A Three-dimensional Aproach in Education for Sustainable Future

Trójwymiarowe podejście do edukacji dla zrównoważonej przyszłości

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Abstract

The concept of sustainable development is used in a growing number of new contexts (ever-modernising technologies, developing science, environmental protection, politics) and levels (global, regional, national, institutional, personal). The concept differs depending on an area in which it is used. Business, technologies and politics use typical, already existing approaches to sustainable development. The projection/transposition of sustainable development paradigm into the sphere of education, science, technologies, economy, environmental protection and politics acquire the specifics of a sphere, namely structure and terminology, and has different elements. A wide field of human activity and different levels of the implementation of the concept of sustainable development make the analysis of this development and its implementation in the education sector more difficult. Both scientific and practical educational discourse need common parameters, common dimensions which unify the different areas of sustainable development and allow educators to accurately convey a full picture of this development. In this article, we will highlight educational approach towards a sustainability paradigm by analysing the common dimensions of sustainable development. We will talk about the levels of the implementation of sustainable development by concentrating on education at a personal level. Having applied the triangle of the dimensions of sustainable development (Place, Permanence, Persons), created by L. Seghezzo, to explain and analyse the concept of quality of life, in the article, we will present a three dimensional model of education for sustainable development.

Key words: sustainability, sustainable development, quality of life, education

Streszczenie

Termin rozwój zrównoważony jest używany w coraz większej ilości nowych kontekstów (technologicznym, rozwoju nauki, ochrony środowiska, polityki) i na różnych poziomach (globalnym, regionalnym, krajowym, instytucjonalnym, indywidualnym). Konsekwentnie będzie on także różnorodnie interpretowany. W świecie biznesu, techniki i polityki wykorzystywane jest tradycyjne, już istniejące podejście. Projekcja/transpozycja paradygmatu zrównoważonego rozwoju w sferę edukacji, nauki, techniki, ekonomii, ochrony środowiska i polityki wymaga określenia struktury i terminologii, składających się z różnych elementów. Różnorodność ludzkich działań na różnych poziomach wdrażania koncepcji zrównoważonego rozwoju powodują, że badanie tego rozwoju i jego implementacja w sektorze edukacyjnym to trudne zadanie. Dyskurs edukacyjny, zarówno naukowy jak i praktyczny, wymaga pewnych wspólnych parametrów i odniesień, które ujednolicają różne konteksty zrównoważoności i pozwalają edukatorom trafnie przekazać wielowymiarowość tego rozwoju. W tej pracy skoncentrowano się na edukacyjnym podejściu do paradygmatu zrównoważonego rozwoju poprzez analizę jego składowych. Przedstawione zostaną poziomy implementacji rozwoju zrównoważonego w odniesieniu do

edukacji na poziomie indywidualnym. Dzięki odwołaniu do wprowadzonego przez L. Seghezz'ego trójwymiarowego podejścia do wymiarów rozwoju zrównoważonego (Miejsce, Trwałość, Ludzie) możliwa będzie analiza i wyjaśnienie koncepcji jakości życia, co prowadzić będzie do prezentacji trójwymiarowego modelu edukacji dla zrównoważonego rozwoju.

