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Obaveštavamo uvažene čitaoce časopisa Nastava i vaspitanje da se broj 3 časopisa za 2025. godinu objavljuje dvojezično, na srpskom i na engleskom jeziku, kao i prethodnih godina. Na ovakvo izdanje smo se odlučili u želji da obezbedimo što veću vidljivost radova u časopisu zainteresovanima kako u našoj sredini, tako i van Srbije, a da istovremeno čuvamo i razvijamo naučnu terminologiju na srpskom jeziku.

Uredništvo časopisa

Information for readers of the journal Studies in Teaching and Education

We would like to inform all valued readers of Studies in Teaching and Education that the third and final issue for the year 2025 is published bilingually, in Serbian and English, as in previous years. This decision is based on our desire to ensure the greatest possible visibility of the articles in the journal for interested parties both in our environment and outside Serbia, while maintaining and further developing scientific terminology in Serbian.

The Editorial board of the journal

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Teoricid kurikulumuma! Poziv na lutajuću teoriju kurikulumuma¹

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Apstrakt

Oblast kurikulumuma suočava se s „teoricidom“, pojmom koji ne mora da podrazumeva odsustvo teorije, već predstavlja pomagalo u širenju „neteoretične teorije“, što se naročito pogoršalo u drugoj polovini prošlog veka. Služeći se kritičkim, antikolonijalnim i dekolonijalnim teorijskim okvirima, moj cilj je da putem ovog eseja ispitam hegemonijske i kontrahegemonijske debate evrocentričnog usmerenja u domenu naše naučne oblasti, ali u kontekstu modernosti i njene eugeničke kolonijalnosti – Prosperovog rasuđivanja – čime se ističe epistemicidna priroda naše oblasti. Postupajući na taj način, ovaj esej raščlanjuje uzrok rane koju je zadobila savremena teorija naše naučne oblasti, a koju ja još nazivam i „kurikularnom involucijom“ ili „kurikularnim imparitetom“. Kobna teorijska praznina nastala je kao ishod građanskih ratova vođenih između dominantnih i kontradominantnih tradicija, kao i unutar obeju sukobljenih strana, čime je izazvano ono što ja nazivam teoricidom. Ovaj članak zagovara izlaz iz takve „involucije“ putem lutajuće teorije kurikulumuma (u daljem tekstu: LTK) – nederivativnog, antikolonijalnog i dekolonijalnog pristupa osetljivog na epistemološke različitosti u svetu, kao i na epistemološku raznovrstnost. Ovaj esej prikazuje LTK kao deklaraciju epistemoške nezavisnosti od evrocentričnog naučnog monumentalizma, koji sramno dehumanizuje legitimitet Kalibanovog rasuđivanja.

Ključne reči:

epistemicid kurikulumuma, teoricid, lutajuća teorija kurikulumuma, kurikularna involucija, kurikularni imparitet, raskidanje kolonijalnih veza.

1 Ovaj članak predstavlja ažuriranu verziju prethodnog rada. Želeo bih da iskažem svoju zahvalnost ljanu Kičinu i Sari Hejs na njihovim dragocenim komentarima na prethodne verzije ovog rada. Takođe, veliko hvala mojim doktorandima sa Univerziteta u Stratklajdu na nekim od ideja za ovaj naučni rad. Naše teorijske diskusije, naročito petkom na seminarima o marksizmu i obrazovanju, pomažu nam da bolje razumemo političku prirodu obrazovanja, kao i da razumemo koliko je od krucijalne važnosti uklopiti tu njegovu političku prirodu u složenu dinamiku ideološke proizvodnje.

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Lutajuća teorija kurikuluma jeste epistemologija oslobođenja koja može da neumorno dovodi u pitanje autoritet, hijerarhiju i dominaciju u svakom životnom aspektu.

