

DIFFERENT APPROACHES TO EARLY CHILDHOOD EDUCATION FOR SUSTAINABILITY FROM THE PRESCHOOL TEACHER'S PERSPECTIVE

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While the need for sustainable development is increasingly current, education for sustainable development represents its essential premise, and it is optimal to implement it in the education system starting from the earliest age. Preschool teachers are key to the success of implementing early childhood education for sustainability (ECEfS). The aim of this empirical, quantitative study, which is part of an international project on education for sustainable development, is to examine the perspective of Bosnian-Herzegovinian preschool teachers on the implementation of ECEfS through the assessment of their own practice. The survey, with an independently constructed instrument with appropriate metric characteristics, was conducted on a sample of 115 preschool teachers from Bosnia and Herzegovina in 2024. By factor analysis, applying the Varimax rotation method, two factors were singled out that indicate macro- and micro-level approaches in implementing ECEfS.

Keywords: education for sustainable development; early childhood education; social sustainability; preschool teachers; macro-level approach; micro-level approach

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Introduction

The vision of sustainability is becoming increasingly necessary in today's time as a counterweight to gloomy predictions that civilization is rapidly going in the wrong direction. The introduction of sustainable practices in all aspects of human life is key to preserving the environment and securing future generations. Sustainability is not only an ecological concept but also an economic, and social one (UN, 2015; UNESCO, 2014; Hedefalk *et al.*, 2015, 975; Gokool-Ramdoo and Rumjaun, 2017, 84; Višnjić-Jevtić *et al.*, 2022, 125), cultural (UNESCO, 2017; Ritchie, 2021, 1–2) and political (Calisto Friand *et al.*, 2024, 28) because it contributes to the creation of a fairer and more balanced world at all levels. Sustainability is a complex, integrated and multidimensional concept (Anđić, 2007, 12–14; Davis, 2015, 5). Some authors argue that its individual aspects cannot be meaningfully considered in isolation (Gokool-Ramdoo and Rumjaun, 2017, 84). More and more people and organizations recognize the importance of sustainability and actively work towards its realization through innovation, education and behaviour change.

Education stands out as a key tool, driver and fundamental strategy for achieving sustainability (UNESCO, 2017) and is the focus of the 2030 Agenda (UN, 2015a). This claim, as stated by Anđić and Vorkapić Tatalović (2017, 121, 122), supports the need to design an interdisciplinary curriculum at all levels of education, which will connect and develop different areas of learning and encourage the development of those factors that influence the design of sustainable development. Borg and Pramling Samuelsson (2022, 148) see education for sustainability as a prerequisite for strengthening beliefs and attitudes that can ensure a sustainable future. Accordingly, learning outcomes are achieved through activities that focus on environmental, social, economic, and political aspects of sustainability, to contribute, at different levels, to the achievement of the Sustainable Development Goals (SDGs) (UNESCO, 2017). The importance of cultural heritage (Brajčić and Kušćević, 2023), local, cultural, and traditional knowledge, and socio-emotional well-being goals that are integrated into ESD programs are increasingly highlighted (UNESCO, 2017, 7), and this approach confirms the relevance of Bronfenbrenner's theories on ecosystems.

Davis's (2014, 28) five-dimension model of the right to early childhood education provides a foundation for education for sustainability. Davis emphasizes children's rights, including collective, intergenerational, and bio/ecocentric rights, which are integral to the values of sustainable development. The model begins with the support of the child's rights as a foundation (the first dimension) and the child's right to participate, i.e. readiness and readiness for the active role of children in society (the second dimension). The third dimension refers to the recognition of collective rights and the gathering of people for the common goal of long-term survival. Višnjić-Jevtić *et al.* (2021, 238) see this as one of the foundations of action toward sustainability – crises are of collective origin, therefore collective responsibility and action are necessary. The fourth dimension refers to the recognition of intergenerational rights, equality, and justice for all, including future generations (Davis, 2014, 28). This is in line with the basic definition of sustainable development: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, 41). The fifth dimension refers to the recognition of biocentric and ecocentric rights, which position man only as one of the species of the world, and not as dominant (Davis, 2014, 30).

