SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2025
ORGANIZATION AND MANAGEMENT SERIES NO. 224

DUALISTIC MODEL OF THINKING AND LEADERSHIP PREDISPOSITIONS AMONG EXECUTIVES

Milena ŚRĘBOWATA

Jan Kochanowski University in Kielce; milena.srebowata@ujk.edu.pl, ORCID: 0009-0007-5356-6920

Purpose: This paper attempts to identify the relationship between the dualistic cognitive model and the intensity of the leadership quotient and also the link between rationality and leadership predispositions.
Design/methodology/approach: The article is based on empirical research using questionnaires to measure the dualistic cognitive model (TRM) and leadership predisposition (LQ), in other words, it is grounded in data obtained from a control research group and statistical analysis. This was possible thanks to a comparative analysis of managers and subordinates in the studied organization. The subject area relates to human resource management and cognitive psychology.
Findings: A dualistic cognitive model was found to be related to leadership predisposition and that higher levels of impulsivity were related to the leadership quotient. On this basis, it can be assumed that effective managers have dominant fast thinking, which indicates an important phenomenon in management.
Research limitations/implications The research focused on the SME sector, so the results may be specific to this sector and the sample was relatively small and this is a kind of limitation that makes the research conducted exploratory and preliminary. In the future it would be advisable to conduct a longitudinal study and increase the research sample and see how the research would fare in different cultures and organizational environments.
Practical implications: The results of the research can also be used to develop recruitment tools that take into account impulsivity as an important factor to assess the potential of managers. On the basis of the findings, a new style of building management teams can be developed in organizations where different thinking styles of managers can complement each other. Companies can take into account the cognitive abilities of managers in their development processes and thus gain a competitive advantage through a more effective management team.
Originality/value: The article is the first to make the connection between the dualistic model of thinking and the leadership predisposition of managers. It provides the first research on the correlation of impulsivity, with a high leadership quotient. This in turn shows what kind of people can be better managers and this article is an answer to the question of whether issues related to their cognitive functions translate into leadership predispositions and, consequently, effective management. This provides an important rationale for further analysis in this area.
Keywords: dualistic model of thinking, leadership aptitude, leadership quotient, executives.
Category of the paper: empirical and scientific research.

1. Introduction

Leadership is reflected in both private and professional life in every aspect, and can even be considered the driving force behind the coexistence of people in general. It is particularly desirable in business, where in organizations it is necessary to supervise the course of processes and continuously give direction to activities and undertakings. This thesis aims to illustrate the relationship between the intensities of traits such as, impulsivity and rationality in the subject of leadership predisposition. In order to become a manager and be able to manage an organization, one must have the necessary competences and skills to do so, including personality predispositions. Managers lead the other employees and set the rhythm for the whole enterprise. It can therefore be said that managers are leaders in an organization. However, not everyone is suited to be a leader. Certain characteristics predispose one to take on such a role. And it is impulsiveness and rationality that seem to matter, as they are crucial during the decision-making process that is indispensable in management. The question therefore arises as to whether managers who are more impulsive or more rational are more predisposed to leadership. The literature suggests that a high degree of rationality, i.e. a dominant slow-thinking style, is a facilitator of career success (Assuad, 2020), so the assumption has been made that rationality may also be related to leadership aptitude.

2. Essence and significance of the dualistic model of thinking

Reflexivity as understood in cognitive psychology is seen primarily as a construct of the individual and is understood quite differently from management. According to Kagan's conception, reflexivity is the slow consideration and response to a problem. Impulsivity, on the other hand, is based on reacting violently and acting without much thought (Kaufmann, Meschnig, Reimann, 2014). This construct was also taken up by Kahneman in his reflections and he proved that the perception of reality takes place by reacting with one of two cognitive systems. Based on this, he developed a dualistic model of thinking that differentiates people in terms of reacting and making judgements (Gasparski, 2016). Kahneman distinguished between two systems, where the first, is characterized by fast thinking and is also referred to by the term impulsivity. It operates automatically and subconsciously, without volitional input. And the second system, which is related to slow thinking and is called rationality. This one, on the other hand, operates consciously and requires the involvement of different cognitive spheres, and this in turn carries more cognitive effort. The two modes operate continuously and interact with each other. System one triggers suggestions for system two, and this influences what beliefs the slow thinking system will hold. Conversely, fast thinking, if it is resolving

a complex situation supports its actions by building on what has already been established through slow thinking (Kahneman, 2019). The author's model is shown in Figure 1.

