Croatian Journal of Education
Vol.19; Sp.Ed.No.3/2017, pages: 213-232
Preliminary communication
Paper submitted: 22nd March 2017
Paper accepted: 13th December 2017
https://doi.org/10.15516/cje.v19i0.2712

Contribution to the Development of Kindergarten/Preschool Teachers' Competences for Education for Sustainable Development in Preschool Institutions

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Abstract

One of the fundamental tasks of the kindergarten/ preschool teacher is to familiarize the child with its environment and optimal stimulation of its growth and development, including the development of the fundamental rights of children to an environment, clean air, drinking water, healthy living, and quality of childhood. The sensitization of children is of essential importance for the future of education for sustainable development, which needs to be developed from early childhood. The problem of the curriculum and work practices of kindergarten/preschool teachers includes questioning the competence for the successful practice of working with children in education for sustainable development. In this paper, we present some of the existing models of evaluation of the competence for lifelong education for sustainable development. We developed a measuring instrument, which measures particular characteristics explored in this paper, and we present the results of this preliminary research. The research was conducted on a sample of 65 teachers in five kindergartens/preschools. The constructed scale explains 48% of the total variance and can be used as an important base for future further questioning and development of competence model of kindergarten/preschool teachers. In this way, it represents a good foundation for reflection on the content of the curriculum of future initial education and professional development of kindergarten/preschool teachers in the field of lifelong education.

***Key words**: competence; environmental education/education for sustainable development; kindergarten/preschool teachers; kindergartens/preschools; lifelong learning; sustainable society.*

Introduction

Early and preschool education is a period of initial lifelong education and development when the child needs to be provided with the opportunity to develop all of his or her potential and abilities, as well as a period of creating the foundation for future growth and development in other stages of life. Creating the foundation for lifelong education, among other things such as family upbringing, implies providing the child with optimal growth and development, a holistic approach to the development of all of his or her abilities ranging from perceptive, cognitive, social, motor, and emotional ones. At the same time, optimum development implies a child's health in all these segments, viewed holistically. What are the preconditions and assumptions of such growth and development? How can children be provided with optimal and healthy growth and development in educational processes, i.e. in preschool institutions, kindergartens? What is and what should be the role of preschool teachers? We have been providing or at least trying to provide answers to these questions for decades. From the aspect of the underlying assumptions that provide the foundation for one of the most important documents in the Republic of Croatia, the National Curriculum for Early Childhood and Preschool Education (MZOS, 2014, p. 9), the child and childhood are understood as follows:

- "A child is a personality from birth and needs to be taken seriously and appreciated.
- A child is not an object in an educational process, but a social subject that participates, constructs, and largely determines his or her own life and development.
- Childhood is not just a preparatory stage for future life, but a period of life that has its values and culture.
- Childhood is a process of social construction, which children and adults build together.
- Childhood is a process that is always contextualized in relation to a certain space, time, and culture (socioconstructivism), and it varies with respect to the diversity of conditions and cultures in which it is taking place. Therefore, as there is no universal child, there is also no universal childhood."

On these grounds, when discussing growth and development we are actually discussing the rights of a child/children to growth and development. The Convention on the Rights of the Child (Unicef, 1989) is one of the most important documents that serves as a guideline to most preschool teachers and developers of educational policies and other important documents in national policies and reflections on/in early and preschool education. However, we would like to place special emphasis here on another document that, in a slightly simpler and more transparent manner, raises the issue of child development, especially when it comes to aspects of environmental education and sustainable development. Zavalloni's natural rights of children were published in an article in the journal *Children in Europe* (Zavalonni, 2009, pp. 28-30): 1. the right to be idle - to live moments in time not planned by adults; 2. The right to

get dirty – to play with the sand, soil, grass, leaves, water, stones, and little branches; 3. the right to be exposed to variety of smells - to perceive the taste of odors, and to recognize natural perfumes offered by nature; 4. the right to dialogue – to listen and be listened to, to make contribution and initiate conversation; 5. the right to be hands-on – to drive nails into wood, to saw and to file wood, to use sandpaper to glue, to mold clay, to tie or know ropes and light; 6. the right to good start in life – to eat healthy food from birth, to drink clean water and to breathe clean air; 7. the right to the road – to plan freely in the square, and to walk through the streets; 8. the right of the wild – to build a shelter in the woods, play hide-and-seek within the reeds and have trees to climb; 9. the right to the sound of silence – to listen to the wind blowing, the twitter of the birds, and the gurgles of the water; 10. the right to the shades of light – to see the rise of the sun and the sunset, to admire the nights, the moon and the stars. According to Zavallioni (2009), children's natural rights go beyond children's rights and he points to a discussion of how children's rights are to be achieved, or to which extent our educational practices "match, fulfill, realize, enable, and construct" curricula based on the "natural rights of children," which at the same time clearly point to children's rights to a clean environment and sustainable development? The question of curriculum and practice is, at the same time, the question of kindergarten/ preschool teachers' education and professional development, i.e. the question of their competences - knowledge, skills, abilities, and values that preschool teachers should have or develop for a successful practice in their work with children in the education of preschool institutions in general, but also for sustainable development. The question of children's rights and the natural rights of children is a matter not only of the accessibility of these rights, but also of the education and competences of those responsible for their development, implementation, and education in institutions of early, kindergarten and preschool education.

