Review

The Influence of Some Neuropsychological Diseases on the Environmental Education Ability of Residents – Review

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The Influence of Some Neuropsychological Diseases on the Environmental Education Ability of Residents–Review

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Abstract: Humanity is currently facing several global problems, such as global warming, air pollution, water pollution, deforestation, desertification and land degradation, which are connected to the consequences of negative human activity. One of the possible and effective institutional tools for environmental protection is the environmental education of the general population. It is a relatively well-known and used environmental protection policy tool that governments of all developed countries have in their instrument mix. This qualitative analysis assigned itself the task of investigating whether the ability of environmental education can be affected by certain neuropsychological diseases in addition to thinking about the psychology of environmental education at large. In order to fulfill this main task, the authors asked themselves the following research questions: 1st - Is pedagogical psychology identical and also applicable in the case of environmental education? And 2nd - What effect do some neuropsychological disorders have on the ability of environmental education? Based on the study, analysis, selection and comparison of current professional scientific works obtained from the research activities of current researches on this topic, it is possible to accept the premise that the psychology of environmental education is basically the same as the general psychology of education and that neuropsychological diseases do indeed affect the ability of environmental education similarly to scholarly education.

Keywords: psychology; neuropsychology; neuropsychological diseases; environmental education

1. Introduction

Humanity is currently facing a wide range of global problems, which are clearly the result of negative human activity [1]. In terms of severity and other related problems, global warming appears to be the most serious and it is additionally associated with other global problems such as rising sea levels, melting glaciers, and the loss of organisms in ecosystems, among others [2]. Individual states and some state groupings (EU) have different types of instruments in their environmental policy which they use in so-called instrument mixes for environmental protection, according to the specific environmental policy of the given state [3]. The group of environmental institutional tools also includes environmental education of the population [4]. Several authors refer to this tool as contemporary and modern. In particular, the Nordic countries of the European Union have adapted this tool for a relatively long time and achieve very good results regarding environmental education of the population, which logically and subsequently manifests itself in the good state of the environment [5]. This work set itself the task of investigating, based on current published works, the influence of educational psychology and neuropsychology on the environmental education of residents. In order to fulfill this main task, the authors asked themselves the following research questions: 1st - Is pedagogical psychology identical and also applicable in the case of environmental education? And 2nd - What effect do some neuropsychological disorders have on the ability of environmental education? For these purposes, the authors carried out an extensive research activity

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of scientific research published on this topic. Specifically a qualitative selection of representative professional monographs on this topic was also carried out and to a greater extent electronic resources indexed in scientific databases Open Access, Web of Science and Scopus were used. Selected publications were studied, and compared by way of result comparison, and selected works were then included in the study. A qualitative analysis was then carried out from the material selected in this way, to satisfactorily answer the aforementioned research objectives. The basis for this publication was not logically own applied research, but rather a scientific research activity, in the form of a qualitative analysis. Due to the limited possibility of the scope of this publication - a review, it is not possible to include all professional literature in the research. As such, this review contains a thematically qualitative selected selection that forms a logically integrated whole. It should be noted that the relevant scientific databases do not contain research on the topic of the influence of neurological diseases on the environmental education ability of individuals. The originality of this review can be seen in this. The authors therefore had to support the thesis about the similarity of environmental education of the population with municipal education through a qualitative analysis. Then, in the next step, explore the psychology and politics of these types of education and their similarity. Only subsequently, in the next part of the performed qualitative analysis, the priority goal, which is the qualification of the influence of certain neurological diseases on the ability of environmental education, is to be explored in the published scientific publications. It should also be noted that the authors were able to cover all neurological diseases in this form of publication, but only the most frequent ones that can affect this problem to the greatest extent.

2. Materials and Methods

This chapter is divided into two sub-chapters, the first of which describes the research methods and the second sub-chapter provides a general overview of the background of the research. Basic concepts important to research activities are explained in more detail here.