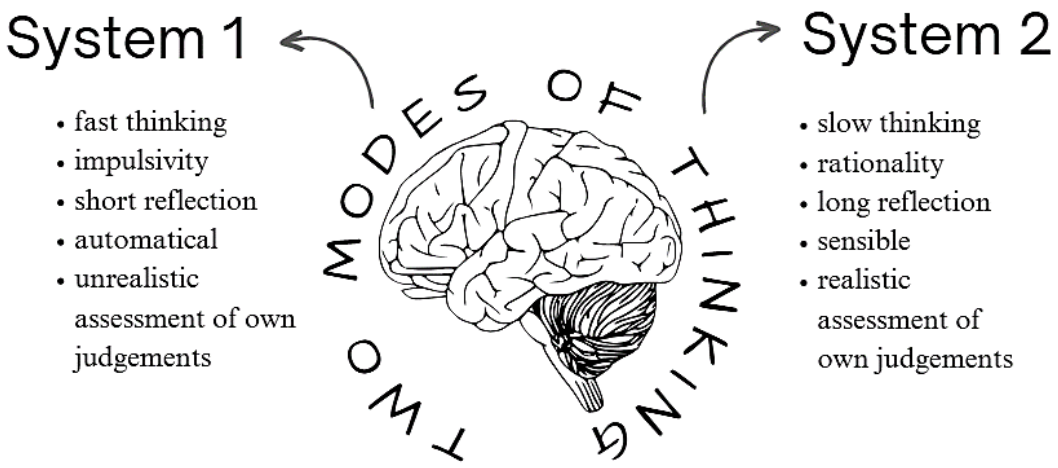

Figure 1. Dualistic model of thinking.

Source: own based on Kahneman, Szymczak, Tversky, p. 15.

If impulsivity predominates in an individual then the response to external and internal stimuli will be involuntary and abrupt. This is directly related to thoughtlessness, and the presence of it results in low sensitivity to the consequences of that individual's actions. The opposite is true for dominant rationality, as it goes hand in hand with reflexivity and a sense of responsibility for the choices made (Strang, 2023). The two systems coexist and can operate alternately with the meaning that one of them will manifest itself more frequently (Claverie, Trinquecoste, 2024). Impulsive people have it in their nature to make an immediate decision without deep thought, whereas rational people are much more calm and methodical in their actions. Therefore, their judgements and decisions are made after a long reflection. Thus, managers can be different and their specific performance depends on which cognitive system prevails in them (Zhang, 2023). It is also worth noting that slow thinking can impinge on the long-term perspective of an organization, while fast thinking allows for solving current problems without much consideration of the future implications of that action (Assuad, 2020). The dual model of thinking differentiates all people in terms of how they respond to incoming information (Claverie, Trinquecoste, 2024). The meticulousness and determination with which individuals with dominant slow thinking deal with problem situations makes them less likely to succumb to cognitive errors (Kurdoglu, Lerner, Ates, 2020). Although, if one chooses to take into account the ability to make decisions and judgements, when dealing with situations and concepts that are new and with which the individual has never been familiar, people with predominantly fast thinking adapt much better and more easily and have a higher propensity to take risks. Which in a company can also be beneficial (Borchert, 2025).

The dualistic model of interpreting events boils down to how we react and analyse incoming impulse. Rationality is closely linked to deduction and impulsivity to induction. What particular system dominates in someone determines what kind of person they are. So, since there is such

a distinction between impulsive and rational people, managers can also be classified in this way. And undoubtedly, some system will prevail among executives. The first of these dimensions relates to affect and emotional balance, which allows for action. The second area relates to perception and cognitive abilities, i.e., among other things, it is responsible for the ability to learn and reason. And the last relates to effort and productivity and is reflected in the ability to set and achieve goals and objectives.

