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САВРЕМЕНЕ МЕТОДЕ И КОНЦЕПТИ ОБРАЗОВАЊА У ОБЛАСТИ УМЕТНОСТИ

SAVREMENE METODE I KONCEPTI OBRAZOVANJA U OBLASTI UMETNOSTI

CONTEMPORARY METHODS AND CONCEPTS OF EDUCATION IN THE FIELD OF ART

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EKOLOŠKA PISMENOST U KONTEKSTU NASTAVE LIKOVNE KULTURE*

Rezime: Ekološka pismenost predstavlja željeni ishod ekološkog obrazovanja i meri se kroz četiri komponente — znanje, ekološki afekat, pro-ekološko ponašanje i kognitivne veštine. U istraživanjima koja se bave predikcijom poželjnih ponašanja, naglašen je značaj afektivnog odnosa i stavova prema prirodi, nasuprot malog značaja ekoloških znanja. Nastava prirodnih nauka, podeljenih na zasebne discipline i usmernih na sticanje znanja, neretko zanemaruje jačanje afektivnog odnosa prema prirodi. Upravo na tom mestu potrebno je angažovanje u okviru nastave likovne kulture, koja ima slobodu i mogućnost da sa lakoćom komunicira sa emotivnim aspektom našeg odnosa prema prirodi i njenom uništavanju. Kroz stvaralački izraz moguće je vrlo efektno približiti ne samo lepotu prirode, već i razmere njenog stradanja, te naglasiti efekte čovekovih neadekvatnih postupaka, ali i ponuditi rešenja. Umetnost ima potencijal da opomene, da zastraši, i da podstakne, i u tom smislu, neophodno je sadržaje nastave likovne kulture integrisati sa sadržajima predmeta koji se bave ekologijom, kako bi ukupni vaspitno-obrazovni doprinos mogao da pretenduje da zaista ostvari efekte na različite komponente ekološke pismenosti. Rezultati istraživanja potvrđuju efekte likovnih umetnosti na afektivnu dimenziju ekološke pismenosti i značaj ovih rezultata diskutuje se u radu. Kreativnost u nalaženju rešenja za postojeće probleme takođe je nužno podsticati kroz nastavu likovne kulture, svrsishodno povezane sa temama iz drugih predmeta, ali i sa realnošću ekoloških problema. Na kraju, autori iznose predloge kako se kroz nastavu likovne kulture može podsticati ekološka pismenost učenika.

Ključne reči: ekološka pismenost, afektivna komponenta, nastava likovne kulture

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Ekološka pismenost i evropski okvir zelenih kompetencija

Autor koji je prvi uveo termin ekološka pismenost definiše ga kao „sposobnost da se percipira i tumači relativno zdravlje ekoloških sistema i da se preduzmu odgovarajuće mere za održavanje, obnavljanje ili poboljšanje zdravlja tih sistema“ (Roth, 1968). Definicija podrazumeva da pojedinac zapravo može da ne poseduje kapacitet da uoči različite probleme koji ugrožavaju životnu sredinu, te ga valja usmeriti kako bi razvio osetljivost, primećivao i reagovao. To je upravo zadatak ekološkog obrazovanja koje se može realizovati kroz više predmeta, uključujući i umetnost. Nadalje, prema ovoj definiciji, aktivnosti koje preduzimamo predstavljaju odgovarajući kriterijum za procenu nivoa ekološke pismenosti.

Navedeno je u skladu sa definicijom ciljeva obrazovanja za životnu sredinu koju je ponudio UNESCO, a koja je sadržana u široko citiranoj i primenjivanoj *Tbilisi* deklaraciji, koja predstavlja rezultat prve međuvladine konferencije o obrazovanju za životnu sredinu (UNESCO-UNEP, 1978). Konferencija je podržala ciljeve ekološkog obrazovanja koji uključuju: razvijanje svesti i brige o ekonomskoj, društvenoj, političkoj i ekološkoj međuzavisnosti u različitim oblastima; pružanje mogućnosti za sticanje znanja, vrednosti, stavova, posvećenosti i veština potrebnih za ublažavanje ili rešavanje problema životne sredine i poboljšanje njenog stanja; negovanje i stvaranje drugačijeg načina ponašanja prema životnoj sredini. Definisani osnovni ciljevi ekološkog obrazovanja uključuju:

Svesnost — pomoć društvenim grupama i pojedincima da steknu svest i osetljivost za celokupno okruženje i sa njim povezane probleme. *Znanje* — pomoć društvenim grupama i pojedincima da steknu različita iskustva kao i osnovno razumevanje okoline i sa njom povezanih problema. *Stavovi*—da se pomogne društvenim grupama i pojedincima da steknu skup vrednosti i osećanje brige za životnu sredinu, kao i motivaciju za aktivno učešće u poboljšanju i zaštiti životne sredine. *Veštine* — da se pomogne društvenim grupama i pojedincima da steknu veštine potrebne za identifikaciju i rešavanje ekoloških problema. *Partcipacija* — da se društvenim grupama i pojedincima pruži prilika da budu aktivno uključeni na svim nivoima u aktivnostima usmerenim na rešavanje ekoloških problema.

Ciljevi ekološkog obrazovanja koje je definisao UNESCO-UNEP (1978) i doprinos Rota (Roth, 1978) integrisani su u teorijski i metodološki okvir razvijen u svrhu merenja ekološke pismenosti u SAD, a potom primenjen i u drugim zemljama (na primer Kanada (Igbokve, 2016), Grčka (Nastoulas, Marini & Skanavi, 2017), Češka (Svobodova & Kroufek, 2018), Srbija (Marušić Jablanović et al, 2022). Ovaj okvir se tokom vremena razvijao i konačna operacionalizacija ekološke pismenosti (koja jeste željeni ishod ekološkog obrazovanja) razlikuje četiri komponente: ekološko znanje, koje se odnosi na osnovna znanja iz oblasti ekologije; afekat koji sadrži supkomponente: *verbalna posvećenost* — namera da se deluje u cilju poboljšanja stanja životne sredine, *ekološka osetljivost* — praktikovanje i uživanje u aktivnostima u prirodi i aktivnostima vezanim za prirodu; *osećanja prema životnoj sredini* — ljubav prema prirodi; *kognitivne veštine* (supkomponente: veštine identifikacije problema, analize i planiranja delovanja); i *stvarna posvećenost* — šta neko čini u cilju očuvanja životne sredine (McBeth et al, 2008).

Savremena evropska obrazovna politika razvila je krovne zelene kompetencije pod nazivom *Evropske kompetencije za održivost* (Bianchi et al, 2022) koje su u velikoj meri konzistentne sa značenjem ekološke pismenosti. Ekološke kompetencije za održivost sadrže: *prihvatanje vrednosti održivosti* (vrednovanje održivosti, pravičnosti i promovisanje prirode); *prihvatanje kompleksnosti u održivosti,* koje se odnosi na kognitivne veštine: sistemsko razmišljanje, kritičko mišljenje i formulisanje problema; *zamišljanje održive budućnosti:* zamišljanje alternativne budućnosti, prilagodljivost — upravljanje tranzicijama i izazovima, sposobnost istraživačkog razmišljanja i povezivanje različitih disciplina, i konačno *delovanje za održivost,* individualno, kolektivno i kroz političku akciju (Bianchi, 2022). Na osnovu navedenog proizilazi da su osetljivost prema prirodi, pro-ekološke vrednosti, spremnost za delovanje, sposobnost da se analizira i istraži situacija i da se razviju rešenja, sastavni deo okvira pismenosti/kompetentnosti, koji treba da bude podržan kroz obrazovne sisteme kako bi se odgovorilo na ekološku krizu. Odgovarajuće proekološko ponašanje je krajnji cilj ekološkog obrazovanja, a od obrazovnih sistema se očekuje da ostvare promenu ne samo u znanju i svesti, već i u ponašanju učeničke populacije.