Approaches to the Construction and Evaluation of Key Competences for Lifelong Learning and Education for Sustainable Development

Competence evaluation, competence measurement, and construction of competence frameworks, both theoretical and practical models, represent a significant area of reflection and research within interdisciplinary sciences. From the point of view of pedagogy, greatest attention is paid to competences of the educational staff in institutions that implement educational processes in the formal but also the informal system of education. In the context of environmental education and sustainable development, the greatest focus is on the competences of elementary school teachers and preschool teachers in schools and kindergartens.

In addition, approaches to their measurement and evaluation have also been developed. When it comes to key competences of lifelong learning, Pepper's work (2011) is especially outlined. The author presents a detailed analysis of the approach typology by Gordon et al. (2009), to which he connects their presence at the

international level. According to Pepper (2011, pp. 336-339), Gordon et al. (2009) point out four primary types of approaches to assessing key competences.

Type 1 is an explicit evaluation of key or similar competences through the curriculum. This evaluation focuses on students, their development, and application of competences through the context of content learning. The authors identified this type of evaluation in Belgium, France, Hungary, Luxembourg, Spain, and in a limited form in the Czech Republic, Estonia, Ireland, Romania, Slovakia, and the UK.

Type 2 is an implicit evaluation of interpersonal/cross-curricular key competences or partially related constructs, based on an area/subject evaluation. Implicit evaluation involves the evaluation of goals, principles, capacities, tasks, and topics that can be identified in the curriculum or throughout the educational system. Knowledge, abilities, and skills are based on principles and are implicitly indicated in areas or subjects. Such evaluation is most common in countries such as Cyprus, Denmark, Finland, Greece, Ireland, the Netherlands, Sweden, and the UK.

Type 3 refers to the evaluation of competences within the subject, i.e. to subject competences, not cross-curricular. This type of assessment refers to specific competences of specific areas of knowledge. Pepper (2011) also points out that there are positive moves in the direction of evaluation at the integrative level, i.e. the integration of cross-curricular competences into national curricula. These are countries like Germany, Poland, Austria, Bulgaria, Latvia, and Italy.

Type 4 refers to the evaluation that is focused on knowledge (not competences) within the subject. Pepper (2011) identifies positive shifts in the inclusion of key competence estimates even at this level. Such forms of evaluation have been identified at some levels of education system in Greece, Lithuania, Malta, Poland, Portugal, and Slovenia.

This approach or typology of evaluating key competences according to the European reference framework is also the basis for considering the evaluation of cross-curricular or so-called transversal competences linked to the concepts of lifelong learning and education, and the concept of education for sustainable development. By analyzing individual types within the typology proposed by Gordon et al. (2009), even the author of the review (Pepper, 2011) concludes that these are more cross-curricular than "pure" key competences when it comes to their measurement, i.e. evaluation. Pepper (2011, p. 339) compares the estimates of traditional or transversal competences by emphasizing the view that "the transversal nature of key competences makes them essential." Lifelong learning competences for sustainable development are just one of these (non) traditional, i.e. transversal competences. Lifelong learning competences are based on four pillars of lifelong learning: learning to be, learning to live together, learning to learn, and learning to do. The advantage of their transversal and cross-curricular implementation is reflected in the many possibilities of planning, organizing, and implementing educational work in educational institutions. However, at the same time, this is a disadvantage and limiting circumstance when it comes to their measurement