(Darder, 2016)

Uvertira

Više od sto godina nakon svog nastanka, oblast izučavanja kurikuluma se tokom prvih decenija dvadeset i prvog veka utapa u onome što ja istrajno nazivam „teoricidom“; nazivom koji suštinski ne podrazumeva odsustvo teorije, već se u većoj meri odnosi na davanje prevlasti „neteoretičnoj teoriji“. Pisan u kritičkim i antikolonijalnim teorijskim okvirima, ovaj esej počiva na prethodnim istraživanjima koja sam sprovodio u drugim kontekstima (Paraskeva, 2024; 2023; 2022; 2021), istražujući i predstavljajući sveže prokružene pravce razmišljanja kojima se može zaputiti. Svrha ovog dela jeste proces trostrukog razlistavanja (Gil, 2009) koji poštuje jedan od osnova moje putanje – suočavanje s uzrocima rezonovanja teorije kurikuluma i njene istorije. Prvo, da se ispituju hegemonijske i kontrahegemonijske prepirke u polju našeg kurikuluma (Schubert & Schubert, 1980), ali unutar konteksta modernosti i njenog rasuđivanja baziranog na eugeničkoj kolonijalnosti (Walsh, 2012), drugim rečima, Prosperovog rasuđivanja (Henry, 2000; Paraskeva, 2023; 2021), čime se ističe epistemicidna priroda naše oblasti. Drugo, da se raščlani teorijska rana koju je istovremeno zadobilo naše polje izučavanja, što sam još nazvao i „kurikularnom involucijom“ ili „kurikularnim imparitetom“ (Paraskeva, 2024; 2023; 2021; 2016), odnosno, kobna teorijska praznina koja je izbila iz sudara dominantnih i kontradominantnih tradicija. Krhotine takvih polemika osvetljavaju manjkavosti naše teorije, što dovodi do opasne regresije i produžava „okcidentozu kurikuluma“ (Paraskeva, 2021). Treće, da se zalaže za izlaz iz takve „involucije“ putem lutajuće teorije kurikuluma (LTK); tvrdim da je LTK nederivativan, antikolonijalan i dekolonijalan pristup osetljiv na epistemološke razlike i raznovrsnost – svet u neprestanoj dinamici promene; drugim rečima, teorija prevođenja (Santos, 2014) oslobođena je od okova evrocentrizma, ali nije nužno njemu usprotivljena. LTK zahteva da se formira matrica interdisciplinarnog učenja, koja se neposredno bavi stvarnim izazovima sa kojima je suočeno čovečanstvo i njegov razvoj.

Esej ističe hitnu potrebu za otpetljavanjem od evrocentričnog fundamentalizma i učešćem u dekolonijalnom poduhvatu kako bi se razvila robusnija, nederivativna kritička teorija; esej takođe brani stanovište prema kojem LTK uspostavlja deklaraciju epistemološke nezavisnosti i slobode nasuprot muškom naučnom monumentalizmu karakterističnom za evrocentrizam (Harding, 2008; Popkewitz, 1976), koji na sraman način dehumanizuje legitimitet Kalibanovog rasuđivanja (Fanon, 2001; Henry, 2000).

Istrošeno i razorno Prosperovo rasuđivanje

Istorija naše naučne oblasti – iliti zaostavština (Paraskeva & Huebner, 2022) – prožeta je bojevitim bitkama vođenim između hegemonijskih i kontrahegemonijskih tradicija.

Kao što sam već istrajno tvrdio u drugim publikacijama (2022a: 63; takođe, 2022b; 2014; 2011), oblast je:

teorijski razbijena i podvrgnuta temeljnim diskusijama, do te mere da su diskusije postale endemska pojava, svedena samo na domen naše teorije i njenog nasleđa. U nekim slučajevima, takve rasprave su bile intelektualno krvave. Ponekad se čini da naučna oblast može da se opiše kao ušće na kojem se susreću ideologije obojene u raspravama, ili kao ruševine na kojima će se voditi nove kulturološke borbe.

Na našu oblast, kako Karlson (Carlson, 2005) s pravom tvrdi, ne može više da se gleda kao na „distinktivno polje izučavanja jedinstvene istorije, složene sadašnjosti i neizvesne budućnosti“ zato što se kategorija ne može jasno definisati (Carlson, 2005: 3). On podvlači da oblast mora da bude shvaćena kao „istorijski konstrukt sačinjen od kulturoloških bitaka za prevlast moći i znanja, kao i... prema njoj treba da se postupa kao „klizavoj“ kategoriji čije je značenje neutemeljeno, štaviše osporeno.“ Teoretisanje kurikuluma je zaista „izazovan poduhvat [izveden] potpunim rasuđivačkim potencijalom [čoveka]“ (Macdonald, 1967: 166-169).

