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ASSESSMENT OF INCLUSIVE EDUCATIONAL SPACE IN HIGHER EDUCATION INSTITUTION

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Abstract. This article is devoted to development, adaptation and approbation of the methodology for analysis and assessment of an inclusive educational space in a higher education institution which implements education for students with limited health abilities. Relevance of the topic is determined by the importance of implementation of effective inclusive education to ensure sustainable development of society. The validity of data presented in the research is provided by the representativeness of sample and the use of such methods of data processing and analysis as factor analysis, cluster analysis, and classification tree analysis. The five factor structure of the researched phenomenon presented in the research allows analysing the inclusive educational space at a higher education institution from different points of view. The formation of homogeneous clusters in the space of identified clusters will make it possible developing targeted programs for working with teachers and other participants of the educational process in the higher education institution, which will help to create a high-quality inclusive educational environment in the higher education institution and increase the effectiveness of inclusive education.

Keywords: sustainable development, inclusive education, inclusive educational space, factor analysis, cluster analysis

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1. Introduction

Sustainability and security assessment currently arises as comprehensive and integrated approach. Sustainable development is a fundamental and overarching objective of the European Union countries. It aims to improve the quality of life of citizens through sustainable communities that manage and use resources, by linking economic development and security, protection of the environment and social justice (Miriam, Radoslav 2017; Dobrovolskienė et al. 2017; Rajnoha & Lesnikova, 2016; Baronienė, Žirgutis 2016; Dirzytė et al. 2017; Stjepanović et al. 2017; Boonyachut 2016; Oganisjana et al. 2017; Akhter, 2017).

In a number of publications, the problems of integrating people with disabilities into modern society are presented in terms of social justice (Polat, 2011; Theoharis, 2007; Dudzevičiūtė, 2012; Korsakienė, Breivytė &Wamboye, 2011; Tsaurkubule, 2016).

The development of inclusive education is an effective mechanism for the development of an inclusive society – a society for all and for everyone. This is the key importance of inclusive education for the sustainable de-

velopment of society. At the 70th session of the United Nations General Assembly, where new goals for sustainable development were adopted, UNESCO reaffirmed the importance of inclusive and qualitative education for all in achieving sustainable development (Gupta & Vegelin, 2016; Arts, 2017; Wals, 2014). Inclusive education in the context of sustainable development has found reflection in the studies of several authors (Dombrovskis, Guseva &Capulis, 2015; Fuller, Bradley & Healey, 2004; Kovalev, Zakharov & Staroverova, 2012; Malhotra, 2002; Wolbring & Burke, 2013; Lozano, Lukman, Lozano, Huisingh &Lambrechts, 2013).

The modern system of treating people with limited health abilities aims to ensure not just social protection, but the full integration of these people into all spheres of society. A necessary part of this process is providing access to qualified, highly paid and prestigious work, which in turn is impossible without obtaining a high-quality professional education. The close connection between the education of a disabled person and the degree of his or her participation in the life of society is recognized in the world practice (Riddell, Tinklin, & Wilson, 2005).

Foreign practice of inclusion in education has rich experience and legislative consolidation (Sturm, 2006; Ainscow & Sandill, 2010; Hitch, Macfarlane, & Nihill, 2015; Adams & Brown, 2006; Miles & Singal, 2010; Kyriazopoulou & Weber, 2009; Pilner & Johnson, 2004.). The Russian experience is only just beginning to evolve and develop. In December 2006, the UN General Assembly adopted the Convention on the Rights of Persons with Disabilities. This Convention was developed with the active participation of disabled people. The Convention came into force on 3 May 2008. Currently, 137 countries have signed the Convention, 45 of which have ratified it. In the Russian Federation, its ratification was carried out in 2012. The Convention recognizes that a person is disabled not only because of his limitations, but also because of the barriers that exist in society. Ratification of the Convention marks the intention of a particular country to create a material environment for the fulfilling life of a disabled person – a full-fledged member of society, to develop a system of inclusive education. In the Russian Federation, the development of inclusive education is lagging behind European states and America, but it is possible to analyze the experience of other countries, identify positive features of inclusion and adapt them to the conditions of the Russian education system.