Słowa kluczowe: zrównoważoność, rozwój zrównoważony, jakość życia, edukacja

Introduction

Contemporary society, which is innovation-oriented, provides a capability for the rapid commercially successful prosperity growth of innovation right holders as never before. We are living during the period when a major part of production is being replaced by robots, when human creativity is the most desirable competence. This is a time when the creative class is emerging (Florida, 2002). An essential precondition for prosperity growth is creative skills that are arising not so much from inspiration as from the analysis and experiments. This confers an advantage to those society groups, regions and countries which are more educated and have better possibilities for the introduction of innovations. This creates a closed circle – better conditions result in innovations, innovations result in the prosperity of the ones that made them. In order to avoid the widening of the gap and to encourage its reduction, it is attempted to ensure the sustainable development of a country and the whole world by laws, regulations and recommendations. The concept of sustainable development covers a constantly widening social and thematic field. The contexts (ever-modernising technologies, developing science, environmental protection, politics) and levels (global, regional, national, institutional, personal), which are covered by it, are widening. The development of the concept of sustainable development is becoming a significant challenge for education: how to effectively convey to the younger generation the comprehensiveness of sustainable development at the levels of knowledge, attitudes, values, skills and behaviour. A sustainable development paradigm provides a new approach towards environmental protection and quality of life, therefore, there is a need to find ways of preparing the younger generation, while educating it, for sustainable decisions and harmonious future. During the 20th century the connections between the prosperity of the society and its continuous social hierarchy, in which there are no significant gaps, were observed. The continuity of social hierarchy (or the absence of gaps between social positions) is reflected in societal indicators and indexes. In educology, education for sustainability is often linked to ecology. Although scientific discourse even tells about innovation ecology (Adkins et al., 2007), industrial ecology (Cohen-Rosenthal, 2004), media ecology (Cottle, 2004), creative industries ecology (Kačerauskas, 2016). However, such diversity of the usage of ecology cannot fully reflect the content of sustainable development which has to be conveyed to the younger generation when educating it. It is necessary to define the multidimensionality of sustainable development in educology very accurately, as it covers a very broad field of the development of the society and all human activities (global, regional, local) (Pawlowski, 2008).

In this article, when analysing the common dimensions of sustainable development, we will highlight the educological approach towards a sustainable development paradigm, we will talk about the levels of the implementation of sustainable development, while concentrating on education for sustainable development at a personal level.

The purpose of this article is to present a three-dimensional model of education for sustainable development by revealing the dimensions of sustainable development from time, place and personal perspectives.

The article was inspired by D. Springett's (2016) editorial *Education and the Problems of Sustainable Development* encouraging to engage a wider audience in the discourse of sustainable development, to examine the role of education when preparing young people for sustainable development of the society. In response to the question raised by the author *What is education for?*, this article agrees with the claim of the author and confirms it that young people should be *educated to aspire to a transformational role as agents of change and to envision the moral economy of social justice, citizenship and sustainability, based in social democracy* (Springett, 2016).

Sustainable development at different levels of implementation

The implementation of a sustainable development paradigm covers different levels of societal life by networking, for the common goal, all the politicians, scientists, producers and creators.

A. Pawłowski (2011) draws attention to the fact that, in the concept of sustainable development, seven dimensions can be distinguished: ethical, ecological, social, economic, technical, legal and political. The author classifies the dimensions into three levels, the first level is ethical dimension, the second one is ecological, social and economical dimensions and the third one is technical, legal and political dimensions. All the dimensions are equally important (Pawlowski, 2011). When examining a sustainable development paradigm through the vertical prism of the implementation policy five

levels can be singled out. The first level, at which problems are raised and their strategic implementation is envisioned, is global, starting with the UN *Agenda 21* (1992), which was formulated at the beginning of the 1990s, the objectives of sustainable development are regularly formulated up until last *Sustainable development goals* (2015). The second one is a regional level covered by *EU Sustainable Development Strategy* (2015) and other documents regulating the implementation of international agreements). The third one directs sustainable development procedures at national level. In Lithuania's case, there is the *Lithuanian National Strategy for Sustainable Development* (2003), *National Progress Strategy 'Lithuania 2030'* (2011), the *National Progress Programme for Lithuania for the period of 2014-2020* (2012). The fourth one is a local level: the *Agenda 21* in the municipality, company and school. And the last, but not the least – a personal level: the lifestyle of the individual, his behaviour in relation to others, encompassing a specific type of behaviour in relation to his environment and surrounding people and the abstract one directed at general well-being and the well-being of future generations.