Pažljiva analiza srži ovih rasprava rasvetljava nam niz problema, među kojima postoje dva koja bih voleo da istaknem. Jedan se odnosi na činjenicu da u istoriji ne postoji vremenski period tokom kojeg je bilo koja društvena grupa imala apsolutnu prevlast nad nekom drugom (Baker, 2009; Cremin, 1964; Kliebard, 1995; Krug, 1969; Schubert, 1986; Tyack, 1974; Watkins, 1993). Uzastopnim „dominantnim grupama“ nikada nije pošlo za rukom da unište ili istrebe druge grupe ili pokrete u okviru svojih planova i programa, niti mimo njih. Od nastanka ovog naučnog polja krajem devetnaestog veka – put dosadašnje sukobe između „humanista“, „developmentalista“, „socijalnih eficientista“ i „socijalnih meliorista“, uz brutalnu moć neoliberalizma koji je nekako uspeo da nametne neoliberalno obrazovanje, kurikulum i pedagogiju (Ball, 2007; Giroux, 2004; Harvey, 2005), možemo primetiti da nijedan od pokreta ili društvenih grupa – hegemonijskih ili (kamoli tek) kontrahegemonijskih – nije uspeo da svoja stanovišta nametne na apsolutistički način. Bilo je – i uvek će biti – nemilosrdnog pružanja otpora (Paraskeva, 2022b; 2021; videti: Apple, 1979; Giroux, 1981). Drugi nam ukazuje na to da su bitke vođene među hegemonijskim i kontrahegemonijskim pokretima potpale pod radioaktivni funkcionalizam – opasnu i pogubnu teorijsku zonu. Drugim rečima, kontradominantni pokreti su se, u svojoj složenoj borbi protiv funkcionalističkih perspektiva stvorenih i odbranjenih od strane dominantnih tradicija, uprkos znatnim postignućima, na kraju uvrstili u jezivi reakcionarni funkcionalizam – paradoksalno, u isti funkcionalizam koji su tokom godina kritikovali i protiv kojeg su se borili.

Kao što sam i ranije tvrdio u svojim delima (Paraskeva, 2025; 2024; 2023; 2022a; 2022b; 2021; 2018; 2016; 2015; 2014; 2011), ključno je postaviti, između ostalog, i sledeća pitanja: Zašto su kontrahegemonijski pokreti potonuli u isto funkcionalističko more protiv kojeg su se toliko vatreno borili? Zašto nisu bili u stanju da se sami uspostave kao hegemonijski blok? Zašto je kritičkim teorijama i pedagogijama bilo nesvakidašnje teško da uspostave dominaciju, čak i u okviru kontrahegemonijskih stanovišta? U svetu gde je toliko toga podložno kritici, „zašto je postalo tako teško proizvesti [dominantnu] kritičku teoriju [kurikuluma]?“ – kao što bi Santos (Santos, 1999) sročio? Ako ne

manjkaju problemi koje treba podvrgnuti kritici, „čemu ovo odsustvo utopije?“ (Alba, 1998: 12) Šta se to desilo? Zbog čega to ne preovladava u visokoškolskim obrazovnim programima i u programima za obrazovanje učitelja? Kako smo dovde dospeli? Kako je to moguće? Gde smo to „omanuli“? Ko je to omanuo? Zašto je tako očigledno bilo nemoguće da kontrahegemonijski pristupi osnaže ugrožene grupe? (Ellsworth, 1989) Ko izvlači korist iz takvih nemogućnosti? Zašto se vapaji pojedinih kritičkih intelektualaca uporno ignorišu? Na koji način mogu kritički pristupi da se, kao što Volter Minjolo zagovara, „podvedu pod projekat modernosti/kolonijalnosti i dekolonizacije“ (Mignolo, 2026: 125)? Ako ubrizgamo steroide marksizma u ovu kritičku debatu o kurikulumu, moramo da dovedemo u pitanje čiji to čuvari sprečavaju da se ova pitanja postave u srž naših briga o kurikulumu. U vreme kada je kurikulum postao roba i kada se neoliberalizam nameće kao dominantan pravac u pedagogiji i kurikularnim oblicima, sama činjenica da snažna dekonstruktivna stanovišta, poput, na primer, Elsvortovih (Ellsworth, 1989) nisu prisutna čak ni u periferijama naših proglaša, trebalo bi da nas natera da zastanemo i da se zamislimo. Funkcionalističko i determinističko obrazloženje koje prožima kurikulum povezano je i sa vrednošću upotrebe i vrednošću razmene, gde je kurikulum društveno konstruisan i gde on artikuliše i dezartikuliše načine i uslove proizvodnje kapitalističkog sistema (Marx, 1976). Zajedno s Hjubnerom (Paraskeva & Huebner, 2023; 2022), na drugom forumu, pokušao sam da doprinesem ovoj kritičkoj debati. Na neki način može da se nasluti ostvarenje stvari koje je Dvejn Hjubner predskazao pre nekoliko decenija (Huebner, 1976). Ovoj naučnoj oblasti predstoji plaćanje visoke cene zbog ignorisanja tako bezizlazne situacije.

