

The seventeenth chess piece

Performance means presentation: you show in the arena what you are capable of. Chess performances are determined by chess technical qualities, physical condition, mental aspects and coincidence. You can develop self-knowledge, self-management and mental skills by training. A chess player can be seen as the seventeenth chess piece. To a great extent he can determine by himself how he behaves. Developing a task-oriented attitude and productive thinking routines are the keys to performance.

Aspects of self-management are self-confidence, self-talk, motivation, concentration, decisiveness, stress regulation and resilience.

Chess is a complex mind game and the thinking of a chess player is a complex process. It happens consciously and unconsciously and in a controlled and uncontrolled, structured or less structured manner. Functions of chess thinking are perceiving patterns and relationships between patterns, memory, reasoning, applying heuristics (rules of thumb), search strategies, calculation, decision making and intuition (unconscious knowledge and reasoning),

The qualities of the brain are affected by talent (nature) and development (nurture).

The quality of chess thinking is influenced by the physical condition of a player: a player who is tired can concentrate less and remember less knowledge. The physical condition is influenced by physical sport, sleep, food and energy management.

Chess players develop a certain individual way of thinking that is characterized for example by more or less verification ('it's true') or falsification ('it's not true'), materialistic thinking, self-discipline, self-talk or becoming easily irritated.

A key question is how a chess player constructively deals with setbacks. To be successful, a chess player faces himself realistically and focus fully on his game.

He who wants to develop himself would do well to think about his own thinking (metacognition). This is not the habit of every chess player.

Anand

Current World Champion GM Viswanathan Anand clearly has an eye for what psychological science has to offer. In his lecture 'Building a Beautiful Mind' (reading NIIT University 2011, YouTube video) he speaks, inter alia, about the stimulating impact of an artistic environment, the role of the left and right hemispheres of the brain, the self-developing brain, serendipity (being open to unexpected experiences), the role of the unconscious and bisociation (creating links between domains), the influence of emotions, stimulating memory, the importance of self-control, simulating competition conditions in training and taking risks. Overall, he advocates an open mind.

Psychological research

Psychologists, for example A.D. de Groot, Christopher Chabris and IM Fernand Gobet, have written about perception, emotion, language, imagination, memory, reasoning, learning, pattern recognition, calculating variations, problem solving, decision making, heuristics, assessment of positions, developing expertise, search strategies, intuition and transfer capabilities of skills to other domains. Roland Grabner has pioneered research on the (limited) relationship between chess and intelligence. Like any other science, psychology is concerned with describing, explaining, predicting and influencing phenomena. Nothing is as practical as a good theory (Kurt Lewin).

Psychology has for chess players much practically applicable knowledge to offer, including insights into self-knowledge, self-management, cognitive processes, motivation, teaching, learning, coaching, training, communication, organization and stimulating social interaction.

Self-assessment

It is not the events themselves, but the thoughts about them determine how people feel and behave. This was already known to the Chinese philosopher Confucius about 2600 years ago. Thoughts people have are not always under their control. In fact, people are not always aware of their thoughts. Our mind is like an iceberg: we are aware of the conscious part, but we are unaware of a much larger unconscious part. The good news is that people can become conscious about unconscious thoughts and can influence them. A limitation is that during self-assessment people are subject and object at the same time, which brings with it blind spots .

The following quote is attributed to Buddha: 'All that we are is the result of our thoughts. The mind is everything. What we think we become.' Nowadays, mental coaches talk about 'empowerment': control of yourself and your situation. One also talks about 'sight and grip'.

If you are not performing optimally, can you imagine what you can improve on? This is only possible if you know yourself. Who are you, what do you want to achieve, how can you do that?

People see what they recognize and act accordingly. But people can change under the influence of what they understand (Ben Kouwer in his Dutch book 'The game of the personality').

Self-talk

'That's too hard for me' or 'that's a challenge'. Self-talk affects how a person thinks and behaves. Through language we give meaning to phenomena. To deliver performances, it is important to have a realistic picture about yourself, conditions, goals and available resources. Through language you express and give direction to your imagination. You think about the situation and your goals and adjust your behaviour. You are what you think.

Through language you can encourage the application of an 'open mind'. GM Jonathan Rowson (in his book 'Chess for Zebras') quotes a Sufi saying: 'When you hear hoofbeats, think of zebras.' You must not think of horses in advance, but rather judge value-free. If you can escape from restrictive assumptions, you can ask questions more fruitfully.

Through language you can formulate mantras (guiding messages for yourself). For example: Smile at a problem, then it shows its other side. Or: Are you part of the problem or part of the solution?