and evaluation. In that sense, the explicit assessment of such competences is very difficult, so when it comes to assessing competences for lifelong learning and education for sustainable development, this often refers to the implicit approach. This type of evaluation is most commonly proven with the very approaches and models that have been developed when it comes to competences of educational staff. Attempts to construct measuring instruments are not so common, especially when discussing the holistic approach to lifelong learning competences and education for sustainable development. Implicit models are more frequent than explicit. The limiting part in evaluating the competences of lifelong education and sustainable development does not only arise from the nature of the description of these competences, but also from the interdisciplinary nature of both concepts. The concepts of education and training for sustainable development and lifelong education are interdisciplinary, developmental, and complex, appearing at all levels of society and are intended for everyone. Measuring and assessing the levels of development/implementation of education and training for sustainable development in the early and preschool, primary/secondary, and tertiary educational system (formal and informal) of children, students, and the entire educational staff are closely connected to the development and degree of evaluation of competences of those who implement it in the educational practice. The already developed model of competences of the educational staff at all levels of the educational system, but also of children/students is based on various approaches to the description and definition of competences. Here are just some of them. It should also be noted that some of these approaches and models have been subsequently revised, such as de Hann's models, the OECD model, the Rieckmann framework, etc. While Rieckmann's framework, rather than the model, is particularly relevant for the competences of teachers or university teachers and their particular list, de Hann's models known as *Gestaltungskompetenzen* and *Teilkompetenzen* (Bertschy et al., 2007) have been widely used in the BLK program (Programm Transfer 21, 2009; Schneider, 2013) that was designed to develop elementary students' competences, but also at the level of early, kindergarten and preschool education. De Hann's model's explicitness has influenced its wide application in all systems of education and training.

Here it is worth mentioning Wals's analysis of this model (Wals, 2010). In the context of linking the need for initial education of kindergarten/preschool teachers and universities, and the role of kindergartens/preschools as examples of sustainability in the development of sustainability competences, the following paragraph is emphasized: "... preschool teachers, as key participants in the educational process in kindergartens and experts in the education for sustainability, are expected to invest further efforts in the development and adaptation of educational processes in the context of sustainability" (Wals, 2010 as cited in Ćurić, 2013/2014, p. 15). At the same time, de Hann's model also served as a means to build the OECD competence model. In this respect, Bertschy, Kinzli, and Lehmann (2013, p. 5) point out that "models such as the CSCT and ECD are elaborated in a way that relates specifically

to the specific competences of the teaching/education staff, and they correspond to the teachers' "need" to implement the ESD into their work practice." Our research is based on the latter *ECE model* or the so-called *Learning for the Future: Competences in Education for Sustainable Development* (United Nations Economic Commission for Europe, 2012). The reason for this is its detailed elaboration, but also the possibility of wide application in the field of educating teaching staff, teachers, and kindergarten/preschool teachers.

Theoretical Basis of Research

In order to respond to the challenge of creating a "model" of kindergarten/preschool teacher competences, we emphasize that the particularity of the ECE model of competence rests on two essential elements: four pillars of lifelong learning (learning to be, learning to live together, learning to learn, and learning to do) and three characteristics of the area of education for sustainable development. The ECE model represents a kind of modeling framework, but also the basis for finding answers to the question what kindergarten/preschool teachers should be like, which competences they should possess for achieving successful implementation of education for sustainable development, and how they can enable the implementation of "the natural rights of children" in their own practice. Based on this, we have constructed items in the questionnaire that outline three key aspects of teachers' work that represent the basis of their curriculum: access to growth, development, and teaching of children, practice in the activities of education and training for sustainable development, and relations and cooperation that correspond to the three characteristics of the competence model: holistic approach, anticipation of change, and achievement of transformation.

Kindergarten/Preschool teachers' competences (in operationalization), based on this model, include the kind of kindergarten/preschool teacher who: understands the holistic connectivity of content and topics of childhood sustainability; who plans, prepares, and implements cross-curricular activities; who realizes and organizes projects and activities in the kindergarten/preschool and the local community that promote sustainable development; who recognizes obstacles and problems in the kindergarten/preschool and in their professional work and faces and solves them; who understands that his activity is oriented towards the future and thus observes and constructs his practice, notices environmental problems and promotes activities that lead to ecological and sustainable living such as collecting waste, saving, using eco-materials, etc. The preschool teacher has the competence to create curricula that include, above all, a child in the kindergarten but also in open spaces and they enable the realization of the natural rights of children through sustainable practices and worldview such as games in the forest and in the meadow, the use of materials from nature for children's creative expression, the possibility of skipping natural barriers, games by the creek, visits to museums, natural parks, forts, etc. The kindergarten/

preschool teacher's competences include possessing creativity, imagination, but also didactic-teaching competences. In practice, the kindergarten/preschool teacher has the knowledge, skills, and abilities to deal with ecological problems in the kindergarten /preschool and the local community, which implies the possession of collaborative competences. The teacher is the bearer of change who, along with others, contemplates, organizes, operationalizes, manages, and introduces changes in children's groups and in the kindergarten/preschool in collaboration with children, parents, colleagues, and other stakeholders. Creating partnerships with children and parents is a prerequisite for a successful educational practice, but also for (constructing) curricula that support the child's natural rights and sustainability curricula.