Mesto nastave likovne kulture u razvijanju ekološke pismenosti

Umetnost se može definisati kao način postojanja, kao medij koji koristimo da osetimo svet, ona nam pomaže da razumemo sopstveno postojanje i ima moć da nas učini podložnim novim informacijama koje često dolaze u obliku različitom od jezika (Rauhala, 2003). Ova definicija ukazuje na razliku između časova likovne kulture i časova prirodnih nauka — umetnost poseduje magiju komuniciranja bez reči, uspešno doseže do naših emocija, donosi nam radost i upozorava nas, pozivajući na akciju. Imajući to u vidu, nastavu umetnosti treba realizovati na društveno i ekološki odgovoran način, a nastavnici likovne kulture treba da aktivno učestvuju u razvoju ekološke pismenosti, posebno u pogledu njene afektivne komponente.

U školskom kontekstu ekološko obrazovanje se temelji na naučnim znanjima (Gurevitz, 2000), naučnim otkrićima, konceptima, metodologiji. Ipak, rezultati o odnosu između znanja o životnoj sredini i ekološki odgovornog ponašanja prilično su nedosledni. Meta-analiza Hajnsa, Hangerforda i Tomere nalazi korelaciju srednje jačine između ova dva konstrukta (Hines, Hungerford & Tomera, 1986, 1987). U nekim studijama je utvrđeno da znanje o životnoj sredini nije u stanju da predvidi proekološko ponašanje (na primer Liang, 2018, Negev et al., 2008). Druge analize ukazuju da je znanje udaljeni prediktor ponašanja, koji zapravo utiče na ponašanje indirektno, kroz uticaj na stavove prema životnoj sredini (Geiger et al, 2018). Verovatnije je da naučno znanje može da pospeši svest i samopouzdanje, ali je moć pristupa zasnovanog na znanju da utiče na naše vrednosti upitna (Gurevutz, 2000).

S druge strane, višestruki istraživački napori potvrđuju da ekološki stavovi ili zabrinutost za životnu sredinu mogu da pokrenu na odgovorno ponašanje prema životnoj sredini (Davis, Green & Reed, 2009; Milfont, 2009; Milfont & Duckitt, 2004, prema Geiger et al, 2018). Afektivni odnos prema životnoj sredini može da predvidi proekološko ponašanje (Marušić Jablanović, Stanišić, Savić, 2022; Sia et al, 2010). Kada su u pitanju emocije i osetljivost, potrebno je da se nastava okrene časovima likovne kulture, jer umetničke aktivnosti mogu pojačati povezanost čoveka sa prirodom. Kroz kreativno pisanje, muziku, slikarstvo, fotografiju i druge oblike umetničkog izražavanja mogu se postići ekološki ciljevi (Gurevitz, 2000). Brojni su istraživači, prema Vilsonovoj (Wilson, 2011) koji smatraju da vizuelna umetnost ima ključnu ulogu u uspostavljanju odnosa učenika prema prirodi i podizanju njihove svesti o problemima životne sredine. U kontekstu umetničkog obrazovanja čovek može biti kreativan i kritičan u isto vreme, što može osnažiti pojedinca i podstaći preispitivanje postojećih normi i sistema (Wilson, 2011). Uloga umetnosti je prilično značajna za podizanje ekološke svesti (Boeckel, 2009), a zadatak je časova likovne kulture da tu mogućnost iskoriste u sinergiji sa drugim predmetima.

Ekološko obrazovanje zasnovano na umetnosti i eko–umetničko obrazovanje, omogućavajući ekološku pismenost kroz vizuelnu umetnost

Izneti pregled ciljeva i zadataka ekološkog vaspitanja, kao i odnosa afektivnog domena i ponašanja omogućavaju razumevanje uloge i potencijala časova likovne kulture. Oni mogu da jačaju našu povezanost sa prirodom (Raatikainen et al., 2019), našu osetljivost za iskustva koja priroda nudi (Boeckel, 2009) i našu spremnost i sposobnost da preduzmemo odgovarajuće korake (Thomsen 2015). Potencijal časova umetnosti da razviju ekološku pismenost ogleda se u pristupu ekološkom obrazovanju koji se naziva ekološko obrazovanje zasnovano na umetnosti (Boeckel, 2009; Raatikainen et al., 2019) ili eko-umetničko obrazovanje (Papavasiliou et al, 2020).

Ekološko obrazovanje zasnovano na umetnosti je konceptualizovano u Finskoj. Ono predstavlja oblik učenja koji teži razumevanju i odgovornosti, pri čemu umetnost igra ključnu ulogu u ovom procesu, jer se koristi za izražavanje iskustava vezanih za prirodu i čini učenike podložnijim tim iskustvima (Mantere, 1998, prema do Boekel, 2009). Na primer, učenici dobijaju zadatak da u prirodi potraže objekte koji se odnose na rođenje, smrt i život, i kroz umetničko delo — poput poezije ili slikarstva — promišljaju o tim pronalascima (Boeckel, 2009).

Likovno obrazovanje može da se koristi u dve glavne svrhe u vezi sa životnom sredinom — da se olakša ponovno povezivanje učenika sa prirodom, kao i poimanje trajne krize životne sredine. Iako ponovno povezivanje sa prirodom donosi radost i čuđenje, dok suočavanje sa problemima može doneti očaj, Bekel smatra da su ove dve svrhe časova umetnosti komplementarne (Boeckel, 2009). Možemo pronaći još jednu svrhu nastave umetnosti, koja se može ostvariti u domenu arhitektonskog projektovanja — to je kreiranje ekološki odgovornih rešenja. Kroz nastavu likovne kulture u osnovnim i srednjim školama mogu se postaviti temelji ekološke pismenosti u oblasti arhitektonskog dizajna, i potrebno ih je postaviti.

Eko-umetničko obrazovanje odnosi se na inovativni pristup ekološkom obrazovanju, *koji usklađuje tradicionalne korene ove discipline, koji leže u kognitivnim, pozitivističkim pristupima naučnom obrazovanju, sa kreativnijim, afektivnim i čulnim pristupima umetničkog obrazovanja* (Vilson, 2011, p. 12). Principi uspešne implementacije eko-umetničkog obrazovanja lepo su predstavljeni u monografiji Vilsonove

(Wilson, 2011), a podrazumevaju, pre svega, da se nastava učini relevantnom za svakodnevni život, jer je preduslov učenja da tema bude važna za učenika (Kola-Olusanya, 2005). Učenje se dešava kada je materija koju učimo relevantna za nas. Poželjno je, stoga, da sadržaji koje nudimo budu povezani sa lokalnim kontekstom, i da obuhvataju teme, mesta, materijale koji se nude u okruženju.

Učenje o životnoj sredini treba da se odvija kroz istraživanje, podsticanjem doživljaja iznenađenja i začuđenosti, kao i kroz uvažavanje lokalnog područja (Wilson, 2011). Učenike je potrebno orijentisati na obližnja mesta — šumu, potok, park, i upoznati ih sa načinima na koje ljudske aktivnosti narušavaju zaštitu prirode u lokalnom području. Aktivnosti na otvorenom mogu biti i podsticaj za stvaranje umetničkog dela, kao oblik izražavanja divljenja čudima prirode. Časovi likovne kulture nude mogućnost učenicima da izraze osećanja prema prirodi, i da o njima razgovaraju, kao o i opasnostima sa kojima se priroda suočava. Dalje, časovi likovne kulture mogu biti mesto gde učenici tragaju za rešenjima, dizajniraju objekte koji uvažavju potrebe i vrednost okolne prirode. Na primer, učenici mogu istražiti karakteristike školskog dvorišta i kreirati modele letnje učionice za dvorište. Oni mogu upoznati glavne probleme životne sredine u svojoj opštini i kreirati postere koji upozoravaju javnost i pozivaju na akciju. U potrazi za ekološkim problemima i rešenjima, nastavnici mogu da povezuju sadržaje različitih predmeta koji podržavaju ekološki svesno ponašanje (na primer biologija, tehničko obrazovanje i umetnost). Razvijanje predloga rešenja zahteva kreativnost i istraživanje, povezivanje različitih tema, sagledavanje više perspektiva.