Kao što sam već zaključio tokom svog istraživanja u drugim delima, ova propast je delimično povezana s trijumfalizmom dominantnih grupa koje naginju pozitivizmu i bihejviorizmu. Međutim, ovakav trijumfalizam objašnjava samo jednu stranu medalje. Druga strana predstavlja suštinu kontrahegemonijske hemisfere i njenog ograničenog epistemološkog matriksa. Drugim rečima, bitke vođene između dominantnih i kontra-dominantnih grupa u našoj oblasti odvijaju se u domenu evrocentrične epistemološke hemisfere modernosti; ipak, one nam otkrivaju i da pluriverzumska „kritička i postkritička struja“ – što sam još nazvao i „generacijom utopije“ (Paraskeva, 2021) – nije u stanju da istupi iz takve hemisfere. Takva hemisfera je tokom milenijuma stavljena u kalup „monumentalnosti belačkog rasuđivanja“ (Santos, 2018; Mbembe, 2017), te odbija da prizna legitimitet epistemoloških principa koji nisu evrocentrični, kako u okvirima zapadnjačke modernosti tako i izvan njih.

Kao što je slučaj i s dominantnim tradicijama, kontrahegemonijske grupe oduvek su otvoreno pokazivale svoju nesposobnost – a u nekim slučajevima i protivljenje – da raskinu veze s različitim „Prosperovim kognitivnim matricama“ (Henry, 2000), koji podržavaju jedinstven naučni pristup tumačenju „reči i sveta“ (Freire, 1985) – čiji osnovni temelji počivaju na evrocentričnim epistemološkim principima (Mignolo, 2011; Walsh, 2012). Usled toga, kritički i postkritički stručnjaci upleli su se u složeni funkcionalizam – kao i „derivativizam“ (Santos, 2014) – kojem su se tako oštro protivili. Stoga, borba za kurikulum se desila u okvirima granica koje je nametnulo zapadnjačko evrocentrično rasuđivanje, odbacujući postojanje drugih epistemoloških principa mimo evrocentrične logike, sa osvrtima na

eugeničku prirodu naše naučne oblasti. Eugenika je prvobitni greh naše oblasti (Paraskeva, 2022b). Sukobi hegemonijskih i kontrahegemonijskih tradicija odraz su epistemicidne prirode oblasti. Dok su hegemonijske – u mnogim slučajevima bez prikrivanja – strastveno zagovarale epistemicid (ubistvo znanja), kontrahegemonijske nisu imale kapaciteta da prekinu takav epistemicid, čak se na kraju ispostavilo da su, na mnoge načine, i potpomogle u naučnom i društvenom ovekovečenju takvog prokletstva (Paraskeva, 2023; 2012; 2022a; 2018). Osporavajući epistemicid, kontrahegemonijske tradicije su proizvele reverzivni epistemicid (Paraskeva, 2023; 2022a; 2021).

