Applications of sport psychology - Case study

Introduction to a case

Hazel is a very talented 14 years old tennis player who has been struggling recently during matches with her first serve. During tennis matches, first serve is a crucial moment, especially during tied matches. It is essential to keep double faults at minimum (two successive errors). Tennis players are given an additional chance to serve after the first unsuccessful try. The pressure during the second serve is very high as the player has to serve precisely into opponent´s service box otherwise the point is lost (Lautenbach et al., 2014).

Her usual style of play is very aggressive, but she has been staying behind the baseline, not playing offensive tennis and therefore she has lost several games. To her coach, the problem seems to be in her confidence. We do not have enough information about possible causes for her lost confidence that led to change of her play. There could be several reasons that could cause loss of confidence in youth players such as anxiety, worries about the results (Grossbard et al., 2008), previous unsuccessful matches (Bandura, 1994), pressure from parents (Dorsch et al., 2016), pressure from coaches or problems with peers at school (Camara et al., 2014).

For purpose of this essay, we are going to assume that Hazel is worried about the outcome of upcoming play-offs therefore she is anxious and insecure because she wants to take part in the national junior elite team and she is worried she is going to fail. All these negative thoughts hold her back and she does not believe in herself. Grossbard et al. (2008) conducted a study on youth athletes (9-14 years old) of both genders to differentiate somatic anxiety, worry and concentration disruption. The results showed that level of anxiety was higher in the age group 12-14 corresponding previous research (Muris et al., 2012) that demonstrated levels of anxiety to be positively connected to children´ cognitive development. Age group 12-14 showed higher level of anxiety compared to age group 9-11 based on emphasizing winning

more than enjoyment from the game. The results also showed differences between genders. Females reported higher levels of worry than males, who reported higher levels of concentration disruption compared to females (Grossbard et al., 2012). We can assume that Hazel shows higher levels of anxiety because she is aware of the importance of winning upcoming matches.

We do not have another indication that could lead us to an assumption that there is another serious issue. If we could ask more questions, we would further investigate relationship with parents, relationship with Hazel´s coach and we would ask more questions about Hazel´s life. Hazel needs to lower her anxiety and become more confident about her tennis skills. Confidence has been considered one of the most important factors in differentiating successful athletes from unsuccessful athletes as shown in Gould, Weiss & Weinberg´s (1981) study on wrestlers. High self- confident wrestlers were more successful than those with low self-confidence.

Self-efficacy theory

The term self-efficacy is in psychology used for one´s beliefs in himself/herself. Self-efficacy is considered to be the most important psychological construct that determines positive outcomes of performance (Short, 2014). The most influential self-efficacy theory is Bandura´s self-efficacy theory (1986). Foundations for self-efficacy can be found in Bandura´s social cognitive theory (1986).

Self-efficacy is defined as one´s believes in his/her ability to perform a task in a specific situation successfully. Such beliefs produce emotions, thoughts or behavior through cognitive, motivational, affective and selection processes. Self-efficacy is not related to sport performance only, high self-efficacy can help in many aspects of everyday life. Individuals with high self-efficacy show greater effort that can lead to positive outcomes. Individuals with high self-efficacy are not intimidated by difficult tasks or situations, they approach the task or the situation as a challenge. Individuals who strongly believe in themselves set up goals and stay committed to them even during short term failures and

setbacks. High self-efficacy leads to greater accomplishments and lower anxiety. On the contrary, individuals with low self-efficacy struggle with difficult tasks and tend to show low effort in order to reach their goals. (Bandura, 1994).