Da bi se podstakla osetljivost i osećanja prema prirodi, učenici treba da koriste sva svoja čula da istražuju, stiču iskustva, razviju osećaj nezavisnosti (Gurevitz, 2000). Potrebno je da škola i uopšte obrazovna politika učine lakim izvođenje dece van učionice i omoguće im da upotrebe svoje oči, ruke i nos za sticanje iskustava o prirodi. Tako se jača afektivni odnos prema životnoj sredini, kao preduslov za odgovarajuće ponašanje. Pre nego što nacrtaju hrast, učenici treba da dodirnu koru hrasta, posmatraju oblik njegovih listova i čuju zvuk vetra u krošnji.

Prepoznajući „nestajanje iskustva" (Pile, 1993, prema Ives et al., 2018) u celom svetu, kao fenomen smanjenog iskustva sa prirodom usled preterane urbanizacije, a koje utiče na emocije, ponašanje kao i zdravlje, Ajvs i saradnici (Ives et al., 2018) su istražili koje aktivnosti mogu doprineti ponovnom povezivanju ljudi sa prirodom. Oni prepoznaju materijalnu vezu sa prirodom, koja podrazumeva potrošnju resursa koji dolaze iz prirode; iskustvenu povezanost, koja se odnosi na direktnu interakciju sa parkovima, jezerima, šumama...; kognitivnu povezanost kao znanje i svest o okruženju i stavove koje pojedinac prihvata; emocionalnu povezanost, koja se odnosi na osećanja privrženosti i empatije (na primer prema mestu u prirodi); filozofska povezanost se odnosi na shvatanje sveta, značenje koje se prirodi pridaje i shvatanje uloge čoveka u odnosu sa prirodom. Autori smatraju da su najkorisnije one intervencije koje neguju emotivnu i filozofsku povezanost sa prirodom, pronalazeći značajan potencijal umetnosti u tom procesu. (Ives et al., 2018).

Kako izvesti ekološko obrazovanje zasnovano na vizuelnoj umetnosti putem intervencija u prostoru?

Kreativne intervencije u prostoru zahtevaju, pored umetničke intervencije, i određeni skup praktičnih znanja i veština koje vezujemo za arhitekturu kao jednu od primenjenih umetnosti. Jedan od bitnih elemenata arhitekture je prostor — arhitektura je intervencija u prostoru. Arhitektura je određena upravo odnosom koji ostvaruje sa prostorom, odnosno okruženjem. Ali arhitektura je i društveni čin i u tom smislu je treba posmatrati kao društveno odgovornu aksiološku umetnost (Salama, 2009).

Arhitektura, kao delatnost koja integriše umetnost i nauku, predstavlja veoma moćan medij u pedagoškom procesu izgradnje ekološke pismenosti. Svojim tehničkim, društvenim i umetničkim dimenzijama arhitektonska intervencija određuje temeljni odnos koji ljudi ostvaruju prema okolini i svojoj neposrednoj životnoj sredini. Arhitektonski čin, ili čin građenja, stvara i određuje granice između ljudskog prostora i prostora prirode (sredine). Priroda te granice je od suštinskog značaja za pitanje ekološke pismenosti — kako utičemo na prirodu.

Savremeno arhitektonsko delovanje u okruženju kao realnom (životnom) prostoru usklađujemo sa ciljevima održivog razvoja i u okolnostima neizvesnosti koje nam donose klimatske promene. U poslednje vreme sve više menjamo pojam arhitektonsko projektovanje u korist pojma dizajn, sa atributom „održivi“. Ekološka kriza je kriza dizajna, kako navodi američki arhitekta Van der Rin (Covan and Van der Rin, 2007), što znači da je neophodno stalno revidirati, menjati i inovirati naš dizajn — od koncepta, preko procesa do konačnog rešenja — proizvoda. Prema Ašrafu Salami, to je promena u razmišljanju, jer reč dizajn konotira proces (glagol) i konačni proizvod (imenicu), a takođe bolje odražava današnju interdisciplinarnu prirodu projektovanja i izgradnje kako bi se ispunili ciljevi održivosti (Salama, 2015). U tom smislu, održivi dizajn kao proces je aktivnost koja ima za cilj da poboljša doprinos projekta prirodnom, društvenom i ekonomskom prosperitetu tokom svog životnog ciklusa.

Škograd — primer angažovanja vizuelne umetnosti u unapređenju ekološke pismenosti

Kolektiv Škograd već dugi niz godina organizuje participativne aktivnosti u kontekstu realnosti života, odrastanja i školovanja dece u predgrađu Beograda u naselju Ledine. U osmišljavanju aktivnosti sa decom i ostalim učesnicima, kolektiv se, između ostalog, oslanjao na projekat „Kreativna školska partnerstva sa vizuelnim umetnicima“, koji čini platformu za eksperimentalnu pedagogiju zasnovanu na savremenim umetničkim praksama u osnovnim školama.

Škograd odbacuje tradicionalno shvatanje umetnosti kao ovladavanja različitim veštinama koje su neophodne za različite umetničke discipline, i posmatranje umetnosti kao oblika zanatstva kao što je uređenje školskog prostora ili priprema za školske priredbe (Maksimović i Joksimović, 2019).

Slika 1

Aktivnosti baštovanstva i pejzažnog uređenja

Napomena. Letnja škola Škograda u osnovnoj školi u naselju Ledine, Beograd, Fotografija: Ivan Simić.

U svom angažovanju umetnosti u obrazovanju, kolektiv odbacuje podređeni položaj umetnosti u obrazovnom sistemu i savremenom društvu usmerenom na efikasnost i produktivnost, gde se umetnost svodi na predmete koji se mogu predavati i rezultate koji se objektivno mogu oceniti. Za Škograd je umetnost u obrazovanju poziv na učešće i nova otkrića koja pružaju višestruke istine. Ono nas poziva na preispitivanje postojećih pedagoških pristupa i otvara polje mogućnosti u kome učenje prevazilazi parametre reprodukcije i tradicionalnih veština (Maksimović i Joksimović, 2019).

Umesto da definiše ishode učenja kao što su to OECD i Svetska banka u svojim ciljevima promovisali kao robusno, bezbedno i predvidivo obrazovanje, Škograd se opredeljuje za odbacivanje centralizacije, rigorozne standardizacije i ograničenog ciljnog identiteta kao što je „dobar građanin" ili „efikasan doživotni učenik". Umesto toga, opredeljenje za savremenu vizuelnu umetnost kao strategiju učenja gde su trajnost procesa i snažan naglasak na nepoznatom i potencijalnom u prvom planu. U tom smislu, Maksimović i Joksimović (2019) navode Atkinsonovu pedagogiju događaja kao način učenja koji predstavlja skok u nepoznato, gde se nove situacije ne mogu objasniti u okviru postojeće logike.

