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General or Specific Creativity? Individual Case

Abstract

The topic of the article is the dilemma of specificity versus generality of creative abilities and creativity in general, which is important in contemporary research on creativity. In the first part, the authors describe in a synthetic way the main theses of the supporters of the theory of specificity, and then – briefly – present a polemic with the theses of the supporters of the theory of generality of creative abilities. The main part of the text is a description of an individual case study (instrumental and descriptive), the work of a multi-disciplinary scientist and poet – Urszula Zajączkowska. The case study is structured around the answer to the question of what is the factor that allows her to create in various domains of creativity? In the final part, the authors present several conclusions from this and other studies and formulate postulates for further empirical exploration related to the hybrid research paradigm, referred to as the "third way" in research on the dilemma described here.

Keywords: specificity dilemma–generality of creative abilities, fields of creativity, hybrid theory of creativity, case study.

Twórczość ogólna czy specyficzna? Studium indywidualnego przypadku

Abstrakt

Tematem artykułu jest ważny we współczesnych badaniach nad twórczością dylemat specyficzności versus ogólności zdolności twórczych i generalnie – kreatywności. Autorzy w pierwszej części opisują w syntetyczny sposób główne tezy zwolenników teorii specyficzności, a następnie – krótko – przedstawiają polemikę z tymi tezami zwolenników teorii ogólności zdolności twórczych. Zasadniczą część tekstu stanowi

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opis studium indywidualnego przypadku (opisowe studium instrumentalne) twórczości wielodziedzinowej naukowczyni i poetki – Urszuli Zajączkowskiej, skonstruowany wokół odpowiedzi na pytanie o to, co stanowi czynnik pozwalający jej tworzyć w różnych domenach kreatywności. W końcowej części autorzy przedstawiają kilka wniosków z tego i innych badań oraz formułują postulaty dalszych eksploracji empirycznych, związanych z paradygmatem badań hybrydowych, określanych jako „trzecia droga" w badaniach nad opisywanym tu dylematem.

Słowa kluczowe: dylemat specyficzność–ogólność zdolności twórczych, dziedziny twórczości, hybrydowa teoria kreatywności, studium przypadku.

Introduction

For many years, there has been debate in psychoeducational research and scientific literature about the question of whether creative abilities, particularly outstanding creative abilities, and more broadly creativity, are general or specific. In other words, can one be exceptionally creative in two or more creative areas, such as poetry and computer programming, fashion design and philosophy, gardening and music composition? This dispute or dilemma is referred to as "specificity versus generality of creative abilities." Much attention is paid to it by researchers who advocate psychometric and cognitive approaches in modern psychology, pedagogy and sociology of creativity, a little less – by educators who emphasize the value of qualitative, biographical and narrative explorations of outstanding creativity. Both research groups use different data sources, which we believe is one of the reasons for the dispute. In this text we will briefly summarize and cite the positions of proponents of both the specificity and generality of the creative ability to outline the background to the polemic. In the next step, we present one of our studies, which has the character of a single case study and in which a "multidisciplinary creator" was involved. This is because our intention from the outset is to provide empirical justification to the general approach and to clearly represent creative activity and its determinants among creators working in two or more different areas. Because knowing the results of psychometric studies that justify the conclusions of supporters of the specificity of creative abilities, we simultaneously live in the real world, where we come into contact with many creators who, in the same year, published a volume of poetry, organized an exhibition of artistic ceramics, and developed a program of art workshops. If we meet a well-known sociology professor and read his books on qualitative research methodology, we can at the same time get to know his works in the fields of poetry (haiku) and digital collage making. As active participants in cultural and artistic life, readers of books and visitors to concert halls and theaters, we remember the achievements of "multidisciplinary" artists, to name just Stefan Kisielewski, Józef Hoffman or – the most spectacular example – Stanisław Wyspiański.

Creative abilities, especially outstanding ones, are specific

The problem of specificity/generality of creative abilities can be clarified by posing more specific questions (after Szmidt 2017):

- Are creative abilities general, the same or similar for a variety of fields of human creativity (e.g., in art, technology, social action, science), or rather different and specific to each of these fields?
- Can creativity be considered an anthropic constant, a general human developmental resource – such as, for example, industriousness, courage or tolerance – and can we speak of it as a force imbuing the most diverse human activities? Or is it rather specific, different in each form of human creative activity?
- Is a person creative, and especially outstandingly creative, in general, or only in strictly defined, narrow and rather few areas, and thus uncreative in other areas?