Self-efficacy can be developed through mastery experiences, vicarious experiences, social persuasion and by interpreting physiological states. Mastery experiences are built on previous successes. The more successful individual is, the stronger the belief in himself/herself is. In contrast, failure can undermine self-efficacy, especially if the failure happens before individuals strongly believe in their abilities to perform the task. Vicarious experience is based on observing somebody who is very similar to an observer. Similarity of the model is important for achieving greater impact on the observer and his or her perceived self-efficacy. The more the observer can relate to the model, the more significant positive outcomes can be achieved. Social persuasion is a verbal encouragement about individual´s capabilities. Individuals who are verbally encouraged and assured about their skills tend to be more confident and tend to believe they are capable of performing difficult tasks. Verbal persuasion should be positive as negative verbal persuasion can lead to individual´s low self-efficacy. Another way of developing self-efficacy is interpreting physiological states, such as emotions, mood, anxiety and physical reactions correctly. Individuals with high self-efficacy are less anxious and more aroused, while individuals with low self-efficacy tend to experience high levels of stress. (Bandura, 1994)

When we apply this theory to our case, we are aware that Hazel is a very talented successful player therefore she can build her confidence based on previous successful matches. We would need to question if she has a role model and if she has a chance to watch this role model in action. If she does not have her role model, we would suggest to her coach and parents to find a player on a similar level that could inspire her. As for verbal persuasion and physiological states, we would need to observe Hazel during practice and during her matches to make suggestions for improvement.

Measures of self-efficacy

To confirm we are correct about her low level of self-efficacy, we would ask her to fill out general self-efficacy measure. There are different ways how to measure self-efficacy, e.g. Sherer et al.´s General Self-Efficacy Scale (SGSE, 1982), Schwarzer and Jerusalem´s General Perceived Self-Efficacy Scale (GSE, 1979) or Chen et al.´s New General Self-Efficacy Scale (NGSE, 2001). The most popular tool, even though it is not without its critics, to measure self-efficacy is The General Self-Efficacy Scale developed and later revised by Schwarzer and Jerusalem (1995). The GSE is designed for individuals older than 12 years. The GSE was developed to assess general perceived self-efficacy and ability to cope with difficult situations. The GSE is related to optimism, emotion, self-esteem but also to pessimism, depression, burnout or anxiety. The GSE consists of 10 items measured on 4-point scale with the score ranging between 10 and 40. This measure is not without limitations, the GSE is a general measure so for a specific situation, it is recommended to add different items (Schwarzer, Fuchs, 1996).

Reporting results in this case might be difficult as there are no specific cut off scores for youth category. We would suggest to focus on answers from GSE and find reasons why questions have been ranked that way. Further recommendations would be to conduct a study with a sample of youth tennis players to measure their self-efficacy so we could determine the median of the group and compare results to our tennis player.

Imagery as an intervention

Bandura (1997) suggested imagery as an important tool to enhance self-efficacy. Imagery is a widely used sport psychology method to boost sport performance and lower anxiety. Research has demonstrated positive results using imagery as a part of mental preparation for competition. Correct use of imagery can help improve self-confidence, motivation and reduce anxiety. (Murphy, Nordin & Cumming, 2008). Imagery involves experiencing a situation that resembles the real situation without

experiencing the real thing. (Cumming & Williams, 2014). Imagery is different than dreaming because the individual is awake and aware of the situation (White & Hardy, 1998). Individuals can create experiences such as visual image, auditory image or kinesthetic image therefore imagery is a multisensory experience. The term imagery was distinguished from visualization because of the use of more than one sensory input during imagery compared to visualization that is limited to one sensory input, i.e. vision (Morris et al., 2005). The more senses we use during imagery, the more vivid the image gets. Imagery has 2 dimensions, vividness (number of senses used to create the image) and controllability (level of difficulty an individual can manipulate the image). These two dimensions are used for measurement (Richardson, 1995).

