PRISM BRAIN MAPPING – NEUROSCIENCE APPLICATION IN BUSINESS COACHING

[1] Marta Czerwiec, [2] Bozena Wujec

[1] Radom Academy of Economics, Poland, e-mail: junem.research@gmail.com
[2] The Maria Grzegorzewska University in Warsaw, Poland, e-mail: bozena.wujec@inspired.pl

The article addresses coaching as the emerging field of human development from the neuroscience perspective. Neuroscience explains human behavior in terms of activities of the brain, and therefore can make a major contribution to the effectiveness of the coaching process, as well as of the coaching relationship. Introducing neuroscientific models, methods and tools into the research in the field of coaching can raise the awareness of existing behavioral patterns of coaches as well as enhance understanding of the mechanism, which enable coaches to adapt their behaviors accordingly.

In this paper we present the results of our preliminary study on the aptitudes and characteristics, which – from the neuroscience point of view, make coaches successful. As we have based our research on the neuroscience insights, we have chosen the neuroscience-based tool, PRISM Brain Mapping questionnaire, to measure aptitudes and preferred behaviors of successful coaches. From the perspective of our research, the most important issue was to investigate the most preferred behavioral patterns among successful coaches, versus the less experienced coaches, or beginners.

Findings from our research can be useful in supporting professional development of coaches, by enabling them to assess their possible competence gap and to address it on the individual level. Now, it is scientifically proved that our brains have got plasticity, and therefore, one can change the behavioral patterns to better suit in the role of a good coach.

Key words: Coaching, Neuroscience in Coaching, Coaching competences, PRISM Brain Mapping

Марта Червець, Божена Вуєц. *PRISM Brain Mapping* **– застосування неврологічних наук у бізнес-коучингу.** У статті розглянуто коучинг як нову сферу людського розвитку з погляду неврології. Неврологія пояснює поведінку людей щодо діяльності мозку, а тому може зробити вагомий внесок в ефективність процесу тренування, а також на взаємодію тренерів. Упровадження моделей, методів та інструментів нейронауки у сферу дослідження коучингу може підвищити ефективність наявних моделей поведінки тренерів, а також покращити розуміння механізму, який дає змогу тренерам відповідно адаптувати свою поведінку.

У цій роботі ми представляємо результати нашого попереднього вивчення здібностей і характеристик, які, з погляду неврології, роблять тренерів успішним.

Оскільки ми ґрунтувалися на нашому дослідженні про неврологічну статистику, то обрали інструментарій, який ґрунтується на неврологічних дослідженнях, анкетування PRISM Brain Mapping для вимірювання спритності й бажаної поведінки успішних тренерів. Щодо нашого дослідженя найважливішим питанням було вивчення найбільш бажаних моделей поведінки серед успішних тренерів, а також менш досвідчених тренерів або початківців.

Результати нашого дослідження можуть бути корисними для підтримки професійного розвитку тренерів, надаючи їм змогу оцінити їх можливий розрив у компетенції та вирішувати його на індивідуальному рівні. Тепер науково доведено, що наш мозок володіє пластичністю й тому можна змінити поведінкові закономірності, щоб краще відповідати ролі хорошого тренера.

Ключові слова: коучинг, нейронауки в коучингу, компетентність тренера, PRISM Brain Mapping.

Марта Червец, Божена Вуец. *PRISM Brain Mapping* **– применение неврологических наук в бизнес-коучинге.** В статье рассматривается коучинг как новая сфера человеческого развития с точки зрения неврологии. Неврология объясняет поведение людей относительно деятельности мозга и поэтому может внести весомый вклад в эффективность процесса тренировки, а также на взаимодействие тренеров. Внедрение моделей, методов и инструментов нейронауки в сферу исследования коучинга может повысить эффективность существующих моделей поведения тренеров, а также улучшить понимание механизма, который позволяет тренерам соответствующим образом адаптировать свое поведение.