Prakse učenja koje je uspostavio Škograd oslanjaju se upravo na pedagogiju događaja koju karakteriše fleksibilnost, participacija, otvorenost procesa učenja i prilagodljivost lokalnom kontekstu. Tom prilikom koriste savremenu umetnost kao metod učenja koji omogućava učenicima da aktivno učestvuju u rešavanju aktuelnih problema, da podele lična iskustva iz života i da shvate da je likovna umetnost povezana sa važnim pitanjima kao što su lični, kulturni i ekološki identitet, porodica i zajednica. Uključujući likovnu umetnost u proces učenja, Škograd tretira prostor školskog dvorišta kao poligon za ekološko delovanje i suočavanje sa stvarnim životnim situacijama u kojima se deca dovode u poziciju da na kreativan način rešavaju probleme. Velika većina aktivnosti koje su orijentisane na intervencije u školskom dvorištu su umetničke i ekološke. Deca kroz igru i zajednički rad obavljaju aktivnosti čišćenja dvorišta, uređenja staza, izgradnje drvene platforme za učionicu na otvorenom, sadnje novih biljaka i ozelenjavanja. Za koordinaciju i edukaciju u ozelenjavanju i pejzažnom uređenju angažovana je pejzažna arhitektica, koji je i član udruženja Škograd. Ona je aktivno učestvovala u aktivnostima pružanja stručne podrške deci učeći ih baštovanstvo i botaniku. Ovakvim vidom umetničko-ekoloških aktivnosti, kroz kreativnost i vezivanje za zajednički prostor školskog dvorišta, daje se veliki doprinos izgradnji zajedništva i kohezije među decom u ovom marginalizovanom predgrađu Beograda.

Učenje zasnovano na problemima u arhitektonskom obrazovanju u podsticanju ekološke pismenosti

Odražavajući uslove neizvesnosti razvoja i velikih prirodnih i društvenih kriza u prve dve decenije 20. veka, obrazovanje u (i o) arhitekturi takođe prolazi kroz dinamične promene. Trebalo je premostiti veliki jaz između realnog sveta i ustaljenih pedagoških praksi koje su se oslanjale na statičko sticanje zastarelih naučnih i drugih činjenica. Ovo je urađeno preorijentacijom na participativno i problemsko učenje (eng. problem based learning, u nastavku PBL). Problemi u savremenom stvarnom svetu su „opaki" problemi (eng. wicked problems) i isprepleteni su sa izazovima poput klimatskih promena i degradacije životne sredine, društvene odgovornosti, raznolikosti, očuvanja nasleđa, urbanog dizajna, novih materijala i metoda izgradnje, ali i fizičkog i mentalnog zdravlja.
Prema navodima Sanderson i Stoun, PBL podstiče učenika da pažljivo ispita pitanje. Umesto da samo nauči problem i bude informisan o tome kako da ga reši, učenik se podstiče da uroni u njega (Sanderson i Stone, 2023). Ova metodologija „istraživanje kroz delanje" zahteva od učenika da razvije pronicljiv odnos sa svim akterima u projektu, što zahteva mnogo veće umrežavanje i oslanjanje na znanja i veštine iz drugih disciplina. To može biti veoma interesantno u kontekstu nastavnog pristupa u osnovnim, a posebno u srednjim školama. Ako se stave u ulogu arhitekti, od kojih se očekuje kreativno-umetnička intervencija kroz dizajn, suočiće se sa složenim realnim životnim okruženjem, gde se moraju uzeti u obzir mnogi različiti faktori (ekološki, društveni, ekonomski). Ove situacije iz stvarnog života i PBL koji se oslanja na njih zahtevaju saradnju nastavnika iz više disciplina kako bi osmislili lekciju ili je izveli kroz metod "igranja uloga".
Budući arhitekti će morati da usvoje odgovarajuće pristupe kako bi zastupali društvene, ekološke i etičke aspekte problema (Salama, 2015). Ovakva buduća pozicija arhitekte veoma je korisna kao model za "igranje uloga" i PBL pristup za učenike osnovnih i srednjih škola, jer veoma reprezentativno odražava delikatnu poziciju pojedinca i zajednice prilikom suočavanja sa složenim „opakim" problemima u stvarnom životu.

Kreiranje mesta u arhitekturi i urbanom dizajnu

Tema kreiranja mesta (eng. placemaking) predstavlja jednu od glavnih teorijskih i praktičnih odrednica u arhitekturi i urbanom dizajnu. Prema savremenom tumačenju, kreiranje mesta u urbanom dizajnu i arhitekturi je kolaborativni pristup u planiranju, projektovanju i upravljanju javnim prostorima koji se fokusira na stvaranje živopisnog, angažovanog okruženja usredsređenog na zajednicu (Jacobs, 1961; Whyte, 1980; Gehl, 2010). Cilj ovog pristupa je da se ljudima poboljšaju životne prilike transformacijom prostora u mesta sa identitetom i značenjem, gde se zajednice mogu okupljati, komunicirati i napredovati. Jedan od ključnih ciljeva je i uključivanje zajednice gde su stanovnici, preduzeća i druge zainteresovane strane aktivno uključeni u proces dizajna, obezbeđujući tako prostor koji odražava njihove identitete, vrednosti i želje. Principi održivog dizajna takođe postaju ključni za kreiranje mesta, naglašavajući upotrebu ekološki prihvatljivih materijala, zelenih površina i praksi koje su osnov za dugoročno ekološko zdravlje.

Sanderson i Stoun ističu kako nastava i učenje u arhitektonskom i urbanom dizajnu mogu i treba da budu usmereni ka rešavanju problema iz stvarnog sveta sa kojima će se pojedinac susresti u svojoj budućoj profesionalnoj karijeri i svom zrelom životu (Sandersone i Stoun, 2023). Praksa arhitekture i dizajna se menja ka manjoj specijalizaciji, a prema širem međudisciplinarnom umrežavanju u cilju rešavanja problema. Ovo menja pravac i pedagoške pristupe u arhitektonskim školama, koje moraju da prilagode svoje metode svetu koji je u senci neizvesnosti klimatskih promena i imperativa održivog razvoja.
U pogledu arhitekture kao oblika primenjene vizuelne umetnosti, velika je odgovornost pojedinaca koji oblikuju naše urbane prostore da nam pomognu da steknemo ne samo estetske vrednosti već i svest o lepoti i značaju prirode. Inspirisani dostignućima arhitekte Hermana Hercbergera, poznatog po dizajnu igrališta i po pristupu arhitektonskom obrazovanju, autori se pozivaju na intervju, gde Hercberger objašnjava koliko je za njegov senzibilitet u oblikovanju prostora značajna povezanost sa mestom. Hercbergerova snažna privrženost mestu se ostvaruje kvalitetnom arhitekturom objekata i zelenih javnih prostora, te detaljima prilagođenim ergonomskim i estetskim kriterijumima. Njegov izbor karijere i senzibilitet za različite kvalitete mesta su utemeljeni upravo na ličnoj povezanosti sa mestom (Dier, 2016). Hercberger ovim pristupom tretira prostor na holistički način, kao ekosistem, jer kuća prevazilazi granice samog objekta i ekstrapolira se u spoljašnji prostor, kroz ulazna vrata, prozore, stepenište i ogradu, sve do otvorenog prostora ulice, parka i dečijeg igrališta. Tako koncept „mesta", umesto jedne izolovane tačke, postaje složen sistem elemenata i odnosa između različitih prostornih entiteta koje nazivamo okruženjem. Školsku zgradu i dvorište, kao i učionicu, treba posmatrati kao pokretače vezanosti za mesto i zahvalnosti prirodi. Zelena školska dvorišta sa učionicom na otvorenom, pod senkom drveća, mogu podstaći senzibilitet i poštovanje prirode. Karakteristike prostora, njegovi estetski i ekološki kvaliteti takođe pomažu učenicima da formiraju sopstvene kriterijume. Zato je potrebno posmatrati ga kao relevantan faktor u razvoju strategija i ciljeva u javnim obrazovnim politikama. U poređenju sa naukom, umetničke aktivnosti nude više nekognitivnih, čulnih, emocionalnih i simboličkih sadržaja naspram prethodno utvrđenog znanja (Boeckel, 2009). Umetnost ima moć da pokrene preispitivanje trenutnih percepcija prostora i učini da ga sagledamo na različite načine, kroz različite perspektive. Projektovanje prostora za učenje nudi mogućnost interakcije, kreiranja i intervencije ali se često zanemaruje. Ako je moguće intervenisati u prostoru za učenje, prostor može postati relevantniji za nas, a mi možemo razviti osećaj pripadnosti.