2.1. Methodology

The basic scientific method was the qualitative research activity of professional scientific publications of research carried out on the investigated issue. These publications were studied, and selected, and a mutual comparison and selection were made so that in the end it was possible to fulfill the assigned task and answer the research questions [6]. Because there are no relevant works on the topic of the influence of neurological diseases on the ability of environmental education in the representative databases, the method of logical deduction [7] had to be used as well.

2.2. Basic concepts

Environmental education of the general population is one of the basic institutional tools of environmental protection. It is carried out and organized by state administration bodies and local governments, and its goal is to educate residents on environmental issues to improve and maintain the environment [8]. The leaders of environmental education in Europe are the Nordic countries, which already have a relatively long tradition in this area [5]. Among European Union countries, environmental education can already be found in the institutional education of pre-school-aged children via education about the sorting of household waste, for example. In elementary schools, this education is already part of the curriculum [9,10].

Educational psychology, also called the psychology of education, is a borderline scientific discipline that draws knowledge from psychology and pedagogy. In pedagogical psychology, the regularities of educational processes are investigated in particular [11].

Neuropsychology is a scientific discipline that stems from the close interdisciplinary relationship between neuroscience and psychology. It deals with the connections between the central nervous system and the human psyche, thus dealing with both behavior and experience. This field is traditionally studied from a primarily clinical point of view by analyzing the impact of brain lesions of various etiologies especially cognitive psychological processes [12]. Neuropsychology studies

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diseases such as dementia, Alzheimer's disease, aphasia, amnesia, ADHD and others that have been proven to affect cognitive functions and negatively affect the ability to learn material related to environmental education [13,14].

3. Literature Reviews Section

At the beginning of the research, it is necessary to think about education in general, its institutional organization and then about Pedagogical Psychology, i.e., about the regularities of the educational process. Subsequently, the specifics of environmental education can be sought and compared based on Pedagogical Psychology, and the theoretical influence of selected neuropsychological dysfunctions on the ability of environmental education can be explored.

In his publication, which was published in the Czech translation of Oldřich Selucký in 1998, Yves Bertrand proposes to narrow down a large number of classifications of educational theories to these seven – spiritualistic, personalistic, cognitive-psychological, technological, socio-cognitive, social and academic [15]. Due to the focus of this work, it will be appropriate for this publication to deal more significantly with cognitive psychological theory. Bertrand further states that cognitive psychological theories study the student's development of such cognitive processes as reasoning, analysis, problem-solving, creation of representations, preconceptions, mental images, etc. The foundations of these educational theories must very often be sought in cognitive psychology research by which they each cover different aspects of learning. According to this theory, the teacher must take into account the learning processes and the previous knowledge of the individual learning. They must additionally find out what their models, representations and ways of processing information are. It is also necessary to assume that this knowledge may conflict with the scientific knowledge that is learned at school [16].

The following two ideas are also based on this theory, which will be discussed in more detail in this work. The first of them are the educational processes of pedagogical psychology, which can be used to influence a successful cognitive process, and the second is the effect of certain neuropsychological diseases on an individual's ability to learn.

Pedagogical psychology deals with the laws of educational processes [17]. Harry Daniels et al. examine the influence and possibilities of different types of upbringings and education on undesirable deviations of people [18]. In the psychology of education, the personality of the pedagogue and their characteristics, knowledge, erudition and pedagogical abilities and disposition are also of fundamental importance. Research on this issue was published by N.V. Akhmetzyanova in the journal Social and Behavioral Sciences in 2015. This research focuses on the specifics of higher education and demonstrates the importance of the pedagogue in the process of university education [19]. Gabriela Cristea's research also brings interesting insights into the methodology of general didactics. Here, the author deals directly with the methodology of classroom management and its influence on the educational process [20].