В данной работе представляем результаты нашего предварительного изучения способностей и характеристик, которые, с точки зрения неврологии, делают тренеров успешными. Поскольку мы основывались на нашем исследовании о неврологической статистике, то избрали инструмент, основанный на неврологических исследования, анкетирование PRISM Brain Mapping для измерения ловкости и желаемого поведения успешных тренеров. С точки зрения нашего исследование важнейшим вопросом было изучение наиболее желаемых моделей поведения среди успешных тренеров, а также менее опытных тренеров или начинающих.

Результаты нашего исследования могут быть полезными для поддержки профессионального развития тренеров, предоставляя им возможность оценить их возможный разрыв в компетенции и решать его на индивидуальном уровне. Теперь научно доказано, что наш мозг обладает пластичностью и поэтому можно изменить поведенческие закономерности, чтобы лучше соответствовать роли хорошего тренера.

Ключевые слова: коучинг, нейронауки в коучинге, компетентность тренера, PRISM Brain Mapping.

Coaching is a method of human development, in which a qualified person – *coach* supports a client – *coachee,* in achieving specific personal or professional goals. Coach uses thought-provoking questions and different

techniques in order to conduct a developmental process that inspires coachee to maximize his or her individual potential.

There is a lot of impact in the field of coaching to maximize the coaching process, however there is only limited research worldwide on the competences of coaches in practice. Competences of coaches have been examinedso far in three different ways. Firstly, based on the opinions of master coaches as, for example, was in the case of International Coach Federation's Core Competencies. Secondly, based onaself-assessed questionnaire, as proposed by Griffith and Campbell (2008: 19–31), Passmore (2008), and Grant and Cavanagh (2007: 751–760). And finally, based on a modeling process, as demonstrated by Hall (Linder-Pelz, 2014: 47–61) who provided more specific scale with a description of what is happening in the coaching process.

Objectives

For the purpose of our study, we have chosen a neuroscience approach as a more novel and promising direction in exploring behaviors and aptitudes of coaches, which are crucial factors that affect the success of a coaching process.Neuroscience explains human behaviour in terms of the activities of the brain, how the brain marshals its billions of individual nerve cells to produce behaviour, and how these cells are influenced by the environment.

Therefore, our main research question was: *which characteristics, from the neuroscience point of view, make coaches successful?* Bearing this in mind, our preliminary study covered two specific research questions:

1. Which aptitudes are the most widely demonstrate by successful coaches?

2. Which behavioral patterns do successful coaches most widely use?

We hope that findings from this research will be useful for identifying these behavioral patterns and aptitudes, which are crucial for coaches to succeed.

Methodology

As we have based our research on the neuroscience insights, we have chosen the neuroscience-based tool, *PRISM Brain Mapping* questionnaire, to measure aptitudes and preferred behaviors of successful coaches. We have decided to use the *PRISM Brain Mapping* tool for our research, asthe science on which *PRISM* is based is drawn from the published works of numerous members of the neuroscience community and not on the theories of any one individual.

Moreover, *PRISM* is not a psychometric test because it measures expressed and observed behavior preferences, rather than personality, which works well for our research. The root of the *PRISM* Model is the basic fact that all behavior is brain-driven. Each person has his or her own way of looking at the world (perception) and responding to it. Those recurring responses – part inherited and part learned – fall into patterns, referred to as behavior preferences (Restak, 2013).

From the perspective of our research, it is vital to investigate the most preferred behavioral patterns among successful coaches, versus the less experienced coaches, or beginners. Moreover, mentioned patterns are not just declared actions, but behaviors that coaches represent in practice.

*PRISM Brain Mapping*consists of **several elementsof structure:** four colors, eight dimensions and three maps:

1) Four *PRISM* Colors

In order to implement the neuroscience discoveries into the coaching process, it is essential to be aware how the human brain is physically organized. Generally, brain is divided into the four main parts, right and left hemisphere, as well as the frontal and rear lobes, which gives us four 'quadrants'.