Kako razviti ekološku pismenost kroz umetničko obrazovanje - ideje za praktičare

Oslanjajući se na gore navedene principe, autori predlažu aktivnosti za nastavu likovne kulture u savremenim školama, koje imaju za cilj da doprinesu razvoju ekološke pismenosti.
Kreiranje stripa koji predstavlja scenario iz stvarnog života i definiše probleme, identifikuje aktere, uzroke i posledice, zahteva istraživanje, primenu znanja i takođe izaziva emocije. Slikanje prirodnog lokaliteta kojim su učenici bili fascinirani takođe poboljšava njihov odnos i uvažavanje odabranog mesta. Dalje, učenici mogu da razgovaraju o svojim osećanjima u vezi sa različitim neprimerenim ponašanjima koja neko

umetničko delo prikazuje (ili o fotografijama narušenih predela koje su snimili). Proces stvaranja umetničkog dela, introspekcija i diskusija o osećanjima imaju mogućnost da pojačaju ekološki afekat (Boeckel, 2009).
Crtanje karikature zahteva analizu i razumevanje ekološkog problema i promišljanje o afektu, kako bi se naglasio odgovarajući aspekt problema (npr. da se dodeli odgovornost), i kako bi se poslala upečatljiva poruka javnosti. Karikatura može da prenese složenu poruku, koja sadrži činjenice, analizu, emocije i poziv na akciju. Dizajniranje ove poruke takođe zahteva adekvatne likovne veštine, stoga su časovi likovne kulture pravo mesto za razvijanje ekološke pismenosti. Umetničko delo se koristi jezikom simbola, koji efikasno i brzo komuniciraju sa gledaocem, što nauka ne može lako da postigne.
Izražavanje osećanja u vezi sa kontaminiranim ili uništenim područjem kroz stvaranje umetničkog dela može da upozori i da pozive na aktivnost. Slikanje, izrada postera ili izrada fotografija imaju uticaja kako na autora, tako i na gledaoce. Dalje, ekološki problemi su izazov i podsticaj za kreiranje rešenja kroz dizajn. Na primer, polazeći od problema zagađenja vazduha, nastavnici hemije, biologije, tehničkog obrazovanja i umetnosti mogu realizovati integrisanu nastavu. Na časovima se mogu istražiti izvori zagađenja, sadržaj polutanata (hemija), njihov uticaj na organizam ljudi, životinja, biljaka (hemija i biologija), ekosistem (biologija), zatim tehnološka rešenja (tehničko obrazovanje). Na osnovu svega navedenog studenti mogu da razviju ideje za kuću, kvart ili školsko dvorište (tehničko obrazovanje i umetnost).
Kroz osmišljavanje umetničkih dela učenici mogu dalje da razvijaju znanja stečena na časovima prirodnih nauka. Na primer, kada se na času biologije raspravlja o temi pušenja i njegovim posledicama po zdravlje, mogu da osmisle poster koji upozorava javnost na efekte pušenja. Dalje, učenici mogu da posmatraju različite biljke, drveće i žbunje u okolini škole, da saznaju njihova imena i karakteristike i njihov značaj na časovima biologije. Nakon toga mogu da nacrtaju oblik lišća, drveća i žbunja na časovima likovne kulture i da naprave izložbu o lokalnim biljnim vrstama. Time se povećava trajnost stečenog znanja, ali i podstiče radoznalost i zainteresovanost za prirodu.
Kognitivne veštine se mogu podsticati kroz osmišljavanje rešenja za probleme u lokalnoj sredini. Na primer, kada uče o biodiverzitetu u gradu, deca uče o preklapanju staništa između velikih i malih vrsta ptica. Deca mogu razviti ideju za pogodno stanište u vidu malih drvenih kućica za ptice i da ih zapravo i naprave na časovima likovnog ili tehničkog obrazovanja.
Konačno, materijale koji se koriste na času treba pažljivo razmotriti i razgovarati sa učenicima. Treba ih odabrati na osnovu ekoloških kriterijuma, uz objašnjenje tih kriterijuma. To nam pruža mogućnost da saznamo o uticaju čoveka na životnu sredinu — korišćenjem materijala koje već imamo oko sebe, biranjem biorazgradivih umesto ne-biorazgradivih. Kolaž se može napraviti od suvog lišća, kamenje se može koristiti kao podloga za slikanje, skulpture mogu da se prave od novina. Korišćenje starih oštećenih pločica iz domaćinstva za izradu mozaika u školskom dvorištu, pravljenje polica za biljke u školi od stare metalne armature, ili pravljenje slike na zemlji od grana, suvog lišća, peska, kamenja, praznih ljuštura jesu lepi primeri ekološki osvešćenog dizajna.

Slika 2

Skupture od papira [reciklaža]

Napomena. Učenički radovi, Beograd, Fotografija: Ivan Simić. © Korišćenje slike prema odredbama pravičnog poslovanja

Zaključak

U zaključku želimo da istaknemo integraciju umetnosti, prirodnih nauka i tehnologije kao najprikladniji način za jačanje ekološke pismenosti sa svim njenim komponentama, kroz obrazovanje. Kreativni prostor koji likovno obrazovanje nudi više je nego pogodan za istraživanje ekološki prihvatljivih materijala, osmišljavanje rešenja zasnovanih na prirodi, izražavanje emocija vezanih za prirodu (i očuvanu i oštećenu), kreiranje i prenošenje poruka. Umetnost ima veliki potencijal da doprinese uticaju na životnu sredinu, kroz podsticanje divljenja, senzitivnosti i optimizma i kroz povezivanje učenika sa prirodom, što je značajno povezano sa ekološki odgovornim ponašanjem. Ekološki prihvatljiv arhitektonski dizajn u likovnom obrazovanju zahteva kreiranje, poštovanje principa očuvanja životne sredine i razvoj rešenja prema ovim principima i estetskim kriterijumima, i veoma je pogodan za integraciju umetnosti, nauke i tehnologije (i saradnju nastavnika različitih profila) kako bi se razvijali svi aspekti ekološke pismenosti.

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Plenary presentation by invitation

ENVIRONMENTAL LITERACY IN THE CONTEXT OF ART CULTURE EDUCATION*

Summary: Environmental literacy represents the desired outcome of environmental education and is measured through four components — knowledge, environmental affect, pro-environmental behaviour, and cognitive skills. In research dealing with the prediction of desirable behaviours, the importance of effective relationships and attitudes towards nature is emphasized, as opposed to the small importance of environmental knowledge. The teaching of natural sciences, divided into separate disciplines and aimed at acquiring knowledge, often neglects the strengthening of the affective relationship towards nature. It is precisely in this place that engagement is needed within the teaching of art culture, which has the freedom and ability to easily communicate with the emotional aspect of our relationship to nature and to the destruction of nature. Through creative expression, it is possible to bring closer very effectively not only the beauty of nature, but also the extent of its suffering, and emphasize the effects of man's inadequate actions, but also to offer solutions. Art has the potential to warn, intimidate, and encourage, and in this sense, it is necessary to integrate the contents of art education with the contents of subjects covering environmental science contents, so that the overall educational contribution can aim to achieve effects on different components of environmental literacy. The research results confirm the effects of arts on the affective dimension of environmental literacy and the importance of these results is discussed in the paper. Creativity in finding solutions to existing problems must also be encouraged through the art culture teaching, purposefully connected with topics from other subjects, but also with the reality of environmental problems. In the end, the authors present suggestions on how the environmental literacy of students can be encouraged through art education.

