative researchers have suggested the use of methods such as grounded theory and narrative analysis.

Grounded theory (Glaser & Strauss, 1967; see also Holt & Tamminen, 2010; Weed, 2009) is a set of principles that enables researchers to account for patterns of behaviour that are "grounded in" or faithful to the phenomenon under investigation. Using this approach, Kim and Giacobbi (2009) investigated exercise imagery or people's ability to "see" and "feel" themselves performing or gaining benefits from engaging in exercise behaviour. Specifically, these authors conducted interviews with a sample of middle-aged adults to elicit details of 'when', 'where', 'what' (content) and 'why' (functions) these people used exercise imagery. Then, using grounded theory, Kim and Giaccobi (2009) identified such higher-order themes as appearance imagery, health outcome imagery, confidence enhancing imagery and energy/drive imagery. Overall, the data from this study highlighted the relationship between the content and function of exercise images and the importance of health–appearance imagery. Narrative analysis (Sarbin, 1986; see also Smith, 2010) assumes that people use stories to make sense of themselves and of their world and also to present themselves to others. Recently, Smith (2010) advocated greater use of narrative techniques in which multiple, open-ended interviews are conducted in which participants are invited to tell their stories. Interestingly, as an insight into the importance of narrative processes in sport, it is notable that some elite athletes consult with *several* sport psychologists at the same time. For example, Davis Love III, whose 20 wins on the PGA tour

have earned him a lifetime exemption from pre-qualification, has admitted to consulting up to *three* sport psychologists on a regular basis! (Moran, in press). One reason for such multiple consultations has been proposed by Keefe (2003). Specifically, he suggested that many professional golfers hire psychologists simply because they "need to tell their story to someone" (p. 73) who has little direct involvement in their lives. Until recently, this idea that athletes have a story to tell in order to make sense of their existence has attracted little research attention. However, with the emergence of "narrative inquiry" in sport psychology (see review by Smith & Sparkes, 2009), a set of conceptual and methodological tools is now available to explore the "stories" of athletes' lives. Despite the ingenuity of approaches such as grounded theory and narrative analysis, however, qualitative research in sport psychology has been criticised for inadequate attention to validation criteria for its methods (Sparkes, 1998). So, can mixed methods designs help to overcome the limitations of quantitative and qualitative approaches applied in isolation?

**Mixed methods designs in sport and exercise psychology: Advantages and illustrations**

Proponents of mixed methods research designs typically cite a number of advantages arising from this approach (Greene, Caracelli and Graham, 1989). Briefly, these include (a) 'triangulation', or the use of different methods to seek corroboration of an underlying meaning; (b) 'complementarity', or the enhancement or clarification of findings from one method by the use of another; (c) 'development', or the use of findings from one phase of research to inform the development of methods for the following stage; and (d) 'initiation', or the capacity to access new insights into a particular phenomenon.

These advantages can be illustrated using examples from various studies in sport and exercise psychology. First, triangulation is exemplified by Kirby (2011) who recently

investigated athletes' attitudes to doping (or the use of prohibited substances for the purpose of performance enhancement) using a combination of a quantitative survey and qualitative interviews – the latter being conducted with a small sample of international elite athletes who had admitted engaging in doping (see also Kirby, Moran & Guerin, in press). Second, as an illustration of complementarity, Rose and Parfitt (2007) used a mixed method design to explore people's affective responses to exercise at intensities below-lactate, at-lactate and above lactate. They also investigated the factors influencing the development of those affective responses. A two phase sequential approach (Cresswell, Plano Clarke, Guttman, & Hanson, 2003) was employed where quantitative measures (i.e., measurement instruments; Borg, 1970) were first used followed by qualitative techniques (i.e., semi-structured interviews). The quantitative findings from the study highlighted how affect was least positive at the above lactate level and most positive when self-selected or at the below lactate levels. The qualitative findings suggested that particular factors needed to be experienced by the individual to achieve a positive affective state. For example, a perception of being able to cope with the intensity of the exercise and having the ability to dissociate from the exercise symptoms. Taken together, the use of a mixed method approach in this study highlights how one method (in this case, the qualitative phase) can provide complementary evidence and provide greater understanding of the findings from another method (quantitative phase). Third, the 'development' feature of mixed method approach is illustrated by Lonsdale, Hodge and Rose (2008). These authors developed and tested a new measure for the evaluation of competitive sports participants' intrinsic, extrinsic and amotivation. In doing this, they highlighted the usefulness of a mixed method approach to development. In their first study, the researchers conducted interviews with a number of athletes to ascertain why they participate in their sport and to help them to word items in a way that

would have meaning for competitive athlete. This qualitative information along with other sources was used by the researchers to inform the next stage of research, the development and testing of a questionnaire with a large sample. Finally, for initiation to occur, the findings from one method traditionally challenge results obtained through another method (Salehi & Golafshani, 2010). A study by Marques Pereria, Ribeiro Mesquita, & Braga (2010) on coaching behaviours indicated how initiation can occur. They were interested in examining the instructional process in youth volleyball training particularly, the type of information provided by coaches during the instructional process (Marques Pereria et al., 2010). The researchers employed a mixed method design, using a two phase sequential approach in which, semi-structured interviews were conducted with the youth coaches regarding their instructional processes. This was followed by systematic behavioural observations of the coaches' teaching style. The methods employed in the study highlighted contradictions in the coaches' instructional styles. For example, the interview findings suggested that coaches focused on two agendas when teaching volleyball, firstly, a focus on technical skills as this was a prerequisite for playing the game and secondly, a game agenda which took a more holistic approach based on sample game forms and the integration of technical skills and tactics in the actual game. However, when the behavioural observations were analysed, coach behavior showed a predominant technical orientation and little coaching contents was focused on the instruction of individual and team tactics. This research by Marques Pereria et al. (2010) illustrates how different research methods can highlight contradictions and differences which can further drive future research in a particular area, e.g., the need to deepen youth coaching to focus on instructional processes rather than focusing on a technical perspective. In summary, having outlined the nature and advantages

of mixed methods research designs in sport and exercise psychology, let us now consider some barriers to using this approach.

**Barriers to mixed methods research**

At the outset, barriers to mixed methods research in sport and exercise psychology can be identified at both the conceptual and methodological levels. Conceptually, some investigators have raised doubts about the true complementarity of quantitative and qualitative methods. For example, Shank (2006) observed that "to those of us who do qualitative research does it not almost always seem the case that qualitative aspects are relegated to subordinate status?" (p. 347) in MMR designs. Arguing that quantitative researchers typically assume a "predetermined" meaning before collecting their data – a practice that is anathema to qualitative researchers - Shank (2006) concluded that "if we try to mix qualitative and quantitative methods, we are essentially combining oil and water" (p. 347). Methodologically, a key challenge for MMR investigators is that of optimally integrating quantitative and qualitative findings in a valid and effective manner. In this regard, Bryman (2007) lamented the dearth of exemplars of MMR integration in social science research. This problem is especially apparent in sport and exercise psychology where so few studies utilise MMR approaches. In conclusion, we have argued that the "third paradigm" of mixed methods research has much to offer sport and exercise psychology researchers who believe that quantitative and qualitative methods may be combined effectively.

## Notes on contributors

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