Inclusive education is a certain innovation for the education system in Russia, therefore, it requires competent management at all stages of its modelling and implementation. The effectiveness of inclusive education presupposes the creation of a set of conditions, among which there is a creation of an inclusive educational space. The educational space (educational environment) is a system of influences and conditions for the formation of a personality; a set of opportunities for its development, contained in the social and spatial-objective environment (Yasvin, 2001). The category “educational environment” connects the understanding of education as a sphere of social life, and environment as a factor of education (Baeva, 2002).

An inclusive educational environment is a type of educational environment that provides all subjects of the educational process with opportunities for effective self-development. It presupposes the solution of the problem of education for students with LHA (limited health abilities) by adapting the educational space to the needs of each student, including the reform of the educational process, methodological flexibility and variability, a favourable psychological climate, re-planning of the classrooms so that they meet the needs of all children without exception and ensure, as far as possible, full participation of students in the educational process. The security of inclusive space is based on the availability of the necessary normative and legal documents in the university, the methodological base, the specialists of psychological and pedagogical support, and on the interaction of specialists with one another.

On the basis of the understanding and acceptance of the philosophy of inclusive education, the following basic conditions are necessary to effectively address the challenges of building an inclusive educational environment as a system that implements equal access to education and the development of various categories of students. These include the following conditions:

- understanding and acceptance of the philosophy of inclusion;
- special training of teaching staff included in the inclusive process;

- architectural transformation of an educational institution leading to a barrier-free environment;
- availability of appropriate methodological guides, recommendations and developments.

The effectiveness of the inclusive educational space of a higher education institution is ensured not only by the structure and level, but also by its perception and assessment by all participants of the educational process (Cotton, Warren, Maiboroda & Bailey, 2007; Moriña, Lopez & Molina, 2015). For the purpose of self-analysis of the inclusive educational environment created in the higher education institution, which implements inclusive practice, a methodology was developed that allows the educational institution to carry out a self-assessment of the educational space in terms of the effectiveness of implementation of inclusive education and to develop development and improvement plans based on the analysis of the obtained results.

2. Design and the sample of the research

The empirical basis of the research was based on the data obtained in the framework of a sociological research aimed at assessing the inclusive educational space of the Tyumen region. The survey was organized and conducted by the team of the Institute of Pedagogy and Psychology of the Tyumen State University, in cooperation with the educational sociological laboratory at the Department of General and Economic Sociology of the Financial and Economic Institute and OOO "Siberian Innovations" from March 14 to April 19, 2017. The survey involved 2,035 respondents from 10 higher education institutions.

Test instruments used for the research were developed and adapted by the authors of the research. The development of the questionnaire included the selection and grouping of indicators reflecting the respondents` assessment of themselves and their educational institution regarding the implementation of inclusive education. The structure of the questionnaire and the formulation of indicators were based on a competence approach to education, as the foundation for the changes in the educational system. The implementation of inclusive practice is associated with the allocation and meaningful description of the teacher`s competence as a set of personal and professional qualities that are actualized in the innovative environment of an inclusive environment that enable him or her to successfully solve the tasks associated with organizing the education of all students without exception, taking into account the specificity of their educational needs.

When selecting the indicators, normative legal documents, the results of earlier studies, interviews with students with limited health abilities (LHA), expert assessments were used. A three-factor structure of the questionnaire was assumed a priori. The identified factors reflected the respondents` readiness to form an inclusive educational environment in the higher education institution, their level of knowledge about integrated and inclusive education, and the extent to which the respondents` skills for working in an inclusive educational environment were formed. Some questions of the questionnaire made it possible to judge the level of barrier-free environment created in the higher education institution where the respondent works. For the purpose of analyzing the factor structure of the researched phenomenon, factor analysis was performed. A posteriori a five-factor structure of the phenomenon was developed. Cluster analysis in the space of the identified factors made it possible to group the respondents into five clusters characterized by a similar relation to the researched phenomenon.

The validity of the results obtained is ensured by: sample representativeness; application of methods adequate to the purpose and objectives of the research; reliability of empirical information obtained using modern methods of data collection, measurement, processing and interpretation.