According to Iain McGilchrist the left part of the brain is rather analytical, logical, and precise. It is capable of conceiving and executing complicated plans and is good in calculating complex data. The right part of the brain is seen as opposite, as gentle, emotional and more at one with the natural world(McGilchrist, 2010).

The other interdependence occursbetween the front and the back of the brain. The latter is the sensory or input half, which receives input from the outside world and sorts, processes, and stores all of our sensory representations. The front part of the brain, in turn, produces motor programs or output, so in simple words, we use this area to react to the input data. It is here we plan, strategize, and mold our responses to the world, and it is this area that has been adapted for use in abstract thinking as well as in planning (Ratey, 2002).

Such a simplified structure forms four 'blocks' that are represented in the *PRISM* model by the Green (Expression), Blue (Stability), Red (Drive) and Gold (Analysis) quadrants, covering different types of behaviors.

Four colors chosen for this model match with widely recognized psychological meanings of these colors. Red was chosen for a dimension that represents 'drive', because red is a very powerful, intense color, which

enhances human metabolism, stimulates us, and even increases the pulse rate. Blue color represents 'stability' in the *PRISM* model, because blue is essentially soothing, and has got a calming effect for our minds and slows human metabolism. Green dimension in *PRISM* model is associated with 'expression', because it symbolizes growth, freshness, and fertility. And finally, 'Gold'*PRISM* dimension represents 'analysis', because yellowish colorsstimulate our mental activity and attention.

2) Eight PRISM Dimensions

In the *PRISM* chart, each quadrant is divided into two dimensions, which share the basic characteristics of given quadrant, but also have some significant differences (see Appendix 1). *PRISM* colors are chosen wisely to indicate sets of certain behaviors covered by each colorful quadrant in the *PRISM* model. As dr. G. T. Viki, who carried out three reliability and validation studies of *PRISM*between 2005 and 2008, states -the *PRISM* tool is not used to classify individuals into only one color category (Restak, 2013).Instead, the *PRISM* model recognizes that individuals will have characteristics from all four colors to a greater or lesser extent[1].

3) PRISM Maps

The *PRISM* tool presents behavioral patterns as three different 'maps'. *The Underlying Map* represents the natural behavior of an individual. This map indicates how the person tends to behave when they are totally relaxed and feel no need to present themselves in any particular way, or are under such a strong pressure, that they don't bother to adapt their behavior to the demands of others.

Although the *Underlying Map* represents the person's most comfortable behavioral pattern, they will sometimes feel a necessity to adapt that behavior to cope with their job role or everyday life. This possible shift is covered by the *Adapted Map*, which indicates the extent to which the person modifies their natural behavior on occasions to meet the perceived needs of their environment.

---

[1] Dr. G. T. Viki during mentioned study carried out a series of analyses, among them the widely recognized Cronbach's Alpha. The results showed very high levels of internal consistency for the *PRISM* subscales. For all the four-color subscales the reliability scores were above 0.90, which is a very high level of internal consistency, as good internal consistency means Cronbach's Alpha $> .70$. In the *PRISM* model scales are bipolar, and therefore both low and high scores have a meaning. Overall, these findings suggest that *PRISM* is a highly reliable measurement instrument (Restak, 2013).

As person's overall behavior is not based totally on either their 'Underlying' or 'Adapted' behaviors, *PRISM* delivers also the third, *Consistent Map*, which provides a picture of what is likely to be the person's overall behavior for most (approx. 70 %) of the time in public – this is also the view that most other people will probably have of him or her (Restak, 2013).

The mentioned maps show preferences that coaches tend to use for their coaching practice versus their natural, innate behaviors. However, the intensity of each presented behavior may be very different among coaches. Knowing that we have used the preference scale (from 0 to 100) to find out which behaviors have the strongest preference among coaches (65+), which are moderate (35–64), and which are rather avoided and why (0–34).

