Education for sustainable development

How to integrate the goals of sustainable development into the curriculum, pedagogy and assessment of learning? How to foster ecological awareness, social responsibility and global citizenship among children and young people?

Section Editor: prof. dr. sc. Jasna Kudek Mirošević

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The importance of developing global competencies from the perspective of students in the Republic of Croatia

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Odgoj i obrazovanje za održivi razvoj	**Broj rada: 100**	

Sažetak

Global competencies encompass cognitive, socio-emotional, and ethical aspects that facilitate comprehending diverse viewpoints, acting in the public interest, and fostering democratic discourse. Therefore, the goal of this research is to determine how students of various studies in the Republic of Croatia understand the importance of global competencies and the way to implement knowledge about global competencies in the micro and macro environment. In the focus group, 7 students from different studies throughout the Republic of Croatia participated. Since the focus group involved online communication, and the interaction of the participants was recorded and the conversation was then transcribed, the research participants agreed to voluntarily participate in the research at the very beginning and were familiarized with the purpose of the research and the comprehensive analysis of data that guarantees their anonymity. The questions, which tried to stimulate an in-depth discussion on the mentioned topic, were formulated according to the PISA questionnaire (2018), which contains thematic units on the development of global competences as an additional, innovative domain. Through a qualitative approach that includes the thematic analysis of focus group data, it was determined that students of various studies in the Republic of Croatia did not encounter courses that emphasize the development of global competencies, even though they understand the importance of developing them. The research results point to the importance of innovating the development of global competencies in the study programs of higher education institutions in the Republic of Croatia to continuously develop awareness of the importance of global competencies in all levels of initial education.

Ključne riječi

culture of society; focus group; PISA questionnaire; student attitudes

Development of vocational curricula as part of the ESF project Modernisation of the Vocational Education and Training System in the Health sector

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Education for sustainable development	**Number of the paper: 101**	

Abstract

The project titled Modernisation of the Vocational Education and Training System was implemented by the Agency for Vocational Education and Training and Adult Education. Its aim is to develop attractive, innovative and relevant vocational education and training linked with the labor market (ASOO). The project is co-financed by the European Social Fund. The ultimate goal of the project is to develop new vocational curricula tailored to the needs of the contemporary labor market requirements and modern pedagogical guidelines. A breakthrough in pedagogical practice is the planning of vocational curricula in modules. The module is a logical and meaningful unit in which different learning outcomes are linked together. In each sector, a sectoral curriculum is developed that forms the sectoral core: subjects common to all curricula within the sector and a sub-sectoral part common to related professions. The paper describes the development of vocational curricula in the health sector.

Key words

Health sector; module; vocational curricula

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Odgoj i obrazovanje za održivi razvoj	**Broj rada: 101**	

Sažetak

Projekt „Modernizacija sustava strukovnoga obrazovanja i osposobljavanja” realizirala je Agencija za strukovno obrazovanje i obrazovanje odraslih. Njegova svrha je razvoj strukovnoga obrazovanja i osposobljavanja koje je privlačno, inovativno, relevantno i povezano s tržištem rada (ASOO). Projekt je sufinanciran sredstvima iz Europskoga socijalnog fonda. Krajnji je cilj projekta razvoj novih strukovnih kurikula usklađenih s potrebama, rada ali i modernim pedagoškim smjernicama. Iskorak u pedagoškoj praksi jest planiranje strukovnih kurikula u modulima. Modul čini logičnu i smislenu cjelinu u kojoj su povezani skupovi ishoda učenja. U svakom sektoru razvija se i sektorski kurikul koji čini sektorsku jezgru: predmete zajedničke svim kurikulima unutar sektora te podsektorski dio zajednički srodnim zanimanjima. U radu je opisan razvoj strukovnih kurikula u sektoru Zdravstvo.