Hegemonijski i kontrahegemonijski pokreti ovog polja delovali su u domenu razdorne eugeničke epistemološke matrice. Sastavili su argumente i produbili rasprave na osnovu istrošenog, razdornog i derivativnog rasuđivanja. Kao što sam tvrdio u svojim radovima (Paraskeva, 2016; 2011), istorija, teorija, nacrti i razvoj naše oblasti ne mogu se s tačnošću shvatiti putem modernog zapadnjačkog evrocentričnog epistemološkog eugeničkog rezonovanja, koje je Santos (Santos, 2007: 45) odlično definisao kao ponorni način razmišljanja. Drugim rečima,

[to] je sačinjeno od sistema vidljivih i nevidljivih razlika, pri čemu se one nevidljive nalaze u osnovi onih vidljivih. Nevidljive razlike uspostavljene su putem radikalnih zidova koje dele društvenu realnost u dva domena: domen „ove strane zida“ i domen „one strane zida.“ Podela je takva da „druga strana zida“ iščezava kao realnost, postaje nepostojeća i zaista se proizvodi kao nepostojeća. Kada kažemo „nepostojeća“, znači da ne postoji ni u kakvom relevantnom ili razumljivom obliku egzistencije. Sve što je proizvedeno kao nepostojeće se radikalno izopštava, budući da se nalazi izvan domena svega što prihvaćena koncepcija inkluzije ubraja u „drugu stranu“ u odnosu na sebe. Ono što u osnovi karakteriše ponorno razmišljanje, prema tome, jeste nemogućnost suživota dveju strana jednog zida. U meri u kojoj ova strana zida preovladava, ona ostvaruje svoju prevlast jedino putem crpljenja polja relevantne stvarnosti. Izvan nje se nalazi samo nepostojanje, nevidljivost, nedijalektičko odsustvo.

Santos (Santos, 2007) odlazi dosta dalje od stanovišta koje je formulisao Enrike Dussel (Dussel, 2026: 103), koje o misli i kulturi zapada kaže da „svojim očiglednim „okcidentalizmom“ predstavlja sve druge kulture kao primitivne, premoderne, tradicionalne i nerazvijene.“ Izvan te ponorne linije, prema tvrdnji Santosa (2007), realnost je definisana nepostojanjem.

Ovakvo ponorno rezonovanje poprilično nadilazi nemogućnost suživota „obeju strana zida;“ ono je u temeljima fundamentalne, radikalne negacije postojanja [onog] drugog [u odnosu na sebe]. Radikalizacija tako ponorne episteme se, pak, nalazi u senci „jasno vidljivih razlika koje strukturišu društvenu realnost s ove strane zida i zasnovane su na nevidljivosti ikakvih razlika između ove strane zida i druge strane“ (Santos, 2007: 46). Na neki način, Santos nadmašuje Todorovu (Todorova, 1997) kada je reč o „nepotpunoj drugoj strani“. Ne postoji „nepotpuna druga strana“ (kao ni „nepotpuna naša strana“), zato što ne postoji ništa iza ponornih granica. Nevidljivost i nepostojanje „jedne strane“ su u korenu postojanja bilo kakve „druge strane“. Hegemonijski i kontrahegemonijski pokreti

borili su se „s ove strane zida“; stručnjaci koji dolaze iz raznolikih beskonačnih kritičkih epistemoloških struja polemicali su u domenu matrije koja je definisana i proklamovana kao jedinstvena, jedina na svetu koja može da proizvede naučno znanje isuviše dragoceno da bi se uhvatilo u koštac sa izazovima s kojima se sreće kurikulum.

U oblasti kurikularnog znanja, „ponorno razmišljanje sastoji se iz toga što se modernoj nauci pruža monopol univerzalne distinkcije između tačnog i netačnog“ – kao što bi Santos (Santos, 2007: 47) sročio, naša oblast je time prožeta. Takav monopol je ograničio epistemološku borbu na domen u određenim okvirima koji se tiču „određenih vrsta objekata pod određenim okolnostima, uspostavljenim određenim metodama“ (Santos, 2007: 47).

