How Do Coaches Experience Psychological Momentum? A Qualitative Study of Female Elite Handball Teams

Karin Moesch and Erwin Apitzsch
Lund University

Psychological Momentum (PM) is commonly referred to in competitive sports, but still has to be considered elusive from a scientific perspective. This study explores coaches’ perception of triggers, strategies and characteristics of PM in female elite handball teams. Semi-structured interviews with nine coaches were evaluated using a qualitative content analysis. The results revealed that positive and negative PM were characterized by factors regarding behavior, cognition, confidence, emotions, and the team. Triggers for positive PM were categorized into confidence, players’ individual factors, team factors, and team-opponent-factors, whereas triggers for negative PM related to coach factors, confidence, external factors, players’ individual factors, and team factors. Moreover, strategies emerged that are considered beneficial for controlling PM. The results are discussed with emphasis on behavioral aspects, confidence, emotions, team factors, and application. Foundations based on this study and recent research lead to the assumption that PM is probably best portrayed in a circular approach.

Psychological Momentum (PM), defined as “an added or gained psychological power which changes interpersonal perceptions and influences an individual’s mental and physical performance” (Iso-Ahola & Mobily, 1980, p. 391), is a common concept in the athletic community. From a scientific perspective, however, PM is a difficult phenomenon to capture. To set the scene for the current study, the state of knowledge will be elaborated from a theoretical and empirical perspective.

As a first theoretical approach to PM with a background in social action theory, Adler (1981) proposed five steps that build up PM: A personal meaningful goal (e.g., winning a match) forms the basis and serves as a standard to which subsequent performance is measured. The fact if a subject is approaching or erasing from this goal has an effect on motivation, which fosters energy for action (e.g., feeling more motivated after scoring, which increases the chances for a victory). As a result of the perceived distance from the goal, as well as the motivation arisen, the subject experiences specific emotions (e.g., positive emotions such as joy and pride), that

Moesch and Apitzsch are with the Dept. of Psychology, Lund University, Lund, Sweden.
in a next step trigger a specific arousal (e.g., optimal arousal level for performing well), which subsequently leads to corresponding behavior (e.g., committed and focused behavior). The specificity of PM, however, is not given by these five steps alone, but by a circular feedback system where achieved accomplishments develop further impetus.

Based on this early work of Adler (1981), our recent understanding of PM has been influenced by the development of three theoretical models (Cornelius, Silva, Conroy, & Petersen, 1997; Taylor & Demick, 1994; Vallerand, Colavecchio, & Pelletier, 1988) and by empirical studies based on these models. The Antecedents-Consequences Model of Psychological Momentum (Vallerand et al., 1988) postulates that there is a temporal distinction between antecedents, perception of PM and consequences. The antecedents, consisting of personal and situational factors, influence the perception of PM. The impact of these perceptions on subsequent performance, which is considered as a consequence of PM, is moderated by contextual and personal variables. In an experimental study, Vallerand et al. (1988) found support for the notion that score configuration (one player catches up from behind vs. no player prevails) as a situational variable influences PM perception, and that score configuration, level of experience, and subsequent perception of PM were found to influence subjects’ prediction of players’ performance. Smisson, Burke, Joyner, Munkasy, and Blom’s study (2007) partially supported the model by showing a significant inverse relationship between the number of perceived positive PM sequences and external control, which is considered as a crucial personal antecedent.

The Multidimensional Model of Momentum (Taylor & Demick, 1994) proposes a momentum chain starting with a precipitating event, which is comparable to the antecedents in Vallerand et al.’s (1988) model. This event is proposed to trigger affective, cognitive, and physiological changes, which in turn influence the athletes’ behavior, their performance and ultimately the immediate outcome. This series of changes is supposed to result in the development of PM, which is, however, not mentioned as a factor in the model. Results of empirical studies partly supported the model (Mack, Miller, Smith, Monaghan, & German, 2008; Mack & Stephens, 2000; Stanimirovic & Hanrahan, 2004).

