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## Education Through Nature (and With Nature) as the Source of a Child's Resilience: The Educational and Healing Context of a Forest

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### **Abstract**

The objective of the article is to present the healing and educational properties of a forest in the context of the digital and consumerist reality of the 21st century and to discuss education for resilience as a specific kind of mental strength, inner power, and ability to cope with obstacles by using one's own resources and reaching for social support. The research question was formulated as follows: What is the role of education through nature (and with nature) – an important element of which is a forest – in developing and reinforcing resilience in children? The choice of subject is justified by the social and cultural changes, which force a person to face new challenges and expectations. The dynamics of those changes leaves the modern person little time to think about, try to understand, and give meaning to the new conditions of life. Resilience may be a construct that facilitates adaptation to the changing and fragile reality and it may be developed and reinforced through contact with nature, that is, in a forest. In terms of its methodological aspects, the article includes research of a theoretical nature. The author has carried out a synthetic and analytical review of selected books, as well as an analysis of the existing data related to the issue in question.

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*Keywords:* resilience, forest, education through nature, functions of forest, social and cultural changes

## Introduction

Each era has its individual rhythm and atmosphere which determine the conditions for humans' existence. Compared to previous decades, the present day – marked by the experience of the COVID-19 pandemic and the Russian military invasion of Ukraine – seems to be uncertain, fragile, and impossible to control. Social and cultural changes have always taken place, but today they are especially radical, unpredictable, and complex, resulting in new events and social problems. Those changes leave the modern person little time to think and keep up with them, as a result of which it is hard to understand and give meaning to the unstable conditions of existence. Also, new expectations, requirements, and challenges appear with regard to the education of the younger generations. We need to prepare them for what cannot be predicted, which involves developing the ability to adapt and adjust – which is necessary in the “society of risk” (Błasiak & Dybowska, 2021, p. 59).

Therefore, an increasing number of people are interested in mental resilience and the proper development of the youngest members of society, tools which are needed to support children's functioning in the “inhospitable reality” marked by various kinds of risk. The notion of *resilience*<sup>1</sup> is becoming more and more popular in the social sciences. It is perceived in the categories of specific resilience and adjustment to living among different obstacles and challenges, understood as a kind of art of living in the changing conditions of the modern world (Konaszewski, 2020). That is why the possibility of implementing this construct in education is explored in both pedagogical theory and practice.

Also, social and cultural changes result in the fact that the contemporary “narrative of life” is largely shaped by accelerated globalization,

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<sup>1</sup> In Polish scholarly publications, we can find the original term “resilience” or its Polish version, “rezyliencja,” to describe the same phenomenon.

omnipresent consumerism and individualism (a dominance of the culture of I), and the development of new technologies. The phenomenon of abusing new electronic media is also widespread, which leads to media exhaustion or digital addiction among children and youths. One of the ways in which we can tear young people away from virtual reality is to encourage them to have contact with nature, which may help them maintain a mental, physical, and spiritual balance and to avoid digital fatigue (Błasiak & Wilkosz, 2020). To this end, we can focus our attention on pedagogical concepts such as *outdoor education*, *adventure education*, the pedagogy of experiences (*Erlebnispädagogik*) (Bağ et al., 2014; Beightol et al., 2012; Brendtro & Strother, 2007; Michl, 2011; Neill & Dias, 2001; Palamer-Kabacińska & Leśny, 2012), or forest or ecological education (Cichy, 2003; Tuszyńska, 2006). These ideas are based on action-oriented learning and experiences in the natural environment, so that a student can feel like a part of nature and not someone who is separated or alienated from it. "A person should not be *alien* in the world of nature, just like nature should not be a hostile threat to them" (Gola, 2016, p. 57).

The objective of this article is to present the health and educational values of a forest in the context of living in the virtual and consumer reality of the 21st century and to describe education for resilience as a kind of mental resilience, inner power, and ability to cope with obstacles by using one's own resources and social support. The research question was formulated as follows: What is the role of education through nature (and with nature) – an important element of which is a forest – in shaping and reinforcing resilience in children? The reason for discussing this issue is the fact that a modern child's experience includes too little nature and physical activity and too many strong, unilateral impulses (mainly visual and auditory) from the "artificial world" of the media. Digital civilization overemphasizes the importance of instilling in children cognitive and intellectual competences, ignoring aspects of physical, social, and emotional development, which are important factors of our ability to adapt. That is why children are exposed to the risk of various disorders in development and individual functioning (Błasiak & Wilkosz, 2020).