For many years Gary Robson, the father of the young American GM Ray Robson whispered mantras to his son before the beginning of a game.

During World War II many Dutch people derived strength from the poem of Han G. Hoekstra 'I have a cedar planted in my garden'.

Cognitive restructuring

A human being is an information processing system. It is the work of psychologists and mental coaches to help people reformulate problems. This is called cognitive restructuring (adjusting certain beliefs and thoughts). A psychologist can help to identify mental problems and give direction to reach solutions through coping strategies (how to deal with situations). However, you must do it yourself. A psychologist can help you to help yourself.

Sports psychologists

Sports psychologists are concerned with the question of which psychological factors determine a top performance. They use mental techniques to enable the sportsman to perform optimally mentally. Mental training is aimed at improving performance. The training consists of both increasing self-knowledge and self-management and of learning other mental skills.

Sports psychologists and mental coaches can help sportsmen through insightful discussions and exercises to develop understanding their self-image, self-management, motivation and goal-setting. Consultative discussions are focused on cognitive restructuring and learning coping strategies.

Psychologists make a diagnosis: what is going on? They do this via interviews, tests, observations and personality questionnaires.

Psychologists can provide direction and support in developing and practicing mental skills such as concentration, (self-) communication, stress regulation, imagining (visualizing), making decisions, regulate thoughts, time management and mental competition preparation.

They can also help to reduce non-productive thinking and assist with 'unlearning' existing behaviour. Psychologists can give advice on optimal mental organization of a training programme (e.g. through simulation of competition, deliberate practice and self-regulation) and how to study and train effectively and efficiently.

Deliberate practice means that during training a sportsman is aware of what and why he trains and focus intensively on this. A translation into practice is 'Dvoretsky's 15th minute drill', in which a chess player concentrates deeply to solve positions in limited thinking time. Interesting in this context is research on self-regulation skills. Tynke Toering concludes in her PhD research on young football players that for most part self-reflection and the ability to manage one's own learning are important determinants of performance.

Sports psychologists make use of personality questionnaires. As a result, they get a picture of innate or acquired characteristics of a sportsman that require attention. For example, someone might be introverted or extroverted, or has other dominant character traits. Such properties make up the basic attitude of a sportsman and give direction to how he experiences himself and his experiences and how he directs his behaviour. Personality characteristics can be difficult to change. Therefore, it is often more practical to look at how you can use them to your advantage rather than to try to see how you could change them.

Role of a coach

A coach or trainer applying mental training can choose different angles. He can be very directive or he can let things run their course. The most productive coach however has a democratic philosophy which assumes that a sportsman himself must deliver the sports performance and take responsibility for it. This means the sportsman knows and accepts himself and his task and pursues his goals self-consciously. A democratic mental coach sees his pupil (both adults and youth) as co-author of his development, discusses on an equal basis and develops qualities through dialogue.

Mental training is especially useful if it is combined with chess technical training. For this, all kinds of techniques, tools and methods are used. Hereby one has to take into account possibilities and limitations associated with age, chess level and various personal characteristics.

It is important that mental coaching happens in a dosed way: a coach or trainer must be careful that he does not give too much information at once. An optimal result is achieved if a player focuses on the most important matters which need improvement at a particular point in time. As and when the information required to address such matters is sufficiently recognized and internalized it is time for the next stage of improvement.

Schuijers

Dutch sports psychologist Rico Schuijers has worked with hundreds of athletes. For his PhD (published in 2004) he did research on mental training in physical sports. He concludes:

- Mental training programmes as part of training affects performance.
- The decisive factor is change in cognitive structure.

Schuijers defines cognitive structure as the way the athlete perceives himself, his competition and his circumstances.

He identified the following as the most important mental factors: self-confidence, achieving the correct stress level, dealing with circumstances and explaining the cause of a performance.

He argues that it is important to evaluate competitions objectively and in training simulate competition circumstances.

Success is the result of doing the right things in the right way at the right moment.

Failure can have many causes, including the wrong mental preparation.

Schuijers states that the basis for a fruitful contact between sports psychologist and athlete is that the athlete begins to tell his own story. His story shows how he experiences himself and that is the starting point of mental coaching.

Chess players know the so-called 'variation tree': a move can lead to various moves, which can again lead to various moves, etcetera. Just as a tree trunk that branches out into more branches again.

Schuijers describes two reversed trees. He asserts that both internal (within the person) and external sources affect a person's behaviour, and these internal and external sources, in turn, are result of various causes. This leads to the determination of various clusters of factors. If you know which factors play a role, you can tackle them in a manner which will have a positive effect on the resulting mental aspect.