In the contemporary practice of education for sustainable development (hereafter ESD), priority is given to student-centred, action-oriented and transformative learning approaches. It is important to take a transformative point of view, which should be connected with an integrated system approach that emphasizes the interconnectedness of environmental, social and economic aspects (Blake *et al.*, 2013, 5347–5372).

While transformative learning may not be fully applicable at all educational levels, especially in preschool, its core ideas—such as perspective change, self-reflection, and personal growth—can support children's emotional, social, and cognitive development. Contemporary ESD practice indicates that the acquisition of facts is not a priority, the emphasis is on a supportive environment, action, children's participation in problem-solving, project-based learning, collaboration in decision-making, direct experiences and questions that encourage children to think and act (Hedefalk, 2015, 975–990), experiential learning that is linked to a practical understanding of sustainability (Blake *et al.*, 2013, 5347–5372).

Agenda 21 emphasizes the importance of integrating content from the field of sustainable development into early childhood education (UN, 1993), and recommends the creation of educational programs for preschool age (UNESCO, 2005). Ardoin and Bowers (2020, 2), Dolenc Orbančić and Kovač (2021, 385) and Bailie (2012, 243) confirm that the preschool period is extremely important for the development of environmental awareness because they believe that environmental education in early childhood has a lifelong impact since that period is crucial for the development of environmental literacy of future adults. Contents of social and cultural aspects of sustainability, integrated with other aspects of sustainability are also desirable and feasible with preschool children (Brajčić and Kušćević, 2023, 12; UNESCO, 2017). Although education for sustainability is a relatively new component of care and education in early childhood (Ritchie, 2021, 1), research indicates the importance and ways of approaching education as early as possible following the presented goals and contents of sustainability (Pramling Samuelsson, 2008; Pramling Samuelsson, 2011, 103–118). Preschool teachers are responsible for the implementation of content that promotes and encourages the acceptance of the concept of sustainability in the Early Childhood Education (hereinafter: ECE) environment (Višnjić-Jevtić *et al.*, 2022, 219), and it is important that through an integrative and transformative way of thinking and acting (UNESCO, 2012, 13–17) understand and apply the contents of sustainable development in everyday life and the kindergarten environment (Borić *et al.*, 2008, 317, 325). To ensure the implementation of education for sustainable development in early childhood education, preschool teachers should take responsibility (Davis and Davis, 2021, 553). Given the significant role of preschool teachers and the recognized need for further practice-based research on sustainability teaching and learning in ECE settings to realize the full potential of ECEfS (Hedefalk *et al.*, 2015, 975), this study focused on the specific features of Education for Sustainable Development implementation in the context of kindergartens in Bosnia and Herzegovina, based on preschool teachers' self-assessments.

Studies conducted in Slovenia and Croatia reveal specific differences in the implementation of Education for Sustainable Development. In Slovenian kindergartens with eco-programs, a stronger integration of all sustainability dimensions and higher achievement of ECEfS outcomes has been observed (Lepičnik Vodopivec and Šindić, 2025, 133),

while findings from Croatia indicate the presence of an integrated approach to sustainability both within and beyond the kindergarten, with the external component—where children take on active roles as agents of change—being less prominent (Šindić *et al.*, 2025). Education for Sustainable Development in early childhood (ECEfS) is shaped by the specific context in which it is implemented, making it essential to examine pedagogical practice from the perspective of preschool teachers. Given the lack of empirical research on the implementation of ECEfS in Bosnia and Herzegovina—particularly from practitioners' perspectives—there is a clear need to explore this area further to support the development of context-sensitive, sustainable educational practice.