Sport psychology implemented mental practice as a technique to imagine physical movement, also known as motor imagery or movement imagery. Researchers from different fields such as cognitive neuroscience, sport psychology, motor learning or rehabilitation science have been studying motor imagery processes as they seem to share neural pathways. These findings have proved the James´ theory (1890) who claimed that "sensation and imagination are due to the activity of the same centers of the cortex" (Wakefield et al., 2014). Many theories have been used to explain motor imagery effects, nevertheless four of these theories have dominated. Neuromuscular model, the cognitive account, bio-informational theory and PETTLEP model, which is based on previous neuroscience research findings (Smith et al.). Holmes and Collins (2001) were first to describe PETTLEP model. The PETTLEP is an improved model based on assumptions that in order to get the most accurate image, athlete needs to replicate sport environment as well as emotions experienced during performance. PETTLEP method stands for components implemented during imagery intervention, namely Physical, Environment, Task, Timing, Learning, Emotion and Perspective. Incorporating these key elements into imagery strengthen the relationship between imagery and actual performance. PETTLEP builds on traditional imagery methods (Smith et al.) to create more realistic and more functional image. The seven key elements of

PETTLEP serve as a guide for integrating all components when preparing imagery scripts (Quinton et al., 2014). Smith et al. compared effects of PETTLEP compared to traditional imagery intervention and PETTLEP has been validated as a more effective because of the more accurate simulation of sporting environment (Cumming et al., 2014).

Many studies have been conducted on adult athletes but not many researchers used youth athletes as a sample. Quinton et al. (2014) conducted a study to test an effect of 5 weeks PETTLEP intervention on youth (mean age 9,72) soccer players. Results showed no significant effects of use of imagery on performing the task. Wakefield and Smith (2009) found that imagery needs to be performed more frequently, 3 times a week or more, to have an impact on youth imagery ability. Possible explanations for results of this study is insufficient frequency of imagery as well as changing imagery scripts for each session. The limitation of this study was in its generality, therefore when we plan an imagery intervention and prepare imagery scripts, the imagery scripts need to match the athlete and a specific situation. When creating an efficient PETTLEP imagery intervention, we need to consider the type of imagery used, age of an athlete, sport environment and level of performance (Quinton et al., 2014).

Similar study was conducted by Munroe-Chandler, Hall, Fishburne and Hall (2007) who used a sample of youth soccer players (7-14 years old) in their study. The results showed that athletes in the age group 11-14 reported using imagery more often than athletes in the age group 7-10 years old. Our tennis player is 14 years old, therefore we can assume she should potentially be in a group of youth athletes using imagery more often.

Chandler et al. (2008) conducted a study to explore a relationship between use of imagery and confidence in youth (11-14 years old) soccer players. In this study Martin, Moritz and Hall´s (1999) model was used to investigate this relationship. Martin et al.´ s (1999) Applied Model of Imagery model describes sport situation, type of imagery used, imagery ability and outcomes associated with imagery

use. Sport situations are divided into 3 categories: training, competition and rehabilitation. The center of the model is the type of imagery athletes use as a determinant of different outcomes. Five types of imagery were described. Motivational – specific (MS) imagery is oriented on athlete´s ability to imagine winning situations such as standing on a podium and being awarded a medal. Motivational General Mastery (MG-M) imagery representing coping with a difficult situation. Motivational General Arousal (MG-A) imagery representing physiological states such as anxiety, arousal or relaxation experienced during performance. Cognitive specific (CS) imagery is oriented on a specific sport skill such as tennis serve or basketball shot. Cognitive General (CG) imagery is focused on a strategy used during the game such as baseline game in tennis or two on one in soccer (Martin et al., 1999). Even though results suggest that if a youth athlete wants to improve self-efficacy using imagery, the main focus should be on MG-M function, the Applied Model of Imagery highlights that the function of imagery should match intended outcomes. The primary purpose of this model was to guide a future research. Some researchers (Nordin & Cumming, 2008) criticize this model and claim that images can serve multiple functions therefore the function and the content should be separated.

Measures of Imagery

When suggesting imagery as an intervention we need to measure athletes´ employment of imagery and identify its effectiveness. There are different ways how to measure vividness and effectiveness of imagery. Two most popular measures are Movement Imagery Questionnaire and Vividness of Movement Imagery Questionnaire.