These questions give rise to further questions, perhaps more revealing, but de facto they all boil down to a basic dilemma: is/can a person be creative in one or a few narrow, proximal fields, or are/can they be creative in general? The answer to this question is important for educators for various reasons. First:

> if we recognize the specificity of creative abilities, we can give up building and developing theories of creativity as a general resource, searching in history, as well as in the practice of the modern day, for examples of truly creative people and creativity-evoking environments and generalizing their characteristics in the form of general patterns of education, which can negatively affect the explicative and descriptive function of creativity science (Szmidt 2017: 171).

Secondly:

> If, on the other hand, we recognize that people are creative in the widest variety of fields and that creativity as a general trait is the 'core' of their personality and creative life, just like other traits (resources) such as diligence, courage or openness to experience, then this justifies the sense of developing the concept of self-inventing, creative life independent of narrow specialization, self-creation and other theories emphasizing the personological dimension of this phenomenon (Szmidt 2017: 171).

Let us first give the floor to the proponents of the *domain-specificity* approach. The leading representative of this approach is the American psychologist John Baer (1993; 1998; 2010; 2012a; 2012b; Baer, Kaufman 2012), who has been trying to prove his point of view for many years and has many supporters among creativity researchers. Kaufman, Glăveanu and Baer (2017: 3) recognize the scientific importance of the dilemma discussed here and write: "The question of the extent to which creativity is a general or domain-specific ability is an important question in creativity research and is still being studied and debated." The findings of Baer and the proponents of his theory can be summarized in a few important conclusions:

- The main factors (components) of creativity are different depending on the field: different in mathematics and physics, and different in painting or poetry.
- "[...] there is no creativity outside the specific context and location of activities. Even laboratory studies using general measures of divergent thinking continue to collect data on [individualistic – see K. J. Szmidt and M. Modrzejewska-Świgulska] forms of creative expression" (Hollinger et al. 2017: 635).
- Outstanding creative achievements of one person in many different fields are the exception, not the rule. Only a few creators have achieved excellence in more than one field.
- Creativity in physics has nothing to do with creativity in poetry, according to proponents of specificity theory (Simonton 2010). James Kaufman's statement is similar: "Someone gifted in poetry would not necessarily be capable of composing music or solving mathematical problems" (Kaufman 2011: 56).
- Psychometric studies of individuals, including students at various levels of education, involving their writing a poem, solving or arranging a mathematical task, painting a picture or constructing a collage, clearly show low or very low correlations between creativity in these different areas (Teresa Amabile's Consensual Assessment Test technique (1996)).
- The results of this type of research make it possible to formulate a general thesis, which Jacek Gralewski clarifies on the basis of John Baer's publication, that "there are no general creative abilities conducive to creative activity regardless of the domain" (Gralewski 2022: 74).
- The results of psychometric research on the effects of creativity training show a very weak transfer of skills from one domain (e.g., poetry) to creative proficiencies in another domain (e.g., fine arts).
- Intrinsic motivation in different creative fields differs significantly. Likewise, extrinsic motivation, inspired by rewards, differs among artists working in such different creative fields as poetry and architecture, music and fashion, computer programming and teaching (Hollinger et al. 2017).

John Baer, overlooking the fact that prominent Nobel Prize-winning physicist Max Planck (1858-1947) was a talented musician, writes:

> If creativity is domain-general, then most people who are more creative than other people in one domain should also be more creative in other domains (Baer 2010: 324).

But this is not the case! Jacek Gralewski, reporting in depth on the dispute discussed here, claims that the position represented by Baer regarding the domain specificity of creative abilities "seems very radical" (Gralewski 2022).

> Furthermore, despite claims about the predominance of concepts that assume the specificity of creativity over concepts that assume its generality, […] there is a lack of research that clearly confirms Baer's views, regardless of the chosen level of creativity (Gralewski 2022:76).

Baer, moreover, attempts to moderate the domain-specificity position:

> The domain-specificity theory does not predict that people will be creative in only one domain. It merely says that the skills, knowledge, aptitudes or talents underlying creativity in different domains are different, and for this reason creativity in one domain does not predict creativity in other domains (Baer 2012a: 53).