Education of personality is always based on values, attitudes and skills that are sustainability competencies. There is no universal definition of sustainability competencies, however, P. Pace (2010) identified three areas of competences for sustainable development: cognitive competence of sustainable development, action (behaviour) competence, and social and civil competence. These competences find their expression at a personal level, therefore, as far as education for sustainable development is concerned, the level of personal implementation is the most important. As far as education of personality in the context of sustainable development is concerned, the concept *sustainability thinking* is used (Pace, 2010). This notion characterise very well the sought-after competence for sustainable development, although in different contexts – scientific, technological, environmental, societal, economic and policy/political – this concept is used differently (Zoller, 2015).

The commonly accepted concept of sustainable development is a definition of the World Commission on Environment and Development (WCED), which describes *sustainable development* as a development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland Report, 1987). The European Commission has formulated an external strategy to ensure that, by working in partnership with other countries, it can drive forward global aims based firmly on three fundamental pillars: economic, social and environmental responsibility. The European Commission has also introduced a sustainable development *triangle* formed by *People, Planet and Prosperity*, which is com-

monly used in business and governments (The World Summit on Sustainable Development, 2002). In 2009 L. Seghezzo proposed the concept which complemented the WCED defined *sustainable development* concept of three dimensions (Seghezzo, 2009). L. Seghezzo suggested *a better understanding of the sustainability by using a triangle formed by 'Place', 'Permanence', and 'Persons'. Here Place is the three-dimensional physical and geographical, but also culturally constructed space where we live and interact; Permanence – the potential long-term effects of our actions or in another words – time; and Persons – the fifth dimension, a symbol of people as individual human beings and not as undifferentiated members of society* (Seghezzo, 2009). These dimensions – Place, Permanence, Persons – are particularly important as far as sustainable development in the context of education is concerned. These dimensions allow to shift the ideas of sustainability into personal level which is, after all, the ultimate goal of (self-)education and the ultimate goal of the strategy for sustainable development. The personal level determines how the goal of sustainable development will be implemented, what personal and group decisions will be made, what quality of life individually and collectively will be. We decide what better living at a personal level means to us, it is as if we look for the answer to the fundamental question asked by E. Fromm: *To have or to be?* (Fromm, 1976).

As far as a personal implementation of the strategy for sustainable development level in the context of education is concerned, it is important to mention that a person's lifestyle, his culture of consumption depend on a person's concept of quality of life. In order to analyse and evaluate the concept of quality of life, we employ L. Seghezzo's triangle of dimensions of sustainable development *Place, Permanence, Persons* and we present it in the context of the education for sustainable development.

The concept of quality of life based on the dimensions of sustainable development *Place, Permanence, Persons*

The concept of quality of life was changing from Aristotle's (384-322 BC) concept of *eudaimonia*, when individuals were called on to realize their full potentialities in order to achieve a *good life*, to a modern approach which is officially presented by the World Health Organisation which describes quality of life as *the individual's perception of his place in life which depends on the culture in which an individual lives, his value system, goals, hopes, norms and interests. It is the concept describing a multiple-component phenomenon, encompassing* personal physical health, psychological well-being, *the level of independence, social relationships, personal convictions and environment* (Study Protocol for the World Health Organization Project to

Develop a Quality of Life Assessment Instrument (WHOQOL), 1993).

In scientific discourse, there exists a number of the concepts of quality of life (Diener and Suh, 1997; Hughes, 2006), however, in the context of education for sustainable development the philosophy of Immanuel Kant, who invited to build a good society by acting morally and never linked morality to happiness, is the most relevant. Happiness, according to him, is very individual and, consequently, volatile, whereas morality has to be the same for all. The factor of moral action is a duty which leads the man to behave based on mind, rather than on the basis of own vagaries or happiness. This perspective is alien to today's hedonistic society, however, when rethinking quality of life through the prism of sustainable development this is the approach which must be encouraged.