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During the day, children spend most of their time in small rooms, both at home and at school or kindergarten, which limits their freedom to move and be active. Their main experience includes passivity, consumption, and a lack of movement, independence, and creativity. Also, they do not have much real interpersonal contact because there is not enough space to move and act. Contemporary children have been described as “children from the box” (Louv, 2014, p. 53) because they mainly spend time sitting in chairs, in front of computers, at school desks, or in other places where they must remain passive. When taken outdoors, they are still placed in the “boxes” of strollers, to be pushed around by their parents. Nowadays, children’s activity is very limited.

That is why it is very important to make people aware of the need to interact with nature and to make use of its benefits (Fuller et al., 2013), as well as the need to live according to nature and its rhythm and to protect our climate (Tuszyńska, 2006). J. A. Komeński (1956) also emphasized the need to seek contact with nature in education. He stressed that “we have to teach people within the broadest possible boundaries; our wisdom should not be taken only from books, but from the sky, earth, and oak and beech trees” (p. 3). A child faced with the challenges of nature takes action, crosses boundaries, overcomes obstacles, takes up challenges, makes decisions, takes risks, follows their chosen path, and finds creative solutions, supporting the development of their personality. Such educational activities refer to studying within the category of resilience. In this way, students are supported in the process of understanding themselves and others, increasing their faith in themselves, explaining the surrounding reality, and taking up challenges and effectively overcoming obstacles. This, in turn, leads to a stronger sense of agency and trust in their own powers and abilities, higher responsibility, self-awareness, and self-esteem, and a positive attitude toward the world, which makes them feel brave enough to overcome obstacles (Brendtro & Strother, 2007). A child has the opportunity to discover their interests and limits, to recognize the strength of their will, and to overcome their weaknesses. Also, in a natural educational environment, there is no pressure from competing with others or being assessed. Instead, a child can enjoy being in

a group with other students, which facilitates their cooperation and teamwork. They can meet face-to-face and talk, open up to one another, build mutual trust, support, and care for one another, and take responsibility for others; this shapes attitudes in children and helps them accept and internalize specific values.

In terms of methodology, the article falls within the scope of theoretical research. The author has carried out a synthetic and analytical review of selected books, as well as an analysis of existing data related to the issue. The descriptions included in the article represent one way of interpreting the phenomenon, but they do not constitute the only and decisive solution.

### **Resilience – A person's inner protection against uncertainty and changeability**

The complexities of postmodernism prompt us to reflect on people's ability to adjust to living in an increasingly difficult and uncertain world in order to maintain a balance in development and functioning, as well as general well-being. In this context, in the social sciences, humanities, and medicine, the concept of resilience has appeared. In health psychology, crisis intervention, and positive psychology, the term has been used for more than 50 years (Sikorska, 2017, p. 75). The term *resilience* comes from Latin: *resiliere* means bounce, rebound, return to the beginning, or regain balance. As indicated by Iwona Sikorska (2017, pp. 75–76), the word *resilience* is understood as personal flexibility, flexibility of the ego, elasticity, mental strength, and resistance. According to her, resilience is a phenomenon that explains the return to health after experiencing a threat or injury; it is an ability to deal with difficult situations and to get out of trouble with no or little harm. That is why resilience is understood as flexibility, mental elasticity, inner strength, or a self-righting tendency.

According to Karol Konaszewski (2020), the term *resilience*, along with its various derivatives, has a long and varied semantic history.

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The author claims that, in the past, resilience was perceived as an individual's stable feature, property and adaptability, which made it possible for the individual to maintain positive development under strong, long-lasting stress (Block & Block, 1980; Ogińska-Bulik & Juczyński, 2011; Rutter, 1985; Uchnast, 1997). Today, it is more frequently perceived as a process that makes it possible for a person to function in an increasingly complex world (Borucka & Ostaszewski, 2008) and as a result that depends on many individual and environmental factors influencing one another (Masten et al., 1990). The common elements of these definitions are the two terms of *adversities* (misery or failure) and *positive adaptation* (adjustment), the latter of which must be adequate to the former, taking into account appreciated values and the rigor of the criteria that are applied (Konaszewski, 2020, pp. 21–30).