Method

Research design

The study is part of a wider research project on ESD at early and preschool age, which was implemented simultaneously in Bosnia and Herzegovina, Croatia and Slovenia. The aim of this empirical study, of a quantitative research nature, is to examine the perspective of BiH preschool teachers on the implementation of ECEfS through the assessment of their own practice. The research is based on a cross-sectional design and includes descriptive and correlational elements. The data were collected through an online survey and scaling in 2024 after the approval of the research, by decision of the Ethics Committee of the Faculty of Teacher Education, University of Zagreb. The survey was voluntary and anonymous. Before the realization of the research, a pilot – pre-research was organized to check the metric characteristics of the instrument on a sample of 50 preschool teachers working in kindergartens in Bosnia and Herzegovina.

Sample

The research sample was convenient and included 115 respondents, state and private kindergartens from different cities of Bosnia and Herzegovina (Banja Luka, Bijeljina, Derventa, Livno, Laktaši, Gradiška, Trebinje, etc.). The basic characteristics of the sample of respondents are presented in Table 1.

Table 1. Sample structure

Sample characteristics		<i>f</i>	%
Sex	Female	113	99.30
	Male	2	1.70
Years of service	Up to 10 years	62	53.90
	From 10 to 20 years	34	29.60
	From 20 to 30 years	17	14.80
	Over 30 years	2	1.70
The age group of children in which the preschool teacher works	From 1 to 2 years	8	7.00
	From 2 to 3 years	11	9.60
	From 1 to 3 years	11	9.60
	From 3 to 4 years	25	21.70
	From 4 to 5 years	14	12.20
	From 5 to 6 years	25	21.70
	From 3 to 6 years	21	18.30
The age of the children the preschool teacher works with	Up to 3 years	30	26.09
	Over 3 years	85	73.91

Note. *f* = frequency; % = percentage.

Although the sample size ($N = 115$) was adequate for statistical analysis, it should be noted that the use of a convenience sample limits the generalizability of the results to the broader population of preschool teachers in Bosnia and Herzegovina. Future research could benefit from probabilistic sampling methods to enhance external validity.

Instrument

An independently created research instrument was used for research purposes. The instrument for collecting quantitative data was designed concerning modern recommendations and settings of ECEfs (UNESCO, 2017; UN, 2015a), OMEP ESD scale *Environmental Rating Scale for Sustainable Development in Early Childhood* (OMEP, 2019), research results (Višnjić Jevtić *et al.*, 2022, 129–133), and the course activities “Sustainability from the very beginning” (ECE Academy, 2023). Basic generalities about the respondents were collected through four items in the first part of the instrument. The second part of the instrument con-

tained a five-point Likert-type scale that related to the frequency of implementation of various elements of ESD, namely: 1 – never; 2 – once or several times a year; 3 – once or several times a month; 4 – once or several times a week; 5 – daily. This part of the instrument consisted of 22 items through which data were collected on the representation of various aspects of educational strategy, support, organization and implementation of activities to promote ecological, social, cultural and economic aspects of sustainability in kindergarten, from the perspective of pre-school teachers' work. After the factor analysis procedure, the number of items in the second part of the instrument was reduced from 22 to 20. Two items were excluded in order to reduce cross-loadings and improve the factorial clarity of the scale. The removed items showed overlapping saturations across both extracted factors and did not contribute to the distinctiveness of the identified dimensions. This refinement enhanced the structural validity of the instrument. Cronbach's Alpha coefficient of the reduced scale is $\alpha = .795$, with corresponding item-total correlation values, which indicates adequate internal consistency (reliability) of the instrument. Item communalities (h^2) ranged from .339 to .717 ($> .30$) (Table 3), indicating their appropriate discriminability. Given that the first factor explains 40.83% of the variance (Table 3), which is above the assumed lower validity threshold (20%) (Çagran, 2004), the validity of the measurement scales is confirmed. High factor saturations are observed, and within the first factor, they range from .547 to .830, and for the second factor they range from .688 to .801 (Table 3), which can be considered an indicator of the quality factor structure of the instrument. Also, factor saturations are statistically significant, because they are greater than the value of .512 (Stevens, 2002, 395).