Unlike the two previous models, the Projected Performance Model (Cornelius et al., 1997) postulates that positive and negative PM are the result rather than the cause of performance changes, suggesting that PM is merely a post hoc performance label. The authors stated that performance fluctuations rapidly get the label positive or negative PM, when in fact they may be normal variations of performance around a mean level. This assumption raises the question about the existence of PM, which has been extensively investigated: Studies based on quantitative methods have analyzed if match data show periods of positive or negative PM that exceed what is the normally expected variation of a match. Such periods of PM are supposed to be portrayed in the form of sequential dependence or non-stationarity (Dumangane, Rosati, & Volossovitch, 2009). Sequential dependence refers to the claim that an event is dependent on the adjacent event, thus creating a positive trend within match data. The non-stationarity claim suggests that there are fluctuations in the success rate over the course of the match that exceed what is expected by chance alone. The underlying assumption is that as soon as winning is considered important, an unbroken series of positive respectively negative events or a higher respectively lower than normal performance will be accompanied by psychological changes such as increases or decreases in confidence or positive or
negative emotions (McCutcheon, 1997), which in turn intensify that process. The results found so far are inconsistent: There is evidence for the existence of PM in form of serial dependence and nonstationary in individual (Hughes, Fenwick, & Murray, 2006; Jackson & Mosurski, 1997; Klaassen & Magnus, 2001) and in team sports (Dumangane et al., 2009), but likewise, there is also evidence against PM in individual (O’Donoghue & Brown, 2009) and team sports (Schilling, 2009). In addition, there are numerous studies done with similarly inconsistent results within the related Hot Hand phenomenon, which is defined by Gilovich, Vallone, and Tversky (1985) as the belief that a player has a higher chance of making a shot after a series of hits than after a series of misses. The review article of Bar-Eli, Avugos and Raab (2006) lists 16 studies that do not support the existence of Hot Hand, 12 studies supporting the existence of Hot Hand and one inconclusive study.

Based on qualitative methods, however, there are several studies showing that athletes report experiencing states of positive and negative PM during a match (e.g., Burke & Houseworth, 1995; Jones & Harwood, 2008). Most importantly, Cornelius et al. (1997) showed that players generally believe that states of positive and negative PM affect their performance. Likewise, Hamberger and Iso-Ahola (2004) concluded that athletes, coaches, and spectators strongly agree that there is such a psychological force that has an influence on performance.

To summarize, there is both empirical evidence for the existence of PM (Klaassen & Magnus, 2001; Stanimirovic & Hanrahan, 2004) and its relationship to performance (Jones & Harwood, 2008; Perreault, Vallerand, Montgomery, & Provencher, 1998) as there is against those predictions (McCutcheon, 1997; Schilling, 2009). However, already Adler (1981) in his basic work on Momentum stated that it is not significant for the development of momentum if it really occurs, but much more if it is perceived to occur by the subject. Likewise, Vallerand et al. (1988) stated that, whether based on objective facts or not, perceptions of PM do have consequences for the person who holds them. A recent study of Gula and Köppen (2009) confirmed that by showing that participants’ perceptions of a volleyball player’s Hot Hand had a significant effect on the decision to whom the participant would play the ball, strengthening the statement of Bar-Eli et al. (2006) that the “belief is stronger than reality” (p. 535).

Despite increased knowledge on different aspects of PM and the development of models which can be tested empirically, PM still has to be considered an elusive concept that needs further investigation (Crust & Nesti, 2006; Mack et al., 2008). The fact that PM is based on highly subjective experiences (Burke, Aoyagi, Joyner, & Burke, 2003; Burke, Edwards, Weigand, & Weinberg, 1997) displayed in a highly complex environment (e.g., competitive sport events), makes the phenomenon difficult to test quantitatively. Therefore, there is a strong need to adopt a qualitative approach (Crust & Nesti, 2006). This approach allows in-depth examination of components of PM in a specific sport and on a specific level, which has been considered an important step for further research in the area (e.g., Crust & Nesti, 2006; Jones & Harwood, 2008). So far, qualitative research has focused on experiences of players (e.g., Jones & Harwood, 2008; Taylor & Demick, 1994) and external observers (Burke et al., 2003; Burke et al., 1997; Mace, Lalli, Shea, & Nevin, 1992). In the study of Burke and Houseworth (1995), the experience of athletes and coaches was investigated through questionnaires and compared with objective data of game events, but the analyses were made on a group level, thus not offering a unique picture of the coaches’ perception. However, investigating
perceptions of coaches has been proposed as an interesting approach (Crust & Nesti, 2006), offering insight into an observer’s perspective, which is proposed to be less affectively biased than the actors’ (e.g., players’) perspective (Vallerand et al., 1988).