Resilience enables an openness to the complex and often contradictory reality, as well as to a person's orientation and independent functioning in the fluidity of social processes and the challenges of life. According to Konaszewski (2020, p. 267), the research related to resilience in the development of life increasingly confirms the importance of resilience in education and prevention, the objective of which is to form and promote personality resources and to develop an ability to cope with problems and to grow in a healthy manner. Resilience seems to protect a person against the results of negative events in everyday life, and to develop a person's ability to cope with possible threats. Resilience may be developed through experience gained in a natural environment, for instance, in a forest. Nature, due to its value and attractiveness, is a perfect place in which socioemotional and adjustment competences can be developed. It is also an excellent environment for reducing numerous disorders (e.g. aggressive behavior). Moreover, nature is a great metaphor which provides language with which to describe various experiences.

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### **Semantic context of the relationship between a person and nature**

For centuries, people have been functioning in direct contact with nature. However, along with the progress of civilization, such contact has weakened. Similar changes have taken place within the scope of a person's physical activity. The reasons for taking up such activity have changed. Today, the main motivation to move is an aesthetic/hedonistic reason, supported by plastic surgery and aesthetic medicine. Modern culture encourages us not to move. "Moreover, the conditions of the external environment fail to provide a human being with natural stimuli that determine his/her physical and mental balance, and they fail to activate the natural mechanisms of people's resilience" (Nitecka-Walerych, 2019, p. 232). However, for the harmonious development of a child, physical health and activity are of key importance. Physical activity facilitates new cognitive experiences, improves motor skills, forms a healthy lifestyle and behavior (Żukowska, 2017), and prevents diseases of civilization.

Richard Louv (2014) points out that isolating a child from the world of nature leads to a nature-deficit disorder. The author emphasizes that children need free and physical contact with nature, through which they can take up spontaneous and unguided play. The disorder itself is not a disease, but it involves high costs that are paid by a person for being alienated from the world of nature. Such costs include reduced use of one's senses, attention deficit, and increasingly, diseases of civilization based on mental and physical disorders. Also, the syndrome may be analyzed on the microscale (a person and their family) or the macroscale of the whole society. That is why in educational activities, for the former scale, one has to emphasize the consequences of insufficient contact with nature and, for the latter scale, one has to indicate various benefits of direct human contact with nature. The changes that are to be implemented should not involve a return to the conditions of life from thousands of years ago, but they should aim to improve our contact with nature, which may form and/or improve children's resilience. Contact with nature, including with a forest, helps children to get to know and realize

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their resilience resources, develops their ability to use those resources, and helps them gain new ones. Being connected with nature assumes living in nature and in accordance with nature, which develops a nature-friendly attitude and lifestyle. Regular contact with nature (e.g. in a forest) teaches us to respect it and to care for natural resources. Also, it encourages us to reflect on our existence. Playing in a forest makes it possible for children to satisfy their need for free movement, to learn about the world with the use of all their senses, to experience failure and success, to feel joy and sorrow, and to learn to cope with threats and predict the results of their own decisions and actions. As emphasized by Anna Nitecka-Walerych (2019, pp. 236–238), children who are physically active in natural surroundings have a better awareness of their own body and fewer problems learning about the body's limitations. Free exploration of a varied natural environment makes it possible for children to practice motor coordination, plan movement in space, and become confident and fluent in movement correlated with proper muscle tension. Physical activity facilitates human development in many other areas: in the cognitive, social, emotional, and spiritual fields. While playing outdoors, children have the opportunity to use their creativity and imagination. Moreover, as the author indicated, in direct contact with nature children instinctively fulfill those developmental needs that have been blocked in them. In order to release their own potential, they need freedom, space, adventure, and simplicity. Where there are no ready solutions (e.g., imitation toys), children automatically activate their creative resources. And as they grow older, their innate curiosity motivates children to engage in more and more original and non-stereotypical forms of cognition. Contact with nature within formalized education is offered by forest kindergartens, which began appearing in Poland in 2014 (Nitecka-Walerych, 2019).

While discussing education through nature and with nature, it is worth mentioning that it may include various forms of activities, such as team sports, outdoor games, survival trips (or trips with elements of survival), paper chases, walks, hikes and expeditions, camping trips, climbing, bike riding, and many other activities. Such events may be included within the frames of formalized education on different levels, or they can be used in family education.