For our research we have found the *Underlying* and *Adapted* maps the most useful, as our aim was to investigate how the 'natural' behavior of coaches changes for the purposes of delivering coaching sessions, how far it changes and to what extent.

Procedure of the Research

In our preliminary study, the sample of the 70 coaches from Poland has been explored to identify the most commonly occurring behavioral patterns and existing aptitudes of mentioned coaches. The analyzed group of coaches was divided into five main categories:

1) experienced coaches, that have over 5 years of practice,

2) less experienced coaches that have got less than 5 years of practice,

3) coaching students and beginners,

4) managers that use coaching in their everyday practice,

5) business consultants and trainers who provide coaching sessions.

Bearing in mind our research questions for this stage, we have decided toexamine first the group of the 25 most experienced coaches, to search for some similarities or dissimilarities of their behavioral patterns and aptitudes. We are planning to investigate each of the main groups further, to compare the findings.

Conclusions

The first part of our findings refersto the most and the least preferred behaviors among coaches in eight main *PRISM* sub-dimensions (Innovating, Initiating, Supporting, Co-ordinating, Focusing, Delivering, Finishing and Evaluating)included in four colorsof quadrants: Green, Blue, Red and Gold.

It was discovered that, according to *Underlying Maps* of coaches,75 % of them have got the Innovating behavior, and 50 % – Initiating behavior, among their most preferred ones. We can say, then, that there is tendency

for coaches to demonstrate 'Green'behavior; especially that only 15 % of coaches tend to avoid it. Green color in *PRISM* is connectedto holistic thinking, openness to change and to other people, expressiveness, enthusiasm and communicativeness.

However, when it comes to *Adapted* behaviors, our research findings clearly show, that in their work coaches tend to avoid Initiating behavior,or at least tone it down. Innovating behavior is also a bit lowered among coaches, around 25 % less presented. This finding is crucial, as Initiating behavioris connected with a high level of dopamineand is presented when a person likes to be in the center of attention, meeting new people, and approach them in a confident manner. As a preliminary contact with many clients is undoubtedly a positive thing for a coaching business (as in any other business), when it comes to the coaching session coach should be able to 'switch' his or her attention onto the client and building rapport, instead of making an impression.

According to coaching competences, it is expectedthat a coach should be rather a caring and supporting person. *Underlying* maps of analyzed coaches show that they are very much confident in presenting Supporting and Co-ordinating behaviors which can be described as attentive listening, focus onrelationships, patience and helpfulness. This is connected with a high level of Oxytocin and Estrogen, thatreduces the effect of stress and createsome space for building an intimate, trusting relationship.

Again, when it comes to the coaching practice, Co-ordinating behavior, which refers to the relationships within a group, not to the individual facilitation, tends to be a bit toned down. It seems that in a one-to-one session there is no specific need to co-ordinate talents of coachees, or to put them in a certain roles. It refers to the fundamental coaching presupposition that coach, even if sees a certain solution to the problem, shouldn't suggest it to the client. That means, that Co-ordinating behavior is not very much needed in the coaching process.

In the coaching practice, in a few casesSupporting behavior is also very much reduced, or even avoided (30 % of coaches). It can be then considered thatthese coaches during their coaching work operate in a*put a coachees' feet over the fire*mode. That means, that if the role of a coach requires encouraging client to step out of the comfort zone, or to challenge him or her, Supporting behavior in this moment should be reduced. Although the coach is expected to be a supporting person, very often has to adapt his/her behavior to be more challenging or at least to keep the balance between the supporting and challenging conduct.

Findings show that experienced coaches are very efficient in delivering results, as their *Underlying Maps* demonstrate. Red color in *PRISM*refers to'Delivering' behavior which meansbeing independent, self-motivated and self-reliant. Most of the experiencedcoaches are comfortable in presenting this kind of behavior, which seems to help a lot in their everyday business life.