3. Research results

With the purpose of analyzing the factor structure of the researched phenomenon, a factor analysis in the space of indicators was performed, reflecting the respondent's assessment of himself and his educational institution regarding the inclusive education of students with LHA. Kaiser-Meyer- Olkin Measure of Sampling Adequacy (KMO) is 0.925, which indicates the expediency of using factor analysis to analyze the structure of the phenomenon on the basis of the proposed questionnaire (Table 1).

Table 1. Indicators, factors and factor loads reflecting the respondent's assessment of himself and his educational institution regarding the implementation of inclusive education

Context of the indicator	Factors				
	F1	F2	F3	F4	F5
Ability to use methods and techniques of corrective action	,757				
Ability to use special approaches to learning	,731				
Ability to carry out psychological and pedagogical support	,726				
Ability to assess the mastering of educational material by students with LHA	,711				
Ability to develop and implement individual programs	,681				
Knowledge of international documents reflecting the rights of persons with LHA		,833			
Awareness of foreign experience in inclusive education		,804			
Knowledge of Russian laws in the field of inclusive education		,784			
Awareness of the Russian experience in inclusive education		,767			
Availability of systematic knowledge about inclusive education	,471	,656			
Ability to create a favourable psychological climate in the audience			,848		
Ability to help in overcoming difficulties in the learning process			,812		
Ability to observe protective-pedagogical and sparing regimes			,765		
Ability to evaluate educational results	,434		,634		
The need to improve skills of working in an inclusive environment				,816	
The need to achieve results in teaching students with LHA				,777	
Awareness of the social relevance of working with students with LHA				,661	
Readiness to assist students with LHA				,550	
Readiness to show empathy towards students with LHA				,503	
Material and technical conditions for teaching students with LHA					,847
Level of adaptation for the movement of students with LHA					,788
Qualified specialists for working in an inclusive environment					,706
Tolerant environment for teaching students with LHA					,632

Source: composed and calculated by the authors

Factor analysis made it possible to reveal the five-factor structure of the phenomenon:

- the factor "ability to use methodology" (F1) reflects the ability to use special approaches, methods, techniques for teaching students with LHA, develop and implement special educational programs, carry out psychological and pedagogical support;
- the factor "knowledge of theory" (F2) allows to assess the level of systematic knowledge about inclusive education, knowledge of Russian and international laws in the field of inclusive education, awareness of Russian and foreign experiences in inclusive education;
- the factor "practical skills" (F3) reflects the ability to work with students with LHA, help them to overcome difficulties in the learning process, create a favourable psychological climate, evaluate educational resources;
- the factor "readiness for implementation" (F4) assesses the respondent's readiness to form an inclusive educational environment in educational organizations, the need to improve working skills in an inclusive environment, awareness of the social importance of working with students with LHA;
- the factor "environmental conditions" (F5) allows to assess an open inclusive educational environment created in an educational institution represented by the respondent, including the material and technical conditions for teaching students with LHA, the level of adaptation for the movement of students with LHA, the availability of qualified specialists, tolerance.

Further, the identified factors will be called inclusion factors.
The total percentage of variance attributable by the identified factors is 67.7%. The factor F1 accounts for 16.3% of the total variance, F2 – 15.8%, F3 – 13.7%, F4 – 11%, F5 – 10.9%.

The quantitative values of the factors are calculated as the average arithmetic values of the corresponding indicators. Statistical analysis of factors allows drawing the following conclusions:

- the respondents most highly assess the factor of their readiness to implement inclusive education, the lowest assessment has the factor of the knowledge necessary for this;
- the widest range of opinions is observed when assessing the factor that reflects the ability of respondents to work with the necessary methods, the respondents are most unanimous in assessing the readiness for implementation of inclusive education;
- the factor of readiness for implementation of inclusive education varies in the range from 1 to 5, relative to the average value of 3.89, but for 50% of respondents, assessment is more than 4.2;
- the factor of knowledge varies from 1 to 5, relative to the average value of 2.41, but for the half of the respondents its assessment does not exceed 2.2, and 25% of respondents assess this factor to be below 1.4;
- the factor of environment in average is assessed by respondents at 2.95, and half of the respondents assess it to be at least 3.