Data analysis

IBM SPSS Statistics 26 software was used for statistical data processing. Principal Component Analysis was performed, with the Varimax factor rotation method. An analysis of descriptive statistical indicators (Mean, Standard deviation, etc.), Paired sample T-test and Independent Samples T-test was performed on the factors that were separated by factor analysis. Reliability analyses and the Kolmogorov-Smirnov test were also performed for the purposes of the research.

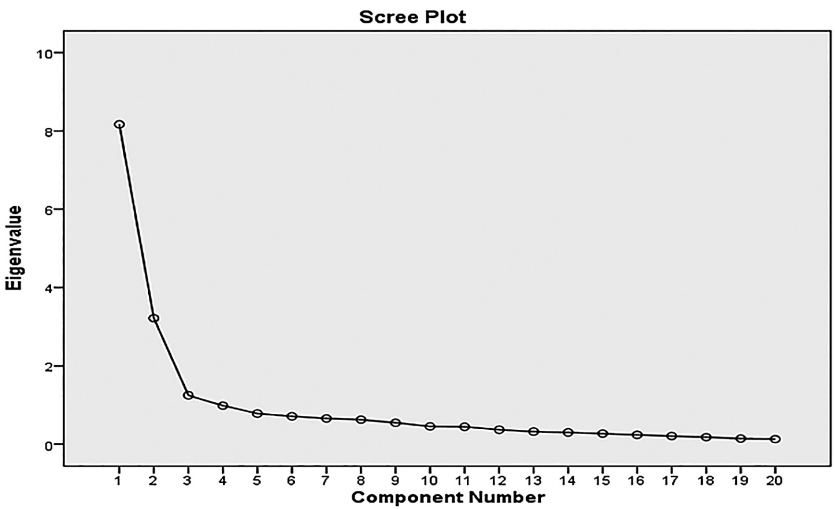
Results

The number of respondents (N = 115) met the recommended sample size for factor analysis, as it exceeded the minimum threshold for stable factor solutions (N > 100). The value of the Kaiser-Meyer-Olkin measure of sampling adequacy is KMO = .878, which is considered a good level for these prerequisites (Field, 2017, 647). Bartlett’s test of sphericity was also satisfied ($\chi^2 = 1443.189$, $p < .001$) (Table 2).

Table 2. Data adequacy assumptions for factor analysis

Kaiser-Meyer-Olkin test of sampling adequacy		.878
Bartlett’s Test of Sphericity	Hi square	1443.189
	Degrees of freedom (df)	192
	Statistical significance (Sig.)	>.001

Based on the Kaiser-Gutmann criterion of eigenvalues, Horn’s parallel analysis and Katel’s landslide test (Graph 1), two factors were singled out.



Graph 1. Scree plot

For the obtained two-factor solution to be most adequately interpretable, various matrix rotations were performed, and the Rotation Method: Varimax with Kaiser Normalization was chosen. Table 3 shows

the matrix of the factorial pattern with communalities. For the sake of transparency of the distribution of factor saturations, those below .30 are not entered in the tabular display, and the items within individual factors are ordered according to the level of saturation.

Table 3. Rotated factor loadings: Implementation of ECEfS (ecological, economic, cultural and social sustainability)

Items	Component		<i>h</i> ²
	1	2	
With children, I perform activities that promote responsible use of resources and waste reduction (use of old things for new purposes, use of rainwater for watering plants, etc.).	.830		.695
Through practical and other activities, I teach children to distinguish between types of waste and recognize the possibilities of its further processing (recycling of plastic, paper, etc.).	.828		.696
I perform experiments that contribute to ecological understanding (polluting materials, properties of plastics, decomposition of materials, clean and dirty water, etc.).	.796		.639
I read stories that have an ecological background and talk about them to develop awareness about the preservation of local fauna and flora.	.794		.717
I organize volunteer actions, such as collecting donations for the socially disadvantaged (sweets, picture books, toys, clothes, food, etc.).	.787		.621
Through stories, conversations, experiments, practical and discovery activities, etc. I introduce children to renewable energy sources (water, sun, wind).	.785		.623
I organize the sale of handicrafts or some other economic project in which children learn about entrepreneurship and money management (eg a children’s handicraft fair).	.764		.615
I organize visits to nature so that children can directly experience the natural environment and feel a connection with nature.	.724		.536