Blitz

Peter Blitz was one of the first sports psychologists in the Netherlands. He argues that failure and success have everything to do with choices to make: do you want to achieve something or do you not dare? Stop-go. 'Go' is motivation, you want something. 'Stop' is negative emotion, you dare not. The two are opposed. Combining stop and go leads to confusion and blockages. This can manifest physically, but the cause is mental. It is a matter of self-management: accept yourself and the task on hand. Talent is a necessary side issue. Motivation is the tendency to show purposeful behaviour. Mental training focuses on self-confidence. The most healthy basis of dealing with tasks is self-knowledge. In order to achieve self-knowledge you have to confront yourself with yourself. For mental training to be effective, it must be integrated into technical training. 'Positive thinking' is 'bullshit': mental training is about task-oriented realistic thinking.

Chess players and sports psychologists

Characteristic for optimal performance are self-conscious thinking and a good state of mind. Sometimes, your mental condition feels excellent. Such condition is called 'flow'. Flow does not occur by chance, you can create the conditions to facilitate it.

To deliver performances you must believe in your goal, says grandmaster Artur Yusupov. You have to be completely focused on your goal. That means developing self-discipline and investing enough time to reach your goal. He himself has never worked with sports psychologists. However, his trainer and friend IM Mark Dvoretsky processed psychological insights in training and coaching. These insights Dvoretsky derived from practice.

Research and use of sports psychological insights are not common in the chess community. For example, the Dutch chess federation KNSB refers occasionally a youth talent to a sports psychologist. Mostly this is about handling stress.

Sometimes the federation hires a sports psychologist for a more general lecture about sports psychology.

Former Dutch women's champion and mental coach WIM Anne-Marie Benschop gives lectures about chess and mental coaching based on the Self Knowledge Method. She also assists individual chess players. The method is developed by psychologist Hermans and is based on 'narrative psychology' (man experiences and shapes his life through stories).

One of the tools employed is the 'focus triangle', which is aimed at assisting the chess player to perceive and develop judgements without prejudice and to achieve a mental state of relaxed concentration. In order to perform optimally, a balance should be found between results, learning and fun. Benschop emphasizes two things:

- Wanting to get the best out of yourself is more important than beating another.
- If you put quality first, results will come.

The KNSB published in 1997 the report 'Mental aspects in chess' authored IM Herman Grooten and IM Joris Brenninkmeijer. The report discusses, in particular, motivation and coping with stress. In this report Frans Erwich gives some advice on healthy relaxation for top chess players. He suggests that a certain degree of stress or tension is needed to peak performance. If danger threatens the body makes substances such as adrenaline and cortisol to make possible a state of increased activity. As a result you can concentrate better and your physical abilities increase.

Chess players are not very active physically during a game. As a result they cannot discharge stress during the game. So their body and mind may become overloaded. Erwich recommends that one analyzes a game immediately after it has ended. This provides an outlet for feelings and, after you have drawn conclusions, you can take leave of the game. If tensions still remain, he recommends relaxation exercises. Through regular physical exercise in the course of a tournament the body also gets relaxation.

In a study about mental aspects of top-level chess the author of this article interviewed chess masters and did literature research (University of Amsterdam, 1992). As a result social determinants that affect the development of young talents were identified. These insights have found their way into the training of young Apeldoorn chess talents and the book 'Developing Chess Talent'.

Coach GM Vladimir Chuchelov

Mental training is not part of the activities of the national Dutch chess team, says coach GM Vladimir Chuchelov. He knows that sports psychological insights are used in a number of sports. 'But there are no commonly applied methods or techniques which have been translated into chess. Internationally, as far as I know, hardly is made use of it in top chess.'

From his youth in Russia, Chuchelov remembers that sport psychologists were sometimes active in the chess world. This mainly concerned autogenic training (relaxation) which in interviews Kasparov also said he used. Also, there were profiles of chess players made through questionnaires. 'They were always positive, perhaps the intention was to motivate the players.' So they looked more like horoscopes. Of many practical applications of psychological insights Chuchelov noticed nothing. 'But I do not rule out that useful insights are possible. You can for example through tests measure aptitude and skills of people.'

Everything the brain does, such as thinking and learning, is psychological. Many chess players, and also Chuchelov himself, do make use of psychological insights. But these are insights based on practical experience, not based on systematic scientific research.