Based on the idea of the Antecedents-Consequences Model of Psychological Momentum of Vallerand et al. (1988) and following the study of Jones and Harwood (2008) with soccer players, the current study adopts an observer’s perspective on PM. The overall aim is to investigate how elite handball coaches perceive states of positive and negative PM and which factors are considered crucial in the development of such states. Such information will be valuable for sport psychology practitioners to design interventions for teams that focus on a beneficial handling of PM, as well as for researchers to get insights into the perception of PM from a coach perspective.

**Method**

**Design**

A qualitative approach was adopted for this study, providing an in-depth understanding of the social world of the participants by learning about their experiences and perspectives (Snape & Spencer, 2003). Semistructured interviews were selected as the most suitable technique, as they offer flexibility of coverage and allow the interview to go into novel areas, which leads to rich data (Smith & Osborn, 2008).

**Participants**

Twenty-three handball head coaches and assistant coaches working with a team in the highest league in Sweden were contacted at the beginning of the season 2008/2009. These coaches were selected as they belong to the target group (coaching a female handball team in the highest league in Sweden) and their contact information was accessible on the internet or through contact with the club secretaries. As there are only twelve teams that belong to the highest league, this initial group was already limited to a low number of potential participants. From this initial group, nine coaches agreed to participate in the study. The relatively small sample size should not pose a problem as the sample is highly homogenous (Ritchie, Lewis, & Elam, 2003), which in turn permits a more focused inquiry of coaches of the highest level.

The average age of the eight male and one female participants was 40.67 (SD = 8.17) years, with an age range from 25 to 50 years. All participants had a wide experience of coaching handball, having been active as a coach for an average of 15.61 years (SD = 7.73). They had been coaching on the highest level in Sweden for an average of 5.67 years (SD = 6.28), and had been working with their present team for an average of 3.94 years (SD = 4.49). Handball teams generally consist of 14 players, whereof 7 are playing simultaneously.

**Interview Guide**

The interviews lasted between 45 and 72 min (M = 56.22, SD = 8.48). To guide the interviews, an interview schedule was used that was developed based on previous literature (e.g., Vallerand et al., 1988) and on the interview guide from Jones and Harwood (2008). Small refinements regarding the language and the order of the questions were made after pilot interviews with two male handball coaches, who
had working experience with female elite teams. After introductory information and questions about the person, the interviewer gave a short description of PM. It was not deemed appropriate to give a more thorough and scientific definition of PM before the interview, as doing so may have biased the interviewees in their answers. The interviewees were then asked to give examples of experiences with positive and negative PM with their teams to confirm that the concept was correctly understood. The interview included questions about how coaches perceive their team in a positive and negative PM (e.g., “How would you describe your team when it is in a state of negative PM?”). Moreover, the participants were asked about potential triggers and strategies that are perceived to heighten the chances/risks for a team to end up in a positive or negative PM (e.g., “In your view, what are possible triggers for a team to end up in a positive PM?”). By doing so, the temporal distinction between antecedents and perceptions of PM, as suggested in the Antecedents-Consequences Model of Psychological Momentum (Vallerand et al., 1988), was integrated.

Procedure
Before the interviews, the participants were informed about the aim of the study. They were told that participation was voluntary, that all data would be treated confidentially and that they could withdraw at any moment. All but two interviews took place face to face at a place of the interviewees’ choice; meanwhile the remaining interviews were conducted by phone. All interviews were conducted during the handball season (September to April), as it was supposed to be easier for coaches to recall real-life situations.

Data Analysis
After transcription of the interviews, which resulted in 146 pages of data, a qualitative content analysis was conducted (Elo & Kyngäs, 2008; Hsieh & Shannon, 2005). The transcribed material was divided into the three themes induced in the interview, namely coaches’ perceptions of triggers, strategies and characteristics of PM, which formed the units of analysis (Graneheim & Lundman, 2004). From there on, the material was analyzed inductively by deriving categories from the data (Elo & Kyngäs, 2008; Mayring, 2007).

To begin with, the units of analysis were read and reread to obtain a sense of the whole. In a next step, the text was divided into meaning units and subsequently labeled as codes. These codes were transferred into subcategories, which aimed to detect the quality of what was found in the text. In doing so, the analysis moved to a slightly higher level of abstraction. The subcategories were then grouped into categories. During this stage, the primary source material was checked thoroughly to ensure that the clustering of the subcategories goes in line with the participants’ original statements, thus involving a back and forth movement between parts of the text and the whole (Graneheim & Lundman, 2004).