Ključne riječi

modul; sektor Zdravstvo; strukovni kurikul

Empowering sustainable minds: A handbook for integrating sustainable development into school curricula

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Education for sustainable development	**Number of the paper: 102**	

Abstract

This presentation will introduce a comprehensive handbook aimed at teachers, pre-service teachers and educators to facilitate the integration of the Sustainable Development Goals into curricula. The handbook offers practical insights to meet the cross-curricular educational expectations, with a focus on promoting ecological awareness, social responsibility and global citizenship among children and students of different ages. In line with the broader concept of sustainable development, the handbook emphasizes educational activities aimed at developing higher-order thinking, interpersonal relationships, good communication and problem-solving skills. In addition to historical perspectives and an overview of the United Nations Sustainable Development Goals, several examples of the activities described in the handbook are presented to help educators plan, implement and assess sustainable development as a cross-curricular subject within the Croatian curriculum. The practical examples of teaching strategies and learning activities presented include a variety of approaches that encourage students' active engagement in thinking, analysing, predicting, evaluating and reflecting, as well as several successful school projects and research initiatives that show how Education for Sustainable Development is put into practice and how to improve teaching in general. The importance of skills that are often neglected in schools and are aimed at personal and social development is emphasized. The handbook aims to enable educators to promote a sustainable mindset and thus contribute to education for sustainable development, but also to support purposeful modern education as we move in a complex world with increasing threats.

Key words

active learning; economic goals; environmental goals; project-based learning; social goals

Blogging about Sustainable Development in the EFL College Classroom

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Education for sustainable development	**Number of the paper: 103**	

Abstract

Sustainable Development Goals (SDG) are not integrated in any EFL courses that students take at my college. Therefore, a class blog was created in an EFL writing course for freshman students to find out its effect on students' writing skill development and awareness of SDG. Each week, a specific and tangible topic related to an SDG (no poverty, zero hunger, good health and well-being, quality education, gender equality, clean water and sanitation, affordable and clean energy, decent work and economic growth, industry, innovation, and infrastructure, reduced inequality, sustainable cities and communities, responsible consumption and production, climate action, life below water, life on land, peace, justice, and strong institutions) was posted by the instructor. The students searched for videos, photos or articles related to the assigned SDG and wrote a blog post that describes the photo, summarizes the video or article content. Participation goals were integrated. The students had to write their reaction to the goal, post solutions, comments, and feedback on their classmates' blog posts. They worked on their blog posts individually, in pairs and small group. The instructor served as a facilitator while the students were blogging. Comparisons of the posttest scores of students who blogged about SDG and those who used paper-and-pencil assignments showed significant differences in writing skill improvement in favor of the blog group. Students in the blog group had positive attitudes, enjoyed interacting and collaborating with their classmates and reflecting on their own writing. Blogging about SDG proved to be effective in enhancing the students' writing skills and SDG awareness. The study gave recommendations for integrating SDG in EFL speaking and reading courses.

Key words

EFL writing practice; freshman students; global issues; participation goals

Gender equality from the perspective of preschool teachers / Ravnopravnost spolova iz perspektive odgojitelja

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Education for sustainable development	**Number of the paper: 104**	

Abstract

To get closer to the achievement of gender equality as one of the goals of sustainable development, preschool teachers are faced with the challenge of reconsidering their own attitudes and developing their competencies. In traditionally structured societies, an additional effort is needed to become familiar with ways to recognize in practice and then react in ways that support this type of equality, in order to provide girls with the opportunity to empower themselves, realize their potential and human rights related for education and participation. The goal of the research was to examine the attitudes of preschool teachers towards gender equality and their actions in everyday situations in kindergarten. For the purposes of the research, a sample of 216 teachers from Serbia was examined. The data was collected using a scale of stereotypical family roles, a scale of stereotypical behaviors and characteristics of children, and situational vignettes. The obtained results show that teachers have positive attitudes towards gender equality, as well as that in the offered situations they have reactions that support it. Although the obtained results seem encouraging, the authors problematize the obtained findings, the research methodology, taking into account the wider social context and the public's response to programs that deal with gender equality carried out in kindergartens in Serbia. The main conclusions point out the need for improving the methodology of researching attitudes towards gender equality, evaluating the effects of programs aimed at educating teachers on this topic, and methods of strengthening the competences of experts for the promotion of gender equality.