Table 2. Correlation coefficients among the factors

Factors	Ability to use methodology	Knowledge of theory	Practical skills	Readiness for implementation	Environmental conditions
Ability to use methodology	1	,677**	,646**	,364**	,159**
Knowledge of theory		1	,447**	,318**	,197**
Practical skills			1	,400**	,139**
Readiness for implementation				1	,194**

Source: composed and calculated by the authors

Among all the identified factors, direct significant correlations are observed, which indicates their interconnection. The closest connection is observed between the factor of knowledge and the factor that reflects the ability to implement the methodology. The factor characterizing the environmental conditions is most weakly connected to other factors (Table 2).

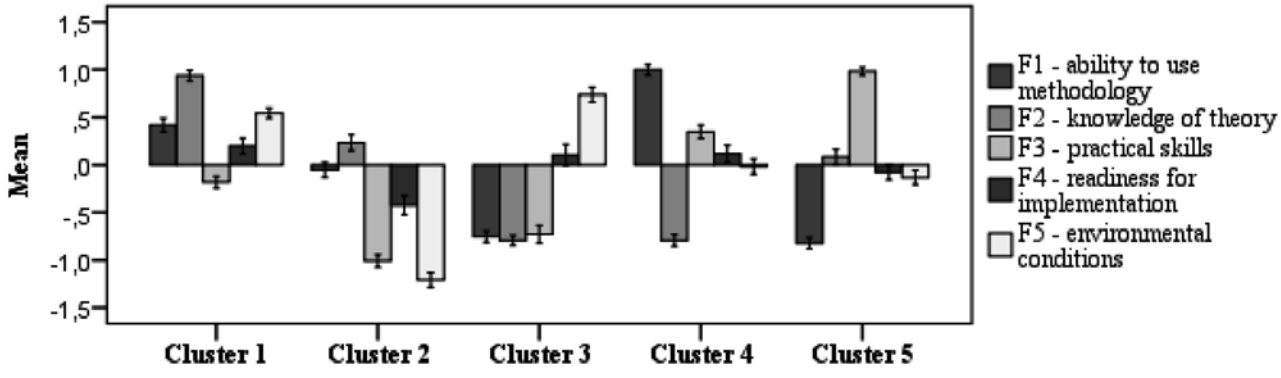

Fig. 1. Average values of standardized factor indicators in selected clusters

Source: Own research

Two-stage cluster analysis in the space of the identified factors characterizing the perception of inclusive education allowed grouping the respondents into five homogeneous clusters (Figure 1).

The first of the identified clusters contains the largest number of respondents (473), which is 21.7% of the research sample. Respondents of this cluster assess the most highly (above the rest and higher than the average on aggregate) their level of knowledge in the field of inclusive education, the ability to use the methodology and the level of inclusive environment created in the educational institutions where they work. The level of practical skills and readiness for implementation of inclusive education is also higher than the average.

Respondents of the second cluster, which contains 377 people (17.2% of the sample), demonstrate a high readiness to implement inclusive education with virtually no necessary knowledge and skills.

Respondents of the third cluster (350 people, which is 16%) appeared to be the least prepared to implement inclusive education. All factors are assessed by them lower than the average on aggregate and the absolute value is not higher than 2.6.

Respondents of the fourth cluster (548 people, which is 25.1%) are characterized by a rather low level of necessary knowledge, a high level of skills associated with the implementation of methods, and a high level of readiness to implement inclusive education, with the lowest level of the inclusive environment created in the educational institution.

For respondents in the fifth cluster (434 people, which is 19.9%) the greatest advantage is the ability to work with students with LHA, which is not characteristic for respondents from other clusters, but at the same time the level of skills associated with the implementation of methodology is lower than average on aggregate.

According to the constructed classification tree, the factor F1, which reflects the ability of respondents to implement the methods of work connected with inclusive education, has the greatest discriminant ability.