Trustworthiness
To ensure trustworthiness, several steps were undertaken: As it should always be possible to trace back all stages throughout the analysis, an electronic form of a paper trail was conducted (Yardley, 2008). To involve participants in the research and ensuring that their views were not misinterpreted (Lincoln & Guba, 1985),
member checking was carried out on two occasions during the analysis. Firstly, the participants received transcribed copies of their interviews. They were asked to read the transcripts and to report in case something was not captured accurately. At the end of the analysis, an overview of the results was given to the participants. They were encouraged to comment on it in case they didn’t agree, but none of them reacted.

To enhance the quality of the coding, two forms of peer debriefing were used during the analysis: Firstly, the first and second author met regularly during the analysis to check coding decisions and to discuss the emerging coding framework. Secondly, to determine consistency among raters, interrater reliability analyses using the Kappa statistic are recommended with parts of the material (Mayring, 2007). A research colleague who has experience in qualitative methods and researches within the same topic conducted this analysis and the results revealed a Kappa of 0.71 \((p < .001)\), which is rated as an outstanding agreement (Landis & Kock, 1977).

**Results**

The results of the data analysis within the three themes triggers and strategies (forming “antecedents” in Vallerand et al.’s (1988) terminology) and characteristics will be presented in detail. **Triggers** are considered factors that influence the onset of PM, whereas **strategies** are defined as actively and purposely applied means to beneficially change the course of PM during the match. **Characteristics** include coaches’ descriptive statements about their team during PM. Regarding the results of all three themes, as well as subsequent discussion of them, it has to be kept in mind that all material presented is based on coaches’ idiosyncratic perception of PM, and not on data about the absolute truth about the phenomenon.

**Positive Psychological Momentum**

**Triggers of Positive PM.** Triggers of positive PM were categorized into confidence, players’ individual factors, team factors, and team-opponent factors (See Figure 1). Being confident was considered to be a key feature for working oneself and the team into a positive PM. Confidence is often connected with being successful, as one coach (C1) expressed: “If you succeed with something and see the result of what you trained for, or if you succeed with something that has been difficult before: that can be a trigger.” The analysis further revealed that coaches perceived players with personality characteristics such as a positive attitude, action orientation, fighting spirit, and high commitment to be more adept to trigger a period of positive PM. This factor is closely linked to the category team factor: The coaches stressed the importance of a good team composition with enough players that have the individual characteristics to take over key roles. As one coach (C2) stated: “But I can see that a team needs the right individuals, so… the team needs some players that are kind of a winner-type. I think then it is easier… “. Another important trigger concerned the level difference between the two teams. The coaches mainly considered an excellent performance of the own team to be an important trigger for a team to come into a positive PM, as the following statement of a coach (C3) illustrates: “It can be that one player who may be a bit shy in the team does something really big, and then everyone tries harder, and it results in a completely different ‘go’ in the team”. 
Strategies That Increase the Chance for a Positive PM. Besides the above mentioned triggers, correctly implemented strategies by the coach (coaching strategies) and the team or the players (team and individual strategies) can trigger a positive PM (See Figure 2). From a coach perspective, much emphasis was put on the importance of positive reinforcement to help the team to come into a positive PM. One coach (C4) expressed this factor as follows: “A comment, a feedback… or thumbs up; to get a reinforced feeling that this was good”. Many coach statements focused on the tactical part of the game, such as to do appropriate tactical changes, make correct substitutions or take timeouts at appropriate time points. All these factors are difficult to define more thoroughly, as there are many external factors that have an influence on how to do best (fatigue of players, number and level of substitutes, etc.). One coach (C5) paraphrased this complexity by saying: “To find the right type of player can also be different from game to game, and there is no correct answer; it is probably what is called to have a knack for it”.