I carry out activities aimed at children learning how to properly treat animals and plants and gain a sense of responsibility for the living world.	.719	.340	.632
I organize projects (activities) for planting different seedlings (vegetables, flowers, ornamental plants, etc.).	.714		.512
I organize some of the activities that promote intergenerational solidarity (visits to homes for the elderly, grandparents' visits to kindergartens, etc.).	.672		.492
I try to encourage the understanding of cultural diversity through literary and other artistic activities.	.669		.513
I organize activities to promote children's rights (e.g. celebrating Children's Week, etc.).	.666		.444
I organize activities aimed at acquiring saving habits (water, electricity, money, etc.)	.589		.423
I encourage children to sort waste properly.	.547		.339
I encourage children to resolve conflicts in an acceptable way (through non-violent communication, tolerance, and democratic values).		.801	.643
Through stories, conversations and other activities, I teach children what it means to be a good friend.		.776	.603
I encourage children to cooperate in groups.		.771	.596
I encourage children to take care of each other (eg of younger children, children with disabilities, etc.).		.726	.569
I teach children not to waste food.		.688	.475
Percentage of variance explained (Total: 56.91%)	40.83	16.08	

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization; h² = communality.

Based on the content analysis of selected items, alignment with contemporary ECEfS frameworks, and factor saturation levels (Table 3), the factors were named as follows:

F1: Comprehensive education for ecological, economic, social, and cultural sustainability through planned activities and integration with the local community;

F2: Education for social sustainability, responsibility and promoting sustainability through everyday situations in a kindergarten context.

The factors explain 56.91% of the total variance of the investigated phenomenon, of which the first factor accounts for 40.83%, while the second factor accounts for 16.08% of the variance (Table 3). This finding indicates that the greater part of the variance is conditioned by common factors and that the first factor is dominant in explaining the variance.

Table 4 presents the implementation frequency of the extracted factors. Given that in the used Likert scale 3 is defined as frequency once or several times a month (mediocre), and 5 refers to daily frequency, the established statistical indicators indicate that preschool teachers average-mediocre implement structured education for comprehensive sustainable development and integration with the local community ($M = 3.09$, $SD = .80$). On the other hand, education for social sustainability and responsibility is intensively realized through learning in the social context of the kindergarten in everyday situations in the kindergarten group ($M = 4.77$, $SD = .40$) (Table 4).

Table 4. Descriptive statistical parameters of ESD implementation factors in the ECE environment and the differences between them

	<i>N</i>	Min.	Max.	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
F 1	115	1.20	4.87	3.09	.80	-21.40	<.001
F 2	115	3.20	5.00	4.77	.40		

Note. *N* = total number of participants; *M* = arithmetic mean; *SD* = standard deviation;
t = *t*-ratio; *p* = statistical significance.

Using the Kolmogorov-Smirn test, it was verified that the distributions of the research variables, which refer to the extracted factors of the preschool teachers' perspective on ESD activities, do not spread normally (Table 5). Considering the sample size ($N = 115$), a parametric test (Paired sample *T*-test and Independent Samples *T*-test) was applied, because although the distributions are not normally distributed, the analysis of variance is reliable when the sample size per group is greater than 30 (Pallant, 2009, 206).

Table 5. Tests of Normality of extracted factors

	Kolmogorov-Smirnov ^a		
	Statistic	df	p
Factor1	.102	115	.005
Factor2	.349	115	<.001

Note. a = Lilliefors Significance Correction; df = degrees of freedom; p = statistical significance.