3. Importance and role of leadership aptitude in management

Leadership aptitude is a very broad construct encompassing the entire marriage of an individual's qualities and skills. Therefore, in order to understand the essence and role of this issue, it is necessary to consider the whole range of approaches to it, in order to convey, relatively speaking, its meaning as best as possible. The overriding goal of a company is to achieve a competitive advantage, and this is not possible when management lacks leadership aptitude. The course of processes is a product of the influence of management (Hensellek et al., 2023). The leadership aptitude of managers is of considerable importance in relation to the functioning of the entire enterprise. Therefore, it is important to understand what factors are their components. Furthermore, it should be borne in mind that, depending on the authors and treatment, leadership aptitude will consist of different characteristics, as it is a multidimensional construct and difficult to define precisely (Güttel, Kleinhanns-Rollé, 2021). In general, leadership predispositions are mainly abilities and skills rooted in temperamental, personality and cognitive aspects (Kraczla, 2013). These include skills in communication, conflict management, and self-motivation (Zada et al., 2023). Solaj claims a sense of control, a sense of agency, authoritarianism, achievement pressure, Machiavellianism intrinsic controllability and self-evaluation skills as the traits that make up leadership aptitude (2011, after Mai et al., 2022). Further components are personality determinants such as charisma or temperament. And from these, further ones are derived, such as the need for affiliation, a sense of power or pressure to achieve (Zulaikha, 2022). Empathy, self-awareness speed of reaction, self-reflection, and insight are also factors that make up leadership aptitude (Groes, Nørmark, 2024). Also worth mentioning are, aspects such as intelligence, motivation and cognitive ability (Kraczla, 2013). Properties such as interpersonal communication, erudition, high eloquence, creativity, ability to work under stress, commitment, desire for self-improvement, openness, winning over others, creating a vision, skills are also factors that fall into this spectrum (Van Dick, Fink, 2019).

As can be seen from the above considerations, the psychological phenomena and components of leadership predisposition are many, so it has been proposed to frame leadership predisposition as a *leadership quotient*, where it should be understood as an integrated propensity to lead, based on three fundamental dimensions. Accordingly, everyone manifests

these resources but, importantly, those who have an aptitude for leadership are distinguished not only by a balanced coordination of these components, but also by their relative equality. According to this manifestation, all manifestations of leadership aptitude relate precisely to these three dimensions (Mazumdar, Mukhopadhyay, 2012). If one of these dimensions is too highly developed in a manager, there may be communication problems with subordinate staff. The same is true if any of the dimensions are underdeveloped. For example, if a manager presents low resources in the context of emotional balance, he or she will be easily manipulated (Reinisch, 2019). Below is a visualization of this model in Figure 2.

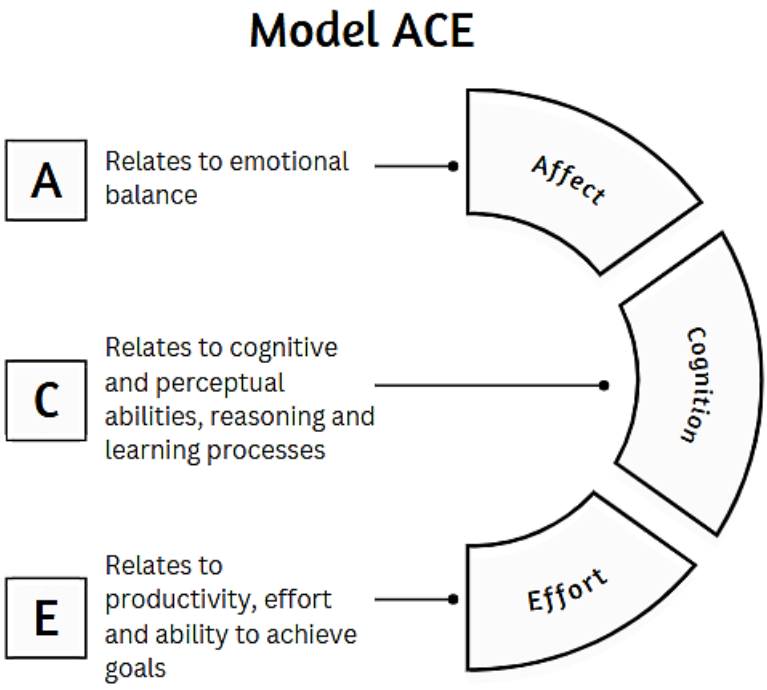

Figure 2. Dimensions of the ACE model.

Source: own based on: Mazumdar, Mukhopadhyay, pp. 2-3.