The following works, by the general theory, quite significantly point to the fact that environmental education is only a subcategory of general education and is governed by the same principles and rules. Among the research published on this topic, we can mention the work of Moloevi Adamovi, in which he reflects on the necessity of cooperation between parents and preschool-type facilities in the field of environmental education [21]. T. Ronnen and D. Kerret published a study in the International Journal of Environmental Research and Public Health that examines the possibility of integrating positive psychology into environmental education [22]. In their research, E. Carrus et al. also address the issue of integrating positive psychology into environmental education to ensure the continuity of sustainable development with this tool of environmental protection [23]. A very interesting monograph, which could fulfill the aspiration of one of the best works in Asia on the topic of environmental education with an overlap of the psychology of environmental education, was published by Fang et al. in which they examine the aspects and conditions of environmental education relevant in Asia [24]. The subsequent works are all devoted to psychology and other issues of environmental education. Research by P. Konakchieva, deals with the methodology of children's environmental education. In this case, it is a case study [25].

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The publication by Fang et al. examines the psychological aspects affecting pro-environmental behavior. The authors examine different models of access to undergraduate environmental education [26]. Another work published research on the issue of the development of environmental culture among future teachers during professional training [27]. A survey of teachers' opinions on the integration of environmental education and sustainable development in primary schools was published by G. Pehoiu [28]. The topic of environmental education and its interpretation is also addressed in an article by J. Howard [29]. The correlation between teaching psychology and environmental education and sustainable development is addressed by Koger and Scott [30]. A study on motivating and guiding school-aged children to relate to nature as part of the culture of life and environmental protection was published by Audley and Stein [31]. Research-based on the questionnaire method in the field of environmental design education was published by M.D. Roske [32] and research on moderating and influencing attitudes, attitudes and behavior towards environmental protection and recycling by Schultz and Oscamp [33]. The context of all the above-cited publications in this block is already stated in the previous part of the thesis. Environmental education is a subcategory of general education, in which social-environmental sciences, educational psychology and didactics are intertwined. Based on the aforementioned details, it can be stated that the didactics and psychology of environmental education are essentially identical to those of general education.

The discipline in which other social sciences such as didactics, psychology, deontology, history, logic, semantics and environmental sciences are intertwined, is environmental ethics [34]. "In contrast to ethical education perceived from the perspective of a practical philosophical discipline that works with virtues, positive behavior occurs through the development of social skills - the means of psychology." [35]. Psychology, as an applied social discipline, also extends to philosophical ethics, especially as a tool for knowing the motivation and behavior of an individual in the decision-making process when accepting an ethical judgment. Its use is also quite evident in the way of thinking brought about by the descriptive method of ethics [36]. Based on the previously mentioned ideas, it is possible to document the overlap of educational psychology with environmental education and the associated use of psychology in ethics itself and its subcategory – environmental ethics, or ethics of life sciences.

The following part of the research is devoted to some neuropsychological diseases and their influence on the individual's abilities in the educational process, and also conversely, the possibility of the benefit of education in a positive effect on some types of neuropsychological diseases. For example, the following studies were published on the topic of the possible contribution of the educational process to neuropsychological diseases: [37], which examines the influence of the educational effect in patients with advanced sclerosis, and [38], which deals with the effect and possibilities of education in patients with Parkinson's disease of the non-demented type to reduce depression and increase their quality of life. [39] published research on the effect of premorbid IQ and education on the progression of Alzheimer's disease, and this group also includes published research [40] examining the effect of education on long-term outcomes in first-episode psychosis within ten years. The above-mentioned studies point to the positive influence of education on the state and course of some neuropsychological diseases. In this case specifically on sclerosis, Parkinson's disease, Alzheimer's disease and incipient psychoses. The following part of the research examines the problem from the reverse point of view and will focus on publications that deal with the limiting effects of some neuropsychological diseases on the educational abilities of an individual.