In order to transfer the concept of quality of life into personal level, that is to assist an individual to understand quality of life, we suggest examining it on the basis of L. Seghezzo's paradigm Place – Permanence – Persons, that is to look at quality of life from three perspectives – place, time and personal. The paradigm suggested by L. Seghezzo (2009) consists of five dimensions. The first part of the triangle, i.e. *Place*, consists of three dimensions: these are the culture of countries, their lifestyle, people's physical and mental health. *Permanence* denotes not only the existing situation, but also changes and improvements that is a perspective. Permanence could be seen as the main realm of inter-generational equity. *Persons* – personal approach, philosophy (Seghezzo, 2009). The personal commitment may play a distinctive role in the pursuit of better intergenerational justice since humans have the freedom to be relatively autonomous from both their environment and their culture, as postulated by A. Maslow (1954).

Let us examine how, at a personal level, the concept of quality of life and own commitment to quality of life change, based on L. Seghezzo's triangle of sustainable development Place – Permanence – Persons (Seghezzo, 2009). We will single out three levels of the concept of the individual that are important to education. The analysis of possibilities of internalisation of sustainability attitudes in educational system may be elucidated using the model of cognitive development. Levels in cognitive development have *invariant sequence* (Kohlberg, 1984). Lower levels ground the higher ones; changes between levels are structural transformations rather than accumulation of knowledge and experience – higher stages integrate or displace lower ones (Kohlberg, 1984). Cognitive development and behaviour changes mutually influence one another. Neither cognitive development without behavioural interactions nor behavioural interactions without cognitive development may result moral development in L. Kohlberg's theory, which is a close to

presustainability paradigm theory, described similarly to contemporary sustainability issue. The development may be educated both in school and in family. While performance of the role of family in education depends on the values of parents, school programmes contain the issues as integrated as well as separate subject of civil education.

The first level of the concept of quality of life, which reflects the simplest concept, is *Here – Now – I*. This concept is based on taking care of self in a present time. This is a hedonistic concept, which is characterised by ephemeral living, inability to link the consequences of own behaviour with quality of life. The representatives of this concept do not think about influence of their own behaviour and lifestyle on the environment. The approach of this individual is the basis for selfish attitudes to which the whole attention of the educator must focused. As a rule, such person does not think that he himself, his conscious or unconscious behaviour may have influence on people around or himself in the future. This level is similar to preconventional (or premoral) level in the theory of moral development of L. Kohlberg (1984). The attitude towards others inherent for the level – individualistic hedonism (Kohlberg, 1984), the interaction with others at the level forms awareness of the interests of other people. Although it is difficult to position transition from one level to another in lifetime very precisely, all L. Kohlberg researches relate transition to conventional level in primary school. The transition to a higher level is supported through the subjects of moral development as well as integrated to almost all school subjects. In addition to acquaintance of knowledge, circumstances that allow practical activities in authorities-free space are essential for the primary school children. Bilateral non-hierarchical interactions help to construct understanding about interaction roles models, empathy and rules that construct behavioural expectations. The institution of a form prefect empowers pupils for an equal relationship and the coordination of interests (or rather wishes at this level).

The second level of the concept of quality of life is *Neighbourhood – Tomorrow – Relatives*. For the proponent of this concept, both his own quality of life and that of the people in his immediate environment are important. He understands the consequences of his own behaviour and the behaviour of the people of his immediate environment which will have effect on them in the nearest future. A person may also see a possibility to influence the life of the people of his immediate environment or his own not only in the present, but also after a few years. This individual is concerned how orderly, prosperously his neighbours live, however, this concern is only for the sake of convenience. When analysing quality of life, this proponent of the concept understands the aspects which determine quality of life of his and the people of his immediate

environment. He realises that his quality of life depends on the culture of consumption, lifestyle, values of the people living in his neighbourhood. When thinking on quality of life and sustainability the individual is able to encompass a decade in his thoughts. The level is similar to Conventional morality level in L. Kohlberg's theory of moral development (Kohlberg, 1984). At this level, the individual is *aware of shared feelings, agreements, and expectations that take primacy over individual interest* (Kohlberg, 1984). At this level, there is belief in the Golden Rule and behaviour based on expectations of others, recognition of society as institution that functions for protection and welfare of its members (Kohlberg, 1984). However, the level is insufficient for the implementation of the paradigm for sustainable development. Insufficient due to lack of critical attitude towards contradicting aspects of society and focus on support of positive aspects of society thus keeping *Status Quo*. That usually does not lead to attitude that supports change of society towards sustainability. Although different measurements show different ages of transition from one period to another, conventional level is generally typical for lower secondary school. Civil education at lower secondary is an integrated subject. Responsibility and values are subjects for education within almost all school subjects. While school subjects stimulate cognitive development, interactions within the same position remain an in-group interaction. The level usually starts to have school parliaments that enforce the development of responsibility, trust in own actions and belief in change possibilities.