This is crucial, as it is the personal resources that individuals possess that are of paramount importance in terms of achieving organizational success. This is particularly relevant for managers, as they are responsible for giving direction not only to the company in general, but also to the rest of the workforce. Without the right leadership aptitude, they will lack authority and, as a consequence, the organizational mission and goals will not be fulfilled (Güttel, Kleinhanns-Rollé, 2021).

The essence of leadership predisposition is difficult to capture uniformly, due to the multifactorial nature of these factors. Nevertheless, it is clear that cognitive functions are an important distinction in this respect. Thus, a link between impulsivity and rationality and leadership aptitude is not excluded. Since cognitive factors are mentioned in the literature in the context of leadership predisposition, it is possible that the way one reacts to a problem may be another determinant of this.

4. Relationship of the dualistic model of thinking to managers' leadership predispositions

Supervision and control of the activities taking place in a company would not be possible without the appropriate skills and competences of managers. Key in this respect appear to be the ability to lead others. As we know, this consists, among other things, of individual cognitive factors such as intelligence or the ability to learn, so the question arises as to whether the intensity of impulsivity-rationality, is a factor included in leadership aptitude. And if so, which cognitive system is the component that determines leadership aptitude.

There are indications in the literature from which this link can be surmised. If one were to look at the issue in terms of, temperament and risk-taking propensity, which have been proven to make up leadership predispositions, this can be linked to the ability to manage risk and to the way risk is interpreted (2010, after Kraczla, 2013). Since it is clear that rational people are risk-averse and impulsive people the opposite (Swoboda, Schramm-Klein, 2025) then perhaps the way they are perceived differentiates them. If the creation of a logical argument is taken to task, those with predominantly fast thinking will be more creative, but those with predominantly slow thinking will commit less frequent succumbing to heuristics (Rożnowski, Fortuna, 2020). The views and mindset presented determine a kind of way, or style, of leading employees in an organization (Farrukh et al., 2023). According to it, it is the individualism of the individual in terms of perceiving reality that determines success in the decision-making process (Farrukh et al., 2023), moreover, if we take the ACE model into account in these considerations, we can see that the authors pay attention to the cognitive dimension, which is supposed to centre around the individual's ability to learn and understand the surrounding reality. This suggests that the construct of a dualistic perceptual model may also be related to leadership predispositions (Saint-Michel, 2023).

To this it is worth mentioning that, the phenomenon of the dualistic model of interpreting events can also be taken up in the context of leadership style. The assumption is that slow thinking occurs in a rational leader, while impulsive thinking occurs in an impulsive one. The thinking system determines a certain tendency to lead and is thus a component of leadership (Strang et al., 2023). Based on this, a distinction can be made between an impulsive leader, who is better at handling new situations, and a rational leader, who is better at planning strategies (Rożnowski, Fortuna, 2020). In addition, most of the research conducted in the rationality-impulsivity direction indicates that rational people do better in life (Trost, 2022). Therefore, on this basis, it seems more likely that it is rationality that is associated with leadership predisposition. It has already been proven that cognitive functions such as levels of crystallized intelligence and fluid intelligence are positively correlated with leadership aptitude (Saint-Michel, 2023). So, one can make the assumption that if certain cognitive functions are linked to leadership predispositions then presumably the dualistic model of thinking is as well. Thus, this argument leads to the formulation of two research hypotheses, namely:

1. *The dualistic cognitive model is related to leadership predispositions in executives.*
2. *The dominant intensity of rationality is related to the leadership predisposition of managers.*

Despite providing a great deal of reflection and research on issues such as personality determinants in relation to leadership predisposition, the question of cognitive function and leadership predisposition still remains largely a matter of conjecture. The question therefore arises as to whether there is a relationship between leadership aptitude and the Kahneman model, as well as whether rationality positively correlates with leadership.