At the same time, they have got rather low *Underlying*'Focusing' dimension. That means, that they are not driven to achieve status, and neither they are outspoken or dominant. As the Red color in *PRISM* is connected to adrenaline, it appears that the majority of coaches are not highly challenging or aggressively competitive. 30 % of investigated coaches tend to avoid 'Focusing' behavior.

When it comes to the coaching business, 'Delivering' dimension remains at the moderate level, whereas 'Focusing' dimension is even lower than in the case of *Underlying Maps*. *Adapted Maps* of coaches show, that 65 % of them avoid (lower than 35 on a *PRISM* scale) 'Focusing'behavior in their work. This finding clearly show that experienced coaches tend to sincerely focus on the client's goals, which determines whether the coaching process is sufficient, or not.

Around 1/3 of coaches represent 'Gold' *PRISM* behaviors which meanshighly analytic aptitude and *Underlying* abilities for sound judgments andinterest in intellectual challenges. However, they are not always very much focused on details, as their *Underlying Maps*show that 40 % of coaches avoid 'Finishing' behavior (see Appendix 1).

Results show asignificant difference in 'Gold'*PRISM* quadrants between *Underlying* and *Adapted Maps* of coaches. Most of them (over 70 %) avoid typical 'Gold' behaviors, when they work with their clients, which means that they in fact avoid judgments. Both 'Finishing' and 'Evaluating' behaviors got very low scores. This means that analyzed coaches generally do not judge clients, or probably even avoid of thinking of the best solutions during coaching sessions. It seems that brains of experienced coaches are highly flexibleand can 'switch' between two or more behaviors during coaching sessions. As 'Finishing' behavior is very low, we can expect that these coaches won't 'force' (push) their client to find the right solution, to draw the process to a quick end, but they will rather assist their clients in their journey, and allow them to create as many options, as they like.

To sum up, it is important to underline that apparently, the coaches indeed are very inspiring, people-oriented individuals with the more active right side of their brains and a great brain flexibility.

References

1. Grant, A. M., Cavanagh, M. J (2007). *The goal focus coaching skills questionnaire: Preliminary findings.* Social Behaviour and Personality, No 35(6). Pp. 751–760

2. Griffith, K. E., Campbell, M. A. (2008). *Regulating the regulators.* International Journal of Evidence Based Coaching and Mentoring 6(1). P. 19–31.

3. Linder-Pelz, S. (2014). *Steps toward the Benchmarking of Coaches's Skills,* International Journal of Evidence Based Coaching and Mentoring 12(1), Pp. 47–61.

4. McGilchrist, I. (2010). *The Master and His Emissary*, Yale University Press: New Heaven, USA.

5. Passmore, J. (2008). The character of workplace coaching: The implication for coaching training and practice. Stratford, UK.

6. Ratey, J. (2002). *A user's guide to the brain.* Vintage Books, New York.

7. Restak, R. (2013). *An introduction to PRISM measurement*. The Center for Applied Neuroscience Papers: http://www.cfans.org