The goal of contact with nature (and with the forest environment), including rest and recreation, in an environment that is different to that of everyday life, stems from natural psychological human needs. Such needs include the need for safety, which is connected with the protective functions of a forest, and the need for self-fulfillment, which is reflected in using the forest as a space for relaxation, recreation, and various kinds of motor activity. Also, according to Piotr Gołos (2010, pp. 150–151), human need for contact with the natural environment may be explained by Edward Osborne Wilson's theory of biophilia, according to which a human being is connected with the natural landscape and natural areas in the original state on a genetic level (Wilson, 1984). Moreover, the theory of psychophysical stress reduction by Roger Ulrich (1981) says that contact with nature may reduce stress through watching nature. There is also the theory of attention regeneration by R. and S. Kaplan (1989), according to which a person searches for contact with nature because, due to fascination with nature and the opportunity to distance oneself from everyday problems, they improve their concentration.

### **"Forest education" – The psychosocial and protective functions of a forest**

According to Katarzyna Simonienko (2022),<sup>2</sup> a forest is

a huge, wise book from which we can learn many useful things. It is an original and inimitable work of art. It is a living organism, a pharmacy, a tangible system of bubble worlds, and a friend.

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<sup>2</sup> Doctor of medicine Katarzyna Simonienko, PhD is the founder of *Centrum Terapii Lasem* [the Forest Therapy Center]. Since 2018, she has been conducting forest therapy and eco-therapy sessions. She has written books – *Lasoterapia* [Forest Therapy] (2021, Wydawnictwo Dragon), *Nerwy w las. Jak odnaleźć spokój i radość życia* [Distress in the Forest: How to Find Peace and Joy in Life] (2021, Wydawnictwo Sensus) – and a scientific monograph, *Terapia lasem w badaniach i praktyce* [Forest Therapy in Research and Practice] (2021, Wydawnictwo Silva Rerum).

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It is a bag full of fairytales, a source of archetypes, fears, and comforts; a context.

A forest has always been an important part of people's lives. It is an inseparable element of their existence. This is because a forest is an important part of nature, both the primal one (e.g., virgin forests or jungles) and the environment shaped by humans (urban woodlands planted by people). A human being needs nature to live, which is why they are obliged to protect it. However, the meaning of a forest changes over time and with the societal and individual needs of people. At the moment, a forest is a closer or farther surroundings for human communities, but in the past its influence on people's lives was even stronger. Along with the development of civilization, forest spaces became destroyed and reduced because of human activity; people's relationship with forests weakened. However, people today have started to notice the natural, social, and cultural functions of forest areas, appreciating the beauty of forests and their intrinsic value. The forest has become the subject of research and interest in forestry and natural sciences. Also, the social sciences today are interested in forests, emphasizing the role of nature in the areas of human social life and education. Those sciences analyze various relationships and dependencies between humans and their natural environment, including the functions performed by nature (and its elements) in society (Ciszek, 2021, pp. 58–61).

Forests perform many functions. According to Mariusz Ciszek (2021, pp. 62–65), they usually include economic functions (production) and non-production functions, which can be further divided into ecological ones (shaping the environment) and social ones. Pedagogical researchers analyze the social functions of a forest, which refer to its influence on the physical, psychological, and spiritual development of an individual and the whole of society. These functions certainly influence one another.

Within the scope of physical functions, it is emphasized that a forest performs several healing tasks that are important for a person's life and physical development, in terms of both preventing diseases and supporting pharmacological treatment. This is because a forest is characterized

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by a specific microclimate that plays the role of a natural spa or sanatorium. It protects us against the consequences of civilization's development (the protective function of a forest) because it serves as the planet's "green lungs," reduces noise, emits antiseptic substances into the atmosphere, ionizes the air, and facilitates rest and recreation (the touristic and recreational function of a forest). Touristic and recreational activity that occurs outdoors in direct contact with a forest can regenerate strength, reinforce the body performance, develop fitness through various kinds of sports, and promote recreational activities such as collecting fruit from the undergrowth. Another group of functions refers to the beneficial influence of a forest on mental health through physical and spatial representations of the forest environment (e.g., sound, space, shape of the terrain, or smell) connected with adaptation and through factors that improve our self-esteem, mental welfare, sense of development, identity, control, and freedom to act. A forest facilitates regeneration of not only physical strength, but also of the mind. Contact with a forest – with its natural beauty, smells, and sounds – makes it possible for a person to rest, find peace, release stress, and think about life. Moreover, relationship with nature, which in this case is developed through contact with a forest, has an emotional dimension because it facilitates a good mood, satisfaction, and a sense of happiness, which in turn promotes mental and physical well-being. Another important set of functions is those which are responsible for a person's spiritual development (cognitive and religious). Spiritual development is multifaceted and can intensify various forms of culture. A forest influences imagination and creativity, is the source of inspiration and creative ideas, and satisfies the need for aesthetic and transcendental experiences. Also, studying a forest extends our scientific knowledge (a product of human intellectual and cognitive activity). Thus, a forest also has scientific and didactic functions. It is a place of scientific research in many disciplines, but it is also the place of a didactic process which promotes knowledge of nature and develops environmentally-friendly attitudes. Because the educational functions of a forest are connected with its didactic function, they form a need and willingness to protect nature. A "living lesson" occurring in a forest also has an axiological dimension.