5. Methodology

Two tools were used to verify the hypotheses. The first tool was the *Test Refleksyjności Myślenia/ Reflective Thinking Test* (TRM), developed by Piotr Gasparski. It is a questionnaire that measures the severity of the impulsivity-rationality variable and is based on Kahneman's dualistic model of thinking, with impulsivity and rationality to be understood as one variable and as two opposite ends of one continuum (Gasparski, 2016). The TRM is an extension of Frederic's CRT test, which was designed to assess judgement and served as a pioneering tool for this. The *Cognitive Refection Test* (CRT) was a questionnaire readily used in management science, marketing and, of course, psychology, however, over time its measurement errors have been identified (Szydłowski, 2015). Therefore, it needed to be revalidated to meet standards and standardization. For this reason, Gasparski developed a second version of this test, the *Test Refleksyjności Myślenia* (TRM), which is a set of logical riddles that measure the level of reflexivity and impulsivity, in other words, verifying which thinking system dominates in the subject, whether the one based on slow thinking or the one based on fast thinking (Gasparski, 2016).

The second tool used for this article was the *Leadership Quotient* (LQ), a questionnaire that is based on the ACE model by Mazumdar and Mukhopadhyay, measuring leadership aptitude (Mazumdar, Mukhopadhyay, 2012). The LQ questionnaire consists of 40 questions and 3 scales and can differentiate between subjects in terms of having a leadership predisposition, but also in terms of the dimensions that comprise it (Reinisch, 2019). The relationships are shown below in Figure 3. In order to be able to demonstrate leadership predisposition in the respondent, the scores obtained on all scales should be relatively equal. Therefore, in order to recognize a leadership predisposition in the respondent, all dimensions should be developed at a similar level. Importantly, if one is higher then the others should be lower (Mazumdar, Mukhopadhyay, 2012).

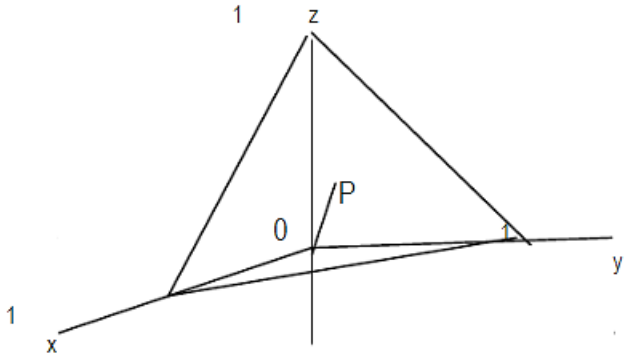

Figure 3. Assumptions of the ACE model.

Source: Mazumdar, Mukhopadhyay, p. 4.

According to the assumptions, the dimensions should satisfy the condition A + C + E =1.

That is, the results from scales A, C and E should be such that they are closest to the centre of the plane of the triangle; in other words = $[x^2+ y^2+ z^2]^{1/2}$ should be the minimum. The LQ assumes that in order to show leadership predisposition, scores from the scales should be A ≈ 0.33, C ≈ 0.33, E ≈ 0.33 (Mazumdar, Mukhopadhyay, 2012).

Both of these questionnaires were used in surveying 100 people across a dozen SME companies, where half were the research group and the other half the control group. The study group consisted of executives, i.e. people in the positions of presidents, directors, managers and coordinators. The control group, on the other hand, consisted of staff members reporting to them. Age, education, material status and gender are varied. The other parameters were not controlled. The dependent variable is leadership aptitude and the independent variable is impulsivity-rationality. As for the test procedure, separate rooms were set up so that there were as few distractions as possible and people were asked to complete both questionnaires. The duration of the test was arbitrary, the selection of people for the survey was relatively homogeneous.

6. Research results

To verify the hypotheses, an analysis of the collected empirical data was carried out using *Statistica 13.3* and *Jamovi*. For clarification purposes, the results obtained were averaged for the variables impulsivity-rationality and leadership quotient. What is shown in table 1 and 2. Due to the heterogeneity of the distributions, Pearson correlation was used to verify the relationship between the variables.

Table 1.
Pooled summary of averaged results from the TRM for the test and control group

	TRM		
	impulsivity	**rationality**	Total
research group	10,05	8,20	9,85
control group	8,35	9,95	8,97

Source: own elaboration based on Statistica 13.3.

Table 2.
A summary of the averaged results from the LQ for the test and control group

	ACE			
	[A] affect dimension	**[C] cognitive dimension**	**[E] effort dimension**	**LQ**
research group	0,37	0,44	0,31	1,03
control group	0,78	0,26	0,11	0,54

Source: own elaboration based on Statistica 13.3.