Communication skills imply the development and establishment of quality communication that takes into account the rights, needs, and interests of all participants in the educational process, and the implementation of strategies in the design of curriculum activities that accompany and encourage child development and growth, as well as learning and teaching about the environment and sustainable development. The kindergarten/preschool teacher is a reflective practitioner who possesses the knowledge, skills, and abilities to set analytical issues and develop critical thinking in working with children. The kindergarten/preschool teacher is also a moderator and participant in the learning process; possesses competences for responsible action and respect for the development of mutual relations that lead to ecological and sustainable development. The kindergarten/preschool teacher has the skills to prepare children to meet new challenges by building child experiences as a foundation for transformation. In other words, the kindergarten/preschool teacher plans, prepares, and carries out activities that face children with new challenges and experiences such as recycling, changes in water states, climate change, etc. The kindergarten/preschool teacher recognizes and possesses knowledge and skills to manage stress and stressful situations in their work, allows their children democratic decision-making through respect of their rights, and he possesses competences for decision-making in educational work as well as team work (Kondić, 2016, p. 19).

Methodology

The research was based on connecting the elements of the ECE model and work characteristics of educational staff in preschool institutions. We approached the survey research by using the survey method, data collection, and documentation.

Research Aim and Tasks

The aim of the research was to construct a scale for the evaluation of kindergarten/ preschool teachers' competences for a successful practice in the work with children in the education for sustainable development. The research task was to determine the measurement characteristics of the constructed scale for kindergarten/preschool teachers' (self)evaluation of the achieved competences in the field of education for

sustainable development in their previous education and/or training. The purpose of this paper and research is to contribute to the development of a model of kindergarten/preschool teachers' competences in the field of education for sustainable development in preschool institutions.

Sample of Participants

The sample consisted of kindergarten/preschool teachers from kindergarten/preschool institutions in Crikvenica, Tribalj, Novi Vinodolski, Kraljevica, and Zagreb. Survey questionnaires were completed by kindergarten/preschool teachers in the aforementioned kindergartens/preschools. Their socio-demographic characteristics, such as chronological age, years of work experience and professional qualifications, were researched. The sample consisted of 65 respondents ranging from 21 to 51 years of age, from trainee teachers with 26 or more years of work experience, and four offered vocational qualifications, with 65% of kindergarten/preschool teachers who have completed a two-year study of preschool education.

Measuring Instrument

A survey questionnaire titled "Survey questionnaire on kindergarten/preschool teachers' competences in education for sustainable development" and containing seven questions was developed. The questions and items (except for socio-demographic data) were constructed on the basis of the ECE model (UNESCO model of kindergarten/preschool teachers' and elementary school teachers' competences in education for sustainable development) and were adjusted to the specifics of the work of kindergarten/preschool teachers. The same approach was applied in the construction of a measuring instrument for the project *Professional Development of Teachers: Status, Personality, and Transversal Competences - The Faculty of Teacher Education in Rijeka (2013-2016)*, whereby we should highlight that the research sample was made up of elementary school teachers from Croatia and Slovenia.

The research within the aforementioned project resulted in a three-factor structure and confirmed the theoretical basis of research. For the purposes of this research, a questionnaire with identical items was applied on a sample of kindergarten/preschool teachers and it was adapted to the practice of kindergarten/preschool teachers in kindergarten/preschool institutions. The items were translated, adapted, and corrected according to the standard Croatian language, and they correspond to the questionnaire used in *Learning from each other: The UNECE Strategy for Education for Sustainable Development* (2009, p. 65) and the document *Strategy for Education for Sustainable Development*. *Learning for the Future: Competences in Education for Sustainable Development* (United Nations Economic Commission for Europe, 2012). The respondents were offered 21 items that represented competences within the education for sustainable development. The statement in the survey questionnaire was: "Evaluate the extent to which the current education and training have contributed to

the development of your competence for successful work with kindergarten/preschool children in education for sustainable development." The respondents were offered a 5-point scale to evaluate their responses: *1-not at all, 2-to a very small extent, 3-to a small extent, 4-to a medium extent, 5-to a large extent*, on the basis of which they evaluated each competence by circling one answer. The research was conducted in June 2015 and in January 2016. The preliminary research was performed and presented in the final thesis written by Klara Kondić (July-September, 2016) on a smaller sample and without displaying the data on the measuring instrument. For the purposes of this paper, the sample has been enlarged and the data presented here fully refer to the results obtained with this sample.

Results

The basic task of the research was to verify the measurement characteristics of the questionnaire instrument created for this research. As previously mentioned, the scale contained 21 items. Descriptive data is shown below (Table 1).