Several strategies were mentioned as being useful for players to positively influence the course of a match: An important issue was to educate the players about the phenomenon and to learn from past experiences by reflecting about how one had ended up in a positive or negative PM before, and which strategies were helpful to increase the chances for the former and decrease the risk for the latter. One coach (C6) formulated this point as follows: “It is to always think about ‘when was I in this state before and what did I do then?’”. Another emphasis was placed on good preparation for the match: Being optimally prepared for the match, including careful preparation during the week of the match and the match day, having an idea
about the opponent’s strengths and weaknesses, and an optimal warm-up before the game can help a team to come in a mindset that nurtures the chances for getting into a positive PM. Related to that, the coaches also pinpointed that it was very helpful to have game plans and set goals for the whole match and for parts of the match. A coach (C2) combined the two last mentioned strategies by saying: “For me it is to know what is required, and to be prepared for that. And I should know how I will tactically play in order to succeed. I should also know how I will act if the opponent tactically behaves in a specific way – maybe even in an unexpected way”. Another useful strategy to enhance the chances of getting into a positive PM was to apply triggers to get into a required (and more beneficial) mindset or to initiate a special playing style. Finding the optimal level of arousal was considered another important strategy that can increase the chances to get into a positive PM. Interestingly, this strategy seemed important for both the players themselves (e.g., being able to optimally regulate one’s own arousal level) and the coaches (e.g., to help their players find their optimal zone).

**Characteristics of a Positive PM.** Describing their teams in a positive PM, the coaches’ answers included behavioral factors, cognitive factors, confidence, emotional factors, and team factors (See Figure 3). The coaches perceived that the players were highly energized and activated, showed a positive body language and performed successfully. A coach (C3) stated that “You are tireless, you run, you work, you fight hard, you win every single duel (…), you are a fighter in all situations”. Moreover, the coaches perceived that their teams acted automatically, whereby everything seemed to go effortlessly. One coach (C7) expressed this point
by saying that “this is like a sailing boat that has full wind – you do not need to do anything, the wind just drives it forward”. From a cognitive perspective, the coaches stated that their teams seemed to have control over the opponent, once they had reached a positive PM. Furthermore, the coaches perceived a high level of confidence as well as positive emotions such as joy and happiness among their players. Finally, on a team level, the coaches perceived high cohesion in the team, a clear role distribution, and players who took responsibility for their teams.

**Negative Psychological Momentum**

**Triggers of a Negative PM.** The analysis revealed five categories of triggers that increase the risk for a team to get into a negative PM: coach factors, confidence, external factors, players’ individual factors and team factors (See Figure 4). The coaches perceived that not believing in oneself, in the team, and in the game plan to be essential triggers for a team to end up in a negative PM. External factors, such as a change of the opponent’s tactic or a very successful opponent, were further considered to trigger a negative PM. Players who are nonchalant and are acting unsuccessfully were considered more prone to draw the team in a period of negative PM. One coach (C4) described this point as follows: “You lose humility, you lose the point that you still have to work hard”. On a team level, not taking the responsibility for one’s role was considered another crucial factor. As one coach (C5) formulated it: “Somebody has to take action in such a ‘non-team’, but no single player does. They expect ‘the team’ to do it... you see that very clearly”.

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**Figure 3** — Results on perceived characteristics of a positive PM.

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<tr>
<th>Sub-category</th>
<th>Category</th>
<th>Theme</th>
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<td>Positive body language</td>
<td>Behavioral factors</td>
<td>Characteristics of a positive PM</td>
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<td>High energy level</td>
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<td>Successfully acting</td>
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<td>Automatic behavior</td>
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<td>Right attitude</td>
<td>Cognitive factors</td>
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<td>High focus</td>
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<td>Perception of power and control</td>
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<td>Confidence in stress situations</td>
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<td>Confidence in oneself, team and game plan</td>
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<td>Players chance</td>
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<td>Positive emotions</td>
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<td>High and clear communication</td>
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<td>Clear role distribution within the team</td>
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<td>Positive climate within the team</td>
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<td>Taking responsibility</td>
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<td>High team cohesion</td>
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Strategies That Increase the Risk for a Negative PM. Obviously, there were no strategies emerging from the analysis that aim at reaching a negative PM. However, several reflections emerged from the coaches’ interviews about how some strategies could lead to negative PM (See Figure 5). Opposed to what emerged as a positive strategy, it was mentioned that wrong tactical decisions of the coach could have a very negative impact on the course of the match.

When it comes to players’ strategies, the coaches mentioned that a bad match preparation increases the risk to fall into a negative PM. The analysis also showed that it could be devastating if the team didn’t have a clear match plan to guide the game. Moreover, not knowing and/or correctly applying mental strategies that could help overcome difficult periods during a match was considered detrimental for a team.