The averaged results from the TRM questionnaire showed clear differences between the research group and the control group, namely that managers are defined by a high degree of impulsivity, as opposed to subordinates, in whom rationality predominates. In other words, there was a greater tendency towards fast thinking in the research group and slow thinking in the control group. This highlights that managers are characterized by the dominance of the first cognitive system. On the other hand, the averaged results from the LQ questionnaire clearly showed that the research group had a leadership predisposition. In view of the above, the managers surveyed possessed leadership predispositions and were characterized by impulsiveness. It is also worth, noting the Pearson correlation, shown in figure 4 and table 3 showing correlation values between TRM and LQ.

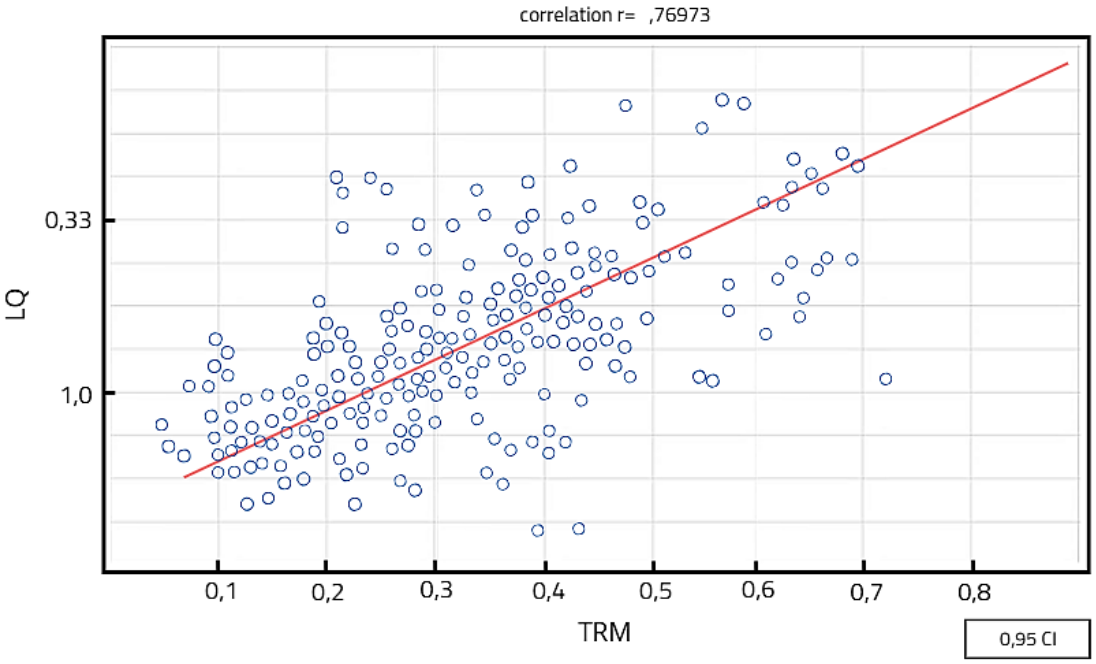

Figure 4. Pearson correlation for TRM and LQ variables.

Source: own elaboration based on results from *Jamovi*.

Table 3.
Correlation values between TRM and LQ variables

		TRM	LQ
TRM	r	1	-,769**
	p		<,05
	N	100	100
LQ	r	-,769**	1
	p	<,05	
	N	100	100

where p = twosided significance
** Statistically significant correlation

Source: own elaboration based on results from *Jamovi.*

The Pearson correlation graph shows a clear upward trend, that is, the higher the TRM value the higher the LQ value. This shows that there is a relationship between the variables. The confidence interval is 0.95, indicating a strong and positive relationship. The correlation coefficient (r = 0.769) is close to 1, indicating the presence of a very strong correlation between leadership aptitude and impulsivity. The correlation obtained is statistically significant ($p < 0.05$) which also confirms the association of the variables. Hypothesis one was confirmed.

7. Discussion

Through this discourse, concerning the relationship between the dualistic model of thinking and leadership predispositions, new conclusions have been grasped in this respect. The dualistic cognitive model was found to be related to leadership predisposition. Significantly, the literature opined explicitly that it was rationality that would be associated with leadership predisposition. However, the analysis of empirical studies has shown that this higher intensity of impulsivity is related to the leadership quotient.

