



ARKADIUSZ GUT

Nicolaus Copernicus University

MAŁGORZATA MOSZYŃSKA

Nicolaus Copernicus University

NATALIA RESZUTA

John Paul II Catholic University of Lublin

---

## Who Is a Creative Person? Conceptualisation of creativity by people with autism spectrum disorder

**ABSTRACT:** Arkadiusz Gut, Małgorzata Moszyńska, Natalia Reszuta, *Who Is a Creative Person? Conceptualisation of creativity by people with autism spectrum disorder*. Interdisciplinary Contexts of Special Pedagogy, no. 27, Poznań 2019. Pp. 373–387. Adam Mickiewicz University Press. ISSN 2300-391X. e-ISSN 2658-283X. DOI: <https://doi.org/10.14746/ikps.2019.27.17>

A growing body of literature has focused on individuals with autism spectrum disorder who are entering adulthood. Thus, one of the main topics is social interactions and the issue of their functioning in professional contexts. Researchers focus their attention on those individuals' folk theories that are also crucial in the lives of the normative sample. One of the key folk theories that guide our professional lives is a folk image of the creative person. The folk theory is nothing more than tacit knowledge held by a group of people. It is a system of beliefs and an inner standard of assessment that serves us to explain, for example, why we believe that someone is creative or when we assess the effects of their work.

The aim of this paper is to present chosen findings from our study of the folk theory of creativity and creative person using a sample of persons with an autism spectrum disorder. We used a reversed version of Klaus Urban's and Hans Jellen's Test for Creative Thinking – Drawing Production (TCT-DP) where respondents selected previously prepared drawings, instead of making them. Their task was to

select the most and least creative drawings and rank all the drawings according to their level of creativity. We also measured respondents' levels of creative efficiency and creative identity.

**KEY WORDS:** autism, creativity, implicit knowledge, ways of thinking, folk psychology, creative mindset

## 1. Introduction

For some time now, we have been observing that the main topic in discussions on a group of people from the autism spectrum is the issue of their functioning in the conditions of professional activity and within the social interactions taking place in this context. Researchers realise that this requires undertaking a slightly different kind of research, the aim of which must be to reveal and show the ways of thinking or so-called folk theories, which autistic people are guided by and which are important in the professional and social life of these people (as well as neurotypical people). Certainly such a key folk theory, which we all follow in our professional lives, is the image of the creative person we possess or, to put it more broadly, the idea of what it means to be a creative person. The folk theory we are talking about here is nothing more than the kind of tacit knowledge always held by a group of people. It is a system of beliefs and an internal standard of evaluation that forms a network of folk views that is used spontaneously to explain why we consider someone to be a creative person or in the course of making choices and evaluating a person's performance. To clarify the understanding of implicit theories, we propose to assume that they are a kind of folk conceptualisation and a kind of tacit knowledge always possessed by a group of people. They are also a rather unconscious system of beliefs that functions as an internal standard of evaluation in a particular field. In other words, implicit theories form a network of folk views, which are used spontaneously during explanations or in the decision-making process. The literature says that the

human mind is equipped with a whole range of such folk theories which, in various situations, influence our interpretations of encountered facts, behaviours or social situations, and also on the basis of which the mind formulates expectations, how something or someone should behave. For example, we are guided by an implicit image of the physical world, which builds up in us a system of expectations, such as that a pool ball in the middle of the table will only move if it is put in motion by another ball, or that physical objects do not permeate each other. It is emphasised that such folk theories often depend on the environment, culture, age, as well as psychophysical conditions and many other mental and environmental variables.

Our main task is to show a certain section of research on the folk theory of creativity and the creative person, carried out on a group of people on the autism spectrum. The study used the Test for Creative Thinking – Drawing Production (TCT-DP) model by Klaus Urban and Hans Jellen, but in an inverted version, in which the subjects did not draw, but chose the finished drawings. Their task was to select the drawings made by the most creative and least creative people and arrange them. The study also used a series of questionnaires to explore the sense of creative effectiveness and creative identity.