Key words

competences of preschool teachers; education programs; gender equality; gender stereotypes; research methodology; social context

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Odgoj i obrazovanje za održivi razvoj	**Broj rada: 104**	

Sažetak

U nastojanju da se približe postizanju ravnopravnosti spolova kao jednom od ciljeva održivoga razvoja, odgojitelji su suočeni s izazovom preispitivanja vlastitih stavova i razvoja svojih kompetencija. U patrijarhalnim i tradicionalno strukturiranim društvima potreban je dodatni napor kako bi se upoznali s načinima kako u praksi prepoznati i potom reagirati na načine koji podržavaju ovu vrstu ravnopravnosti i prava, kako bi se djevojčicama pružila prilika da se osnaže, ostvare svoje potencijale i ljudska prava povezana s obrazovanjem i sudjelovanjem. Cilj ovoga istraživanja bio je ispitati stavove odgojitelja o ravnopravnosti spolova i njihovo djelovanje u svakodnevnim situacijama u vrtiću. Za potrebe istraživanja ispitan je uzorak od 216 učitelja iz Srbije. Podatci su prikupljeni pomoću ljestvice stereotipnih obiteljskih uloga, ljestvice stereotipnih ponašanja i karakteristika djece te situacijskih vinjeta s ponuđenim odgovorima o postupcima učitelja. Dobiveni rezultati pokazuju da odgojitelji imaju pozitivne stavove prema ravnopravnosti spolova, kao i da u ponuđenim situacijama imaju reakcije koje idu u prilog tome. Iako dobiveni rezultati djeluju ohrabrujuće, u radu i analizi rezultata istraživanja autorice problematiziraju dobivene nalaze, metodologiju istraživanja, uvažavajući stvarne situacije šireg društvenoga konteksta i odaziv javnosti na programe koji se bave rodnom ravnopravnošću u ranoj socijalizaciji djece predškolske dobi koja se provodi u dječjim vrtićima u Srbiji. Glavni zaključci upućuju na potrebu unaprjeđenja metodologije istraživanja stavova o ravnopravnosti spolova, evaluacije učinaka programa edukacije nastavnika o ovoj temi te načina jačanja kompetencija stručnjaka za promicanje ravnopravnosti spolova.

Ključne riječi

društveni kontekst; kompetencije odgojitelja; metodologija istraživanja; programi edukacije; rodna ravnopravnost; rodni stereotipi

Urban ecology within multidisciplinary educative framework

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Education for sustainable development

Number of the paper: 105

Abstract

Cities are complex ecosystems and habitats for more than half of world's population. The aim of this work is to present how students and professors from two faculties within the University of Zagreb work together to investigate case studies of urban parks as places for all living beings. The research projects developed by the students combine knowledge and methods from both the Faculty of Science (Department of Biology) and the Faculty of Architecture (Department of Urban Planning, Spatial Planning and Landscape Architecture). Students select a site where they develop a project proposal as part of their intervention theme to improve life in the neighbouring communities, considering the impact on biodiversity, activities, landscaping, and public space quality. The work compares the urban design approach of the architecture students with the biodiversity approach of the biology students using the case studies of Park Mladenaca, Park Kajzerica and Dugave Park in New Zagreb. These case studies were a part of series of parallel workshop and seminar assignments during three academic years from 2021 to 2024. The results show that a multidisciplinary approach is an important step in understanding and planning sustainable urban transformations in open public spaces. The educative experience of cooperation between the Faculty of Science and the Faculty of Architecture is a successful example of education framework within sustainable development goals. As such, it is also an invitation to a broader discourse on exploring students' assignments from different perspectives, in the hope that the multidisciplinary approach will become inter- and transdisciplinary in the future.

Key words

biodiversity; landscape architecture; urban design; urban parks; Zagreb

The collaborative commons: Schools, communities, and society

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Education for sustainable development	**Number of the paper: 106**	

Abstract

The 2030 Agenda for Sustainable Development (2015) and the Sustainable Development Goals as well as the UNESCO report "Reimagining our futures together" are just some of the more prominent documents that place education at the centre of ongoing social change and seek to overcome a growing number of social and economic problems in our world. This paper presents the idea and case studies of schools and local engagement as a possible contribution of education to the various challenges of sustainability today (Kos, Tašner, Gaber 2019). The changes in educational policy and practise that are focused on the local level affect schools at the level of curricula and didactic approaches, at the level of expanded school programmes and broader community engagement. A questionnaire was sent to the principals of thirty elementary school from different regions and in different urban, semi-urban and rural areas to capture existing community engagement practises. Based on the data collected, three schools were selected as pilot schools with the aim of developing school–community collaboration. (Kos, Gaber, Tašner 2021). The selected cases show that liberal conceptualizations of community, collaboration and commons form hybrid hierarchies and classifications and reconfigure the personal and collective experiences of teaching and learning along different axes. This opens up possibilities for alternative ways of addressing one of the most pressing questions of our time: how we can live together in a world of plurality and difference and in a sustainable relationship with our natural environment. It is safe to say that the idea of the commons will continue to evolve in (trans)formal educational practise.