Characteristics of a Negative PM. The results about coaches’ perceptions of negative PM could be categorized into behavioral factors, cognitive factors, confidence, emotional factors, and team factors (See Figure 6). From a behavioral perspective, passivity and negative body language emerged as factors. Moreover, the coaches attested their players to have a low level of confidence. The coaches also perceived high levels of negative emotions, which could even turn into a
feeling of hopelessness as paraphrased by the statement of one coach (C3): “It is as if you run in syrup”. The coaches’ statements about team factors focused mainly on individual players not taking responsibility for what happens on the court and increasing individualism in the team. One coach (C8) expressed this individualism by saying that “then [in a negative PM] you have six individuals out on the court, there is no team, but six individual players”. Another coach (C9) compared the team during the two different states: “Then [in a positive PM] you see a collective, wholeness, a mass. But if we are in a negative state one only sees the individual, one tries to resolve it on one’s own, one doesn’t take the help of a teammate”.

Figure 5 — Results on strategies increasing the risk to end up in a negative PM.

Figure 6 — Results on perceived characteristics of a negative PM.
Discussion

The study represents a new approach of gaining insight into the phenomenon of PM by investigating coaches’ perceptions. The results revealed that triggers for positive PM could be categorized into confidence, players’ individual factors, team factors, and team-opponent-factors, whereas triggers for negative PM relate to coach factors, confidence, external factors, players’ individual factors, and team factors. Moreover, a plethora of strategies for coaches and the individual players or the team emerged that are considered essential for the onset of positive and negative PM. Characteristics of positive and negative PM focused around factors related to behavior, cognition, confidence, emotion, and the team. As discussing all those factors would go beyond the scope of this article, the focus was set on some highly relevant concepts that emerged from the analysis, namely behavioral aspects, confidence, emotional aspects, and team aspects. Above that, strategies are discussed in relation to applied implications for coaches and sport psychology consultants.

Behavioral Aspect

One factor that emerged from the coaches’ insights is that PM is often connected with successful (positive PM) or unsuccessful (negative PM) actions. Interestingly, the coaches mentioned this factor as both a trigger for negative PM (e.g., performing unsuccessfully, making mistakes) and also to describe positive and negative PM (successful and unsuccessful performance, respectively). It seems that from the coaches’ perspective, it is not clear if (un)successful actions resulted from a positive respectively negative PM, or if (un)successful actions cause perceptions of PM. This controversy also emerges from the literature, where the direction of these two factors has been proposed differently in the existing models of PM: The models of Taylor and Demick (1994) and Vallerand et al. (1988) postulate that perceptions of PM lead to a change in performance, whereas Cornelius et al. (1997) state that actions lead to respective perceptions of PM. Stanimirovic and Hanrahan (2004) partly supported the latter model: in their study they revealed that in response to success, perceptions of PM increased over time but in response to failure they decreased initially and then remained constant. This cause-effect question remains unsolved, and it must be assumed that mediating variables intervene in this relationship, such as emotional factors and confidence.

The link between behavior and PM gets even more complex when one considers that “it takes two sides to have a momentum in athletic contests” (Bandura, 1997, p. 407). In a sport such as handball, performance is not completely controllable by the own team, but is also affected by the performance of the opponent. The results of the current study showed that the coaches consider the performance of the opponent as an important trigger for both a positive and negative PM, thereby supporting the assumptions of the Multidimensional Model of Momentum (Taylor & Demick, 1994). Hence, the opponent’s competitive level should always be considered when assumptions of PM are to be made. Another interesting finding is that the coaches do perceive that being in a state of positive PM, their players seem to behave in an automatic way, but similarly attribute them to have power and control over the opponent. Even though this finding seems antithetic, the current state of the art shows that support has been found for both the automatic (Markman & Guenther, 2007) and the control-focused perspective (Vallerand et al., 1988) of PM.
Confidence

Confidence seems to be a core factor within PM: The coaches perceive signs of high or low confidence in their players as both a trigger and a characteristic for positive or negative PM, supporting the results of soccer players’ perception in the study of Jones and Harwood (2008). Even though the coaches used the term confidence, it can be assumed from the context of the statements that they referred to a situation-specific form of confidence commonly defined as self-efficacy (Feltz & Chase, 1998; Feltz, Short, & Sullivan, 2008). The model of Taylor and Demick (1994) also pinpoints the importance of self-efficacy, mentioning it as one of the cognitive factors that does, together with affective and physiological aspects, change after a precipitating event and reciprocally influence each other.