## **2. About autism socially**

The Autistic Spectrum Disorder is developmental disorder increasingly recognised around the world, which seems to be independent of such conditions as latitude, race or socio-economic status. An increasingly important issue is not only to determine the aetiological and epidemiological extent of autism, but also to undertake parallel research activities aimed at establishing targeted assistance to people with ASD. The modern world has not yet developed a uniform diagnostic system of the Autistic Spectrum Disorder. This fact explains the large discrepancies in the epidemiology of the neu-

rootypical phenomenon cited by individual countries. This difficult situation in the field of epidemiology is accompanied by diagnostic difficulties resulting from the hitherto unknown aetiology of autism. Today, there are two parallel classifications available to define this disorder. They even differ in the name of the disorder. The Diagnostic Criteria from DSM-5 define the phenomenon of autism as an Autistic Spectrum Disorder, eliminating Asperger's syndrome as a separate nosologic unit.<sup>1</sup> The classification of mental and behavioural disorders in the ICD-10 defines autism as a Pervasive Developmental Disorder, differentiating between Autism, Atypical Autism and Asperger's syndrome among others.<sup>2</sup> Other European countries use additional criteria, scales and tests, standardised in a given area, to help diagnose ASD. Diagnosis of ASD in Poland is burdened by the lack of any uniformity: both classifications apply, as well as non-standardised diagnostic tools. Currently, the Polish adaptation of the American ADOS2 diagnostic test gives some hope.

Creating favourable conditions for functioning in everyday life for people with Autistic Spectrum Disorder, both in terms of social interaction and the possibility of being a full-fledged student in the public education system, as well as an employee in the free labour market, is currently the most urgent need for normalisation of everyday life. The development of the modern world makes us face more and more challenges. What matters is not only whether we can handle it, but also how we handle it. Creativity is a feature that makes it much easier to cope with the rapidly changing challenges of today. It is a welcome feature both socially and professionally – at work and at school. Creativity enables society to develop, allowing it to achieve new and effective solutions. It is therefore a feature expected from all members of society, including from people on the

---

<sup>1</sup> *Kryteria Diagnostyczne z DSM-5*, Edra Urban and Partner, Wrocław 2015, p. 24.

<sup>2</sup> *Klasyfikacja zaburzeń psychicznych i zaburzeń zachowania w ICD-10, opisy kliniczne i wskazówki diagnostyczne*, Uniwersyteckie Wydawnictwo Medyczne Vesalius, Kraków – Warsaw 1997, p. 209.

autism spectrum. It is known that the functioning of neuroatypical people is different from that of neurotypical people, which is why researchers wanted to learn about the creative abilities of people with ASD. This knowledge will enable people with ASD, as well as their teachers, carers and employers, to work and function more effectively in their educational and professional lives.

### 3. Studies on creativity among children with autism

The first study on creativity in a group of people with ASD was carried out in 1972 by Utha Frith. In her study on creativity, she analysed the creative work of children with autism and children developing correctly. She concluded that there is a creativity deficit in children with autism.<sup>3</sup> Further research on the creative potential of people on the autism spectrum was conducted in 1999 by Jaime Craig and Simon Baron-Cohen.<sup>4</sup> The authors based their study on the definition of creativity formulated by John Flowers and Calvin Garbin. According to them, creativity involves generating, manipulating and transforming images to generate new representations. Using definition, a test procedure was created. Four groups took part in the study: children with autism, children with Asperger's syndrome, children attending a special school and showing learning difficulties, and children developing properly. The study showed that children with autism and Asperger's syndrome had lower results compared to the other two groups. The comparison of groups from the spectrum showed that children with Asperger's syndrome had higher results than children with autism. In the justification of the results obtained, the researchers put forward a hypothesis that deficits of executive functions are the cause of creativity deficits.

---

<sup>3</sup> U. Frith, "Cognitive mechanisms in autism: Experiments with color and tone sequence production", *Journal of Autism and Childhood Schizophrenia* 1972, no. 2(2), pp. 160-173.

<sup>4</sup> J. Craig, S. Baron-Cohen, "Creativity and imagination in autism and Asperger syndrome", *Journal of autism and developmental disorders* 1999, no. 29(4), pp. 319-323.

