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Is there Sustainability in Art or Art in Sustainability?

Early Childhood Education Students' Understanding about Interconnectedness of the Art and Sustainability

Education for sustainability (ESD) is one of the key components of the 2030 Agenda. Previous research emphasizes the importance of access to education as early as possible in accordance with the goals and contents of sustainable development. Early childhood education (ECE) teachers' curriculum is assumed to provide an interdisciplinary approach to education for sustainability.

The aim of this research was to determine ECE students' understanding of the concept of sustainability in artistic activities. An empirical study with a quantitative approach was conducted. In total, 104 students participated in the study which was designed to get insight of their understanding about interconnectedness of the art and sustainability. They evaluate artistic activities within three pillars of sustainability.

The results show how students mainly understand sustainability in art through material environment (artistic activities with recycled materials). At the same time, they don't recognise art as sustainability itself (social and cultural pillar). A difference was noticed in understanding of the concept of sustainability between students who have experience with ESD, and those who have less experience.

Keywords: art, child, environment, sustainable development, teacher

Introduction

Early childhood education for sustainable development has undergone a number of transformations throughout its history and is still in the process of developing and connecting with contemporary theories of early childhood (Cutter-Mackenzie & Edwards, 2013).

Between 2005 and 2014, UNESCO launched a global effort to promote the ESD. However, a United Nations (UN) report found that there is very little empirical evidence of relevant changes in pedagogical approaches, particularly in education at ECE (Buckler & Creech, 2014). Therefore, in the 2030 Agenda, the UN listed the main goals related to the education system and sustainable development for 2030. Children are expected to acquire the knowledge and skills needed to promote sustainable development, including EFS and sustainable lifestyles, human rights, gender equality, promoting a culture of peace and nonviolence, global citizenship and respect for cultural diversity and the cultural contribution to sustainable development (UN, 2018).

Apart from being an integral part of global aspirations (i.e., Agenda 21, Sustainable Development Goals; UN Agenda 2030, 2018), ESD is also a part of national (i.e., the Sustainable Development Strategy of the Republic of Croatia) educational policies. Most of the mentioned documents emphasize the key role of ECE in ESD,

while the National Curriculum of Early Childhood Education (2014) is mentioned in the context of values as the starting point of the curriculum. Given this, it remains unclear whether sustainable development is part of Croatian kindergarten curricula or remains one of the concepts that enrich documents without a clear application in practice?

Teacher professional development begins with initial education, so we conducted this research among ECE students with the aim of exploring their understanding of the concept of sustainable development in artistic activities. The research tried to answer how ECE students see contribution of artistic activities in relation to sustainability and whether the sociodemographic variables influence their assessment.

Teachers as promoters of sustainable development

In order to achieve the goals of sustainable development, the quality of education is important. In the context of promoting sustainable development in ECE, the responsibility for the implementation of ESD in early childhood lies with preschool teachers (further teachers) (Bahtić & Višnjić Jevtić, 2020). Initial education plays a key role, as well as teachers' competencies and their knowledge of sustainable development. Laurie et al. (2016) conclude that it is necessary to ensure the professional development of teachers in the field of ESD to ensure that it is an integral part of the curriculum. The research of Bahtić and Višnjić Jevtić (2020), which analysed the programs of six Croatian universities that educate teachers, shows that only 3 universities offer ESD content as separate courses, the University of Split and the University of Zagreb, one course each, and the University of Rijeka with two). Despite the opportunities offered by ESD as part of interdisciplinary and integrated content, a search by keywords (sustainability, sustainable) did not find content that would indicate the use of sustainable development in primary teacher education. Davis (2020) came to similar results in a global context. It is possible that the contents are still implemented, although they are not clearly highlighted i.e., teachers do not recognise them as topics related to sustainability.