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It teaches us that a forest is not only useful, but also an ingrained and cultural value that is the source of our civilization – a value that has to be protected and respected by all of us (Ciszek, 2021, pp. 62–65).

### **Conclusion**

A child's contact with nature facilitates their health, not only in the physical dimension, but also in the social, mental, emotional, and spiritual dimensions, which support a good quality of life in unstable conditions. Nature creates space in which a young person, in a natural manner, has the opportunity to act and develop important verbal and non-verbal communication skills, such as negotiating, controlling emotions, and being assertive and empathetic. A child learns to cooperate with others, solve problems, and develop their trust in themselves and other people. Surrounded by nature, a young person learns to manage their time, sustain their motivation and persistence, cope with changing challenges, adapt to the changing environment in a creative and flexible way, and make decisions in stressful and dangerous situations. All this helps them develop and reinforce the sense of efficiency, agency, self-regulation, and optimism – to strengthen their own resources. Therefore, we can assume that the natural environment (including a forest), when used properly, helps us develop and/or reinforce a child's resilience, a faculty which may facilitate their adaptation to the changing and fragile reality.

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## References

- Bąk, A., Leśny, A., & Palamer-Kabacińska, E. (2014). *Przygoda w edukacji, edukacja w przygodzie* [Adventure in education, education in adventure]. Wydawnictwo: Pracownia Nauki i Przygody.
- Beightol, J., Jeverson, J., Carter, S., Gray, S., & Grass, M. (2012). Adventure education and resilience enhancement. *Journal of Experiential Education*, 35(2), 307–325.
- Block, J. H., & Block, J. (1980). The role of ego-control and ego-resiliency in the organization of behaviour. In W. A. Collins (Ed.), *Development of cognition, affect, and social relations: The Minnesota Symposia on Child Psychology* (Vol. 13, pp. 39–101). New York–London: Psychology Press.
- Błasiak, A., & Dybowska, E. (2021). Wzmacnianie rezyliencji w rodzinie – współczesną potrzebą [Strengthening resilience in the family: A contemporary need]. *Roczniki Pedagogiczne*, 13(49)(4), 59–72. DOI: <http://doi.org/10.18290/rped21134.6>
- Błasiak, A., & Wilkosz, K. (2020). Wychowanie przez przyrodę – wybrane współczesne aspekty [Education through nature: Selected contemporary aspects]. *Horyzonty Wychowania*, 19(52), 57–67. DOI: 10.35765/hw.1972
- Borucka, A., & Ostaszewski, K. (2008). Koncepcja resilience. Kluczowe pojęcia i wybrane zagadnienia [Theory of resilience: Key conceptual constructs and chosen issues]. *Medycyna Wieku Rozwojowego*, 12(2), 587–597.
- Brendtro, L. K., & Strother, M. (2007). Back to basics through challenge and adventure. *Reclaiming Children and Youth*, 16(1), 2–6.
- Cichy, D. (2003). Edukacja ekologiczna [Ecological education]. In T. Pilch (Ed.), *Encyklopedia pedagogiczna XXI wieku. Tom I, litera A-F* (pp. 910–914). Wydawnictwo Akademickie „Żak”.
- Ciszek, M. (2021). Społeczno-kulturowe i ekologiczno-zdrowotne funkcje lasu [Sociocultural and ecological/health functions of the forest]. *Studia Ecologiae et Bioethicae*, 19(1), 57–69. <http://doi.org/1021697/seb.2021.19.1.05>
- Fuller, R. A., Gaston, K. J., Irvine, K. N., & Keniger, L. E. (2013). What are the benefits of interacting with nature? *International Journal of Environmental Research and Public Health*, 10(3), 913–935.
- Gola, B. (2016). W poszukiwaniu etyki środowiskowej dla teorii wychowania ekologicznego [In search of environmental ethics for the theory of ecological education]. *Studia Ecologiae et Bioethicae*, 14(1), 55–76.