Table 1

Descriptive indicators for the Scale of kindergarten/preschool teachers' competence in education for sustainable development

Competences	N	Min	Max	M	SD
Asking analytical questions and developing critical thinking in the work with children	65	1	5	4.06	.899
Recognizing obstacles and constructive problem solving in the preschool and professional work	65	1	5	4.08	.872
Encouraging creative thinking and using innovative strategies in the work with children	65	1	5	4.29	.824
Planning and action oriented towards the future	65	1	5	4.11	.886
Management and introduction of change in the children's group and in the kindergarten/preschool	65	1	5	4.14	.899
Understanding the cross-curricular and holistic connectivity of contents and topics of sustainability in the work with children (eco-days, preschool environment, action and team projects)	65	2	5	3.98	.875
Application of work content in different situations that promote an environmental and sustainable way of life	65	3	5	4.28	.781
Encouraging, planning, and implementing environmental behaviors and dealing with ecological problems in the kindergarten/preschool and the local community (garden cleaning and maintenance, environmental assessment, waste sorting, paper collection)	65	2	5	4.15	.888
Responsible activity, respect and development of mutual relationships in various activities in the children's group and in the whole kindergarten/ preschool institution	65	2	5	4.34	.776

Competences	N	Min	Max	M	SD
Encouraging the development of children's self-confidence and self-expression	65	2	5	4.63	.601
Management/dealing with stress and stressful situations at work	65	2	5	3.85	.922
Recognizing, encouraging, and clarifying the values and activities that lead to ecological and sustainable living	65	2	5	4.05	.909
Planning, organizing, and implementing projects and activities in the kindergarten /preschool institution and the local community that promote sustainable development	65	1	5	3.69	.917
Democratic decision-making and decision-implementation in the children's group and among colleagues in the kindergarten/preschool	65	1	5	4.03	.829
Good communication with children, colleagues, and parents	65	2	5	4.28	.696
Finding and establishing cooperation with all stakeholders in the kindergarten/preschool institution and the local community to address questions and problems related to environmental protection and sustainable development	65	1	5	3.63	1.009
Teamwork with children and colleagues	65	2	5	4.37	.762
Encouraging, planning, and realizing sustainable behaviors (promoting environmental values, awareness and positive attitudes toward environmental issues, attributing and assuming responsibility, activism and environmental action, promoting tolerance...)	65	2	5	4.08	.853
Creative work using eco-materials: toys and books of natural and recycled materials, decorating interior and exterior areas within the children's group and the kindergarten/preschool institution by using renewable materials (wood, cardboard, plastics, Styrofoam, etc.)	65	1	5	4.29	.843
Implementation of learning and teaching strategies, and planning and implementing projects related to the topics of environmental protection and sustainable development	65	2	5	3.89	.954
Encouraging, planning, and implementing intercultural activities and content (tolerance and equality, justice and care for all, diversity acceptance) that involve all children within the educational institution	65	2	5	4.15	.888

Parametric and nonparametric correlation calculations were performed, however, it was not possible to show this data due to the size of the table. Further tests were based on the assumption that if there is enough correlation that is equal to or greater than r=0.30, then it is justified to apply the factor analysis, which was carried out. The reliability of the internal consistency of the scale was Cronbach alpha $\alpha = 0.946$. Kaiser-Meyer-Olkin's test (0.901) and Bartlett's spherical test (889.569; df (210); $p < 0.000$) were performed as indicators of sample adequacy. Exploration analysis

(principal components/principal component analysis, PCA) was performed, resulting in the extraction of five factors and characteristic values (10.223; 1.520; 1.346; 1.153; 1.015), which together account for 72.65% of the common variance. Table 2 shows the results of the principal components, i.e. the obtained characteristic values and the totality of the explained variance.

Table 2

Results of the exploration analysis (main components analysis: characteristic values and explanation of the variance)

Components	Initial characteristic values			Extracted sum of saturation squares		
	total	% variance	cumulative %	total	% explanation of variance	cumulative %
1	10.223	48.683	48.683	10.223	48.683	48.683
2	1.520	7.237	55.921	1.520	7.237	55.921
3	1.346	6.410	62.331	1.346	6.410	62.331
4	1.153	5.491	67.822	1.153	5.491	67.822
5	1.015	4.832	72.654	1.015	4.832	72.654
6	.773	3.679	76.333			
7	.676	3.217	79.550			
8	.616	2.934	82.484			
9	.577	2.748	85.232			
10	.498	2.371	87.603			
11	.418	1.993	89.596			
12	.329	1.568	91.164			
13	.300	1.428	92.591			
14	.293	1.394	93.986			
15	.272	1.297	95.283			
16	.214	1.018	96.301			
17	.203	.966	97.267			
18	.175	.831	98.098			
19	.144	.688	98.786			
20	.130	.621	99.408			
21	.124	.592	100.000			

Extraction method: main components analysis

Based on the Kaiser-Guttman criterion, values greater than 1 were retained, but the scree-plot indicates another possibility – the retention of a single factor. Namely, Cattel's scree-plot indicates a decline in value after the first extracted factor, i.e. a decline in the explained variance is very uniform after the first factor (Figure 1 Scree-plot). It is clear that one factor is more dominant because it explains most of the variance, while other extracted factors retain smaller values and explain a smaller part of the variance.