On the basis of the constructed classification tree, the following prognostic rules for classifying a respondent as belonging to a particular cluster can be formulated:

- When F1> 2.8 and F2 <= 2.8, the respondent with a probability of 78.3% enters Cluster 4.
- When F1> 2.8, F2> 2.8, F5 <= 3.5, with a probability of 68.4%, the respondent enters Cluster 2.
- When F1> 2.8, F2> 2.8, F5> 3.5, F3 <4.3, the respondent enters Cluster 1 with a probability of 91.1%.
- When F1 <= 2.8, F3> 3.75, the respondent with a probability of 78.7% enters Cluster 5.
- F1 <= 2.8, F3 <= 3.75, F5 <= 3.2, the respondent with probability 73.4% enters Cluster 2.

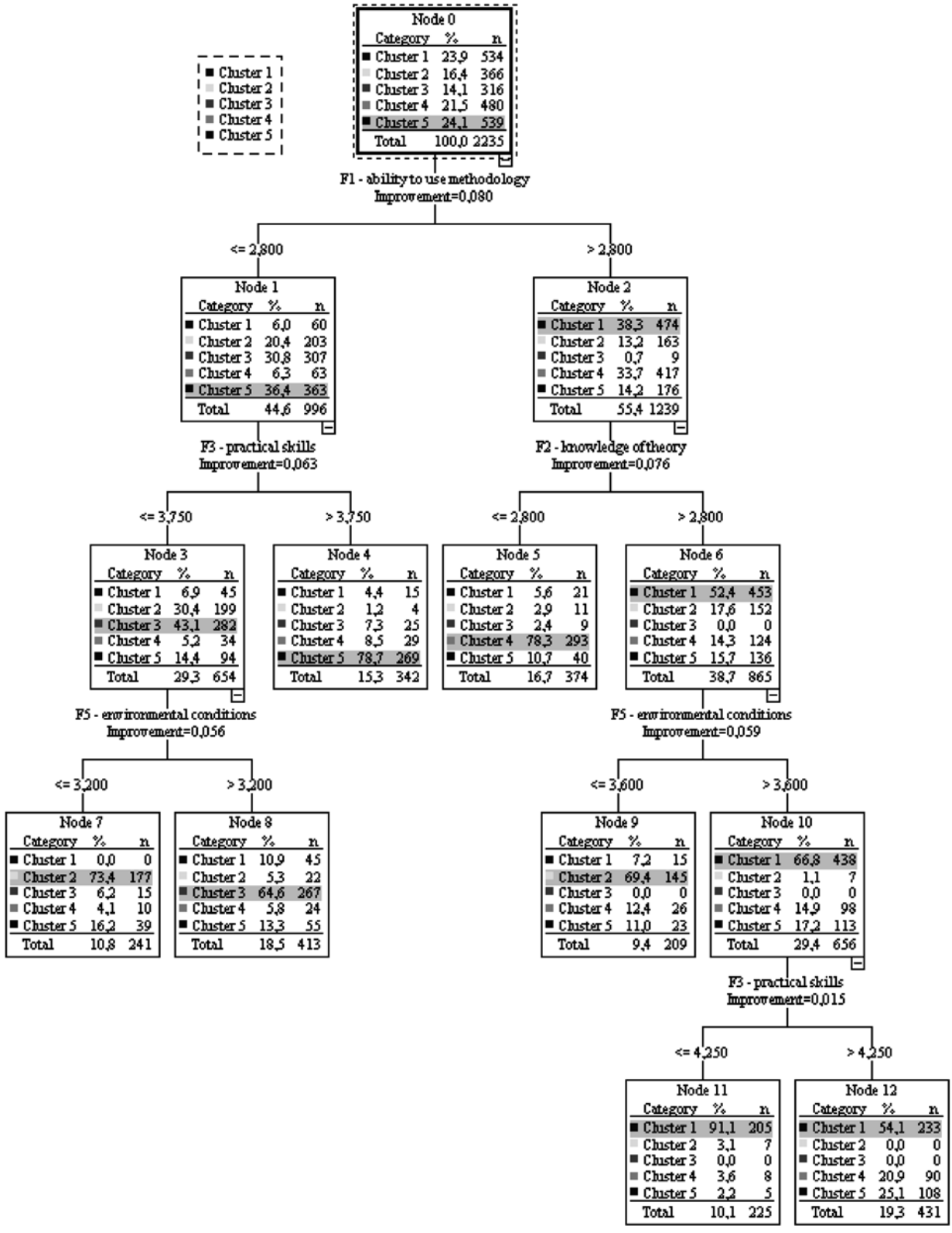

Fig. 2. Classification tree in the space of inclusion factors

Source: Own research

The analysis of the tree constructed in the space of inclusion factors (Figure 2) will allow predicting the distribution of respondents according to clusters of inclusion based on the results of processing the questionnaire, without conducting a cluster analysis procedure.

