Teaching Innovations, Volume 29, Issue 4, pp. 123–139
doi: 10.5937/inovacije1604123O

Violeta R. Orlović Lovren[1]
University of Belgrade, Faculty of Philosophy

Original paper

University Teachers in Transition to Sustainable Development: One Concept and Many Questions

Paper received: Aug 23th 2016
Paper accepted: Dec 15th 2016
Article Published: Jan 30th 2017

Extended summary

The adoption of the Global Goals of Sustainable Development signified the perspective of the future "after 2015", when education plays a significant role. Special attention has been given to higher education and its democratic character, as well as to the development and role of the critically-thinking and responsible citizens "for the 21st century". Global policies and theoretical concepts include requirements for reflexive and innovative teachers whose teaching is based on transformative approaches to learning and education and deep understanding of a complex construct such as sustainable development.

According to the results of the research, the main obstacle to the implementation of this concept is, apart from its various definitions, an inadequate offer of initial training and professional development programmes for teachers who are supposed to carry out this demanding task.

Taking the important role of university teachers in this process as a staring point, and bearing in mind the specificity of our conditions in the previously mentioned wider context, this paper offers the findings of an empirical research conducted at the University of Belgrade. The research was carried out at the beginning of 2016, and the goal was to analyse the university teachers' personal definitions or understanding of the concept of "sustainable development".

The technique used was a survey conducted by means of a specially designed questionnaire, prepared and distributed in a digital form ("online"). The respondents' personal definitions were analysed by applying a qualitative content analysis, while the obtained data were coded by taking the scope of sustainable development dimensions as a main criterium. As far as quantitative data processing is concerned, Fisher's Exact test was used for testing the associa-

1 violeta.orlovic@f.bg.ac.rs

tion between categorical variables, while Cramer's V Coefficient was used for determining the strentgth of the association. The differences among the categories were tested by using a one-factor univariate analysis of variance for independent samples, whereas Eta square was used as a measure of effect size.

The sample included 109 teachers of the University of Belgrade, teaching at faculties that belong to different scientific groups. Assistant professors, associate professors and full professors from 21 out of 31 faculties of the University of Belgrade, from all four scientific groups, took part in the research.

Seven categories –from one-dimensional to comprehensive ones – were identified on the basis of the qualitative analysis of the respondents' definitions of sustainable development. According to the findings, the smallest percentage of respondents (approximately 5%) took into account only the economic dimension in defining sustainable development, whereas the majority (nearly 40%) defined this construct comprehensively and in conformity with its essence. However, roughly 15% of university teachers defined sustainable development too narrowly or as an ideological concept, and these responses were therefore included in the "vague or undecided" category.

By analysing the corelation among the definitions (as a dependent variable) and the group of faculties that the institutions in which the respondents are employed belong to, the years of working experience, representation of sustainable development in the formal higher education, and integration of sustainable development in the subjects the respondents are teaching (as independent variables), the final statistical analysis indicated that there was no statistical significance in any of the monitored relations.

In contrast, the findings about the corelation between the groups of sciences and the representation of the concept of sustainable development in the curricula show statistical significance and speak in favour of primarily technological faculties (F_{et} = 22,245, p = ,001; V = ,318, p = ,001). Similarly, there is a significant corelation between the representation of sustainable development in the current curricula of the University of Belgrade, or in the subjects taught by the teachers from our sample, and the representation of this concept in the curricula that were taught to the teachers when they were students themselves. Namely, only 30% of the teachers who were not familiar with the sustainable development issues in the course of their own studies, incorporate these topics in the curricula of the subject they are teaching today. On the other hand, 50% (F_{et} = 9,689, p = ,043; V = ,204, p = ,059) of the teachers who were familiar with sustainable development to an extent while they were students, do incorporate at least some topic related to sustainable development in the curricula of the subjects they are teaching now.

A tendency was also observed, though statistically not particularly significant, that the majority of the respondents whose definitions demonstrate little or no understanding of the essence of the sustainable development concept are exactly those teachers who had not been familiar with these issues during their student years.

The analysis of the teachers' perceptions of sustainable development, though conducted on a small sample in this research, is a possible way of determining implicitly whether the values inherent to sustainable development are acceptable to our university teachers. The acknowledgment of teachers' points of view regarding this area is a necessary prerequisite for

their involvement in the concept of sustainable development and motivation to implement it. The lack of information regarding sustainable development in the previous formal education of university teachers, with only 40% of the respondents having a thorough understanding of the concept, indicates that further research of educational needs is necessary. Future programmes of initial education, and particularly professional development of teachers, for integration of sustainable development in the higher education should be based on the findings of that research.

Key words: sustainability, teachers, university, teaching strategies.