Artistic activities and sustainable development in early childhood

Art in children encourages creativity and innovation, includes and promotes critical thinking and problem solving, and at the same time contributes to the acquisition of knowledge, skills and attitudes and as such is the foundation of ECE (Edwards, 2014; Wright, 2010; Ward, 2013; Bascope et al., 2019). The importance of art for the child is visible in the Reggio Emilia approach where children through art and research approach deal with art as collaborators, co-constructors of their environment and creative and effective communicators (Bartlett, 1993; Gandini, 1993; Ward, 2013; Vecchi, 2010). The connection between art and nature in the material environment in kindergarten was also emphasised by Rudolf Steiner (Carlgren, 1990). Art provides children with many opportunities to express themselves through different languages

of art: fine arts, music, dance, puppetry and performing arts, and new media. At the same time, it allows them to relive their experiences and memories, but it can also be an additional way of knowing, thinking and innovating (Wilson, 2010; Wright, 2010). Art is a significant segment of the ECE curriculum based on elements of a holistic paradigm that encourages child holistic development (Balić Šimrak, Šverko & Županić Benić, 2010), emphasising the importance of creative and stimulating environment (Županić Benić & Bačlija Sušić, 2019). The art is a medium through which a child can be implanted and brought closer to topics such as sustainability in the context of modern living. While Ward (2013) points out that sustainability issues are extremely important for children to become socially responsible, and how they must develop awareness of the impact of human activities on the natural environment, but also critical thinking competencies (Taimur & Sattar, 2020). By creating an environment in which children use natural elements in play or staying in nature, but also by conducting artistic activities focused on the themes of sustainable development, it is possible to achieve children's involvement. Nevertheless, Elliott and Davis (2009) cite problems such as the view that outdoor play is a sufficient experience of a child with nature, and many consider sustainability issues too difficult to address with young children. Višnjić Jevtić & Županić Benić (2021) state that if the concept of sustainability is based on the need to change behaviour, it is possible that early childhood is the foundation time that can ensure the adoption of sustainable behaviour and thus prevent the need to change behaviour. Curtis & Carter (2007) points out that artistic experiences are effective in understanding information about natural environment, and stressed the importance of participation, instead of passive observation, to maximize the experience of learning and understanding. According to him, the artistic experiences and contents created by the teacher are expressed through all artistic areas from storytelling, experiences of musical contents, drama, dance and movement, painting, drawing, sculpture, and children's play. Pramling Samuelsson, Li and Hu (2019) point out that teachers must be extremely skilled and competent in the field of sustainable development in order to encourage children to be active. Laurie et al. (2016) conclude that it is necessary to ensure the professional development of teachers in the field of ESD to ensure that it is an integral part of the curriculum.

Methods

The aim of this research was to determine ECE students' understanding of the concept of sustainability in artistic activities.

Instrument

For the purposes of the research, a two-part questionnaire was constructed. The first part referred to demographic data i.e., gender (male / female), type of study (un-

dergraduate, graduate, full-time, part-time), year of study and chronological age and their previous experience in artistic education.

The second part of the questionnaire referred to information about the concept of sustainable development and about artistic activities that can be linked to sustainable development. The research was conducted in the academic year 2021/2022.

Sample

The research included 104 (N = 104) teacher education students at the Faculty of Teacher Education, University of Zagreb (Table 1). The average age of participants was 22.5 years (SD = 5.51) ranging from 19 to 47 years of age. Most students in the sample are first-year undergraduate students (41.3%, f = 43), and the least students are 1-year graduate students. The majority of participants study full-time (88.5%, f = 92). Most participants rate their knowledge of the art field as good (39.4%, f = 41).

Table 1. Teacher education students at the Faculty of Teacher Education, University of Zagreb

Variable	%	f	
Academic year	1 st undergraduate	41,3	43
	2 nd undergraduate	16,3	17
	3 rd undergraduate	39,4	41
	1 st graduate	2,9	3
Studying	Full time	88,5	92
	Part time	11,5	12
Artistic knowledge	Without any knowledge	2,9	3
	Weak	18,3	19
	Good	39,4	41
	Very good	24	25
	Excellent	15,4	16

One third of the participants (31.7%, f = 33) did not meet the concept of sustainable development during their education, 29.8% (f = 31) met the concept during higher education, and 23.1% (f = 24) met during his high school education. Almost half of the 48.1% (f = 50) participants cannot assess whether society supports sustainable development, while 26.5% (f = 38) believe that society supports sustainable development. Disagreement with this estimate was chosen by 15.4% of participants (f = 16). Two thirds of the research participants (67.3%, f = 70) believe that artistic activities can be part of education for sustainable development, while slightly more than a quarter (27.9, f = 29) cannot assess this statement.