Their role is to supervise the process, which plays an overriding role in creating new creations. According to the researchers, this does not apply to children with Asperger's syndrome, because the results obtained do not differ from those of neurotypical individuals. This indicates a differentiation of the levels of creativity in the group of disorders on the autism spectrum, which would be contrary to the literature. "The Executive Function Deficiency Theory, developed by Sally Ozonoff, Bruce Pennington and Sally J. Rogers (ibid.), illustrates and explains the profiles of cognitive deficits in autism, especially the problems of planning, organisation, focus, working memory, impulse control, initiation, spontaneity and abstract thinking. Research by these authors has shown that executive function deficits are common to HFA and AS, and thus may be a cognitive deficit in all autism spectrum disorders".<sup>5</sup> The second part of the study was aimed at empirical verification of the conclusion reached on the basis of the results obtained in part one. This proposal concerned the deficits in the executive functions that children with autism displayed. The researchers wanted to know their relationship with creativity. The theoretical basis for this study was to distinguish creativity between its two types, real and imaginative. They understood real creativity as the ability to create new products, but real ones. As an example they gave an original dress design or a new chess move. By imaginative creativity, on the other hand, they meant the ability to produce creations, but based on the author's imagination, and not on the reality that surrounds them. An example can be an interesting story describing fictional events or a picture presenting unreal, abstract content. Based on studies by Utha Frith and Annett Karmiloff-Smith<sup>6</sup>, Craig and Baron-Cohen

---

<sup>5</sup> D. Dziedziewicz, A. Gajda, A. Wołowicz-Ruszkowska, „Myślenie twórcze dzieci z zaburzeniami ze spektrum autyzmu”, *Człowiek – Niepełnosprawność – Społeczeństwo*, Wydawnictwo Akademii Pedagogiki Specjalnej im. Marii Grzegorzewskiej, 2013, no. 4(22), p. 87.

<sup>6</sup> Cited in: J. Craig, S. Baron-Cohen, "Creativity and imagination in autism and Asperger syndrome", *Journal of autism and developmental disorders* 1999, no. 29(4), p. 322.

hypothesised that children with autism have a deficit in both types of creativity. This was also proved by the results of neuropsychological tests, which showed that the frontal lobes were damaged in persons on the autism spectrum, which resulted in deficits, for example in the area of executive function. Another confirmation is provided by the results of studies conducted by Tim Shallice<sup>7</sup> in 1988, also indicating deficits in the frontal lobe region. Four categories were distinguished in the analyses – the first three concerned real creativity, while the fourth category concerned imaginative creativity. The results showed that children with Asperger's syndrome provided the most frequent answers in the category of "additions or transformations" – 70.1% of responses. Children with autism most often gave answers in the category "manipulation" – 45.8%. The lowest number of responses of both children with autism and children with Asperger's syndrome concerned the category "fictional animation", where it was the most common category in the group of children with difficulties – 65.8% and children developing properly – 48.4%.

The study confirmed the hypothesis of executive function deficits, but it is not a homogeneous phenomenon within the autism disorder spectrum. In this group, there is a great diversity in the level of creativity.

In summary, the above studies on creativity levels in people with ASD show heterogeneous results. These differences are revealed in the case of originality and elaboration. Frith's research (1972) was based on the analysis of creative activity of people with autism and revealed a low level of creativity in this group. Analysing the above research, Dziejewicz, Gajda and Wołowicz-Ruszkowska (2013) pointed out that the problem may therefore lie not only in the heterogeneous picture of this phenomenon, but also in the measurement tools used.

---

<sup>7</sup> Cited in: J. Craig, S. Baron-Cohen, "Creativity and imagination in autism and Asperger syndrome", *Journal of autism and developmental disorders* 1999, no. 29(4), p. 322.

## 4. Implicit theory of creativity

Every person has the ability to create an implicit theory of creativity in the form of tacit knowledge, which we use spontaneously during our choices and evaluations. It is stressed that such theories described as implicit are always specific rather to some social, cultural or age group. They are significantly related to the group's thinking styles, perceptions of the world and system of social interaction, as well as to the group-specific personality profile (Niu and Sternberg, 2002; Rudowicz, Hui 1997). Most often, in order to reveal the so-called implicit theories, respondents are shown sets of adjectives that characterise creative people, and then asked to choose the most typical ones for a creative person, or street surveys are carried out in which participants are asked to choose the most creative people or professions (Rudowicz and Hui 1997). All this is to show what attributes are assigned to a creative person in a given research group, or what personality traits are associated with creative people, or what attributes should be carried by actions performed by a creative person.