References

- Brookfield, S. D. (2013). *Powerful Techniques for Teaching Adults*. San Francisco: Jossey–Bass.
- Cortese, A. (2003). The Critical Role of Higher Education in Creating a Sustainable Future. *Planning for Higher Education.* 31 (3), 15–22.
- Dyment, J. E. & Hill, A. (2015). You mean I have to teach sustainability too? Initial teacher education students' perspectives on the sustainability cross-curriculum priority. *Australian Journal of Teacher Education.* 40 (3). http://dx.doi.org/10.14221/ajte.2014v40n3.2.
- Filho, L. W. (2009). *Sustainability at Universities – Opportunities, Challenges and Trends*. Frankfurt am Main: Peter Lang.
- Filho, L. W., Manolas, E. & Pace P. (2015). The future we want. *International Journal of Sustainability in Higher Education.* 16 (1), 112–129.
- Filho, L. W. et al. (2015). *Integrative Approaches to Sustainable Development at University Level*. Switzerland: Springer International Publishing.
- Howard, P. (2012). Who Will Teach The Teachers? Reorienting Teacher Education for the Values of Sustainability. In: Battels, K. A. and Parker, K. A. (Eds.). *Teaching Sustainability / Teaching Sustainably* (150–159). Sterling, Virginia: Stylus.
- Jensen, J. (2014). Learning Outcomes for Sustainability in the Humanities. In: Boring, W. P. and Forbes, W. (Eds.). *Teaching Sustainability* (23–38). Nacogdoches: Stephen Austin State University Press.
- Milutinović, S., Nikolić, V. (2014). Rethinking higher education for sustainable development in Serbia: an assessment of Copernicus charter principles in current higher education practice. *Journal of Cleaner Production*. 62 (2014) 107-113. DOI: 10.1016/j.jclepro.2013.05.028.
- Moore, J. (2005). Barriers and pathways to creating sustainability education programs: policy, rhetoric and reality. *Environmental education research.* Vol. 11, No. 5, 537–555. DOI:10.1080/13504620500169692.
- Orlović-Lovren, V., Maruna, M., Crnčević, T. (2016). Contributing Towards More Sustainable Cities – Learning Through Collaboration. In: Filho, L. W. and Brandli, L. (Eds.). *Engaging Stakeholders in Education for Sustainable Development at University Level* (33–44). Switzerland World Sustainability Series: Springer International Publishing. DOI 10.1007/978-3-319-26734-0_3.

- Orlović-Lovren, V. (2017). Promoting sustainability in institutions of higher education – the perspective of university teachers. In: Filho, L. W., Azeiteiro, U. M., Alves, F., Molthan-Hill, P. (Eds.). *Handbook of Theory and Practice of Sustainable Development in Higher Education 4*. Switzerland: Springer International Publishing (u štampi).
- Orr, D. (2004). *Earth in Mind.* Washington/Covelo/London: Island Press.
- Pavlović, V. (2011). *Univerzitet i održivi razvoj*. Beograd: Fakultet političkih nauka.
- Riccaboni, A. & Trovarelli, F. (2015). Transition towards Sustainable Development: The Role of Universities. In: Filho, L. W. et al. (Eds.). *Integrative Approaches to Sustainable Development at University Level: Making the Links* (293–306). Switzerland: Springer Interntional Publishing.
- Santone S, Saunders, S., Seguin C. (2013). Education for Sustainability: A Transformative Paradigm for Teacher Education. *Creative change – Educational solutions*. Retrieved July 15, 2016 from www: http://www.creativechange.net.
- Savelyeva, T. (2012). Escaping the Structural trap of Sustainability in Academia through Global Learning Environments. In: Battels, K. A. and Parker, K. A. (Eds.). *Teaching Sustainability / Teaching Sustainably*. (229-237). Sterling, Virginia: Stylus.
- Thomas, I. (2009). Critical Thinking, Transformative Learning, Sustainable Education, and Problem-Based Learning in Universities. *Journal of Transformative Education*. 7, 245–264. Retrieved July 2, 2016 from www: http://jtd.sagepub.com/content/7/3/245.refs.html.
- UN (2015). *Agenda za održivi razvoj do 2030*. Pristupljeno 10. jula 2016. godine na: https://sustainabledevelopment.un.org.
- UNESCO (2005). *Guidelines and Recommendations for Reorienting Teacher Education to Address Sustainability.*
- UNESCO (2009). *Learning for a sustainable world: Review of contexts and structures for education for sustainable development.* Retrieved June 20, 2016. from www: www.unesco.org.
- UNESCO (2014). *Aichi-Nagoya Declaration on Education for Sustainable Development.*
- Van Poeck, K. & Vandenabeele, J. (2014). Education as a response to sustainability issues. *European Journal for Research on the Education and Learning of Adults* (221–236). DOI10.3384/rela.2000-7426.rela0111.
- Vincent, S. et al. (2015). Interdisciplinary Environmental and Sustainability Education and Research: Institutes and Centers at U.S. Research Universities. In: Filho, L. W. et al. (Eds.). *Integrative Approaches to Sustainable Development at University Level* (275–292). Switzerland: Springer International Publishing.
- White, R. M. (2015). Who Am I? The Role(s) of an Academic at a 'Sustainable University'. In: Filho, L. W. et al. (Eds.). *Integrative Approaches to Sustainable Development at University Level: Making the Links* (675–686). Switzerland: Springer International Publishing.