Results and discussion

Research participants highly value the contribution of these activities to the concept of sustainable development ($M = 4,67 - 4,11$) (Table 2). They consider the contribution of acquaintance with traditional customs to be the most significant ($M = 4,67$; $SD = 0,73$), and education for democracy the least ($M = 4,11$; $SD = 1,05$). Considering the presence of sustainability education topics in the public, it was expected that students would highly evaluate the contribution of various activities in the artistic field to sustainability itself. As it is a question of students studying ECE, it is possible that they see their answers as a part of their professional knowledge in the context of education for sustainability and therefore gave desirable answers.

Table 2. Assessment of activities that contribute to sustainable development

	M	SD
Introduction to traditional customs	4.67	0.730
Encouraging handwork in children	4.63	0.751
Water saving	4.59	0.771
Recycling	4.57	0.879
Getting to know art and artists	4.57	0.810
Introduction to traditional crafts / occupations	4.57	0.822
Encouraging expression through applied arts (ceramics, making decorative and useful objects, knitting, sewing)	4.55	0.858
Energy saving	4.55	0.835
Making an instrument	4.55	0.846
Planting plants	4.55	0.869
Encouraging children's autonomy	4.52	0.881
Use of recycled materials for artistic activities	4.50	0.881
Encouraging children's participation	4.48	0.881
Respect for diversity	4.48	0.881
"Land art" activities	4.47	0.859
Use of natural materials in artistic activities	4.45	0.954
Introduction to traditional music (songs and dances)	4.43	0.911
Art works inspired by nature	4.37	0.976
Intergenerational cooperation	4.33	0.960
Getting to know the fairy tales and stories of the homeland	4.30	0.984
Staying in nature	4.25	1.086
Encouraging creative thinking	4.18	1.012
Introduction to artistic creation	4.12	1.138
Education for democracy	4.11	1.051

The participants of this research are future ECE teachers, therefore it is assumed that their education follows the recommendations of educational policies at the global level. In contrast, even a third of the participants (32.7%, $f = 34$) had never encoun-

tered the term sustainable development. Ignorance of the term calls into question their answers about the contribution of artistic activities to something they are not familiar with. Interestingly, participants show uncertainty in their assessments of the social role in supporting sustainable development. Almost half of the participants (48.1%, $f = 50$) cannot assess whether society support socially sustainable development. Also, almost a third (27.9%, $f = 29$) of participants cannot assess whether artistic activities are part of education for sustainable development. It is possible that are undecided those who have no experience in education for sustainable development.

To determine whether there are differences in the participants' assessments of the contribution of artistic activities to sustainable development with regard to their opinion on the role of artistic activities in sustainable development, a one-way analysis of variance was used. It was found that there is a statistically significant difference ($F = 3,52$; $p = ,03$) in the assessments of the participants regarding the contribution of the activities of the use of natural materials in artistic activities. The Bonferroni test found that participants who felt that artistic activities could promote sustainable development expressed a higher degree of agreement (Mean diff. = 0,206, $p = ,04$) than indecisive participants.

Siraj-Blatchford, Smith and Pramling Samuelsson (2010) emphasise the importance of understanding sustainable development through three "pillars" of sustainability – socio-cultural, economic and environmental dimension. Although the concept of sustainability goes beyond the environmental dimension, it is most often mentioned in the context of education for sustainable development. The obtained results indicate that students connect the concept of sustainable development with the use of natural materials in artistic activities, which was expected.