We note that Bear is talking about one prognostic function of the theory – predicting the development of creative abilities – but not the other two: descriptive and explanatory. In our opinion, the theory of specificity of creativity fails in these two functions.

Creative abilities and overall creativity are general

Supporters of the theory regarding the generality of creative capabilities argue that the majority of research indicating the specificity of creative abilities is carried out within the confines of one particular approach – psychometric. This method typically involves the use of creative achievement assessments, personality inventories, and evaluation methods for creative outputs, which are then analyzed through correlational or, in more ambitious cases, factor analysis (such as the CAT Amabile technique and the *Creative Achievement Questionnaire* – CAQ mentioned earlier). Consequently, these studies exhibit numerous limitations associated with this methodology. As pointed out by one of the scholars referenced in a previous literature (Szmidt 2017), participants in these studies, which may include students, are tasked with completing various divergent creative assignments within a limited timeframe, such as composing a poem, solving a mathematical problem, creating a collage, or producing an artwork. These creations are then subjected to a rather complex evaluation by specialists in the field, who are considered experts. These grades are compared and averages are drawn when there is a high rate of agreement between the grades (e.g. 0.7-0.9). Not surprisingly, in a classroom setting, in creators' studios, in a tense testing situation, many test subjects are unable to arouse a high level of motivation to solve these tasks, and interdisciplinary comparisons perform poorly.

The authors of this text are most puzzled by the fact that the promoters of the theory of specificity do not recognize in the socio-cultural and artistic environment students and adult creators who, while being good physicists and mathematicians, are also musically or literarily gifted, who have social skills and are also artistically or vocally gifted (Szmidt 2023). Moreover, they often seem to be blind and deaf to the history of creativity in its various fields, in which it is not so uncommon to find outstanding "poly-disciplinary" artists, to name just Michelangelo, Leonardo da Vinci, Stanisław Wyspiański and Witkacy. We have doubts that knowing Witkacy's biography and his childhood and adolescence in the specific cultural and artistic environment of Zakopane, analyzing his early artistic or literary works, one could not,

as Baer wants, predict the later development of his creative abilities in such diverse fields as painting, photography, philosophy, drama?

American researchers who support the specificity theory are unaware of the achievements of their fellow Polish scholars, such as Józef Kozielecki, who was not only a psychologist but also an author of short stories and novels[1], or Edmund Wnuk-Lipiński, a sociologist who wrote many publications on the sociology of leisure and culture, as well as science fiction novels[2].

When proponents of the specificity thesis give examples of the uniqueness of creative abilities in multiple fields in the same person, they typically cite examples of geniuses, of which there have been few in the history of art or science (favorites include Johann Wolfgang von Goethe, Michelangelo, and Leonardo da Vinci). They do not, however, identify artists of the professional or master level, who were innovative in a wide range of fields and were often geographically dispersed.

Studies in other directions – biographical, case studies, narrative, autoethnographic and those using mixed-methods and art-based approaches – provide data that contradict domain-specificity theory. This is because they take into account not the results of several-minute creativity tests, in which one has to put together a collage or write a haiku, or standardized techniques for assessing creations, but analyze the authentic creative achievements of the people under study – actual creativity. And then it turns out that cases of creative people, sometimes outstandingly creative in very different fields, are not as rare as Baer's theory predicts.

This empirical fact is well illustrated by the case of a creative person in various fields, which we presented here.

Crystallized general creativity – an individual case study

The study briefly mentioned herein was conducted adhering to the assumptions of an individual case study within the creative sciences, specifically an instrumental descriptive study. Our focus lies on the diverse creative endeavors pursued by a particular person. Our investigation involved a reconstruction of the context in which she engaged in multidomain creative activities. Consequently, we addressed the subsequent research inquiries: What are the origins of multidomain creative activities? How does the creative process unfold at the intersection of multiple creative domains? In what social contexts does multidomain creativity manifest itself? The purpose of our research is to provide a detailed description of the phenomenon under study – general creativity. This is served by triangulation of qualitative methods of collecting information by means of: a partially structured interview with the creator (see the list of dispositions in the appendix to the article), analysis of documents available on the Internet, consideration of creative products only as an exemplification of creati-

[1] See Kozielecki 1979; 2002.
[2] See Wnuk-Lipiński 1979; 1988; 1989.

ve activities undertaken (see Stake 2009; Modrzejewska-Świgulska 2014; Yin 2015; Chmielińska 2017; Okraj 2019; Chmielińska A., Modrzejewska-Świgulska 2020).