Key words

classifications; different teaching and learning; hybrid economies; reconfiguring personal and collective

Education for sustainable development and technology: Why do technological and engineering skills need to be integrated more intensively into learning and teaching?

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Education for sustainable development	**Number of the paper: 107**	

Abstract

Education for Sustainable Development (ESD) is fundamentally integrated into the entire education system in Croatia, but also in most other countries around the world. However, the actual implementation of ESD in the school system is associated with numerous challenges and is often reflected in the curricula only declaratively. One of these challenges is that pupils need to acquire holistic (systemic) knowledge so that the problems and challenges of sustainability can be solved in the future. To acquire this knowledge in primary school, students need to be confronted with sustainability challenges and problems that they cannot know, understand or solve without the technological and engineering knowledge behind such problems. Therefore, this paper argues for and proposes a more intensive integration of technical and technological knowledge into the primary school curriculum. The implementation is based on the Concept for Demystifying Technology (CDT), which serves as the main model for the selection and implementation of teaching content and activities in the primary school curriculum. With this model, he proposes a systematic approach to learning and teaching that includes learning about the local community's need for vital resources, a "deep" insight into the technologies that provide them, an insight into the consequences of using technology, and an insight into the methods and technologies that reduce the negative consequences for society and the environment. The students' activities, which would also ensure adequate development of their critical thinking on sustainability issues, should definitely be "anchored" in authentic situations that reflect "real world" situations. Only in this way will today's generations be able to develop knowledge, skills and a way of thinking that will enable them to successfully solve the problems of the future.

Key words

ESD; critical thinking; primary education; sustainability; technical education

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Odgoj i obrazovanje za održivi razvoj	**Broj rada: 107**	

Sažetak

Obrazovanje za održivi razvoj (OOR-a) načelno je integrirano u cjeloviti sustav obrazovanja u Hrvatskoj, ali i u većini zemalja u svijetu. Međutim, stvarna implementacija OOR-a u školski sustav obiluje brojnim izazovima te je često samo deklarativno prisutna u kurikulima. Među tim su izazovima i oni povezani s nužnošću usvajanja holističkih (sustavnih) spoznaja učenika kako bi se problemi i izazovi održivosti u budućnosti mogli rješavati. Usvajanje takvih spoznaja već u osnovnoškolskom obrazovanju zahtijeva suočavanje učenika s izazovima i problemima održivosti, koje nije moguće spoznati, razumjeti niti rješavati bez tehničko-tehnoloških znanja koja stoje u njihovoj pozadini. Stoga se u ovom radu argumentira i predlaže intenzivnija integracija tehničko-tehnoloških spoznaja u kurikul osnovnoškolskoga obrazovanja. Pritom se implementacija vodi Konceptom za demistifikaciju tehnologije (CDT), kao načelnim modelom za izbor i realizaciju nastavnih sadržaja i aktivnosti u kurikulu. Ovim modelom predlaže se sustavni pristup učenju i poučavanju koji uključuje upoznavanje potreba lokalne zajednice za ključnim životnim resursima, „duboki“ uvid u tehnologije koje to osiguravaju, uvid u posljedice korištenja tehnologije te uvid u metode i tehnologije koje umanjuju neželjene posljedice na društvo i okoliš. Aktivnosti učenika, koje bi osigurale i primjereni razvoj kritičkoga mišljenja učenika o pitanjima održivosti, zasigurno trebaju biti „usidrene“ u autentičnim situacijama koje odražavaju situacije iz „stvarnoga svijeta“. Tek tako će se kod današnjih naraštaja moći razvijati znanja, vještine, ali i način razmišljanja kojim će oni moći rješavati probleme budućnosti.