In our study we used the Implicit Creativity Test (ICT) prepared by Arkadiusz Gut and Monika Chylińska. This method uses drawings made as part of the Test for Creative Thinking – Drawing Production (TCT-DP) by Klaus Urban and Hans Jellen. The Polish adaptation of this tool was developed by Anna Matczak, Aleksandra Jaworowska and Joanna Stańczak, which resulted in a method manual published by the Polish Psychological Association in 2000.<sup>8</sup>

The drawings used in the ICT tool were selected by specialists from the Polish Psychological Laboratory in Warsaw and were made by random people and evaluated by experts based on 13 TCT – DP assessment criteria. Four sets of drawings were prepared

---

<sup>8</sup> A. Jaworska, A. Matczak, J. Stańczak, *Rysunkowy Test Twórczego Myślenia KK Urbana i HG Jellena: TCT-DP: Podręcznik*, Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego, Warsaw 2000, pp. 15–16.

(5 images each), which are differentiated in terms of the scores given to individual drawings by experts. The task of the person examined is to indicate in each of the four sets the drawing whose author is the most and least creative and to justify this choice in a few words. The last task is to rank the drawings from the most to the least creative author. The participants received the following instructions: "We ask you to help us study how we understand creativity and how we describe creative people. In a moment you will see in front of you drawings (grouped into four sets), which were made by different authors. Before beginning the task, all authors received the following sheet with an unfinished sketch and received the following instructions: There is an unfinished drawing in front of you. The artist who started it stopped before they decided what was to be on it. Please finish this incomplete drawing. You can draw anything you want. No drawing will be bad. Anything you draw will be good. When drawing, please do not use an eraser, ruler or other aids. The sketch presented - as you will see in a moment - was augmented by the authors in various ways. Your task will be to assess which of the authors turned out to be the most and least creative in this activity. [...]" It is worth noting that the respondents assessed the creativity of the authors, knowing that the authors of the drawings made them on the basis of unfinished sketches, but did not know that these drawings had been assessed by someone before. The results of the choices made can be analysed both qualitatively and quantitatively. Open statements, in which the examined person justifies his or her choice of particular drawings, are subject to qualitative analysis.

## 5. Description of the test procedure

Research was carried out during an individual meeting with the person examined. The standard test conditions were met: the room was isolated from any noise that might distract the person being

tested. The workplace, or desk, was well lit. There was an answer sheet on the desk – all the pages bound together in one sheaf of documents. There was enough space on the desk to freely lay out the drawings from the individual test sets in front of the person being tested so that they could see them. The person being tested gave answers by writing them down. During the examination, the person being tested was shown four sets of five drawings each. The person's task was to choose the drawing by the most creative author and justify their choice, and then indicate the drawing of the least creative author. This scheme was repeated in each of the four sets of drawings.

## 6. Group description

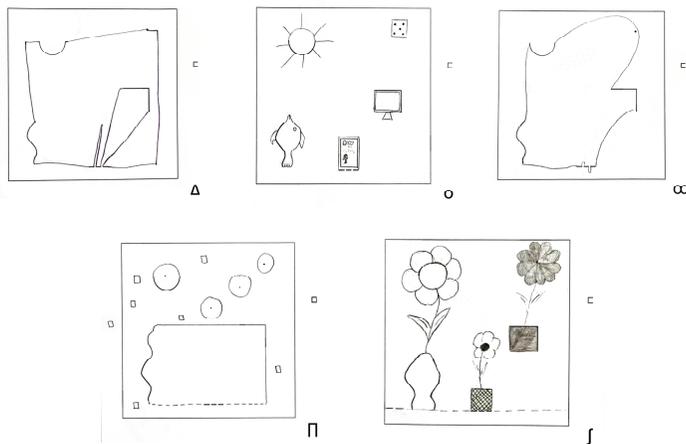
The research was conducted in the Voivodeship Specialist Children's Hospital in Olsztyn at the Centre for Autism Treatment Diagnostics and Therapy, in 2018–2019. The study covered a 40-person male group, aged between 12 and 26 years. The IQ of the studied group was in the norm, between  $II = 80$  and  $II = 132$ . The respondents were informed about the concept and purpose of the research. They consented to being tested. The results of the individual tests were sent to the respondents via email. All persons selected for the study group underwent psychiatric examinations. In this examination, the psychiatrist assessed the mental state of the person. Next, they then made a differential diagnosis in which they ruled out mental disorders and suspected disorders from the autism spectrum, with which the person was referred for psychological and pedagogical evaluation for confirmation.