Scientific inquiry extends beyond the confines of the laboratory, as researchers immerse themselves in their chosen subjects, seeking validation in the world around them. In our midst, we encounter individuals who excel in diverse domains – a physicist, a dancer, a skilled draftsman and painter, a writer nominated for the Nike Award, a researcher, a literary expert, and an amateur artist. The spouse of one of the authors, Jacek Świgulski, a champion in Polish track cycling, is a respected local artist who is actively engaged in promoting and teaching art. Apart from his artistic pursuits, he also delves into culinary experiments, meticulously documenting over 70 culinary creations in his *journal of flavors*. This narrative sheds light on the concept of crystallized creativity, exemplified by the multifaceted endeavors of a researcher and artist, esteemed in scientific and literary circles alike. The selection of Urszula Zajączkowska as the focal point of this discussion is based on her tangible accomplishments and accolades in both scientific and artistic realms.

The portrait of Urszula Zajączkowska presented here was based on an analysis of the following materials:

- professional biographies included in the researcher's publications and information found on the Internet (see Table 1);
- interviews, lectures and online videos featuring the researcher-artist (see Table 1);
- a thematic online interview conducted by Monika Modrzejewska-Świgulska, based on a list of directives, in September 2023 (see appendix to the article), from which quotations hereafter in the text are denoted as WUZ;
- a reading of the essay *Patyki, badyle* [Sticks, stalks] (2019) and the poetry volume *Piach* [Sand] (2019) by Urszula Zajączkowska.

Urszula Zajączkowska is a botanist, researcher, poet, visual artist, musician, a graduate of the Faculty of Forestry at the Warsaw University of Life Sciences and the Academy of Film and Television, majoring in editing, and a professor at the Independent Department of Forest Botany at the Warsaw University of Life Sciences (see Table 1). When asked by Adam Poprawa of the University of Wroclaw: "Who do you think you are?", Urszula Zajączkowska stated:

> A savage. I consider myself a person who is bothered by everything and everything is in excess, and who seeks refuge in various forms, precisely in creativity and at the same time produces wildly. That's the kind of person I feel. [...] and at the same time I feel best in the forest and the library (VII World Congress on Polish Studies 2021).

The presented description of Urszula Zajączkowska's creative activity consists of two parts – a table of achievements and an attempt to refer to her statements from interviews, including the one conducted for this article. In the table below, we list the fields of creative activity of the researcher-poet, along with the products attributed to them. We also include information about achievements and awards for scientific and artistic activity (see Table 1).

Table 1. Areas and examples of creative activity of Urszula Zajączkowska

Areas of creative activity	Products within the field	Achievements and awards
Science – botany	• research on growth, anatomy, movement and death of plants, their aerodynamics and biomechanics • articles, research projects	• 2004: Ph.D. – based on the dissertation *Regeneration of the stem of Scots pine (Pinus sylvestris L.) after injury* • 2017: habilitation in the specialty of forest botany on the basis of the dissertation *Formation of reaction wood during gravitropic response of trunks of young trees of common spruce Picea abies (L.)* • 2016, 2017: individual award of the third level of His Magnificence Rector of SGGW for scientific achievements • 2018: individual award of second level of HM Rector of SGGW for scientific achievements • 2017: Bronze Medal for Long Service, Award of the President of the Republic of Poland
Literature	• **Poetry** – books of poetry – *Atomy* [Atoms] (2014) – *Minimum* (2017) – *Piach* [Sand] (2020)	• the book of poetry *Atomy* nominated for the Wroclaw Silesius Poetry Prize, won an honorable mention of the 11th National Literary Contest "Złoty Środek Poezji" [Golden Mean of Poetry] (2015), for the best debut book of poetry of 2014 • *Minimum* nominated for Silesius and for the K. I. Gałczyński Award, awarded with the Kościelski Award • "New Books" award for the book of poetry *Piach* • Urszula Zajączkowska was promoted by the Book Institute as part of the New Books from Poland 2020 campaign[3]
	• **Essay** – *Patyki, badyle* (2019), published by Marginesy – columns published in the magazine "dwutygodnik.com" and in the quarterly magazine "Przekrój" – afterword to the book *The Origins of Woman* (2023) by E. Morgan, "Other Constellations" series, in which readings recommended by Olga Tokarczuk are published	• *Patyki, badyle* – the book won the Golden Rose Award of "New Books" and the Festival of Science and the Gdynia 2020 Literary Award in the essay category • Polityka's Passport nomination for *Patyki, badyle* • nomination for the Witold Gombrowicz Award for *Patyki, badyle*

[3] See *Rozmowa z Urszulą Zajączkowską* [Conversation with Urszula Zajączkowska] (2020).