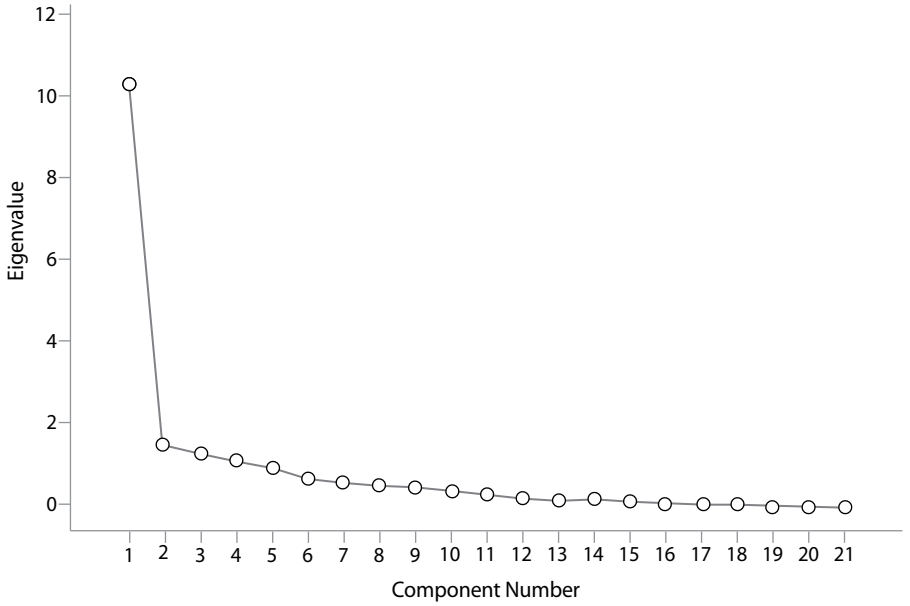

Figure 1. Scree-plot obtained with the explorative analysis

To establish certainty, we conducted a parallel Monte Carlo analysis (Pallant, 2009, pp. 192-193), which also suggested the retention of one factor. It is generally understood that if the value obtained with statistical analysis in the SPSS program exceeds the value obtained by parallel analysis, then that value is retained, i.e. that number of factors. Parallel results of the exploratory and Monte Carlo analysis are shown in Table 3.

Table 3

Results of the explorative analysis and parallel Monte Carlo analysis

Components	Characteristic values (PCA)	Characteristic values (Monte Carlo)	decision
1	10.223	2.2171	retain
2	1.520	1.9531	reject
3	1.346	1.7643	reject
4	1.153	1.6238	reject
5	1.015	1.5089	reject

Since the parallel analysis suggested one factor, and the scree-plot pointed to one dominant factor, the decision was made to retain only one factor. A factor analysis with one factor was performed, which ultimately explains 48.68% of the variance.

Table 4 shows the component matrix with factor saturations obtained in the factor analysis in one factor/component.

Table 4

Component Scale of the "Kindergarten/Preschool teachers' competence in education for sustainable development"

Kindergarten/Preschool teachers' competence in education for sustainable development	Component (FA)
	1
Encouraging, planning, and achieving sustainable behaviors (promoting environmental values, awareness and positive attitudes toward environmental issues, attributing and assuming responsibility, activism and environmental action, promoting tolerance...)	.802
Democratic decision-making and decision-implementation in the children's group and among colleagues in the kindergarten /preschool institution	.797
Implementation of learning and teaching strategies, and planning and implementing projects related to the topics of environmental protection and sustainable development	.775
Management and introduction of change in the children's group and in the kindergarten /preschool institution	.775
Encouraging creative thinking and using innovative strategies in the work with children	.773
Finding and establishing cooperation with all stakeholders in the preschool and the local community to address questions and problems related to environmental protection and sustainable development	.768
Planning, organizing, and implementing projects and activities in the kindergarten/preschool and the local community that promote sustainable development	.757
Recognizing, encouraging, and clarifying the values and activities that lead to ecological and sustainable living	.756
Encouragement, planning, and implementation of intercultural activities and content (tolerance and equality, justice and care for all, diversity acceptance) that involve all children within the educational institution	.753
Planning and action oriented towards the future	.752
Encouraging, planning, and implementing environmental behaviors and dealing with ecological problems in the kindergarten/preschool and the local community (garden cleaning and maintenance, environmental assessment, waste sorting, paper collection)	.706
Creative work using eco-materials: toys and books of natural and recycled materials, decorating interior and exterior areas within the children's group and in the kindergarten/preschool by using renewable materials (wood, cardboard, plastics, Styrofoam, etc.)	.703
Application of work content in different situations that promote an environmental and sustainable way of life	.695
Managing/dealing with stress and stressful situations at work	.686
Responsible activity, respect and development of mutual relationships in various activities in the children's group and in the whole kindergarten/ preschool institution	.624