The fact that the dualistic model of thinking is linked to the occurrence of leadership predispositions seems to be a kind of logical corollary, since the ACE model consists of a cognitive dimension into which thinking systems can fit. In contrast, the predominant impulsivity in managers is surprising. Since the majority of managers were rational in previous studies conducted it was considered that apparently rationality is related to leadership predisposition. And rationality seemed to be one of the components of leadership predispositions. Therefore, this article disproves this belief.

The explanation for this seems to be other research in this area. Well, one of the most recent studies, promotes an impulsive style and emphasizes its measurable effects in new problem situations, as such employees are perceived as more productive from the employer's point of view. In addition, decision-makers with dominant fast thinking are braver and find themselves much better in chaos and difficult situations, and are more successful in day-to-day problem solving, compared to rational decision-makers (Smith et al., 2023). In addition, they are much

more creative and have unconventional thinking, which supports the continuous development of the organization (Elliott et al., 2022). It seems that this variability in both the organization and its environment is a factor in why fast thinking is conditioned in managers. Perhaps the link between impulsivity and risk-taking propensity is the reason, since leadership propensity consists of the ability to take risks, and it also goes hand in hand with impulsivity *per se*, this could potentially be the reason why impulsivity is linked to the leadership quotient. In addition, temperament and charisma may also be directly related to impulsivity. There is certainly still much scope for scientific exploration.

Nonetheless, the research conducted leads to the conclusion that there is a clear link between the dualistic model of thinking and leadership predisposition. Managers showing a leadership predisposition also show at the same time a dominance of the first cognitive system based on fast thinking. In other words, managers with a leadership predisposition are impulsive. This provides an important rationale for further analysis in this area.

8. Summary

The empirical objective of the article was to verify the relationship between rationality of thinking and the occurrence of leadership predisposition in managers. People, can be differentiated on the basis of a dualistic cognitive model, namely into rational, that is, with a predominantly fast mode of thinking, and impulsive, with a predominantly slow mode of thinking. On the back of this discourse, the hypothesis was formed that managers with a high degree of rationality also have a greater leadership predisposition. To verify this hypothesis, a questionnaire study was conducted using the *Reflective Thinking Test* (TRM) and the *Leadership-Quotient* (LQ) with a total of 100 employees divided into a research and control group, i.e. managers and their subordinates respectively. The data collected was analysed using Pearson's correlation. The results led to the conclusion that leadership predisposition is related to high levels of impulsivity among managers. The results obtained from this work can be useful both in the context of human resource management of team building and in the formation of managers themselves. In particular, they can help in the appropriate selection of managers and thus contribute to more effective management of organizations. It can also provide a certain starting point. In recruitment processes where impulsiveness and rationality can be traits that indicate leadership skills that may be desirable for key positions. For this, too, it would be useful, for example, to use decision-making scenarios a in order to see how impulsive leaders perform in business management. For this, specific methods and tools such as, for example, In-basket, Behavioral and Situational Interviews or Assessment Center can be used (Boyle, 2016). These methods can be extended to the studied factor the way to get better results. It certainly provides an important premise for further research as well as for using the information obtained for the personal development of managers.