Ključne riječi

kritičko mišljenje; održivost; OOR; primarno obrazovanje; tehničko obrazovanje

Student teachers' preparedness for implementation of education for sustainable development / Pripremljenost studenata učiteljskih studija za provedbu odgoja i obrazovanja za održivi razvoj

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Education for sustainable development	**Number of the paper: 108**	

Abstract

The paper presents the results of research aimed at examining the student teachers' preparedness for the implementation of education for sustainable development by applying its basic principles in teaching and learning activities. The research was conducted on a sample of Teacher Education students from the Faculty of Teacher Education, University of Zagreb. Data on students' perceptions regarding the readiness to create, implement, evaluate, and participate in teaching and learning activities that support sustainable development were collected via a questionnaire. The results indicate that professional knowledge and practice, professional participation and self-regulation may be considered key dimensions of students' preparedness for the implementation of education for sustainable development, each of which includes several components. Furthermore, a positive correlation was established between professional knowledge, the vision of teaching, and professional participation. The research likewise identifies certain weaknesses in the field of education of future teachers for the implementation of education for sustainable development, which suggest the necessity of more detailed analysis and improvement. In the present context, recommendations are given for enriching initial teacher education programs with specific learning outcomes in order to facilitate future teachers' development, most notably appropriate competencies that allow for the implementation of education for sustainable development.

Key words

initial teacher education; perception of self-regulation; self-assessment of competencies; teaching and professional engagement vision

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Odgoj i obrazovanje za održivi razvoj	**Broj rada: 108**	

Sažetak

U ovom radu predstavljeni su rezultati istraživanja čiji je osnovni cilj bio ispitati pripremljenost studenata učiteljskih studija za provedbu odgoja i obrazovanja za održivi razvoj primjenom njegovih osnovnih načela u aktivnostima poučavanja i učenja. Istraživanje je provedeno na uzorku studenata učiteljskih studija s Učiteljskog fakulteta Sveučilišta u Zagrebu. Podatci o percepciji studenata o spremnosti za kreiranje, provedbu, vrednovanje i sudjelovanje u aktivnostima poučavanja i učenja koje podržavaju održivi razvoj prikupljeni su putem upitnika. Rezultati ukazuju na to da se stručno znanje i praksa, stručno sudjelovanje i samoregulacija mogu smatrati ključnim dimenzijama pripremljenosti studenata za provedbu odgoja i obrazovanja za održivi razvoj, pri čemu svaka od njih obuhvaća skup od nekoliko komponenata. Nadalje, utvrđena je pozitivna korelacija između stručnoga znanja, vizije poučavanja i stručnoga sudjelovanja. Istraživanje je također identificiralo određene slabosti u području obrazovanja budućih učitelja za provedbu odgoja i obrazovanja za održivi razvoj koje zahtijevaju detaljniju analizu i poboljšanje. U tom kontekstu, dane su preporuke za obogaćivanje učiteljskih programa specifičnim ishodima učenja kako bi budućim učiteljima omogućili razvoj odgovarajućih kompetencija za provedbu odgoja i obrazovanja za održivi razvoj.

Ključne riječi

inicijalno obrazovanje učitelja; percepcija samoregulacije; samoprocjena kompetencija; vizija poučavanja i stručnoga angažmana

Collaborative learning for change: Sustainability in the palm of your hand / Suradničko učenje za promjenu: održivost na dlanu

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Education for sustainable development	**Number of the paper: 109**	

Abstract

The aim of the research is to find the benefits for educators, early education and care students (ECE), primary school teachers and a wider group of educators from using the ECE Academy application and the course Sustainability from the Start, and to investigate how collaborative learning of educators using the application affects their perception of sustainability and current practices. Using a transformative theoretical paradigm, this study places itself at the intersection of research on education for sustainable development, early childhood pedagogy, and children's rights (Ranta, 2023) to further examine how such a collaborative learning experience for educators can promote education for sustainable development for early childhood children. A combination of qualitative and quantitative methodological approaches (Denzin & Lincoln, 2018) were used, including first-hand perspectives, individual expertise, as well as interviews with RPOO practitioners and professors and students using the app and course. The data were collected using the technique of individual and group interviews and a questionnaire constructed for the purpose of research. 10 educators (from Croatia, the Czech Republic, France, Ireland and Sweden) participated in the focus groups. Individual interviews and questionnaire survey are still ongoing. The final results will be presented at the STOO 4 conference. The participants took part in the research voluntarily and were informed that they could withdraw from participation at any time. The contribution of educators, students and professors in the course Sustainability from the Start should lead to their professional development and a better understanding of sustainability and its place in early childhood education.