Kindergarten/Preschool teachers' competence in education for sustainable development	Component (FA)
	1
Recognizing obstacles and constructive problem solving in the kindergarten/preschool and professional work	.622
Asking analytical questions and developing critical thinking in the work with children	.590
Team work with children and colleagues	.585
Encouraging the development of children's self-confidence and self-expression	.551
Understanding of cross-curricular and holistic connectivity of contents and topics of sustainability in the work with children (eco-days, kindergarten/ preschool environment, action and team projects)	.546
Good communication with children, colleagues, and parents	.516

Discussion

The highest obtained value belongs to the item that describes sustainable behavior and the lowest item belongs to good communication. Interestingly, the item referring to cooperation, "Finding and establishing cooperation with all stakeholders in the kindergarten/preschool and the local community to address questions and problems related to environmental protection," and sustainable development belongs to items with significantly high saturations. It would be expected that these items would appear with similar values, because it is logical to assume that good communication is a prerequisite for cooperation. On the other hand, the value obtained in the item "good communication" corresponds in some way to the values of the item "teamwork with children and colleagues." Collaboration between educational institutions, family, and the local community is one of the most important pedagogical and certainly burning issues overall, not just in the field of education for environment and sustainable development. Also, it is quite clear that if it is not "highly rated" in relation to the general educational practice, it will also not be in relation to the practice of work in the field of education for sustainable development. This problem has been present in Croatian society for quite a long time, and numerous research not only on this issue but also on the general nature of educational work in schools and kindergarten/ preschools indicates its obvious deficit (Anđić, 2015).

Similarly, we can observe some of the values obtained on items, for example, "Understanding of cross-curricular and holistic connectivity of contents and topics of sustainability in the work with children (eco-days, kindergarten/preschool environment, action and team projects)," which was assessed with the lowest values, and the item "Planning, organizing, and implementing projects and activities in the preschool and the local community that promote sustainable development" belongs to items with high saturation. It would be logical to assume that holistic and cross-curricular connectivity and understanding allow for achievement of activities and

projects that are interdisciplinary, integral, and interrelated with environmental issues and sustainable development. An explanation for this can be found in the assumption that kindergarten/preschool teachers did not link these concepts and perhaps the understanding of that part of implementation and educational practice in the field of sustainable development is not sufficient, which is certainly visible in the results obtained with the lowest values. The results of understanding the notion and concept of sustainable development and implementation in the education system correspond to the results of some recent research, such as the OECD in 2009, but a number of studies have also shown that implementation of sustainable development at the university level is a "reference point" for the development of the process competence selection (Rieckmann, 2007 according to Hidalgo & Fuentes 2013, p. 450). The research of Cebrian and Junyent (2015) on the perceptions and views of teachers and students regarding the competences of sustainable development indicates that the possession of knowledge and practical skills related to knowledge of nature or knowledge in the field of natural sciences stand out as priority competences. The results of research have shown that the environment in which they work, the interaction, the responsibility of the collective, and the individual, and behavior which demonstrates respect and concern are very important. The results of this research, shown below, indicate a weaker assessment of ethical values, emotional management, and sustainability. This raises the question of education and training of kindergarten/preschool teachers in this field. The research conducted at our universities confirms the view about the lack of study content and information dealing with the (non)understanding and implementation possibilities of the concept of sustainable development (Borić, Jindra, & Škugor, 2008; Ledić, Ćulum, & Pavić-Rogošić, 2008; Rončević, & Ćulum, 2009; Rončević, & Rafajac, 2012).

In this regard, a new field of reflection opens up on how our future prospective kindergarten/preschool teachers can develop competences for an interdisciplinary area such as environmental education and sustainable development if they are not offered any content/courses and activities that would encourage their development? The analysis of study programs in the Republic of Croatia has shown that there is a significant lack of such content, i.e. direct courses or compulsory courses are very rare, while elective courses are more accessible, but overall they are certainly insufficient. Questions of value and ethics are a special area in which some research has been conducted in connection with universal values, and specifically with the values underlying the concept of sustainable development (Anđić, Ćurić, & Pavlačić, 2015; Rakić & Vukušić, 2008; Tatalović-Vorkapić, Anđić, & Unković, 2013/2014). In addition, values are closely related to attitudes, interests, and behaviors that represent a particular area of research, and they certainly include the issue of competence. Closely correlated with these results is precisely the area of didactic-teaching competence of kindergarten/preschool teachers to apply learning and teaching strategies, planning, organizing, and achieving these contents. By grouping the lowest achieved results,