Keywords: environmental literacy, environmental affect, teaching art culture.

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Environmental literacy and the European green competencies framework

The author who first introduced the term environmental literacy defines it as "the capacity to perceive and interpret the relative health of environmental systems and take appropriate action to maintain, restore or improve the health of those systems" (Roth, 1968). The definition implies that people actually might not have the capacity to perceive various problems that endanger the environment, and should be directed to become sensitive, to notice and react. This is the very task of the environmental education that can be taught through multiple subjects, including the art. Further on, according to this definition, the actions we take represent an appropriate criterion to judge the level of environmental literacy.

This is in line with the definition of environmental education goals offered by UNESCO, contained in the broadly quoted and applied Tbilisi declaration that is the result of the first intergovernmental conference on environmental education (UNESCO-UNEP, 1978). The conference indorsed the goals of environmental education include: developing awareness and concern considering economic, social, political, and ecological interdependence in different areas; providing the opportunity to acquire knowledge, values, attitudes, commitment and skills required for mitigating or solving the environmental problems and improving its state; fostering and creating different manner of behavior towards the environment. The stemming objectives of the environmental education include:

Awareness—to help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems. *Knowledge*—to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems. *Attitudes*—to help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection. *Skills*—to help social groups and individuals acquire the skills for identifying and solving environmental problems. *Participation*—to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems.

The UNESCO-UNEP environmental education objectives (1978) and the contribution of Roth (1978) are integrated into the theoretical and methodological framework developed to measure of environmental literacy in USA, and subsequently applied in other countries (for example Canada (Igbokwe, 2016), Greece (Nastoulas, Marini & Skanavi, 2017), Czech Republic (Svobodová & Kroufek, 2018), Serbia (Marušić Jablanović et al, 2022). The framework has been developing through time, and the final operationalization of environmental literacy (as the desired outcome of environmental education) distinguishes four components of *environmental literacy* — ecological knowledge, which refers to basic knowledge of ecology; environmental affect, consisting of thee subcomponents: *verbal commitment* — intention to act to improve state of the environment, *environmental sensitivity* – practicing and enjoying activities in the nature and activities related to nature, *environmental feeling* — love towards the nature; *cognitive skills* (subcomponents: the skill of issue identification, analysis and action planning); *actual commitment* — what one does in order to preserve the environment (McBeth et al, 2008).

The *contemporary European educational policy has developed the green competencies umbrella named European sustainability competencies (Bianchi et al,* 2022) that is rather consistent with the meaning of environmental literacy. The environmental competencies contain: *accepting sustainability values* (valuing sustainability, fairness, and promoting nature); *embracing complexity in sustainability*, referring to cognitive skills — system thinking, critical thinking and formulating the problem; *envisioning sustainable futures,* envisioning alternative futures, adaptability — managing transitions and challenges, the capability of exploratory thinking and linking various disciplines, and finally a*cting for sustainability,* individually, collectively, and through political action (Bianchi, 2022). Therefore, it becomes clear that sensitivity towards the nature, pro-environmental values, readiness to act, capability to analyze and explore the situation, and to develop solutions, are constituents of the literacy/competency framework, that should be supported by educational systems in order to respond to the environmental crises. The appropriate pro-environmental behavior is the ultimate goal of environmental education, and the educational systems are expected to achieve the change not only in knowledge and awareness, but also in the activities of the student population.

The place of art culture teaching in developing environmental literacy

Art can be defined as a way of existing, as medium we use to sense the world, it helps us understand our own existence, and it has the power to make us liable to new information that often come in a form different than language (Rauhala, 2003). It implies the difference of art classes, compared to the science classes — the art has the magic of communicating without words, reaching effectively our emotions, bringing us joy and warning us, calling for action. Having this in mind, the art should be taught in a socially and environmentally responsible way, and art culture teachers should actively participate in the development of environmental literacy, especially when it comes to the affective component.

In the school contexts environmental education has been based on the scientific knowledge (Gurevitz, 2000), scientific findings, concepts and methodology. Nevertheless, the results on the relationship between environmental knowledge and environmentally responsible behaviour remain rather inconsistent. The meta-analyses of Hines, Hungerford and Tomera found a mean correlation between the two constructs (1986, 1987). In some studies, environmental knowledge was found incapable of predicting pro-environmental behavior (for example Liang, 2018, Negev et al., 2008). Other analyses indicate that knowledge is a distant predictor of behavior that actually influences behavior indirectly through influencing environmental attitudes (Geiger et al, 2018). It is more likely that scientific knowledge can raise awareness and confidence, but the power of knowledge-based approaches to affect the values is questionable (Gurevutz, 2000).

On the other hand, environmental attitudes or environmental concern were repeatedly confirmed to have motivating role for environmentally responsible behavior (Davis, Green & Reed, 2009; Milfont, 2009; Milfont & Duckitt, 2004, according to Geiger et al, 2018). Environmental affect has the power to predict pro-environmental behavior (Marušić Jablanović, Stanišić, Savić, 2022; Sia et al, 2010). And when it comes to emotions and sensitivity, teaching should turn to the art classes, since artistic activities can reinforce the emotional relationship of humans with nature. Through creative writing, music, painting, photography and other forms of artistic expression the environmental goals can be achieved (Gurevitz, 2000). There are numerous researchers, according to Wilson (2011) who fined that visual arts have the crucial role in establishing relationship of students with nature, and raising their awareness about the environmental problems. In the context of art education, one can be creative and critical at the same time, which can empower the individual and facilitate questioning of the persisting norms and the system (Wilson, 2011). The role of art is rather significant for raising environmental awareness (Boeckel, 2009), and it is the task of the art classes to utilize this possibility, in the synergy with other subject domains.

Art based environmental education and eco-art education, facilitating environmental literacy through visual art

The presented overview of the environmental education goals and objectives as well as the relationship of the affective domain with behavior allows for understanding the role and the potential of art classes. They can foster our bonding with nature (Raatikainen et al., 2019), our sensitivity for the experiences that the nature offers (Boeckel, 2009) and our readiness and ability to take appropriate steps (Thomsen 2015). The potential of art classes to develop environmental literacy is reflected in the approach to environmental education called art based environmental education (Boeckel, 2009; Raatikainen et al., 2019) or eco-art education (Papavasiliou et al, 2020).

Art-based environmental education was conceptualized in Finland. It represents a form of learning that tends to foster understanding and responsibility, with art playing the key role in this process, since it is used for expressing experiences related to nature, and makes the students more susceptible to these experiences (Mantere, 1998, according to Boeckel, 2009). For example, the students get the task to search in the nature for the objects related to birth, death and life, and reflect on these findings through work of art – like poetry or painting (Boeckel, 2009).

Art education can be utilized for the two main purposes regarding environment – to facilitate the reconnection of students with nature as well as to make sense of the persisting environmental crises. Although reconnection with nature brings joy and wonder, while confrontation with problems can bring despair, Boeckel finds that the two purpose of art classes are complementary (Boeckel, 2009). We can find one more purpose of art classes that can be pursued in the domain of architectural design – it is the purpose of creating solutions that are environmentally responsible. Through teaching art in primary and secondary schools foundations of environmental literacy in the field of architectural design can and should be laid.