Key words

children's rights; e-learning; education for sustainable development; ICT; transformative learning

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Odgoj i obrazovanje za održivi razvoj	**Broj rada: 109**	

Sažetak

Cilj je istraživanja pronaći koristi za odgojitelje, studente Ranoga i predškolskoga odgoja i obrazovanja (RPOO), učitelje osnovnih škola i širu skupinu odgojno-obrazovnih radnika od korištenja aplikacije ECE Academy i tečaja Održivost od samog početka te istražiti kako suradničko učenje odgojitelja pomoću aplikacije utječe na njihovu percepciju održivosti i trenutačne prakse. Koristeći transformativnu teorijsku paradigmu, ova se studija postavlja na sjecište istraživanja obrazovanja za održivi razvoj, pedagogije ranoga djetinjstva i dječjih prava (Ranta, 2023) kako bi dodatno ispitala kako takvo iskustvo suradničkoga učenja za odgojitelje može promicati obrazovanje za održivi razvoj za djecu rane dobi. Korištena je kombinacija kvalitativnoga i kvantitativnoga metodološkog pristupa (Denzin i Lincoln, 2018.), uključujući perspektive iz prve ruke, pojedinačnu ekspertizu, kao i intervjue s praktičarima i profesorima RPOO-a i studentima koji koriste aplikaciju i tečaj. Podatci su prikupljeni tehnikom pojedinačnoga i grupnoga intervjua te upitnikom konstruiranom u svrhu istraživanja. U fokus grupama sudjelovalo je 10 odgojitelja (iz Hrvatske, Češke, Francuske, Irske i Švedske). Pojedinačni intervjui i ispitivanje anketnim upitnikom još je u tijeku. Finalni rezultati bit će prezentirani na STOO 4 konferenciji. Sudionici su u istraživanju sudjelovali dobrovoljno te su obaviješteni da od sudjelovanja mogu odustati u svakom trenutku. Doprinos odgojitelja, studenata i profesora na tečaju Održivost od samog početka trebao bi dovesti do njihova profesionalnoga razvoja i boljega razumijevanja održivosti i njezinoga mjesta u obrazovanju u ranom djetinjstvu.

Ključne riječi

dječja prava; e-učenje; IKT; obrazovanje za održivi razvoj; transformativno učenje

Strengthening the role of education for sustainable development: Case studies of Croatia and Cyprus

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Education for sustainable development	**Number of the paper: 110**	

Abstract

The global community agrees that Education for Sustainable Development (ESD) is a social movement that should be encouraged and nurtured for the well-being and sustainable future of humanity. It can be agreed that ESD is extremely important in a rapidly changing world, so its evaluation and improvement represent a key prerequisite for development in line with upcoming challenges. Starting from the point of view that quality education should be focused on learning how to live sustainably, this paper investigates the ESD in context of current global challenges. It explores implementation and outcomes of teaching for ESD in Croatia and Cyprus in the contexts of transition towards sustainability. Based on the latest ESD guidelines, initial measures and key environmental, social and economic issues were identified in questionnaire and proposed to ESD teaching stuff and experts. The results indicate the challenges and specificities in fulfilling ESD in the context of the sustainable development of Croatia and Cyprus, and identify opportunities for further improvement. Accordingly, it is determined whether the applied forms of ESD are generally adequate for the sustainable development of each country. The aim of this research is to determine the prevalence of sustainable development topics in elementary school curriculum and consciousness of teaching staff related to importance of environmental issues to everyday life of elementary school pupils. Research is made on selected sample of elementary school teaching staff in both Croatia and Cyprus based on survey that was designed according to contemporary ESD framework.