For sustainable development of society, it is necessary that each person would clearly realise how, both tomorrow and after many years, the quality of life of future generations will depend on his personal behaviour and that of certain population groups (which are brought together by geographical situation) behaviour. The younger generation must realise how the lifestyle, the culture of consumption of the people living on the other side of the planet has an effect on us now, what consequences it will have in the long term. It is the third level. In order to do that, it is necessary that the educatees would interact with the groups, which are outside their educational institution, especially with two types of theirs – vulnerable, the change of the condition of which could become an objective, and socially active ones, the belief of which in their own powers may become an example. The preconditions created by the previous level – the positive assessment of society and human nature – make it possible for such change to occur. In this period of the educatee's development, the educator should develop conditions for an active outer interaction. Each individual's quality of life depends on quality of life in the district, country, region and even the world. How much environment, in which we live, is polluted,

what products we feed on depends on what the culture of consumption in the region is. Our present life depends on how our ancestors lived. It is important to instill knowledge-based and understanding-based responsibility for their actions in young people. However, this cannot be achieved without a place, time and individual perspective. In this sense, sustainability is three-dimensional. And bearing in mind the tridimensionality of the L. Seghezzo's (2009) *place* element and including into the concept of place not only geographical, but cultural and health dimensions also, education for sustainable development becomes five-dimensional, that is encompasses five dimensions. As is argued by J. Hucle (2012), it is necessary that educatee would be acquainted with the forms of environmental, ecological and global citizenship that give expression to the Earth Charter principles and our responsibilities to other species and people at a distance in space and time (Hucle, 2012).

Accordingly, the more the individual, when evaluating quality of life, is able to move away from the concept *Here – Now – I*, the more he is approaching the sought-after concept of sustainable development in the context of *World – Future – Mankind*. The more the person realises his own influence, understands the extent of his behaviour with respect to time, place and other people, the better sustainability competence he has. This relates to a sense of responsibility which increases with the increase of belief in their own possibilities to influence the surrounding world, to influence changes. Similar to Postconventional, or principled, level of L. Kohlberg's theory of moral development (Kohlberg, 1984) it sees ethical principles as prior-to-society. The attitude allows sustainability as a process as well as a goal. L. Kohlberg describes the attitude of the level: When laws violate… principles, one acts in accordance with the principle (Kohlberg, 1984). This approach may arise in educatees in the final years of school of general education and the segments of higher education. The person on the level of development chooses the principled action knowing that individual goals of part of society will oppose, or at least doubt his choice. At this level, civil education is thought both as a separate and as an integrated subject. In order to encourage it, the educator must create opportunities that his educatee would engage in the reflection of his own activity and personality, encompassing the analysis of future projections.

The application of *Place – Permanence – Persons* paradigm in education for sustainable development is shown in Figure 1.