Eco-art education refers to an innovative approach to environmental education, *one that balances the traditional roots of this discipline, found in the cognitive, positivist approaches to science education, with the* *more creative, affective and sensory approaches of art education* (Wilson, 2011, p. 12). The principles for successful implementation of eco-art education have been nicely presented in Wilson's monograph (2011), and they include, in the first place making teaching relevant for everyday life, because the precondition for learning is making the topic relevant for the learner (Kola-Olusanya, 2005). The learning happens when the matter we learn is relevant to us. It is recommendable for the contents we offer to be related to the local context, and include topics, places, and materials from the surrounding.

Learning about the environment should occur by exploring, through facilitating the sense of surprise and wonder and appreciation of the local area (Wilson, 2011). The students should be oriented towards the nearby places — forest, stream, park, and informed about the ways human activities are compromising nature protection in the local area. Outdoor activities can be and incentive for creating a work of art, as a form of expressing our admiration to the wonders of nature. The art classes offer the opportunity for students to express the feelings towards the nature and discuss about them, as well as about the endangerment the nature faces. Further on, the art classes can be a place where the students search for the solutions, they design objects that take into account the needs and the value of the surrounding nature. For example, students can explore the characteristics of the school yard and create models of summer classroom for the yard. They can learn the main environmental problems in their municipality and create posters that warn the public and call for action.

In search for the environmental problems and issues solutions, the teachers can correlate the contents of different subjects that support environmentally aware behavior (for example biology, technical education and arts). Developing the proposal of solutions requires creativity and exploring, relating different subjects, considering multiple perspectives. In order to facilitate sensitivity and environmental feelings, students should use all their senses to explore, experience, to gain sense of independence (Gurevitz, 2000). The schools and the educational policy should ease taking the children outside the classroom, and letting them use their eyes, hands and nose to gain experiences about the nature. It is a way to strengthen the environmental affect, as a prerequisite for appropriate behavior. Before drawing an oak, the students should touch the bark of the oak tree, observe the shape of its leaves and hear the sound of the wind in the treetop.

Recognizing the "extinction of experience" (Pyle, 1993, according to Ives et al., 2018) worldwide, as phenomenon of reduced experience with nature due to the overly developed urbanization, that influences emotions, behavior as well as health, Ives et al, (2018) have explored actions that can reconnect people with nature. They have distinguished material connection with nature, as consumption of resources coming from nature; experiential connection, referring to direct interaction with parks, lakes forests...; cognitive connection as knowledge and awareness of the environment and the attitudes the individual endorses; emotional connection that refers to feelings of attachment and empathy (for example to a place in the nature); philosophical connection refers to the individual's world view and the meaning of nature in it, and understanding of the role of humans in the interaction with nature. They find that interventions that foster emotional and philosophical connection to nature are the most beneficiary ones, finding significant potential of art in this process. (Ives et al., 2018).

How to perform visual art based environmental education through interventions in space?

Creative interventions in space require, in addition to artistic intervention, a certain set of practical knowledge and skills that we associate with architecture as one of the applied arts. One of the essential elements of architecture is space — architecture is an intervention in space. Architecture is determined precisely by the relationship it achieves with space, i.e. environment. But architecture is also a social act, and in that sense, it should be seen as a socially responsible axiological art (Salama, 2009).

Architecture, as an activity that integrates art and science, represents a very potent medium in the pedagogical process of building ecological literacy. Through its technical, social and artistic dimensions, architectural intervention determines the fundamental relationship that people realize in relation to the environment and their immediate living environment. The architectural act, or the act of building, creates and determines the boundaries between human space and the space of nature (environment). The nature of that boundary is of essential importance for the issue of environmental literacy - how do we influence nature?

We harmonize contemporary architectural action within the environment as a real (living) space with the goals of sustainable development and in the circumstances of uncertainty that climate change brings us. Lately, we are changing the term architectural design more and more in favor of the term design, with the attribute "sustainable". The environmental crisis is a design crisis, as American architect Van der Ryn (Cowan and Van der Ryn, 2007) states. It implies that it is necessary to constantly review, change and innovate our design - from the concept, through the process to the final solution - the product. According to Ashraf Salama, it is a shift in thinking, because the word design connotes a process (verb) and a final product (noun), and also better reflects today's interdisciplinary nature of designing and building in order to meet sustainability goals (Salama, 2015). In this respect, sustainable design as a process is an informed action that aims at improving the contribution of a project to natural, social, and economic prosperity throughout its life cycle.

Škograd — an example of engaging visual art in facilitating environmental literacy

For many years now, the Škograd Collective has been organizing a series of participatory activities in the context of the reality of life, growing up and educating children on the suburbs of Belgrade, in the Ledine neighborhood. In conceiving its activities with children and other participants, the collective relied, among other things, on the project "Creative School Partnerships with Visual Artists", a platform for experimental pedagogy based on contemporary art practices in elementary schools.

Škograd rejects the traditional understanding of art as the mastering of different skills that are necessary for different artistic disciplines, and viewing art as a form of craftsmanship such as decorating the school space or preparing for school performances (Maksimović and Joksimović, Škograd 2019). In its engagement of art in education, the collective rejects the subordinate position of art in the education system and modern society focused on efficiency and productivity, where art is reduced to subjects that can be taught and results that can be objectively evaluated. For Škograd, art in education is an invitation to participation and

Figure 1

Gardening and landscaping activities

Note. Summer school in Škograd at the elementary school in Ledine, Belgrade, Photo: Ivan Simić. © Fer Use.

new discoveries that provide multiple truths. It invites us to reconsider existing pedagogies and creates a space of possibilities in which learning goes beyond the parameters of reproduction and traditional skills (Maksimović and Joksimović, 2019).

Instead of mainstream defined learning outcomes such as the OECD and the World Bank in their goals promoting robust, safe and predictable education, Škograd opts for the rejection of centralization, rigorous standardization, and a limited target identity such as "good citizen" or "effective lifelong learner". Instead, opting for contemporary art as a learning strategy where the permanence of the process and a strong emphasis on the unknown and the potential are in the foreground. In this sense, Maksimović and Joksimović cite Atkinson's pedagogy of events as a way of learning that represents a leap into the unknown, where new situations cannot be explained within the framework of existing logic. The learning practices established by Škograd rely precisely on the pedagogy of events that are characterized by flexibility, participation, openness of the learning process and adaptability to the local context. On this occasion, they employ contemporary art as a learning method that enables children to actively participate in solving current problems, to share personal experiences from life and to understand that visual art is connected to important issues such as personal identity, cultural and ecological identity, family and community. When engaging visual arts in the learning process, Škograd treats the space of the school yard as a training ground for environmental action and facing real life situations in which children are put in a position to solve problems in a creative way. The vast majority of activities are oriented towards interventions in the school yard and they are of two types — artistic and ecological. Children, through play and joint work, perform the activities of cleaning the yard, arranging paths, building a wooden platform for an outdoor classroom, planting new plants and landscaping. A landscape architect, who is also a member of the Škograd association, was engaged for coordination and education in greening and landscaping. She actively participated in activities giving children professional support by teaching them gardening and botany. With this type of artistic-ecological activities, through creativity and attachment to the common space of the school yard, a great contribution is made to building togetherness and cohesion among children in this marginalized suburb of Belgrade.

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Problem based learning in Architectural Education in fostering environmental literacy

Reflecting the conditions of development uncertainty and major natural and social crises in the first two decades of the 20th century, education in (and about) architecture is also undergoing dynamic changes. It was necessary to bridge the great gap between the real world and established pedagogical practices that relied on the static acquisition of outdated scientific and other facts. This was done by reorienting towards participatory and problem-based learning (PBL). The problems in the contemporary real world are “wicked” problems and they are intertwined with challenges like climate change and environmental degradation, social responsibility, diversity, heritage preservation, urban design, new materials and construction methods, as well as health and mental well-being.