The calculated t-ratio ($t = -21.40$; $p < .001$) indicates that there is a statistically significant difference between the arithmetic means of the extracted factors in favour of the F2 factor (Table 4).

The calculated t-ratio ($t = -3.32$; $p < .01$) indicates that there is a statistically significant difference in the arithmetic means of the representation of the realization of the extracted factors F1 in nursery and kindergarten children in favour of the older ones (Table 6). The calculated t-ratio ($t = -1.50$; $p > .05$) indicates that there is no statistically significant difference in the arithmetic means of representation of the realization of the extracted factor F2 in children of different ages (Table 6).

Table 6. Differences in the representation of ESD extracted factors concerning children’s age

	Age	N	M	SD	t	p
F 1	< 3 years	30	2.68	.78	-3.32	.001
	> 3 years	85	3.23	.76		
F 2	< 3 years	30	4.68	.43	-1.50	.136
	> 3 years	85	4.81	.39		

Note. N = total number of participants; M = arithmetic mean; SD = standard deviation; t = t-ratio; p = statistical significance.

Discussion

Although one phenomenon was investigated – the implementation of ECEfS from the perspective of preschool teachers, factor analysis identified two completely independent factors that indicate different approaches to ECEfS among BiH preschool teachers (Table 3). The

results indicate that the greater part of the variance of the examined phenomenon – ECEfS is determined by these factors (F1 and F2).

Through a deeper content analysis of the related items and contemporary literature, the obtained factors were named and presented.

Preschool teachers' initiatives for comprehensive education for ecological, economic, social and cultural sustainability through planned activities and integration with the local community (F1) (macro level approach)

The first factor (F1), which integrates all four dimensions of sustainability and activities open to the local community, explains as much as 40.83% of the total variance (Table 3). As both factors explain 56.91%, it can be seen that factor F1 is predominant in the explained variance of the implementation of OER in ECE from the perspective of preschool teachers. Given the dynamic nature of sustainability, which includes ecological, social, economic and cultural dimensions (UNESCO, 2017; Ritchie, 2021), an integrated and holistic approach is essential for effective ESD (Kioupi and Voulvoulis, 2022, 6, 13; Gokool-Ramdoo and Rumjaun, 2017, 84). An integrative way of thinking and acting is recommended (UNESCO, 2012, 16), which includes noticing and considering the interdependence of economic, social, ecological and cultural factors and finding ways to harmonize them all in order to achieve balance and long-term sustainability. Similarly, Samuelsson and Kaga (2008, 14) in their research consider the role of ECEfS and point to the intersection of the three pillars of sustainability (economic, ecological and socio-cultural). The prevalence of an integrative approach through the promotion of ESD in an adequate kindergarten environment in Bosnia and Herzegovina, Croatia and Slovenia are also indicated by the results of the research by Šindić *et al.* (2022, 149), Lepičnik Vodopivec and Šindić (2025, 139) and Šindić *et al.* (2025). Also, participatory approaches and openness of the institution towards the local community enable all participants to get involved and act (Bullock and Hitzhusen, 2015, 14064). This fulfils the essential requirements of ESD because such approaches to education can focus local efforts and lead to regional and global actions (Kioupi and Voulvoulis, 2022, 9). However, findings from Croatia indicate that the connection between ECEfS and the local community is less frequently applied in everyday practice, de-

spite being conceptually recognized. The external, community-oriented component of education for sustainability remains less represented compared to the internal, group-based dimension (Šindić *et al.*, 2025), which is also reflected in the second extracted factor F2 in this study (Table 4). The arithmetic mean indicating the frequency of implementation of the integrative ESD approach is ($M = 3.09$) (Table 4), which indicates that each of the examined elements of the educational strategy, support, organization and implementation of activities to promote the ecological, social, cultural and economic aspects of sustainability in kindergarten, on average it is realized once or several times a month. The findings indicate that there is a difference in the representation of this approach in ESD in ECE in nursery and kindergarten children ($t = -3.32$; $p < .01$) (Table 6). There is a tendency that the older the children are, the greater the chances of applying comprehensive ESD through planned activities and integration with the local community, while for education for social sustainability, and responsibility in everyday situations in the kindergarten context, this tendency is absent. Also, the findings indicate that there is a tendency to “split” education for social sustainability into two factors. Education for social sustainability integrated with other aspects of sustainability, aimed at the wider community, of a socio-cultural character, finds its place in integrative ECEfS (F1), while support for the development of social sustainability skills (developing friendship, non-violent communication, cooperation in groups, acquiring responsibility towards others), which are acquired primarily in interaction with a group of peers within the kindergarten context, were singled out into the second factor (F2).