Movement Imagery Questionnaire – 3 (MIQ-3, Williams et al., 2012) was developed to measure participants´ imagery ability. MIQ-3 is the most recent version of Movement Imagery Questionnaire (Hall & Pongrac, 1983). MIQ-3 consists of 12 questions to evaluate an individual´s imagery ability. Participants are asked to perform 4 tasks and then visually or kinesthetically image each task. After that

participants are asked to rate how well they were able to visually or kinesthetically image the task based on their opinion on a 7-point Likert scale. Movement Imagery Questionnaire (MIQ: Carter et al., 2013) has been recently adapted from MIQ-3 for the age group 7-12 (Williams et al., 2012).

Vividness of Movement Imagery Questionnaire – 2 (VMIQ-2: Roberts et al., 2008) is a revised version of Vividness of Movement Imagery Questionnaire (VMIQ: Isaac, Marks, & Russell, 1986). VMIQ-2 consists of 12 items measured on a 5-point Likert scale. Participants are asked to imagine items using internal visual imagery (from first person perspective), external imagery (third person perspective) and kinesthetic imagery (physical feeling of movement) (Callow, 2013).

When implementing imagery, it is important to measure how well can an athlete perform imagery. Hazel is 14 years old so we recommend to use one of the previous questionnaires or a different measure that was developed specifically for age group 7-14 years old, the Sport Imagery Questionnaire for Children. The Sport Imagery Questionnaire for Children (SIQ-C, Hall et al., 2009) is a modified version of Sport Imagery Questionnaire (Hall et al. 1998) and it is based on the Applied model of Imagery developed by Martin et al. (1999) and measures five types of imagery based on this model. SIQ-C consists of 21 items measured on 5-point Likert scale.

Conclusions and further recommendations

Hazel is about to play play-offs in 4 weeks to secure her spot in the national junior team. With the limited time given to us we suggest to focus on implementing motor imagery several times a week. We would explain all details how to effectively perform imagery to Hazel and her coach. We would prepare imagery scripts for different situations but mainly focused on performing the first serve successfully and then play her usual aggressive style of tennis. Another script could be aimed at reducing anxiety before the match and increasing her confidence. We would suggest to meet on regular basis several times a week and be present at all matches to be available to advise during stressful situations.

Parents play an important role in youth athlete´s development as they provide emotional support for their children. Parents support is closely linked to youth athlete´s sport enjoyment, enthusiasm, confidence and self-perception of sport skill (Dorsch et al., 2015). On the contrary parents´ pressure can have negative outcomes on youth athlete such as drop out of sport, low self-efficacy or high levels of anxiety. We would observe parents´ behavior, ask more questions about their relationship with an athlete and we would counsel if we detected issues that might be a subject for improvement.

If we were asked to continue working with Hazel after play-offs, we would suggest use of imagery in combination with use of pre-performance routines.

Implementing pre-performance routines could help to improve Hazel´s confidence and concentration during stressful moments. Pre-performance routines together with imagery should help with Hazel´s low self-efficacy and worries about the outcome of her performance. The definition of pre-performance routines is not clear in literature. Several authors have defined the term in different ways. The most popular definition is that pre-performance routine is a set of cognitive and behavioral elements completed prior to performance. (Cotterill, 2010).

Pre-performance routines can help to improve focus, reduce anxiety and eliminate distractions. (Weinberg & Gould, 1995). Eliminating distractions is important for an individual to be able to fully concentrate prior to performance, in this case the first serve. Ideal state of concentration and focus allows for pre-performance routines to be effective (Schmidt & Peper, 1998). Many authors (Lidor and Tenenbaum, 1993; Boucher, 1990) claimed that use of structured routines before competition can significantly enhance the performance.

We would suggest to continue working with Hazel on regular basis, we would also recommend other interventions to reach her fullest potential in her performance based on future circumstances.

Resources:

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