8. Core Competences of International Coach Federation www.icf.org

PRISM Dimension Summaries

Dimension	Summary of Characteristics
1	2
Innovating	**A creative and unstructured radical thinking approach to problem solving.** Innovating is about generating imaginative solutions to problems and challenging traditional ways of doing things. A radical approach requires lateral and abstract thinking that is truly creative and not constrained by tradition or limitations. Good at producing ingenious solutions. It requires the ability to see possibilities, visualise outcomes and not limit imagination. Such thinking can appear unorthodox and wayward and have difficulty in being accepted within rigid organisational structures. May have a strong artistic awareness, but may be forgetful and lack attention to detail. Also, may be rebellious and break rules and sulk if own proposals are criticised. **Prefers a fast-paced or dynamic environment.**
Initiating	**An infectious and optimistic style of verbal communication and persuasion.** Initiating is about responding quickly to new ideas and moving them forward with energy and enthusiasm. It is about identifying and exploiting possibilities in a way that is both optimistic and exciting, so that their potential captures the imagination of all those involved. It is about interacting with people to gain social recognition and involves displaying a high level of enthusiasm for meeting and communicating with a wide range of people, and for searching out opportunities and challenges. Works quickly, but can become bored very quickly, loses concentration and fails to follow through to completion. Also, can be disorganised and careless at times. **Prefers a fast-paced or dynamic environment.**
Supporting	**A need to create and maintain harmonious and stable relationships.** Supporting is about being very sensitive to the individual needs and concerns of others and offering them help and encouragement. It is about placing the needs of others and harmonious relationships before their own personal ambition. It involves being unassertive and unassuming, and helping to avert interpersonal conflict by promoting unity, stability and harmony. Supporting is also about defending values or close friends and avoiding personal confrontation if at all possible. Dislikes aggressive or insensitive behaviour. **Prefers a low-stress, steady paced environment.**
Co-ordinating	**A desire to involve others and to make the most effective use of their talents.** Co-ordinating is about encouraging individuals to work together to achieve shared objectives, yet it avoids appearing at the forefront of social interactions. It involves cultivating teamwork and making use of talented people as effectively as possible. This requires clarifying group objectives and facilitating or chairing discussions or meetings to ensure that all points of view are considered and that the agenda is followed. Co-ordinating involves achieving consensus and placing an emphasis on collaboration in preference to a more individualistic approach. Tends to seek a compromise when making tough decisions. In this context, co-ordinating refers to people and their abilities and not to material resources. **Prefers a steady paced environment.**

1	2
Focusing	**An aggressive and emotional drive to achieve own goals.** Focusing is about becoming so narrowly focused on personal goals or objectives that the wider picture becomes lost. It is about having an inherent need to control, to achieve and to challenge people or things that stand in the way of results. It often involves being disinclined to listen to others' points of view and having a tendency to be intolerant, confrontational or forceful. It frequently involves a lack of structure and attention to small details, as well as showing a strong emotional response to disappointment or frustration. It can involve a willingness to break the rules if necessary to achieve the desired results. Is most effective in difficult and demanding environments. **Prefers a fast-paced and dynamic environment.**
Delivering	**A self-sufficient and structured drive to achieve objectives.** Delivering is about meeting tight deadlines by working in a very structured way that can be inflexible at times. It involves being independent, having the ability to work without supervision and being good at ensuring that things work properly. Delivering involves being self-sufficient and purposeful, as well as being concerned with realism and efficiency. Effective in tough environments, Delivering thrives on crises, but can be frustrated when others show a lack of ability or motivation, or when there is sudden unexpected change. Likes to have authority to make decisions, but can be overly competitive for status. **Prefers a fast-paced or dynamic environment.**
Finishing	**A conscientious, methodical and tenacious approach to detail and quality.** Finishing involves seeing tasks through to high quality completion. It is about paying great attention to accuracy, detail and quality and enjoying tasks that are intellectually challenging. It is about having a high regard for obligations, a capacity for fulfilling promises and working to the highest ethical standards. Finishing is about being intolerant of mistakes, disorganisation or casual attitudes, and is uncomfortable delegating or dealing with strangers - especially those who are overly-friendly. Although not particularly assertive, it is also about having high self-control and strength of character to avoid being deflected from long-term objectives. **Prefers a slow-moving and well organised environment.**
Evaluating	**An analytical and unemotional approach to making sound decisions from complex data.** Evaluating is about having the ability to make sound judgements, unaffected by emotional pressures. Good at analysing and evaluating lots of complex details, it is also about being serious minded, detached and questioning at times. It displays hard headedness and sound decision making abilities, but it can appear uncommitted and uninspiring on occasions, and not inclined to take things at face value. Can sometimes do this tactlessly and disparagingly to such an extent that allows the cold logical abilities to inhibit receptiveness to new ideas. Tends to be uncomfortable dealing with emotional issues or human relationships. **Prefers a slow-moving and well organised environment.**