Education for social sustainability, responsibility and promotion of sustainability through everyday situations in the kindergarten context (F2) (micro level approach)

The second factor (F2), which refers to a narrower approach to ECEfS, explains much less variance of the research construct from the perspective of preschool teachers (16.08%) (Table 3). This approach refers to social learning and the adoption of responsibility in the real context of a kindergarten group. Due to the need for a comprehensive and systematic approach to the implementation of ESD in the Early Childhood Education Environment (UNESCO, 2017; Anđić, 2007, 12;

Blake *et al.*, 2013, 5347–5372), many proponents of the integrative approach to ESD emphasize that it is preferable to avoid a fragmented and specialized approach (Kioupi and Voulvoulis, 2022, 13; Gokool-Ramdoo and Rumjaun, 2017, 72-89) because it is impossible to consider aspects of sustainability separately (Gokool-Ramdoo and Rumjaun, 2017, 72-89) and it is necessary to integrate all dimensions, both social, ecological and economic and cultural. On the other hand, Varela-Losada *et al.* (2022, 3) observe that a macro view should be maintained in education, but not ignoring the micro instances that make up the entire social phenomenon, where they observe that one approach does not exclude the other, but provides a comprehensive understanding and practice. Boström *et al.* (2018, 11-13) consider the importance of recognizing and appreciating the dimensions of transformative learning for sustainable development both at the macro and meso and micro levels. In education for social sustainability, micro-level approaches focus on the student and the immediate learning environment, while macro approaches refer to broader social, cultural and institutional contexts (Varela-Losada *et al.*, 2022, 3). Starting from the ecological theory and ecosystem of Bronfenbrenner (1979), it is noted the need to look at children's development in the context of the group, community, society and culture to which they belong, as well as the need to pay more attention to the social learning environment and learning in context (Šindić, 2021, 40-41). Although all ecosystems, i.e. environmental levels are important, the immediate environment of the child (microsystem), such as the family and kindergarten group, usually has the greatest influence on the child's development (Bronfenbrenner, 1979) because the interactions and experiences experienced in them are the most intense, the support for the child is more significant. The chances for modelling behaviour through daily activities and daily routines are greater (Šindić, 2021, 58). The leading developmental task for a child of an early age is to achieve integration with a peer group and adaptation to a new social context different from the family one, and then the acquisition of numerous social competencies. In the kindergarten community, preschool teachers play a key role in supporting the child in developing non-violent communication, cooperation, tolerance, resolving conflicts, understanding the position of others, promoting friendship and responsibility, etc. which represent the backbone of education for social sustainability