Areas of creative activity	Products within the field	Achievements and awards
Film	**Experimental film** *Metamorphosis of Plants* (2016) created with inspiration from J. W. Goethe's work of the same title	• the film won the SCINEMA International Science Film Festival in the category of best experimental film/animation • was also awarded at the Miami Festival of Light
Visual arts, music	group **art project** *Cambium Killers* – this is an objection to the point system of evaluation in science	• numerous congratulatory posts posted on the site by scientists and visual artists (see *Cambium killers project*)
Dissemination and animation of culture and science	• originator and curator of the *Znaczenia* [Meanings] Literary Festival, first edition - September 2021, Wołomin • "*Znaczenia* Festival is built around one book. [...] Unlike most awards, in this case the most important criterion for selecting a book will be its ability to initiate discussion, stimulate action and bring people together" (https://znaczenia.pl) • originator and founder of the popular science website botanik.pl • columns, lectures on botany, ecology (available online)	• in 2022 and 2023, further editions of the festival were held, so it is already a permanent part of the cultural map of Wolomin, and the festival's chapter includes recognized Polish writers

Sources: Zajączkowska (2015; 2019; 2020; 2022a; 2022b), *VII Światowy Kongres Polonistów* (2021), *Rozmowa z Urszulą Zajączkowską* (2020), *Festiwal Literacki „Znaczenia"* (2023), https://znaczenia.pl/ (access: 09.2023), (2023), Wikipedia (2023), SGGW (n.d.), *Nagroda im. Wisławy Szymborskiej* (2020).

Creative „marriages" of Urszula Zajączkowska

In an interview, when asked which of the creative fields she would indicate as a priority, Urszula Zajączkowska states that she cannot answer unequivocally, because it is a "marriage of two perspectives – literature and science" (*Rozmowa…* 2020)[4]. Piotr Szewc, editor of the poetry and prose section of New Books, comments on this "marriage" of the author of *Piach* as follows:

[4] Vladimir Nabokov, best known as a writer of novels and short prose forms, was also a lepidopterologist, an expert, researcher and collector of rare butterfly specimens, author of new classifications of these insects and many scientific articles.

> Urszula Zajączkowska uniquely combines [emphasis K. J. Szmidt, M. Modrzejewska-Świgulska] in her works a deeply humanistic message with the natural world, which she knows as a botanist. Plants, animals, creations of nature appear in her poetry endowed with subjectivity, equal in their existence with human life and organically united with it. (*Rozmowa*… 2020).

According to Urszula Zajączkowska, scientific and literary perspectives can interact and complement each other, she says in a conversation with SGGW Main Library Director Wojciech Woźniak: "it is possible to combine what seemingly cannot be combined" (Zajączkowska 2022a). In our opinion, these two perspectives feed into each other, that is, they form this "marriage" of two perspectives/languages[5]. The same theme also surfaces in the interview for our study:

> The language of science makes it possible to organize the chaos of thoughts, but this is not enough for me, I need other languages to describe the world, words and sounds and images, and they are still imperfect to capture the essence and beauty of the natural world (WUZ).

The Narrator further adds:

> Science helps calm you down when you realize that there are billions of atoms in a scrap of hair, a fingernail, which used to be air, a leaf, a dog's hair. This brings a sense of peace, gentleness, openness to what is happening in nature, and awe of its primordial essence. Anyway, this feeling can be drawn from both science and literature.
>
> The language of science is concrete, it is simple, and this is its advantage. Poetic language, in contrast, is non-quantifiable, its intuitiveness allows you to tell what cannot be contained in the language of science. Poetry, essay writing, all forms of creativity are intuitive, they give a chance to touch another reality, to express delight. Poetic language allows one to follow intuition, to pose seemingly naive questions that can become the beginning of discovering the mystery of the plant world, to delight in something seemingly obvious (WUZ).