Assuming that senior students have more experience with education for sustainable development, we tried to determine whether the year of study is a predictor of their assessments. It was found that there are statistically significant differences in estimates of the contribution of activities regarding the year of study. The differences were found for following activities: recycling ($F = 4,44$; $p = ,01$), planting plants ($F = 5,34$; $p = ,002$), water saving ($F = 4,24$; $p = ,01$) and energy saving ($F = 3,64$; $p = ,02$) (Table 3).

Students attending the 3rd year of undergraduate study express a higher degree of agreement with the claims that recycling (Mean diff. = 0,65, $p = ,004$), planting plants (Mean diff. = 0,69; $p = ,001$), water saving (Mean diff. = 0,55, $p = ,01$) and energy saving (Mean diff. = 0,55, $p = ,01$) contribute to sustainable development, compared to 1st year undergraduate students. Considering the obtained results, it can be concluded that the 3rd students still spend more time in the context of ECE and have already acquired competencies in the field of sustainable development and implementation of artistic activities with children. Laurie et al. (2016) believe that the professional development of teachers is crucial for the promotion of ESD. No statistically significant difference was found in the estimates of the claims with respect to the form of study.

The limitation of this research is the sample which is convenient and too small to draw general conclusions. Another limitation is the impossibility of a deeper analysis of the participants' opinions, that is, the use of only one methodological approach (quantitative). By using the mixed method, a deeper insight into the real reflections of the participants would be obtained. The research was conducted during the re-

Table 3. Differences in assessments of the contribution of the offered activities regarding the academic year of the participants

	<i>F</i>	<i>p</i>
Recycling	4.439	.006
Planting plants	5.342	.002
Water saving	4.242	.007
Energy saving	3.642	.015
Intergenerational cooperation	2.518	.062
Education for democracy	1.547	.207
Respect for diversity	.660	.578
Encouraging children's autonomy	.521	.669
Encouraging children's participation	.158	.924
Use of natural materials in artistic activities	.740	.530
Encouraging handwork in children	2.566	.059
Introduction to traditional crafts / occupations	1.114	.347
Encouraging expression through applied arts (ceramics, making decorative and useful objects, knitting, sewing)	.745	.528
"Land art" activities	1.181	.321
Art works inspired by nature	1.133	.339
Use of natural materials in artistic activities	1.024	.385
Making an instrument	2.299	.082
Encouraging creative thinking	.952	.418
Getting to know art and artists	2.634	.054
Introduction to artistic creation	.072	.975
Staying in nature	.930	.429
Introduction to traditional customs	2.623	.055
Introduction to traditional music (songs and dances)	.499	.684
Getting to know the fairy tales and stories of the homeland	.029	.993

strictions caused by the Covid-19 pandemic, so it is possible that the participants were overwhelmed with online questionnaires and therefore did not pay enough attention to the assessments. And finally, research that asks for self-assessments often encourages participants to give desirable answers, because they feel that they are being evaluated personally.

Conclusion

Art and artistic activities in early childhood can be a way of understanding the concept of sustainable development. The approach of ESD can include the expression of the child through all kinds of arts, which largely depends on the readiness and artistic competencies of teachers, but also knowledge of ESD. Given the 2030 Agenda (UN, 2018) which emphasises the importance of children acquiring the knowledge and

skills needed to promote sustainable development in the future, this research was conducted among students of future preschool teachers. Almost a third of the students did not encounter the concept of sustainable development during their education, while 29.8% were acquainted with the concept during higher education. More than half of the students could not assess whether the society supports sustainable development.

It could be concluded that relevant information and education on ESD raises participants' awareness of this topic, however the low representation of this topic in initial education means a major failure of higher education institutions in the professional development of preschool teachers. This research is one of the few in the Republic of Croatia, which indicates the fact of low representation of the content of sustainable development in primary education in general. Although in assessing the offered activities, research participants recognised the contribution of certain activities, especially artistic activities in sustainable development, it can be concluded that most students are unfamiliar with the concept of sustainable development. At the same time, they easily link the description of a specific activity with the concept itself, which shows an insufficient connection between theory and practical action. The foundation of practical action in theoretical settings is the foundation of every teaching profession, including the preschool teacher's profession.

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