(UNESCO, 2017; Johansson and Rosell, 2021, 3, 10,15). Conflicts provide children with the opportunity to express their opinions and learn from the perspectives of others, and the role of preschool teachers is crucial in managing and problematizing situations in order to open up opportunities for different perspectives and children's negotiation skills (Johansson and Rosell, 2021, 15). Through their daily work in the kindergarten group and interaction with children, preschool teachers are provided with numerous opportunities and life situations where they can model positive patterns of behaviour and provide support to children in the development of social skills and sustainable habits. This allows children to gain experience and knowledge immediately – when a certain situation is taking place. The above can be explained by the finding that, although F2 refers to a much smaller part of the variance of ECEfS, its frequency is everyday ($M = 4.7739$) (Table 4). From the above, it could be concluded that F2 should not be neglected as an approach in the implementation of ECEfS, but should be seen as a significant support to approach F1 and its complement. Comparing the arithmetic means of both factors, it was confirmed that there is a statistically significant difference in favour of factor F2, i.e., that F2 is realized more often compared to F1 ($t = -21.40$; $p < .001$) (Table 4). The acquisition of knowledge by preschool children is predominantly empirical in nature, through spontaneous, unorganized, natural contextual learning, discovery, research, play, imitation, trial and error, and mental insight, while development, especially social, always takes place in a certain environmental context, which affects the flow, nature and outcomes of developmental changes, and the kindergarten group represents a natural framework for acquiring social experience for a young child (Šindić, 2021, 59). The results of the research confirm that there are no statistically significant differences in the representation of F2 in the nursery and kindergarten groups ($t = -1.50$; $p > .05$) (Table 6), which indicates that it takes place every day at all ages, which is logical because opportunities for gaining social experience and learning happen every day regardless of age. While the younger ones adapt to the group, integrate into the new community, and learn to live together with their peers, the older ones have the opportunity to develop social competencies. Children's social competencies are complex and are observed in a natural social context through the ability to initiate and maintain satisfactory

reciprocal relationships with peers (friendship, popularity, sociability, intimacy, knowledge and understanding of the social environment, its norms and rules), and the possession of adequate social skills (approach group, acceptance of group members and paying attention to others) and prosocial dispositions (receptiveness, kindness, compassion, generosity and cooperation) (Katz and McClellan, 2005, 15–19).

Conclusion

Based on a sample of 115 preschool teachers from Bosnia and Herzegovina, this study explores how ECEfS is approached in early childhood education settings. Although both factors are related to ECEfS, the difference in the perception of their implementation may indicate different priorities or levels of engagement. The first factor, which dominantly describes the variance, integrates all four dimensions of sustainability and activities open to the local community, explaining a significant part of the variance. This represents a macro-level approach, integrating economic, social, environmental, and cultural dimensions to promote balance and long-term sustainability. The second factor represents support for the realization of the first factor and its complement and is focused on social learning and responsibility in the kindergarten group, where a significant role of the microsystem in children's development is observed. These results call for careful consideration of approaches to early childhood education to ensure the holistic development of children and maximize the realization of ESD goals.

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RAZLIČITI PRISTUPI ODGOJU I OBRAZOVANJU ZA ODRŽIVI RAZVOJ U RANOM DJETINJSTVU IZ PERSPEKTIVE ODGOJITELJA

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Potreba za održivim razvojem sve je veća, a obrazovanje za održivi razvoj njegov je osnovni preduvjet koji je najučinkovitije uvesti u obrazovni sustav već od najranije dobi. Ključnu ulogu u uspješnoj provedbi odgoja i obrazovanja za održivi razvoj u ranom djetinjstvu imaju odgojitelji. Cilj ovog empirijskog, kvantitativnog istraživanja bio je ispitati kako bosanskohercegovački odgojitelji doživljavaju provedbu obrazovanja za održivost u svom svakodnevnom radu. Istraživanje je provedeno u sklopu međunarodnog projekta o obrazovanju za održivi razvoj, a temeljilo se na samoprocjeni vlastite odgojno-obrazovne prakse. Istraživanje je provedeno 2024. godine na uzorku od 115 odgojitelja iz Bosne i Hercegovine, korištenjem samostalno konstruiranog instrumenta s odgovarajućim metrijskim karakteristikama. Primjenom faktorske analize uz Varimax rotaciju, izdvojena su dva faktora koja ukazuju na postojanje makro- i mikro-razine pristupa u implementaciji odgoja i obrazovanja za održivi razvoj u ranom uzrastu.

Ključne riječi: obrazovanje za održivi razvoj; odgoj i obrazovanje u ranom djetinjstvu; socijalna održivost; odgojitelji; makro-razina pristupa; mikro-razina pristupa