Research that dealt with aspects of education for late-life dementia and Alzheimer's patients was published by Kovacich et al. [41]. McDowell et al. then deal with sessions and educational opportunities for patients affected by dementia [42]. The publication published by Sobral and Paúl directly examines the extent of the possibility of educating patients with Alzheimer's disease [43]. The relationships between education, cognitive functions of the brain and Alzheimer's disease are also investigated by Honjo et al., using an inventory neuropsychological questionnaire. They also take age and level of education into account [44]. Similar topics are addressed by Groot et al., and in their research, they deal with the relationships of education and intracranial volume with cognitive

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trajectories and mortality rates in the continuum of Alzheimer's disease [45]. Gillenhammar et al. investigate the relationship between temporal atrophy and episodic memory and the effect of education on this phenomenon [46]. Wang et al. then published a study in which they deal with the possibilities of reading in cognitive deficits caused by Alzheimer's disease. Research examining the relationship between cognitive function and mortality in a population-based sample of older citizens, stratified by gender and education, was published by Wang et al. [47]. Jennifer Sotsky [48] deals with the effects of Lyme disease in psychiatry, its symptoms, the state of cognitive functions and educational opportunities. Foucard et al. then examine short-term memory and self-learning ability in patients affected by Alzheimer's disease [49]. In their work, Happawana and Diamond also reflect on the relationship between learning and Alzheimer's disease [50], and we can also mention an interesting study by Pamela Wolters that deals with the effect of HIV in children on cognitive functions and the educational process [51].

4. Discussion

The conducted systematic review focused on the relationship between the psychology of environmental education and general education and subsequently on the possible influence of some neuropsychological diseases on the possibility of environmental education. In all representative databases, enough relevant sources were found that deal with research on the topic of educational psychology and the influence of selected neuropsychological diseases on educational ability. It can be stated that, on the contrary, no relevant research was found on the subject of the psychology of environmental education and the influence of neurological diseases on the ability of environmental education. However, the method of logical deduction can be used, and if we accept the premise that environmental education is only a subcategory of general education, we can, based on published research, apply general knowledge to a specific category of education, in this case to the environmental education of residents. We also have to state that no other published review of the professional literature was found in the conducted research, which would examine the issue of the influence of neuropsychological diseases on the ability of environmental education. Among the published reviews on the topic of neuropsychological diseases and education, one can find systematic expert reviews on cognitive function training in neurological diseases, such as the systematic review by Fava-Felix et al. [52] or a review by J.C. Rodrigues [53]. Contrarily, the possibility of educating patients with neuropsychological diseases is dealt with in systematic reviews by authors Dias Bernardo [54] or Tarver et al. [55]. As part of the comparison with the above-mentioned reviews, it can be stated that in all cases, these are systematic reviews that deal with the relationship of cognitive function training to the course and state of neuropsychological diseases, or conversely, the possibility of education in neuropsychological diseases.

5. Conclusion and Future Directions

This review has set itself the task of reflecting on the psychology of environmental education based on research activity and among published research - professional articles and to a lesser extent also professional monographs to explore the relationship between neuropsychological diseases and environmental education. To fulfill this research task, we asked ourselves the following research questions: 1st - Is pedagogical psychology identical and applicable also in the case of environmental education? And 2nd - What effects do some neuropsychological disorders have on the ability of environmental education?

Based on the review, it can be concluded that accepting the fact that environmental education is a subcategory of general education, pedagogical psychology can also be applied in the process of environmental education and that neurological diseases affect the possibility of educating people, which also applies to the possibility of environmental education.

As already stated in the previous section, the main benefit of this qualitative review is the originality of the survey. There are no relevant and credible publications on the chosen topic, i.e. on the influence of selected neuropsychological diseases on the ability of environmental education of the population, to be found in the representative databases. We can accept the premise that as time

progresses, more works on this topic will become available and mutual comparison of the achieved results will be possible. Due to the importance of environmental education of the population, as one of the basic tools of environmental protection, the knowledge gained can gradually be incorporated into the politics, psychology and didactics of education, to improve the technique of environmental education. Of course, it can be argued that neuropsychological diseases affect only a small fraction of the population, however, some diseases are already observed in children of preschool age, and with the progress of medicine, the life expectancy and the need for education for older citizens are also increasing.

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