References

1. Assuad, C. (2020). Understanding Rationality in Sustainable Development Decision-Making: Unfolding the Motivations for Action. *J. Knowl. Econ., 11*, 1086-1119, p.7.
2. Borchert, M. (2025). Herleitung des psycho-ökonomischen Verhaltensmodells. *In People Management: Eine psycho-ökonomische Perspektive: Theorien–Modelle–Praxis*. Berlin/Heidelberg: Springer, pp. 27-29.
3. Boyle, S. (2016). Influencing Decisions About Assessment and Development Centres for Talent Management. *Assessment Centres and Global Talent Management*, 299-313.
4. Claverie, B., Trinquecoste, J.F. (2024). Guerre cognitive et influence psychologique. *Ingénierie cognitique*, *7(1),* pp. 47-56.
5. Elliott, M., Johnson, S., Pearlstein, J., Lopez, D., Keren, H. (2022). Emotion-related impulsivity and risky decision-making: A systematic review and meta-regression. *Clinical Psychology Review*, *102232*, p. 15.
6. Farrukh, M., Raza, A., Rafiq, M. (2023). Environmentally specific authentic leadership and team green creative behavior based on cognitive-affective path systems. *International Journal of Contemporary Hospitality Management*, *35(10),* 3662-3680, p. 6.
7. Gasparski, P. (2016). Myślenie szybkie i wolne a optymizm dotyczący osobistych zasobów pieniężnych. *Studia Ekonomiczne, 1*, p. 135.
8. Groes, C., Nørmark, D. (2024). *Gid min chef var høvding: Sådan får vi de ledere, vi fortjener*. Gyldendal A/S., p. 55.
9. Güttel, W.H., Kleinhanns-Rollé, A. (2021). 2.1 Leadership Landscape: Führungsfähigkeiten, Führungsidentität und Führungseffektivität. In: *Erfolgreich in turbulenten Zeiten* (pp. 159-181). Rainer Hampp Verlag, p. 67.
10. Hensellek, S., Kleine-Stegemann, L., Kollmann, T. (2023). Entrepreneurial leadership, strategic flexibility, and venture performance: Does founders' span of control matter? *Journal of Business Research*, *157*, 113544, pp. 1-3.
11. Kahneman, D., Szymczak, P., Tversky, A. (2019). *Pułapki myślenia: o myśleniu szybkim i wolnym*. Poznań: Media Rodzina, p. 15.
12. Kraczla, M. (2013) .*Osobowościowe uwarunkowania przywództwa: menedżerowie a specjaliści*. Wyższa Szkoła Biznesu, pp. 32-86.
13. Kurdoglu, R.S., Lerner, D., Ates, N.Y. (2022). Unsticking the rationality stalemate: motivated reasoning, reality, and irrationality. *Journal of Business Venturing Insights*, *18*, e00336, pp. 4-8.
14. Mai, N., Do, T., Phan, N. (2022). The impact of leadership traits and organizational learning on business innovation. *Journal of Innovation & Knowledge*, *7(3),* 100204, pp. 1-3.

15. Mazumdar, D., Mukhopadhyay, G. (2012). Leadership Quotient, *Journal of Organization and Human Behavior*, *1,* pp. 17-20.
16. Reinisch, M. (2019). *Führungskompetenz im Spiegel von Ich und Du*. PhD Thesis. lmu., pp. 33-50.
17. Rożnowski, B., Fortuna, P. (2020). *Psychologia biznesu: psychologia w biznesie*. Warszawa: PWN, p. 321.
18. Saint-Michel, S.E. (2023). *VI/L'approche cognitive du leadership: bousculer la représentation du leader. Repères*, pp. 91-103.
19. Smith, T., Southern, R., Kirkpatrick, K. (2023). Mechanisms of impulsive choice: Experiments to explore and models to map the empirical terrain. *Learning & Behavior*, *1-37,* pp. 2-4.
20. Strang, M., Miller, M., Hill, R., Elshaw, J. (2023). Group decision performance: The predictive role of decision making styles and cognition. *Personality and Individual Differences, 206,* 112114, p. 10.
21. Swoboda, B., Schramm-Klein, H. (2025). *Käuferverhalten: Customer Insights–Customer Journey–Customer Relations*. Springer-Verlag, p. 46.
22. Szydłowski, P. (2015). Pomiar stylu analitycznego przetwarzania informacji. Wstępna weryfikacja narzędzi: testu Cognitive Reflection Test (CRT) i zadań Base-Rate Tasks (BRT). *Studia Psychologica: Theoria et praxis*. *15.2,* pp. 60-75.
23. Trost, A. (2022). Führung im Hier und Jetzt. In: *Das richtige Führungsverständnis* (p. 134). Berlin/Heidelberg: Springer Gabler.
24. Van Dick, R., Fink, L. (2019). *Führungsstile: Prominenten und Persönlichkeiten über die Schulter geschaut*. Berlin/Heidelberg: Springer, pp. 7-11.
25. Zada, M., Khan, J., Saeed, I., Zada, S., Jun, Z.Y. (2023). *Linking public leadership with project management effectiveness: Mediating role of goal clarity and moderating role of top management support*. Heliyon, p. 11.
26. Zhang, X. (2023). The influence of user cognition on consumption decision-making from the perspective of bounded rationality. *Displays, 77,* 102392, p. 3.
27. Zulaikha, N. (2022). The influence of leadership skills on organizational management: a conceptual review. *International Journal of Behavioral Analytics*, *2(4),* pp. 1-7.