The analysis of choices and answers – the results obtained in the Implicit Creativity Test (ICT) was divided into two parts. First, the frequency and the way of justifying the choice of drawings in terms of the most creative author was analysed. Then the frequency and the way to justify the choice of drawings in terms of the least creative author was analysed.

## 7. Results

The following are the test results for one set of drawings.

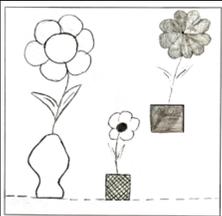
### set 1



The work of the most creative author for people on the autism spectrum was the drawing with the symbol ς, which depicted flowers. It was the drawing most frequently chosen. Out of 43 respondents, it was chosen by 19 people, which constituted 44% of the surveyed population. Each drawing was assigned a category with an appropriate number of points according to the criteria of Urban and Jelen's Test for Creative Thinking - Drawing Production (TCT-DP). Let us note that the most frequently selected drawing according to TCT-DP is characterised by such features as: continuations (5 points), additions (5 points), line connections (4 points) and thematic links (6 points). Individuals on the autism spectrum chose those drawings which, under the TCT -DP model, had high scores for line and theme connections not only in this set, but also in the other three sets. Additionally, when we calculated the ranking of all the draw-

ings, and thus the ranking of attributes assigned to these works, the two above-mentioned attributes were ranked highest. The respondents were also asked to briefly justify their choice in a few words. Examples of answers of people who chose the drawing with the symbol  $\int$  as the work of the most creative author in set 1 are presented in Table 1.

**Table 1.** Answers justifying the choice of the most creative author's drawing in set 1

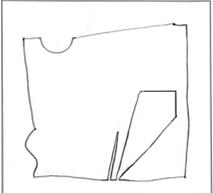
	Thematic consistency using the formula.
	The most coherent, logical, presents some concrete thing. The greatest effort went into making this picture.
	Most of the space is full compared to others.
	Its author is the most creative because they have made ordinary lines into an extraordinary picture.
	This drawing forms a whole, the others e. g. (oo and $\Delta$ ) are simply connected, and this one shows the same thing (a flower) in other versions.
	The author of the drawing is the most creative, because there is most work in this drawing, because it shows flowers and not figures.
	This author is, in my opinion, the most creative, because they can create 3 flowers with pots from 5 patterns.
In my opinion, the author of this picture does not only mean flowers, but maybe they hide some secret, maybe they just wanted to show off their artistic skills.	

Source: own compilation.

In the next step, the frequency and the way to justify the choice of drawings in terms of the least creative author was analysed. And so in set 1, the work of the least creative author was a drawing with the  $\Delta$  symbol, which represented an abstract figure. It was the drawing most frequently chosen. Out of 43 respondents, it was chosen by 18 people, which constituted 42% of the surveyed population. The respondents were also asked to briefly justify their choice in a few

words. Examples of answers of people who chose the drawing with the symbol  $\Delta$  as the work of the least creative author in set 1 are presented in Table 2.

**Table 2.** Answers justifying the choice of the least creative author's drawing in set 1

	□	Connecting lines without using them significantly and playing with them.
	□	It does not present any object of interest or anything inspiring.
	□	There is no ingenuity here. It is unclear what is shown in this picture.
	Δ	The author is less creative, because the figures are combined into one image.
	□	This drawing doesn't really fascinate me, because the shape of this object doesn't tell me what it is and where it is.
	□	[...] because they have only combined parts of the picture, the drawing is uncomplicated.
	□	[...] because this author's drawing is not easy to describe, what it is or who it might be, I suppose someone might have misinterpreted the task or simply did not feel like drawing.

Source: own compilation.

## 8. Conclusion

In this very brief and preliminary presentation of the conducted research on implicit theories of creativity in people on the autism spectrum, we can see an emerging profile of thinking about the creative person and the way of conceptualising creativity. It is clear from the choices made by people with autism that the works made by the most creative people are, according to them, the ones that contain, above all, many linear connections, are thematically linked and have elaborate details. If we look at the explanatory tendencies, we see that these people most often talk about thematic coherence,

elaboration, thematic combinations. Thus, both at the level of choices and responses, a fairly consistent model is revealed. The strength and significance of these findings is most evident when compared with neurotypical respondents. We have also conducted such studies and their preliminary analysis reveals that for these people, the most creative drawings are those that contain components classified under TCT-DP as unconventional manipulation and non-stereotypicality. The figure most frequently chosen by neurotypical people was drawing O (set 1). The selection of different drawings is a testimony to and an effect of paying attention to different stimuli and ranking based on implicit preferences (theories) of different features embodied in the drawings. Also, the explicit responses of neurotypical people contained different components. Justifying their choice of a drawing made by the most creative person, they believed that there were unusual components in these drawings, that there were many unrelated features, great variety or something previously unknown. This clearly contrasts with the statements of people on the autism spectrum who, as we have shown, appreciated the coherence, the thematic link and refinement, a clear sense or reference to what is known, and not just the idea itself.