there is a clear disadvantage in the existing education and/or improvement of these kindergarten/preschool teachers not only in the fundamental knowledge but also in the didactic-teaching knowledge, which in any case represents a direct response to the question of what our respondents are missing in their education/training, i.e. which competences are still lacking at a certain level. This is certainly also the result of the fact that future study programs should be based on the development of these competences and elective courses, and a small number of elective courses that are available in study programs are far from sufficient to develop these competences. The results obtained on other competences are certainly high and point to high evaluations by our kindergarten/preschool teachers, but at the same time this does not mean that their practice is at that level. The results of the Filho's analysis (2010) indicate that Croatia is still at the level of the so-called "intermediate (medium) level of implementing education for sustainable development, i.e. the concept is progressively included in the educational system, i.e. in education programs, the education of individual stakeholders is still quite limited, while public awareness is not sufficiently promoted (Filho, 2010, p. 121). The last result directly linked to one of the problematic issues in this research - the promotion of children's rights and natural rights - was examined with an item describing intercultural competence: "Encouraging, planning, and implementing intercultural activities and content (tolerance and equality, justice and care for all, diversity acceptance) that involve all children within the educational institution." This competence was given a high score, although we must note that it is a fairly complex item. The high score is certainly satisfactory, but based on previous results related to the understanding of the concept and its correlation, we have to question the degree of kindergarten/preschool teachers' understanding of interculturality, the content and activities it encompasses. This is another area of kindergarten/preschool teachers' work, which should certainly be further investigated.

Conclusion

The achievement of children's rights and natural rights of children in the practice of educational institutions is possible only with the help of a competent kindergarten/preschool teacher, whose role as a motivator, initiator, and head of the educational process is often provided also to the family home and the local community. This is why kindergarten/preschool teacher's education and professional development are even more significant, and in the context of promoting quality education and education for sustainable development, it has an irreplaceable value. According to the paradigm of sustainable development, elementary school teachers, educators, educational staff, and hence preschool teachers are the only carriers of change, they are the so-called "agents of change" (UNECE, 2005), which is indispensable in changing the way of thinking, acting, behavior, and living towards more sustainable ways of life and future societies.

Ultimately, by looking at the results obtained through this research, we can point out that many of the competences examined directly and indirectly include the

achievement of children's rights and the natural rights of children. Based on the estimates of the competences of kindergarten/preschool teachers, it can be assumed that they are largely achieved or at least partially included in their work practice. However, until more direct research has been carried out on this issue, it will remain quite difficult to provide the answer. A larger sample, and further development of the instrument that may include item simplification, is certainly the content for further construction and development of competence models. In conclusion, we can state that this preliminary research, with obtained answers, has certainly opened up a whole host of new questions and reasons for further reflection and research. In the end, this paper represents a constructive and positive contribution to the development of kindergarten/preschool teachers' competences in the field of education for sustainable development in kindergarten/preschool institutions because *"We are educating now, even when we think we are not. Everything we are educates our children, without speaking or effort, on its own" (unknown author).*

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Doprinos razvoju kompetencija odgojitelja za odgoj i obrazovanje za održivi razvoj u predškolskim ustanovama

Sažetak

Jedna od temeljnih zadaća odgojitelja jest upoznavanje djeteta s njegovim okruženjem i optimalno poticanje njegova rasta i razvoja, uključujući i razvoj temeljnih prava djece na okoliš, čist zrak, pitku vodu, zdrav život i kvalitetno djetinjstvo. Razvoj osjetljivosti djece iznimno je važno za budućnost odgoja i obrazovanja za održivi razvoj, a treba ga početi razvijati još od ranog djetinjstva. Problematika kurikula i prakse rada odgojitelja uključuje i propitivanje kompetencija za uspješnu praksu rada s djecom u odgoju i obrazovanja za održivi razvoj. U radu se prikazuju neki od razvijenih postojećih modela procjene kompetencija za cjeloživotni odgoj i obrazovanje za održivi razvoj. Razvijen je mjerni instrument čije su mjerne karakteristike ispitane, a u radu su predstavljeni rezultati toga preliminarnog istraživanja. Istraživanje je provedeno na uzorku od 65 odgojitelja u pet dječjih vrtića. Konstruirana skala objašnjava 48 % zajedničke varijance i može biti značajna osnovica za daljnje propitivanje i razvoj modela kompetencija odgojitelja. Na taj način predstavlja i dobar temelj za promišljanje sadržaja kurikula budućega inicijalnog obrazovanja, ali i stručnog usavršavanja odgojitelja u području cjeloživotnog odgoja i obrazovanja.

Ključne riječi: *cjeloživotno obrazovanje, kompetencije, odgoj i obrazovanje za okoliš/ održivi razvoj, odgojitelj, održivo društvo, predškolske ustanove.*