The application of L. Seghezzo's (2009) *Place – Permanence – Persons* model in educology enables to convey to educatees a general context of sustainable development and to form an appropriate concept of quality of life.
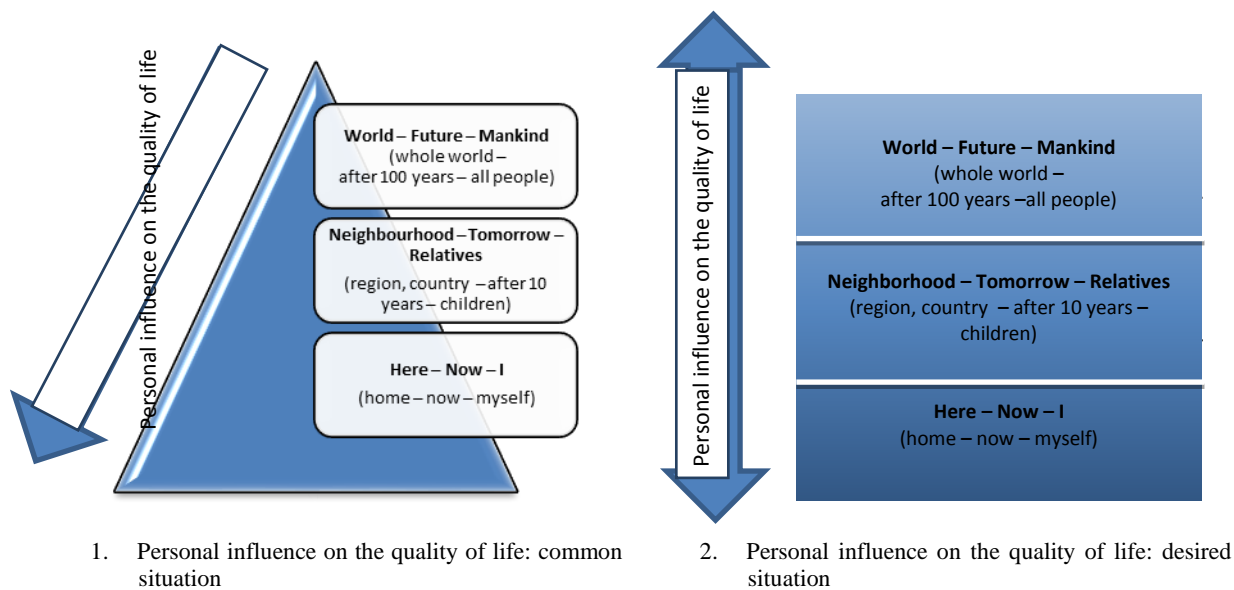
1. Personal influence on the quality of life: common situation
2. Personal influence on the quality of life: desired situation

Figure 1. The application of a *Place – Permanence - Persons* paradigm in education for sustainable development

Conclusions

Sustainable development is impossible if it remains only at political – international and national – levels. The implementation of policy documents is impossible without the personal attitudes of the members of society with respect to sustainability, because personal attitudes determine actions giving rise to sustainable development, whereas policy documents and rights encourage more often the acting one to formally comply. Because of that, it is necessary to form the attitudes of sustainability when educating the members of society. In order to implement a sustainable development paradigm at a personal educatee's level, it is important to take into consideration not only the areas of sustainable development, but also the levels of its implementation. It is important to ensure an educatee's concept of quality of life corresponding to sustainable development, which encompasses the perspectives of place, time and personal approach, which are characteristic of different age periods of educatees. Due to integral development encompassing parallel cognitive and behavioural evolution, it is impossible to segment the education of sustainable development only into cognition or only into the action. Therefore, it is impossible to explain sustainable development by employing one, e.g., personal or time, perspective. Despite such dimension of sustainability, in scientific discourse, integrated approach to education for sustainable development is often developed, sustainable development is presented as a whole. The essence of sustainable development is continuous evolution, therefore, only systemic and overall application of the paradigm or principle is possible – in every area, at every level of the governance of society. Sustainable develop-

ment will always be related to human values, human attitude towards environment, surrounding people and their future, his level of responsibility and actions. Both conveying the content of sustainable development and assessing the depth of the educatee's understanding, the dimension of the concept of quality of life and the level of responsibility are among fundamental things. The goal is to involve educatees in thinking through both personal and broader societal issues and to hold a mirror to the world and show it as it is and as it has produced and shaped its own nature. That is what O'Connor (1998, p. 52) invited to do.