Key words

curriculum; elementary schools; ESD framework; teaching staff

Competency self-assessment and the principles of green pedagogy in teaching for sustainable development from the perspective of a pedagogue

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Education for sustainable development	**Number of the paper: 111**	

Abstract

Sustainable development goes far beyond the focus on the environment and ecology. Sustainability also aims to ensure a strong, healthy, and justice society in which all citizens can meet their needs, promoting personal well-being, social cohesion, inclusivity, and creating equal opportunities. An educated community of responsible citizens has the potential to make "greener" decisions and create a more sustainable reality because it understands and advocates for sustainable development ideas and recognizes their benefits for all. Children and young people should be systematically taught and supported in developing their sustainability competencies, therefore education and upbringing play an indispensable role in this process. The school is an institution of intentional education and upbringing, making it a great platform for achieving teaching goals and educational outcomes in the field of sustainable development. Since education for sustainability requires participatory and proactive teaching and learning methods, as well as teachers and professional collaborators modeling expected changes in students' behavior, their lifelong education, empowerment, and capacity building are necessary. The aim of this paper is to present the self-perception of school pedagogues regarding competencies and capacities for implementing educational for sustainability, as well as the representation of green pedagogy principles in the implementation of teaching and extracurricular activities carried out by pedagogues in schools. The research was conducted in selected primary and secondary schools in the Sarajevo Canton using a questionnaire for school pedagogues and analyzing implemented teaching and extracurricular activities. The research results, among others, indicate the importance of innovating study programs in the initial education of pedagogues, as well as a much greater and higher quality offer of professional development programs in the mentioned area.

Key words

education; professional associate; school; sustainability; teaching

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Odgoj i obrazovanje za održivi razvoj	**Broj rada: 111**	

Sažetak

Održivi razvoj daleko je širi od fokusa na okoliš i ekologiju. Održivost teži i osiguranju jakoga, zdravoga i pravednoga društva u kojem svi građani mogu zadovoljiti svoje potrebe, teži promicanju osobne dobrobiti, društvene kohezije i uključenosti te stvaranju jednakih mogućnosti. Obrazovanija zajednica odgovornih građana ima mogućnost donositi „zelenije“ odluke i kreirati održiviju stvarnost jer poznaje i zastupa ideje održivoga razvoja te shvaća dobrobit istoga za sve. Djecu i mlade trebalo bi sustavno poučavati i podržavati u razvoju njihovih kompetencija za održivost, pa odgoj i obrazovanje imaju nezamjenjivu ulogu u tom procesu. Škola je ustanova intencijskoga odgoja i obrazovanja što je čini sjajnim poligonom za ostvarivanje ciljeva poučavanja i odgojno-obrazovnih ishoda iz područja održivoga razvoja. Budući da odgoj i obrazovanje za održivost zahtijeva participativne i proaktivne metode poučavanja i učenja, te nastavnike i stručne suradnike koji modeliraju očekivane promjene ponašanja učenika, nužna je njihova cjeloživotna izobrazba, osnaživanje i kapacitiranje. Cilj je rada predstaviti samopercepciju školskih pedagoga o kompetencijama i kapacitetima za realizaciju odgojno-obrazovnoga rada za održivost te zastupljenost principa zelene pedagogije u realizaciji nastavnih i izvannastavnih aktivnosti koje realiziraju pedagozi u školama. Istraživanje je provedeno na odabranom uzorku osnovnih i srednjih škola Kantona Sarajevo upotrebom anketnoga upitnika za školske pedagoge, te analizom realiziranih nastavnih i izvanastavnih aktivnosti. Rezultati istraživanja, između ostaloga, ukazuju na važnost inoviranja studijskih programa u inicijalnom obrazovanju pedagoga, ali i mnogo veću i kvalitetniju ponudu programa stručnoga usavršavanja iz navedenoga područja.