'Carlsen relaxes his mind before a game via gymnastics, but for another player perhaps yoga or a walk will work.' Chuchelov knows that the young Indian GM Parimarjan Negi prepares on games with a psychologist through imagination: he visualizes the possible course of a game and by doing this he can focus well on an important game.

There are a number of psychological aspects which impact on the performance of a player, says Chuchelov. For example motivation. Or dealing with loss. There is no recipe for, he thinks. 'If someone loses because of a blunder that could affect his entire tournament.'

About a Russian world top-class player Chuchelov has heard that a psychologist made him aggressive, so he would see his opponent as an enemy he had to destroy. 'But that's hearsay.'

One Dutch grandmaster has had contact with a sports psychologist, knows Chuchelov. Whether that has had much effect he asks himself. 'In any case, a sports psychologist has to know a lot of chess, with general insights you do not achieve much I think.'

Internationally, through the FIDE Trainer Committee, there is consultation between trainers. 'But that is almost exclusively about chess technical matters.'

Chuchelov can imagine that there are in many areas in the field of self-management benefits to achieve. For example, in the field of energy management. 'Do you occasionally relax during a game or think all the time? No one really knows. You could conduct an experiment, but it is not an issue. There is no information about it. So no one systematically experiments.'

From his practical experience as a coach Chuchelov gained some psychological insights. 'For example, I warn not to have too high expectations at tournaments. If you have had a lot of training, there is an incubation period needed before everything falls into place.'

Chuchelov trains many strong young players worldwide, mostly grandmasters. 'Selfstudy can be much more efficient. Many hours is not the key to success. You must use your energy well. Train like you are playing a game. You have to immerse yourself in what you do, know what you are doing and why. You better have a few hours training during which you are totally focused and motivated, than many halfhearted hours. If the focus is missing, you better relax, or do practical things you should do anyway. Many young talents are not aware of this. There is, unfortunately, no literature with scientific insights translated in that kind of practical recommendations. For good chess books is almost no market anyway.'

Another psychological insight that Chuchelov has gained in practice involves group training. 'If you are with a few people or a duo, you can encourage each other tremendously. You bring to each other ideas and encourage each other to delve into the matter tremendously. If you know these things, you can use them.'

Mental training for youth

Mental aspects play a role in chess and to some extent guidance is possible.

This is what talent coach Dolf Meijer says. He is responsible for the national youth training of the Dutch chess federation KNSB.

He defines mental training as optimizing performance by improving self-image and self-management of players, such as dealing with emotions and stress.

Psychological aspects and ways of thinking (e.g. prophylactic thinking) and teaching are very important, but are beyond his definition. He sees for example search strategy and board vision as elements that should be integral parts of training.

When giving mental training to youth, it is important to keep in mind the developmental phase in which they are. For example, self-reflection is not possible or is restricted in young children. You may also wonder whether you should discuss certain things explicitly, says Meijer.

For example, you can talk about not being fixated on match results but you can also create a training environment which values and emphasises interest and pleasure. Then you are not concerned with the conscious adjusting of too high expectations, but you make sure that high expectations do not arise. In this context, the trainers also have a duty to support parents.

Meijer has a nuanced vision about the 'Action Type model' used by many sports federations. This model is based on various types of personalities. Such a model makes you aware that people naturally have a predisposition for, say, introversion or extraversion, but you must be careful not to view this too rigidly. Moreover, people develop personal qualities over time. Meijer considers it nonetheless important to take into account personal characteristics of youth chess players.

Meijer sees opportunities to get insights to certain personality traits through tests, interviews or observations. In the case of a youth chess player with talent for calculation you could for example recommend that he plays openings which end up in middle game positions where his calculation strength can be well expressed.

While giving youth chess training Meijer has practiced attention training. A player who insufficiently alternates between focus and relaxation can exhaust himself in a game. As an example, Meijer mentions playing games between two players on more boards with limited thinking. They thus have practice with fast switching of their focus to different tasks. As a result it often becomes clearly

visible how a player handles stress. Meijer derived that idea from table tennis training where players are trained with two balls being played simultaneously.

On the issue of selfstudy skills pure benefits can be achieved, says Meijer. In that context one can learn from general sports psychological insights about for example 'deliberate practice' (targeted training and awareness about what one is doing) and research on self-regulatory capacity of young athletes. Meijer himself gained some experience in guiding youth talents with the mental aspect 'self-talk'.

The Dutch federation is still developing a youth training policy but is certainly aware of the importance of mental training. Where possible, psychological insights are being used. Fun is, for example, an important mental factor, says Meijer. If you can build that properly into a training program, participants are optimally motivated to commit themselves to the training programme.