In our deliberations, we also aim to prepare a top-down analysis and apply so-called divergent and convergent thinking to the statements given by people with autism of the Guilford model (1967). By applying this model of analysis to the obtained data, we can already see from the start that people on the autism spectrum tend to prefer the convergent model/thinking in their implicit theory, which manages their creative evaluations. This is because they prefer those authors who focus in their work (here drawing) on one subject, seek the relationship between the ingredients, refine what can also be found in reality, and at the same time tend to refine details. In other words, they value refinement and elaboration, normality and uniformity higher than dispersion, originality or diversity. It seems that these features are contained in their implicit creative theory and this set creates a framework within which works and individuals are assessed in terms of their creative component.

## Bibliography

- [1] Craig J., Baron-Cohen S., "Creativity and imagination in autism and Asperger syndrome", *Journal of Autism and Developmental Disorders* 1999, no. 29(4), pp. 319-326.
- [2] Dziedziewicz D., Gajda A., Wołowicz-Ruszkowska A. (2013), „Myślenie twórcze dzieci z zaburzeniami ze spektrum autyzmu”, *Człowiek – Niepełnosprawność – Społeczeństwo* 2013, no. 4(22), pp. 79-97.
- [3] Frith U., "Cognitive mechanisms in autism: Experiments with color and tone sequence production", *Journal of Autism and Childhood Schizophrenia* 1972, no. 2(2), pp. 160-173.
- [4] Jaworska A., Matczak A., Stańczak J., *Rysunkowy Test Twórczego Myślenia KK Urbana i HG Jellena: TCT-DP: Podręcznik*, Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego, Warsaw 2000.
- [5] *Klasyfikacja zaburzeń psychicznych i zaburzeń zachowania w ICD-10, Opisy kliniczne i wskazówki diagnostyczne*, Uniwersyteckie Wydawnictwo Medyczne Vesalius, Krakow – Warsaw 1997.
- [6] Krause A., *Relacja i doświadczenia społeczne osób z niepełnosprawnością-wyjściowe tezy dyskursu*, [in:] *Relacja i doświadczenia społeczne osób z niepełnosprawnością*, eds. Cz. Kossakowski, A. Krause, M. Wójcik, Wydawnictwo Edukacyjne Akapit, Toruń – Olsztyn 2009
- [7] *Kryteria diagnostyczne z DSM-5 desk reference*, Edra Urban and Partner, Wrocław 2015.
- [8] Lim H.K., Slaughter V., "Brief report: Human figure drawings by children with Asperger's syndrome", *Journal of Autism and Developmental Disorders* 2008, no. 38(5), pp. 988-994.
- [9] Moszyńska M., *Środowisko szkolne w narracjach uczniów z zespołem Aspergera*, Academicon, Lublin 2019,
- [10] Niu W., Sternberg R., "Contemporary studies on the concept of creativity: the East and the West", *Journal of Creative Behavior* 2002, 36: 4, pp. 269-288.
- [11] Prizant B., Fields-Meyer T., *Niezwyyczajni ludzie, nowe spojrzenie na autyzm*, Wydawnictwo Uniwersytetu Jagiellońskiego, Kraków 2017.
- [12] Rudowicz E., Hui A., "The creative personality: Hong Kong perspective. *Journal of Social Behavior and Personality* 1997, 12: 1, pp. 139-157.
- [13] Silberman S., *Neuroplemiona, dziedzictwo autyzmu i przyszłość neuroróżności*, Vi-vante, Białystok 2017.
- [14] Szymańska P., *Dziecko z Autyzmem. Dostęp do diagnozy, terapii i edukacji*, Raport Fundacja JiM, Łódź 2016.
- [15] Winczura B., *Autyzm na granicy zrozumienia*, Oficyna Wydawnicza „Impuls”, Kraków 2010.