References

1. ADKINS B., FOTH M., SUMMERVILLE J., HIGGS P., 2007, Ecologies of innovation – Symbolic aspects of cross-organizational linkages in the design sector in an Australian inner-city area, in: *American Behavioral Scientist,* vol. 50, no 7, p. 922-934.
2. COHEN-ROSENTHAL E., 2004, Making sense out of industrial ecology: a framework for analysis and action, in: *Journal of Cleaner Production,* vol. 12, no 8-10, p. 1111-1123.
3. COTTLE S., 2004, Producing nature(s): on the changing production ecology of natural history TV, in: *Media Culture & Society*, vol. 26, no 1, p. 81-101.
4. *Darnaus vystymosi darbotvarkė iki 2030 metų, 2015,* https://sustainabledevelopment.un.org/post2015/transformingourworld (22.06.2016).
5. DIENER E., SUH E., 1997, Measuring quality of life: economic, social and subjective indicators, in: *Social Indicators Research,* vol. 40, p. 189-216.

6. FLORIDA R., 2002, *The Rise of Creative Class. And how it's transforming work, leisure, communitiy and everyday life*, Basic, New York.

7. FROMM E., 1976, *To Have or to Be? The nature of the psyche,* Harper & Row, New York

8. HUCLE J., 2012, Towards a greater realism in learning for sustainability, in: *Learning for Sustainability,* p. 35-48, http://john.huckle.org.uk/download/2958/LfSChapterOne2012.pdf (10.07.2016).

9. HUGHES M., 2006, Affect, Meaning and Quality of Life*,* in: *Social Forces,* vol. 85, no. 2, p. 611-629.

10. KAČERAUSKAS T., 2016, Discourses of Ecology and the Sketches of Creative Ecology in the Context of Sustainable Development, in: *Problemy Ekorozwoju/ Problems of Sustainable Development*, vol.11, no.1, p. 31-39.

11. KOHLBERG L., 1984, *The Psychology of Moral Development. Nature and Validity of Moral Stages,* Harper and Row, San Francisco.

12. MASLAW A.H., 1954. *Motivation and personality,* Harper & Bros., New York, in: Seghezzo, 2009.

13. O'CONNOR J., 1998, *Natural Causes. Essays in Ecological Marxism,* Guilford, New York.

14. PACE P., 2010, *E*ducation for sustainable development: current fad or renewed commitment to action*?* In: *Journal of Baltic Science Education,* vol. 9, no. 4, p. 315-323.

15. PAWŁOWSKI A., 2009, How many dimensions does sustainable development have?, in: *Sustainable Development*, vol. 16 no 2, p. 81-90.

16. PAWŁOWSKI A., 2011, *Sustainable Development as a Civilizational Revolution. Multidimensional Approach to the Challenges of the 21st century,* CRC Press, Taylor & Francis Group, A Balkema Book, Boca Raton, Londyn, Nowy Jork, Leiden.

17. SEGHEZZO L., 2009, The five dimensions of sustainability, in: *Enironmental Politics,* vol.18, no. 4, p. 539-556.

18. SPRINGETT D., 2016, Education and the Problems of Sustainable Development, in: *Problemy Ekorozwoju/ Problems of Sustainable Development,* vol. 11, no 1, p. 7-14.

19. Study Protocol for the World Health Organization Project to Develop a Quality of Life Assessment Instrument (WHOQOL) (1993). *Quality of Life Research,* vol. 2, no. 2, p. 153-159, http://www.jstor.org/stable/4034396 (21.08.2016).

20. *The World Summit on Sustainable Development. People, planet, prosperity,* 2002, http://ec.europa.eu/environment/archives/wssd/documents/wssd_brochure.pdf (21.08.2016).

21. WCED (World Commission on Environment and Development), 1987, *Our Common Future,* Oxford University Press, New York.

22. ZOLLER U., 2015, Research-Based Transformative Science/ STEM/ STES/ STESEP Education for Sustainability Thinking. From: Teaching to 'Know' to Learning to 'Think', in: *Sustainability*, vol 7, no. 4, p. 4474-4491.

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