She further explains:

> Thanks to poetry, I trust my impressions more, allow myself to get emotional about science, and reach for topics out of 'love' for nature, curiosity and passion. When I start to get bored, I experiment with new research topics, but also new literary forms (WUZ).

[5] It is worth citing here the book by Alina Motycka, who titles one of the subsections – "Is science the work of reason?" In it, the author describes the situation of natural science, for which physics was the basic science, the changes that occurred in 20th century science shook "the Newtonian paradigm of classical physics, which was in force in natural science. […] Nevertheless, the outlining contours of the new paradigm and the role in it of the biological sciences still remain on the far horizon of expectations in this regard" (Motycka 2005: 241). We think that Urszula Zajączkowska's perspective on the practice of botany fits into the new paradigm in the biological sciences.

Thus, the creative "marriage" allows for "concrete in poetry,"[6] or "looking for something strong and real when writing columns," helps "clarify poetic utterance, provides themes and simplifies thoughts" (Zajączkowska 2022). In research, on the other hand, thinking in literature, in poetry, according to Urszula Zajączkowska, gives courage to experiment with new topics and research questions ("I have never repeated research") and to get bored ("Boredom is the key to creative exploration") (Zajączkowska 2022), to follow intuition and to open up to the ambiguity and unknowability of the world:

> When I don't get answers in my research, I'm even glad, because it's as if I haven't touched the foreboding mystery of the world[7] (WUZ).

It seems that what motivates reaching out and combining different languages is the delight in the mysteriousness and beauty of the world. This is what Urszula Zajączkowska says about it:

> When it gets to me to how much beauty surrounds us, the language of science is no longer enough (VII World Congress of Polish Studies 2021).

Similarly, Olga Tokarczuk in *The Tender Narrator*, when she writes about her motivations for writing, invokes Orwell's term – "aesthetic enthusiasm."

> If I understand it correctly [the term is aesthetic enthusiasm, added by K. J. Szmidt, M. Modrzejewska-Swigulska] – states the Nobel laureate – it is about a kind of inner stirring caused by the order of the world, by what we call beauty and harmony. The aesthetic experience is sometimes so powerful and overwhelming that it demands the expression of something seemingly impossible - to match it with words and express this experience (Tokarczuk 2020: 130).

Is it precisely "aesthetic enthusiasm" that motivates Zajączkowska to search for a language that would capture "the extraordinary complexity of the surrounding world" (WUZ), as she puts it? She stresses that "science should sensitize itself to listening to other languages" (WUZ). Is this why the researcher combines scientific and poetic thinking, to expand her language of describing what surrounds her? Perhaps it is the awe, the curiosity about the world, that is the force that imbues the researcher-poet's work, that is the core of the successful activities she undertakes in various creative fields. When asked about the base ability for her creative activity in various fields, she considers such a synthesis of curiosity, wonder and awe of the surrounding natural

[6] As in the opening poem of the poetry collection *Piach* [Sand], we would call this a concrete metaphor: "I don't want to get up on these two legs at last, when I'm all snazzy in bed, weeping, dawdling, flattening myself, pomegranate cowering and nothing" (Zajączkowska 2019: 5).

[7] In the common avenue of scientific consciousness, we have an ingrained belief in the power of formalized and analytical naturalistic research, which we do not dispute. However – is this enough? Such thinking is still accompanied by the myth of the objectivity of laboratory research – and yet behind the microscope is a human being with emotions, experiences and desires. We are convinced that this paradigm of doing science is no longer enough. As Urszula Zajączkowska says, it is time to use other languages as well, perhaps precisely the intuitive language of poetry (cf. Motycka 2005) or even the unconscious and magical thinking (Motycka 1998).

world and the need to observe its beauty. In *Patyki, badyle* (Zajączkowska 2019), this curiosity and admiration, among other things, take the form of numerous questions, which are an expression of both scientific and poetic sensitivity:

> I find it amazing how water flows silently through plants (Zajączkowska 2019: 26).
>
> Why do the buds in the chestnut tree have such sharply pointed stems, sitting atop gently flowing, smooth branches? Why do the leaves mimic the shape of a human hand, yet when they come together to form the crown, they lose their resemblance to a human? How many lines, curves, and tangents are needed to capture the essence of the shape of one? How can we appreciate the dynamic growth and change of a tree as it experiences a multitude of events throughout its life? (Zajączkowska 2019: 54)

Urszula Zajączkowska considers as a "natural" ability the need to record her observations in words, which finds an outlet in both scientific and literary activity.