Theoretical and empirical foundations confirm that self-efficacy can be considered as both an antecedent and an outcome of success (Bandura, 1997): On the one hand, it is hypothesized that high self-efficacy beliefs enhance performance because the individual works harder and persists longer. On the other hand, a possible path from performance to self-efficacy beliefs is assumed, in that mastery experiences (such as performing successfully) are considered as the most powerful sources of self-efficacy beliefs (Bandura, 1997). The study of Gernigon and Delloye (2003) confirmed that, showing that success and failure, respectively, increased and decreased self-efficacy in sprinters. Connecting these reflections with the behavioral aspect, it can be assumed that performing well will lead to higher levels of self-efficacy beliefs for the next tasks, triggering willingness to put in full effort, which in turn heightens the chances for further success that is connected with perceptions of PM and thereby stimulating an upward cycle (or a downward spiral vice versa).

This assumption about a circular interaction between self-efficacy, PM and performance is in line with Bandura’s idea (1997), but contradicts the linear predictions of PM made in the model of Taylor and Demick (1994) and Vallerand et al. (1988).

Emotional Aspects

The emotional aspect of PM emerged as another key factor. Due to the design of the current study, with coaches being investigated as observers of their team, it must be concluded that their statements about emotions are based on their subjective interpretation of the facial changes, action tendencies, and subsequent behaviors of their players, which are considered core features of emotions (Deci, 1980). The results indicated that coaches characterize their teams in a positive PM with showing positive emotions; meanwhile, a team that ended up in a negative PM is characterized by showing negative emotions. Interestingly, it seems that negative emotions such as anxiety and feeling stressed are important triggers for a negative PM. This finding strengthens the results of Jones and Harwood (2008), who also found that negative emotions were considered both triggers and characteristics of negative PM. Likewise, a recent study of Gernigon, Briki, and Eykens (2010) revealed that negative PM was associated with an increased level of cognitive and somatic anxiety. The importance of affective states in the development of PM has also been mentioned in the model of Taylor and Demick (1994).

Expressing emotional states by individual team members needs attention in a team context, as such expressions can have a meaningful impact on teammates and on group functioning (Felps, Mitchell, & Byington, 2006). One possible mechanism
for such a spillover effect (Felps et al., 2006) is emotional contagion, as described by Hatfield, Cacioppo, and Rapson (1994). Several studies provided support for emotional contagion processes in groups in organizations (Barsade, 2002; Ilies, Wagner, & Morgeson, 2007) and sport teams (Totterdell, 2000). Within the context of PM, it can be hypothesized that players expressing strong emotional states infect their teammates with similar emotions and thereby probably increase the chances/risks for the team to end up in a corresponding state of PM. It can be questioned if such processes may, at least partly, serve as explanations for the mechanisms underlying the development of positive and negative PM.

Team Aspects

The coaches emphasized the importance of team aspects in relation to the onset and the course of positive or negative PM, whereby (not) sticking to one’s role and (not) taking responsibility (which emerged for positive and negative PM) and individualism and egoism (which emerged for negative PM) were the most frequently mentioned factors. Sticking to one’s role and taking responsibility is comparable with the behavioral aspect of role involvement mentioned by Carron and Hausenblas (2005), and there is common agreement that the execution and synchronization of roles is necessary for effective team performance (Steiner, 1972). On the negative side, it has been suggested that withholding effort, defined as not taking responsibility, is considered as one of three categories of difficult team member behavior that is likely to affect other team members (Felps et al., 2006). Having one or two team members who do not stick to their roles and do not take responsibility could lead to a break-down of role structure, and examples show that such behavior can result in dramatic performance deterioration (Weick, 1993). One possible consequence of such a break-down of role structure could be that team members start to act individually (Weick, 1993), which further impairs team performance. The findings of the current study support that view, as individualism was often mentioned by the coaches as a trigger and a characteristic of negative PM.

An Applied Perspective on PM

The coaches mentioned a plethora of strategies that they perceive useful to implement for beneficially influencing PM. Interestingly, these strategies are all commonly applied for performance enhancement and seem not specific for enhancing PM, which may indicate that there is a vague difference between trying to control PM and performance enhancement. One important task for the coaches is to make correct judgments and decisions regarding the process of the match, a result also found by Jones and Harwood (2008). As described above, a player expressing negative emotions and role behavior can have a detrimental effect on the team, why a quick substitution is recommended to minimize the effect of such a negative member (Felps et al., 2006). Another important strategy for coaches is to use positive reinforcement (Smith, 2006). The study of Mace et al. (1992) revealed that favorable responses to adversities increased as the rate of reinforcement increased three minutes before the adversity, leading to the assumption that positive reinforcement could have a preventive function for a team not to end up in a negative PM.