Methods of mental chess training

What is the problem (diagnosis) and how do you deal with that (therapy)? There is a variety of ways to train mental skills training. Diagnosis relates to awareness (sight), therapy relates to developing skills and routines through exercises (grip).

Introspection is not easy. There are numerous cognitive pitfalls. People have for example self serving biases. This implies that people attribute success to their own abilities or talents (internal attribution), while attributing their failure more to circumstances or mistakes of others (external attribution). People also tend to verify (confirmation search) rather than falsify (refutation search). Also, acknowledging shortcomings is sometimes painful and therefore avoided by employing counter-productive defence mechanisms (such as denial or wishful thinking, etc.).

Such human weaknesses interfere with a productive, task-oriented thinking process. However, there are methods by which you can investigate your own chess games and way of thinking productively. What you have learned at a young age, you will use when you get older. In chess training it is advisable to pay attention from an early age to mental aspects and a professional attitude.

That means, for example, that young people work with performance targets (surpass yourself) and not fixate on outcome goals (1-0 and hope no stronger opponents can hold you off the tournament victory).

Below are some methods by which training of mental skills and technical chess skills are integrated.

Analysis Questionnaire: You can systematically analyze your own games via an Analysis Questionnaire. You can do this yourself, with a training partner or with a trainer. Thereby you can get a picture of your shortcomings in thinking. Then you can determine causes of dysfunctional thinking and think about functional alternatives. These alternatives you can exercise and implement as a routine in your thinking and behaviour repertoire. See for example the Analysis Questionnaire of IM Dharma Tjiam and Karel van Delft. The list is included in the book 'Developing Chess Talent' and is also presented as a free item on the site www.chesstalent.com.

Diary: In a diary you can keep track of what you've studied and what you have learned, chess technically and mentally. You can write new insights in the form of rules of thumb.

Database positions: You can capture positions from games in diagram form and add a few words about the essence thereof. This way you document insights both in pictures and words. This helps to focus your thinking. This also gives you an overview, which is useful for repeating knowledge. It is also nice to see what you have already studied. Chess thinking is largely based on pattern recognition, rules of thumb (reasoning) and calculation. What you can reason through patterns and rules of thumb you do not have to calculate.

Training programme: A chess player and his trainer can make a training programme together. In the

course of this exercise, numerous aspects of educational psychology and mental factors can be discussed. This exercise also meets the program requirements of goal-setting, deliberate practice and self-regulated learning? Do you build routines?

Psychological tricks: In a conversation with training partners and a trainer you can talk about psychological tricks. How do those tricks work? What effect do they have? What can you do about them?

Creative thinking: Through studying and solving paradoxical positions and endgame studies you can develop creative thinking. More tips are to be found in books of, for example, FM Amatzia Avni.

Story telling: Describe on paper or tell from a chess technical and psychological perspective the story of a played game. Omit concrete moves. Let training partners ask questions and discuss them. Formulate conclusions on paper.

Concentration: How do you mess up your concentration best? Write that down. Who writes most keywords wins. Apply the reversal rule and you have a list of points of attention for self-management. Concentration can be replaced by, for example, 'a winning position'.

Experimenting: Do you dare to experiment with your behaviour? If, for example, you often have problems with time pressure due to a lack of decisiveness, you can agree with yourself that you don't take more time than three minutes for a move. After ten games you can compare the total score with ten games in which you showed your old behaviour. You can also play some blitz games to train making decisions quickly.

Chair: Keep a chair above your head. Easy, no? Do it for ten minutes. Muscles get tired after some work. The same goes for brains. So, relax regularly, including during a game.

Perceiving: How much you can perceive in the course of just one second? Much. Why? Because you recognize patterns.

Stress: The reason is you think you are in danger. Because you are afraid you cannot cope with the situation. What is to be done? Use effective thinking methods, train more patterns.

Colouring picture: Your opponent is a colouring picture. This exercise is suitable for children, but why not for adults? You pick up a piece of paper and draw a head on it. The idea is that you start thinking in a relativistic way about your opponent. Is he overconfident? Good, then he gets a blue dot on his nose and we will use this knowledge in our game with him. Is he nervous? There we see opportunities. Orange cheeks fit for this. It does not matter what colours you use, if only you think in an active and constructive manner. You can do this in advance on a piece of paper, but you can also do it in mind during a game. Good chance that you have to laugh and that is relaxing. 'Even the great cook with water': your opponent is only human, not a slippery, terrifying monster. You can just think about him and think about how you are most likely play successfully against him.

Karel van Delft, December 2013

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