Conclusions

The inclusive educational space of a higher education institution is a multifactor phenomenon, and its perception by the participants of the educational process is multidimensional.

Despite the fact that most teachers of higher education institutions demonstrate readiness to implement inclusive education in their higher education institution, their perception and assessment of the existing inclusive space may differ.

With the purpose of effective implementation of inclusive education in the higher education institution, targeted work with teachers is needed depending on at what level of perception and understanding of inclusion they are, and to which of the identified clusters they belong.

The developed methodology will allow higher education institutions, which implement inclusive education, to carry out a self-assessment of the educational space in terms of the effectiveness of inclusive education and develop development and improvement plans based on the analysis of the obtained results.

References

Adams, M.; Brown, S. 2006. *Towards inclusive learning in higher education: Developing curricula for disabled students*. New York, NY: Routledge.

Ainscow, M.; Sandill, A. 2010. Developing inclusive education systems: the role of organisational cultures and leadership. *International Journal of Inclusive Education* 14(4): 401-416.

Akhter, F. 2017. Unlocking digital entrepreneurship through technical business process, *Entrepreneurship and Sustainability Issues* 5(1): 36-42. http://doi.org/10.9770/jesi.2017.5.1(3)

Arts, K. 2017. Inclusive sustainable development: a human rights perspective. *Current Opinion in Environmental Sustainability* 24: 58-62.

Baeva, I. A. 2002. *Psychological safety in education*. SPb.: Publishing house SOYUZ, 1.

Baronienė, L.; Žirgutis, V. 2016. Management decisions for sustainable development: medical software case study, *Entrepreneurship and Sustainability Issues* 4(2): 129-145. http://doi.org/10.9770/jesi.2016.4.2(2)

Boonyachut, S. 2016. Sustainability of community's entrepreneurship: case of floating market at Ladmayom, *Entrepreneurship and Sustainability Issues* 4(2): 211-219. http://doi.org/10.9770/jesi.2016.4.2(8)

Cotton, D. R. E.; Warren, M. F.; Maiboroda, O.; Bailey, I. 2007. Sustainable development, higher education and pedagogy: a study of lecturers' beliefs and attitudes. *Environmental Education Research* 13(5): 579-597.

Dirzytė, A.; Rakauskienė, O. G.; Servetkienė, V. 2017. Evaluation of resilience impact on socio-economic inequality, *Entrepreneurship and Sustainability Issues* 4(4): 489-501. http://doi.org/10.9770/jesi.2017.4.4(7)

Dobrovolskienė, N.; Tvaronavičienė, M.; Tamošiūnienė, R. 2017. Tackling projects on sustainability: a Lithuanian case study, *Entrepreneurship and Sustainability Issues* 4(4): 477-488. http://doi.org/10.9770/jesi.2017.4.4(6)

Dombrovskis, V.; Guseva, S.; Capulis, S. 2015. Inclusive Education in Latvia for Children with Functional Motor Disorders in the Context of Sustainable Development. Izvestiya of Saratov University. New Ser. Ser. Educational Acmeology. Developmental Psychology. Vol. 4, iss. 4(16): 300-306. http://dx.doi.org/10.18500/2304-9790-2015-4-4-300-306

Dudzevičiūtė, G. 2012. Conceptual approaches towards sustainability, *Journal of Security and Sustainability Issues* 1(4): 261-272. http://dx.doi.org/10.9770/jssi.2012.1.4(3)

Fuller, M.; Bradley, A.; Healey, M. 2004. Incorporating Disabled Students within Inclusive Higher Education Environment. *Disability and Society* 19(5): 455-468.

Gupta, J.; Vegelin, C. 2016. Sustainable development goals and inclusive development. *International Environmental Agreements: Politics, Law and Economics* 16(3): 433-448.