So, answering one of the questions of our exploration, we answer that curiosity about the world and literary abilities can be considered as base competencies for the work of the researcher-poet.

> I admit that since I was a child – recalls Urszula Zajączkowska – I used to sit under the quilt and describe what was happening around me, what I heard and what I saw. I think that curiosity, the world, my mobility, climbing trees and writing are natural for me, it came easily to me. So I write and explore nature (WUZ).

The narrator identified as additional predispositions that enable her to speak in the languages of different fields:

- confidence in one's own understanding of the world, and consequently ease in dealing with criticism: "back in school I didn't worry about critical opinions, that's probably why I easily endure academic failures, rejected texts, and there are about 80% of them."
- life energy to take on new challenges and hardworking,
- creative imagination and fantasy.

Not insignificant for the development of interests, choice of studies and literary abilities, is the family context. Urszula Zajączkowska's parents have a strict education, her mother was gifted with "sensitivity to the written word" and is the first reader of her texts. Her grandmother, on the other hand, was a poet, and described her war experiences in her poems.

"Mirage" in Urszula Zajączkowska's work is not only about combining poetic and scientific language, rather, we can speak of a general ability to combine, to creatively combine, to juxtapose different perspectives, languages, fields of creativity. We can also see it in:

- applying the film method to the study of plant kinetics,
- creation of experimental films using the effects of laboratory research on observation of the plant world,

- an art project in the field of visual arts and music, which is a critique of the point system of evaluating academics, this project combines word, image and music performed by Urszula Zajączkowska,
- ongoing research in collaboration with various academic communities,
- the search for similarities between playing the flute and riding a motorcycle, which Urszula Zajączkowska believes develops her concentration and attention[8].

Summaries and questions for further research. A third way?

Arguably, the ability to combine opposites allows creative activity at the intersection of different fields, as evidenced by the case study of a multidisciplinary artist we presented in a brief manner. This proficiency can be considered an important ability to reconcile what is metaphorical, fanciful, imaginary, intuitive with what is explicit, precise, quantifiable and strict. To put it more precisely: two in one – metaphorical thinking plus analytical thinking. According to Temple Grandin (2023), we learn about the world not only through language, but through images, and both cognitions can be very revealing and rich. Although in school we are mainly exercised in the former language. We wonder: do multidomain creators such as Urszula Zajączkowska, in order to better understand the world, solve cognitive problems and answer open questions in the strict sense, freely combine verbal, sequential, linear thinking with visual, pictorial, metaphorical thinking? Is the consequence of this skill (ability) of creative combination an intensified need to search for adequate, expanded language to describe one's experiences and to undertake creative activity in various domains of creativity? We think these are pertinent questions for further research, especially since one of the leading researchers of creativity, Dean Simonton (2017), recognizes the ability to create new combinations (generating of new combinations) as common to different domains of creativity.

This, as well as other individual case studies we have done (Chmielińska, Modrzejewska-Świgulska 2020; 2021; Modrzejewska-Świgulska 2014; 2018; 2019; Okraj, Modrzejewska-Świgulska 2018; Szmidt 1999; Szmidt, Modrzejewska-Świgulska 2020; 2021), authorize us to formulate several conclusions, which we hope have heuristic value and can inspire further research. Here are the most important of them:

- We recognize that certain cognitive and creative expressive abilities are specific to a particular field of creativity: for example, verbal expressive fluency, the ability to create linocuts, the ability to construct spatial sculpture, or the ability to create dance arrangements. However, we think that many abilities, but also traits and characteristics of the creative personality, are of a general nature, being able to materialize in the most diverse fields. Such qualities (character traits, mental abilities) include: open-mindedness, cognitive curiosity and the ability to discov-

[8] We realize that it is difficult to cover such a variety of creative activity in a few pages, something always escapes, goes unnoticed by researchers.

er important questions (questioning thinking), love of novelty, non-conformism, originality of thinking, delight in the complexity of the world, persistence and fierceness. These can be considered the core of creativity in its various, often very distant fields. The case of the creator we presented demonstrates yet another "core" ability - to synthesize (combine) two different materials, languages or matter into an original whole.