Several strategies for athletes were considered by the coaches to help build up positive PM and prevent negative PM. Being optimally prepared for a match is
considered meaningful and goes in line with other studies (Burke & Houseworth, 1995; Jones & Harwood, 2008). Good preparation, precompetition and competition plans are considered to be concentration enhancing strategies (Moran, 2004), and there is common agreement about the importance of having precompetition plans and routines for performance (Greenleaf, Gould, & Dieffenbach, 2001; Orlick & Partington, 1988). Obviously, such strategies are also beneficial for team athletes to build up positive PM during the game, possibly through increasing self-confidence, focusing on the task at hand, blocking out distraction, and having a feeling of control over the situation.

The coaches perceived that optimally set goals had a beneficial impact on PM, thereby strengthening the assumption of Adler (1981) that goals are the fundamental source for PM. Goal-setting is generally considered a powerful strategy to enhance athletic performance (Burton & Naylor, 2002; Gould, 2006; Vealey, 2007). Process-oriented goals can help focus on the next action (Vealey, 2007), which can be helpful in periods of negative PM, where negative thoughts and emotions distract. Having action-oriented and realistic goals can furthermore lead to increased effort and persistence. Setting short-term goals that can be achieved during a match can help boosting self-confidence, which is a crucial factor for PM.

Arousal regulation is frequently discussed in the sport psychology literature. Both coaches and athletes agree that performance fluctuations are often related to either being over- or under-aroused (Zaichkowsky & Baltzell, 2001). When it comes to PM, the coaches perceived that an optimal arousal regulation had an important impact on the team to end up in a positive PM. This result is in line with the perception of soccer players in the study of Jones and Harwood (2008), and supports the notion of Adler (1981) that arousal is an important ingredient to build up PM. For team sport athletes, the ultimate goal must be to find their ideal performance level throughout the match, and being able to react on a quick exchange by pushing themselves into the right arousal level.

The coaches stated that it can be deleterious if the players do not have a repertoire of different mental strategies that can be used during the match to influence the game to one’s benefit. This finding goes in line with Mack and Stephens (2000), who perceived a clear advantage for most competitive situations when athletes were provided with methods for combating the seemingly uncontrollable effects of PM. It is therefore strongly recommended to implement mental strategies into the training regimen, as they seem crucial for being able to successfully handle PM for one’s own benefit.

Conclusions

The current study serves as an overview of factors related to PM in elite female handball teams, and adopts a descriptive approach from an observer’s perspective. The outcome of the current study can be summarized as follows: Firstly, the study gives interesting insights from coaches’ perspectives about how they perceive PM to develop and become manifest in their teams. Secondly, many similarities can be found between the present results from the coaches’ perception with Jones and Harwood’s (2008) results from soccer players’ perspective. Thirdly, it clearly emerged that PM is a very complex phenomenon including factors related to behavior, confidence, emotion, and the team that are assumed to interact with and influence
The assumption arises that PM is probably not a linear process as suggested in existing PM models (Taylor & Demick, 1994; Vallerand et al., 1988), but a circular process with the different factors influencing each other reciprocally. Such a circular view was already proposed by Adler (1981) who, however, did not include cognitive factors. More recently, support for such a complex perception of PM can be found in the dynamical system approach (Nowak & Vallacher, 1998), which proposes that any single causal mechanism is insufficient to characterize the resultant phenomenon in all its complexity. Based on that approach, Gernigon et al. (2010) concluded by defining PM “as a positive or negative dynamics of cognitive, affective, motivational, physiological, and behavioral responses (and their couplings) to the perception of movement toward or away from either an appetitive or aversive outcome” (p. 397). Clearly, the assumptions that emerge from the current study are in line with this more recent development of research within PM.

There are, however, some limitations that must be considered: The researchers involved in this study recognize that the sample size is relatively small. Moreover, the qualitative nature of the investigation does not allow answering questions about mechanisms and causal relationships.

Future research should focus on examining the interaction between emotional experiences, behavior and efficacy beliefs in relation to PM, and adopt a more complex and circular perspective on PM. Moreover, it would be interesting to further test the mechanisms of emotional contagion in a highly interdependent sport such as handball. From an applied perspective, intervention studies investigating the effect of the psychological strategies that were mentioned by the coaches would allow validating the findings of this study.

References