Hitch, D.; Macfarlane, S.; Nihill, C. 2015. Inclusive pedagogy in Australian universities: A review of current policies and professional development activities. *The International Journal of the First Year in Higher Education* 6(1): 135-145. http://dx.doi.org/10.5204/intj-fyhev6i1.254

Korsakiene, R.; Breivyte, I.; Wamboye, E. 2011. Sustainable development and Human Development Index, *Journal of Security and Sustainability Issues* 1(2): 103–112. http://dx.doi.org/10.9770/jssi.2011.1.2(3)

Kovalev, E. V.; Zakharov, V. A.; Staroverova, M. S. 2012. *Inclusive education: Handbook of teacher working with children with disabilities:* Methodical manual.

Kyriazopoulou, M.; Weber, H. 2009. (Eds.). *Development of a set of indicators – for inclusive education in Europe*. Odense, Denmark: European Agency for Development in Special Needs Education.

Lozano, R.; Lukman, R.; Lozano, F. J.; Huisingh, D.; Lambrechts, W. 2013. Declarations for sustainability in higher education: becoming better leaders, through addressing the university system. *Journal of Cleaner Production* 48: 10-19.

Malhotra, V. M. 2002. Introduction: sustainable development and concrete technology. *Concrete International 24* (7).

Miles, S.; Singal, N. 2010. The Education for All and inclusive education debate: conflict, contradiction or opportunity? *International Journal of Inclusive Education* 14(1): 1-15.

Miriam, J.; Radoslav, J. 2017. The assessment of corporate social responsibility: approaches analysis, *Entrepreneurship and Sustainability Issues* 4(4): 441-49. http://doi.org/10.9770/jesi.2017.4.4(4)

Moriña, A. D.; Lopez, R.G.; Molina, V.M. 2015. Students with disabilities in higher education: a biographical-narrative approach to the role of lecturers, *Higher Education Research and Development* 34(1): 147-159.

Oganisjana, K.; Svirina, A.; Surikova, S.; Grīnberga-Zālīte, G.; Kozlovskis. K. 2017. Engaging universities in social innovation research for understanding sustainability issues, *Entrepreneurship and Sustainability Issues* 5(1): 9-22. http://doi.org/10.9770/jesi.2017.5.1(1)

Pilner, M.S.; Johnson, R.J. 2004. Historical, theoretical and foundational principles of universal instructional design in higher education, *Equity and Excellence in Education* 37: 105- 113.

Polat, F. 2011. Inclusion in education: A step towards social justice. *International Journal of Educational Development* 31(1): 50-58.

Rajnoha R.; Lesníková P. 2016. Strategic Performance Management System and Corporate Sustainability Concept - Specific Parametres in Slovak Enterprises, *Journal of Competitiveness,* 8(3): 107-124. http://doi.org./10.7441/joc.2016.03.07

Riddell, S.; Tinklin, T.; Wilson, A. 2005. New Labour, social justice and disabled students in higher education. *British Educational Research Journal* 31(5): 623-643.

Stjepanović, S.; Tomić, D.; Škare, M. 2017. A new approach to measuring green GDP: a cross-country analysis, *Entrepreneurship and Sustainability Issues* 4(4): 574-590. http://doi.org/10.9770/jesi.2017.4.4(13)

Sturm, S. 2006. The architecture of inclusion: Advancing workplace equity in higher education. *Harv. JL & Gender* 29: 247.

Theoharis, G. 2007. Social justice educational leaders and resistance: Toward a theory of social justice leadership. *Educational administration quarterly* 43(2): 221-258.

Tsaurkubule, Z. 2016. Towards sustainable development: changing the model of social policy in Latvia. *Journal of Security and Sustainability Issues,* 5(4). DOI: http://dx.doi.org/10.9770/jssi.2016.5.4(10)

Wals, A. E. 2014. Sustainability in higher education in the context of the UN DESD: a review of learning and institutionalization processes. *Journal of Cleaner Production* 62: 8-15.

Wolbring, G.; Burke, B. 2013. Reflecting on education for sustainable development through two lenses: Ability studies and disability studies. *Sustainability 5*(6): 2327-2342.

Yasvin, V. A. 2001. *Educational environment: from modeling to design.* M, 2001. 176 p.

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