– These qualities (traits, abilities, skills) make it possible to speak of a person as creative, and of creativity as a lifelong or even lifewide attitude. If we concede John Baer's point, the consequence is a pedagogical postulate not to organize general creativity training and classes to stimulate general creative abilities, but only specialized exercises to improve the ability to make collages from colored paper or create advertising slogans for lactose-free milk. Teaching basic but general creative skills needs to be suspended.
– "Moreover, heuristics are pointless! It doesn't make sense to create new, general heuristic methods for solving a variety of divergent problems that come from different fields. Such programs as "Odyssey of the Mind" are devoid of pedagogical value! Moreover, general education is irrational!" (Szmidt 2017: 175).

Perhaps John Baer and his colleagues have a point, which is substantiated by some empirical findings which show that statistically speaking, creative abilities at the highest level tend to be found in one or a few similar domains (e.g., using verbal or pictorial material), while average abilities tend to be found in a wide variety of domains. This thesis provides the impetus for the so-called hybrid theory, which assumes that "creativity requires both general, that is, domain-unspecific, and specific creative abilities" (Gralewski 2022: 76). This theory is seconded by the developmental approach, according to which "the contribution and importance of specific creative abilities to a person's creative achievements increases as the person moves to higher and higher levels of creativity, that is, as he or she gradually engages in a particular creative field" (Gralewski 2022: 76). Simply put – the more outstanding the creativity, the more specific abilities and competencies involved. Both theories are meant to provide a "third way" in the dispute between proponents of the specificity and generality of creative abilities.

We express our conviction that creativity viewed (described, studied, stimulated) as a general characteristic makes sense! Treating it in this way prevents extreme tendencies that reduce creativity to atomized empirical categories (e.g., "conceptual cores," "categorization of words," to five, six or seven main factors or cognitive operations). Using it in a general sense still allows the study of creative people and their creations in different, rich and broad biographical, social, cultural and individual contexts, as called for by contemporary researchers (Glăveanu 2023). It does not reduce the study of this phenomenon to three-minute tests in which creators are expected to write a three-word poem about a rose, arrange a collage from ten circles, or solve a mathematical task that has the character of a cognitive trap.

We also see a certain inconsistency in the domain-specificity position. While conducting research and emphasizing, in our opinion excessively, the weak connec-

tion between creative abilities in different domains, Baer – moving to pedagogical positions – at the same time appeals:

> To improve children's creative thinking skills in general, we need to focus on a wide range of different skills, often domain-specific […]. It is important that activities aimed at educating, promoting and developing creativity come from the broadest possible range of disciplines (Baer 2012a: 57).

To what end?

To the supporters of the theory of the specificity of creative abilities, in addition to the heroine of this text – Professor Urszula Zajączkowska, we can finally point to the example of their colleague, a well-known researcher of creativity, author of seventeen books and one hundred and twenty scientific articles in the field of psychology and pedagogy of creativity – Keith Sawyer. He is at the same time a designer of computer games, a manager of tech companies, a professor of creativity science and for forty years a jazz pianist. Is Professor Sawyer a single-domain or multi-domain creator?

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Appendix

Table 2. Stages and directives for a semi-structured interview with Urszula Zajączkowska (WUZ)

General structure of the interview	Directives for the various stages of the interview
Stage 1. areas of creativity and their sources	1. fields of creativity practiced by the creator 2. the field considered a priority by the creator 3. the most important circumstances/events, people met relevant to the field of science/art practiced 4. currently the most important field recognized by the creator 5. history of "discovery" / interest in other fields 6. cultivation of a variety of fields of art in the opinion of the creator: – importance of practicing one field over another – difficulties associated with creating in more than one field – benefits associated with creating in more than one field – environmental factors that help to create in several fields simultaneously – the way of working / organization of work important for reconciling different fields
Stage 2. creator's resources to deal with diverse fields	1. predispositions, abilities, talents that make it possible to deal with a variety of fields 2. competence, knowledge, skills that help to create in two or more creative fields that differ significantly from each other 3. core of creativity / the most essential qualities that make it possible to master diverse fields
Final stage 3. sending the study/portrait of the creator (communicative validation)	1. corrections by the creator

Source: own research.

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