According to Sanderson and Stone, PBL encourages the student to intimately examine a question. Instead of just learning the problem and being informed of how to solve it, the student is encouraged to become immersed within it (Sanderson i Stone, 2023). This "research-through-doing" methodology requires the student to develop an insightful relationship with all of the actors within the project, which requires much greater networking and reliance on knowledge and skills from other disciplines. This can be very interesting in the context of the teaching approach in primary and especially in secondary schools. If they are put in the role of an architect, from whom creative-artistic intervention through design is expected, they will face complex real-life environment, where many different factors (ecological, social, and economic) have to be considered. These real-life situations and PBL relying on them require the cooperation of teachers of multiple disciplines, in order to design the lesson, or perform the method of role playing.

Future architects will have to adopt responsive approaches in order to advocate social, environmental, and ethical concerns (Salama, 2015). The position of the architect in the future is very useful as a role play model and PBL approach for students in primary and secondary schools, because it very representatively reflects the delicate position of the individual and the community in meeting the complex “wicked” problems in real life.

Placemaking in Architecture and Urban Design

The topic of place making constitutes one of the main theoretical and practical determinants in architecture and urban design. According to the contemporary interpretation, place making in urban design and architecture is a collaborative approach to planning, designing, and managing public spaces that focuses on creating vibrant, engaging, and community-centered environments (Jacobs, 1961; Whyte, 1980; Gehl, 2010). The goal is to enhance the livability for people by transforming spaces into places with identity and meaning where communities can gather, interact, and thrive. One of the key goals is community involvement where residents, businesses, and stakeholders are actively engaged in the process of design, ensuring that the space reflects their identities, values, and desires. Sustainable design principles are also becoming crucial to place making, emphasizing the use of environmentally friendly materials, green spaces, and practices that support long-term ecological health.

Sanderson and Stone point out how teaching and learning in architectural design can, and should, be directed towards tackling the real-world problems that individuals will encounter within their future professional careers (Sanderson and Stone, 2023) and their adult life. The practice of architecture and design is changing towards less specialization and towards wider cross-disciplinary networking and problem solving. This changes the direction and pedagogical approaches in schools of architecture, which must adapt their methods in a world that is shadowed by the uncertainty of climate change and the imperative of sustainable development.

In terms of architecture as a form of applied art, there is a great responsibility of individuals who shape our neighborhoods in helping us gain not only the esthetic values but also the awareness of the beauty and the importance of the nature. Inspired by the achievements of the architect Herman Herzberger, famous by his playground design and by his architectural education approach, the authors refer to his interview where he explains the importance of place attachment for his sensibility towards space shaping. Herzberger's strong place attachment was facilitated by the high-quality architecture of buildings and public spaces with greenery, and the details adjusted to the ergonomic and aesthetic criteria. His career choice and sensibility for different place qualities were grounded in this place attachment (Dyer, 2016). With this approach, Hertzberger treats the space in a holistic way, as an ecosystem, because the house crosses the limits of the very object and extrapolates into the exterior space, through the entry door, windows, staircase and fence, all the way to the open space of the street, park and children's playground. Thus, the concept of "place" instead of a one isolated point becomes a complex system of elements and relationships between different spatial entities that we call environment.

The school building and yard, as well as the classroom should be observed as initiators of the place attachment and appreciation of the nature. The green school yards with outdoor classroom under the shadow of the trees can stimulate sensibility and foster the nature appreciation. The characteristics of the space, its esthetic and ecological qualities also communicate with students to establish their criteria. Therefore space should be considered as a relevant factor in development of the strategies and goals in public educational policy. Comparing to science, art activities offer more non-cognitive, sensory, emotional and symbolic contents, as opposed to the previously established body of knowledge (Boeckel, 2009). The art has the power to initiate reassessment of the current perceptions of space and make us see it in different ways, through different perspectives. Designing the space for learning is often neglected, while it offers the possibility to interaction, creation and intervention. If it is possible to make interventions in the learning space, the space can become more relevant to us, and we can develop sense of belonging.

How to develop environmental literacy through art education — ideas for the practitioners

Relying on the principles stated above the authors propose activities for the art classes in contemporary schools, that are intended to contribute to the development of the environmental literacy.

Creation of a comic that presents a real-life scenario and defines the problems or issues, identifies actors, causes and consequences demands exploration, knowledge application, and triggers emotions. Painting the natural site that the student were fascinated with also improves their relation and appreciation of that particular place. Further on, students can discuss their feelings concerning different inappropriate human behavior presented in the artwork (or about the photographs of damaged natural sites they have taken). The process of creating this artwork, the introspection and discussing the feelings in the class has possibility to enforce environmental affect (Boeckel, 2009).

Drawing caricature demands analysis and understanding of the environmental problem and reflection on the affect, in order to emphasize the appropriate aspect of the problem (for example to assign the responsibility), and to send the striking message to the public. It can transfer a complex message, containing facts, analysis, emotions and call for action. Designing this message also requires adequate art skills, therefore, the art classes are the proper place for improving EL. The artwork uses the language of symbols that communicate effectively and quickly with the spectator, which cannot be achieved easily by science.

Expressing the feelings regarding a contaminated area or a destroyed natural site, through creating a work of art has the capacity to warn and call for action. Painting, preparing a poster or making photographs have influence on the creator, as well as on the spectators. Further on, environmental problems are challenge and an incentive for creating solutions through design. For example, starting from the air pollution problem, the teachers of chemistry, biology, technical education and art can perform integrated teaching. The classes can explore the sources of the pollution, the contents of the pollutants (chemistry), their effects on the organism of people, animals, plants (chemistry and biology), the ecosystem (biology), further the technological solutions can be offered offer (technical education). On the bases of all above students can create idea for a house, a quart, a schoolyard (technical education and art).

Through designing artwork, the students can further develop the knowledge obtained on science classes. For example, when discussing the topic of smoking and its repercussions on health in biology class, they can design poster that warns the public on the consequences. The students can observe different plants, trees and bushes in the school surrounding, learn their names and characteristics, and the importance at biology classes. Thereafter, they can draw the shape of the leaves and the trees and bushes in the art classes, making an exhibition about the local plant species. This increases the duration of acquired knowledge, and also encourages curiosity and interest in nature.

Cognitive skills can be developed through designing solutions for the problems in local environment. For example, when learning about biodiversity in the city, children are taught about the overlapping habitats of large and small bird species. They can develop idea for suitable habitat in the form of small wooden bird houses and actually make them in art or technical education classes.

Finally, the materials used in the class should be carefully considered and discussed with students. They should be selected based on the ecological criteria, with explaining the criterion. This is the possibility to learn about the human impact on the environment – by using the materials we already have around us, by selecting biodegradable instead of non-biodegradable. The collage can be made from dry leaves, stones can be used as base for painting, and sculptures can be made from the newspapers. Using the old damaged tiles from the household to make mosaic in the schoolyard, creating scaffolding for the plants in the school using old metal armature, or creating pictures on the ground from branches, dry leaves, sand, stones and empty shells are fine examples of ecologically aware design.

Figure 2

Paper sculptures [recycled]

Note. Student works, Belgrade, Photo: Ivan Simić. © Fer Use

Conclusion

In the conclusion, we would like to emphasize the integration of arts, science and technology as the most appropriate way to strengthen environmental literacy with all its components, through education. The creative space that art education offers is more than suitable for exploring eco-friendly materials, designing nature-based solutions, expressing emotions related to nature (both preserved and damaged), creating and transferring messages. The art has great potential to contribute to environmental affect, through facilitating admiration, sensitivity and optimism and through relating students with nature that is significantly related to environmentally responsible behavior. The environmentally-friendly architectural design in art education demands creation, respecting principles of environmental preservation, and developing solutions according to these principles and the aesthetic criteria. It represents a very suitable space for the integration of arts, science and technology (and cooperation of teachers with different background) in order to develop all the aspects of environmental literacy.

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