- Gołos, P. (2010). Społeczne znaczenie publicznych funkcji lasu – pożądany dla rekreacji i wypoczynku model drzewostanu i lasu [Social importance of public forest functions – desirable for a recreation model of tree stands and forests]. *Leśne Prace Badawcze*, 71(2), 149–164. DOI: 10.2478/v10111-010-0011-4
- Kaplan, R. & Kaplan, S. (1989). *The experience of nature: A psychological perspective*. Cambridge University Press.
- Komeński, J. A. (1956). *Wielka dydaktyka* [Great didactics]. Zakład im. Ossolińskich. Wydawnictwo PAN.
- Konaszewski, K. (2020). *Pedagogika wrażliwa na resilience. Studium teoretyczno-empiryczne* [Resilience-sensitive pedagogy: A theoretical/empirical study]. Wydawnictwo Impuls.
- Louv, R. (2014). *Ostatnie dziecko lasu. Jak uchronić nasze dzieci przed zespołem deficytu natury* [Last child in the woods: Saving our children from nature-deficit disorder]. Grupa Wydawnicza Relacje.
- Masten, A. S., Best, K. M., & Garmezy, N. (1990). Resilience and development: Contributions from the study of children who overcome adversity. *Developmental and Psychopathology*, 2(4), 425–444.
- Michl, W. (2011). *Pedagogika przeżyć* [Pedagogy of experiences]. Wydawnictwo WAM.
- Neil, J. T., & Dias, K. L. (2001). Adventure education and resilience: The double-edged sword. *Journal of Adventure Education and Outdoor Learning*, 1(2), 35–42.
- Nitecka-Walerych, A. (2019). Leśne przedszkola – odpowiedź edukacji na potrzeby dzieci [Forest kindergartens: Education's response to children's needs]. *Pedagogika. Studia i Rozprawy*, 28, 229–239. <http://dx.doi.org/10.16926/p.2019.28.18>
- Ogińska-Bulik, N., & Juczyński, Z. (2011). Prężność u dzieci i młodzieży: Charakterystyka i pomiar – polska skala SPP-18 [Resilience in children and adolescents: Characteristics and measurement – Polish scale SPP-18]. *Polskie Forum Psychologiczne*, 1(16), 7–28.
- Palamer-Kabacińska, E., & Leśny, A. (2012). *Edukacja przygodą. Outdoor i Adventure Education w Polsce: teoria, przykłady, konteksty* [Education as adventure: Outdoor and adventure education in Poland – Theory, examples, and contexts]. Wydawnictwo Pracownia Nauki i Przygody.
- Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. *The British Journal of Psychiatry*, 147(6), 598–611.

- 
- Sikorska, I. (2017). Odporność psychiczna w ujęciu psychologii pozytywnej: edukacja i terapia przez przygodę [Resilience in light of positive psychology: Adventure education and adventure therapy]. *Psychoterapia*, 2(181), 75–86.
- Simonienko, K. (2022, March 25). *Centrum Terapii Lasem – Omnie* [Forest Therapy Centre PL: About me]. Centrum Terapii Lasem. <https://www.forest-therapy.pl>
- Tuszyńska, I. (2006). *Edukacja ekologiczna dla nauczycieli i studentów* [Ecological education for teachers and students]. Wydawnictwo Wyższej Szkoły Pedagogicznej TWP.
- Uchnast, Z. (1997). Prężność osobowa. Empiryczna typologia i metoda pomiaru [Personal resilience: Empirical typology and method of measurement]. *Roczniki Filozoficzne*, 45(4), 27–51.
- Ulrich, R. S. (1981). Natural versus urban scenes: Some psychophysiological effects. *Environment and Behavior*, 13(5), 523–556.  
<https://doi.org/10.1177/0013916581135001>
- Wilson E.O. (1984), *Biophilia. The human Bond with other species*, Harvard University Press.
- Żukowska, Z. (2017). Styl życia a zagrożenia zdrowia jednostki i społeczeństwa w rozwijającej się cywilizacji [Lifestyle and individual and societal health risks in an evolving civilization]. In E. Marynowicz-Hetka (Ed.), *Pedagogika społeczna. Debata. Podręcznik akademicki 2* (pp. 534–551). Wydawnictwo PWN.