Ključne riječi

obrazovanje; održivost; poučavanje; stručni suradnik; škola

Artificial Intelligence in Education: Challenges and Opportunities for Sustainable Development

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Education for sustainable development	**Number of the paper: 112**	

Abstract

Artificial Intelligence is rapidly transforming the landscape of education, presenting both challenges and unprecedented opportunities for sustainable development. This study investigates the multifaceted impact of AI on educational practices, focusing on administration, instruction, and learning process. A qualitative research approach was employed, utilizing a literature review framework to explore AI's application and effects in education. AI embodies a range of innovations characterized by human-like cognitive abilities, learning processes, adaptability, and decision-making capabilities. As AI integrates into educational systems, it blurs the lines between traditional roles and tasks, leading to a reshaping of professions and instructional methods. Some professions may become obsolete, while others undergo substantial transformations requiring updated didactic materials. Concurrently, new vocations will emerge necessitating innovative educational approaches. In educational operations, AI serves as both a reformer and facilitator, reshaping job roles and work dynamics. This study underscores the need for educators and policymakers to proactively address the implications of AI, ensuring equitable access to technological advancements and harnessing AI's potential to enhance educational outcomes. By embracing AI responsibly, the education sector can leverage emerging technologies for sustainable development and improved learning experiences. This research contributes to the ongoing discourse on AI in education, highlighting critical challenges and transformative opportunities for the future.

Key words

adaptive education; educational outcomes; emerging technologies; responsible AI; transformative education

Student perception of the concept of sustainability in geography lessons / Učenička percepcija koncepta održivosti u nastavi geografije

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Education for sustainable development	**Number of the paper: 113**	

Abstract

The concept of sustainability is one of the four concepts in the geography curriculum along with spatial organizations and processes, spatial identity and spatial coverage. The very concept of sustainability is present in the subject description, values and principles of learning and teaching geography and in the educational goals of learning and teaching geography. Through the analysis of the curriculum of the Geography subject for primary and secondary schools in the Republic of Croatia, out of a total of 97 outcomes, 28 of them related to the concept of sustainability were singled out, whether these outcomes were exclusively related to this concept (12), or they were partially represented along with some of the remaining concepts (16) considering the frequent interweaving of concepts in space. The students' perception of the concept of sustainability in geography lessons was investigated using a quantitative analysis based on a questionnaire. The results showed that students recognize the concept of sustainability most in the field of economy and environment, and less in the social field. They mostly associate it with the contents of biogeography, economic geography, demogeography and urban geography, and they recognize it the least when teaching about certain economic branches in Croatia, especially tourism and agriculture. They think that learning about sustainability will help them understand the changes that will happen in the future and define their own relationship with nature. They are of the opinion that through sustainable management of natural resources and sustainable economic development, Croatia can improve the living standards of its population and preserve the most valuable natural sites for future generations.

Key words

curriculum; field of economy and environment; geographical concepts

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Odgoj i obrazovanje za održivi razvoj	**Broj rada: 113**	

Sažetak

Koncept održivosti jedan je od četiriju koncepata u geografskome kurikulu uz prostorne organizacije i procese, prostorni identitet i prostorni obuhvat. Sam koncept održivosti prisutan je u opisu predmeta, vrijednostima i načelima učenja i poučavanja geografije te u odgojno-obrazovnim ciljevima učenja i poučavanja geografije. Analizom kurikula nastavnoga predmeta Geografija za osnovnu školu i gimnazije u Republici Hrvatskoj od ukupno 97 ishoda izdvojeno je njih 28 vezanih uz koncept održivosti bilo da su ti ishodi isključivo vezani uz ovaj koncept (12), bilo da su djelomično zastupljeni uz neki od preostalih koncepata (16) s obzirom na čestu isprepletenost koncepata u prostoru. Kvantitativnom analizom temeljenom na anketnom upitniku istražena je učenička percepcija koncepta održivosti u nastavi geografije. Rezultati su pokazali da učenici koncept održivosti najviše prepoznaju u području gospodarstva i okoliša, a manje u društvenom području. Najviše ga povezuju sa sadržajima biogeografije, ekonomske geografije, demogeografije te urbane geografije, a najmanje ga prepoznaju pri poučavanju o pojedinim gospodarskim granama u Hrvatskoj, posebice turizmu i poljoprivredi. Smatraju da će im učenje o održivosti pomoći u razumijevanju promjena koje će se događati u budućnosti te u definiranju vlastitoga odnosa prema prirodi. Mišljenja su da održivim upravljanjem prirodnim resursima i održivim razvojem gospodarstva Hrvatska može poboljšati životni standard svojega stanovništva te očuvati najvrjednije prirodne lokalitete za buduće generacije.

Ključne riječi

geografski koncepti; kurikul; područje gospodarstva i okoliša