Kurikularno rasuđivanje podređeno je hegemoniji pozitivizma i teoriji učenja (Paraskeva & Huebner, 2023). Radi se o obliku rasuđivanja koji je postao „prevladavajuća kulturna hegemonija, koja prožima tehnokratsku racionalnost kao izvor logike koji poriče značaj istorijske osvešćenosti“ (Giroux, 1979: 267). Dominantno kurikularno rasuđivanje odražava „pozitivističku racionalnost u čijem je sadržaju filozofija istorije koja samoj istoriji otkriva kritičke mogućnosti“ (Giroux, 1979: 267); stoga, to oslikava istorijski tačne epistemološke boje monopola monumentalnosti jednog razdornog kognitivnog Carstva (Santos, 2018), koje oblike znanja „druge strane“ prikazuje kao nepsotojeće – budući da su nepodobni u domenu naučne naučnosti zapadnjačkog modernog razmišljanja (Giroux, 2004). Sve za šta se vredi boriti može jedino da se pojmi s „ove strane zida“ i u domenu te strane – u osnovi evrocentrično. Na „druvoj strani linije“, dodaje Santos (2007: 47), „ne postoji pravo znanje; ne postoje verovanja, mišljenja, intuitivna ili subjektivna razumevanja, koja, u najvećoj meri, mogu da postanu predmeti ili sirovine za naučna istraživanja“. Borbe za odgovor na pitanje „čije je mišljenje najvrednije“ potonule su u otvoreni epistemicid. To je bila otvorena epistemicidna bitka.

Kao što sam tvrdio u drugim kontekstima (Paraskeva, 2022a; 2022b; 2018; 2016; 2011), u tako „eugeničkom“ kontekstu, potpuno je „prostituisano“ ne samo znanje već i samo pitanje „šta misliti“, kao i odgovor na njega. Kako iko može da tvrdi da zna ono što tvrdi da zna ukoliko je ogroman epistemološki skup principa koji okuplja beskrajno mnoštvo drugih epistemoloških oblika podmuklo predstavljen kao nepostojeći (Paraskeva, 2016)? U ovako beskonačno raznovrsnom društvu, naš kurikulum nije – za razliku od stanovišta za koje se Džui (Dewey, 1916; 1902) tako neumorno borio – mikrokosmos društva. Naš kurikulum oslikava „selektivnu tradiciju“ (Williams, 1976: 205), ali je uspostavljen na „ovoj strani zida“. Kurikulum je „rasuđivanje nerazumnosti“, kako bi to sročio Goldberg (Goldberg, 2018). Predmeti kurikulum ne postoje u mreži koju su iskale moderne zapadnjačke epistemologije.

Da je priroda naše oblasti epistemicidna, to je neosporno. Kurikulum – od predškolskog vaspitanja do visokoškolskog obrazovanja – jeste laboratorija razdornog eugeničkog Prosperovog rasuđivanja, laboratorija epistemicida. On proizvodi i potvrđuje nepostojanje „Kalibanovog rasuđivanja“ (Fanon, 2001; Henry, 2000). Ograničavanjem rasprava na samo „ovu stranu zida“ – što je diskusija utkana u epistemološku mrežu zapadne evrocentrične modernosti, koju usmerava i pokreće eugeničko i razdorno rasuđivanje – hegemonijski i kontrahegemonijski pokreti ne samo da su pooštrili epistemicidnu prirodu naše oblasti,

nego su ovu situaciju doveli i do – skoro nepovratne – teorijske *slepe ulice*. Kao i Henri Žiru (Giroux, 1979: 268-269), tvrdio bih da je, kada je reč o kurikulumu, „teorija okoštala unutar izvesnih ograničenih metodoloških prohibicija“. Ukoliko kultura pozitivizma odbacuje budućnost slaveći sadašnjost, kao što Henri Žiru (Giroux, 1979: 271) tako vatreno izjavljuje, i ako je preovladavajuća kurikularna logika u tako užasnoj meri pozitivistički nastrojena, onda se preovladavajući oblici kurikularnog znanja u našim školama takođe sukobe s budućnošću i poštuju sadašnjost, uprkos zbrci u kojoj se nalazi, pri čemu oni onemogućuju širenje svake utopijske težnje, istrebljujući im svaku moguću svrhu u budućnosti, uništavaju beskonačnu moć utopijske prirode čovečanstva. Prilično oklevetanom, jednodimenzionalnom čoveku, kojeg je analizirao Herb Markiz (Marcuse, 2002), mesto rođenja je u našem kurikulumu, a učitelji i nastavnici su savršene akušerske sestre.

Živimo u vremenu stagnacije – potpunog teorijskog raspada – kurikularne involucije, opasne teorijske regresije. Odgovori na izazove bezgraničnog epistemološki raznovrsnog čovečanstva ne može se „samo“ pronaći „na ovoj strani zida“; izazovi ne mogu da se razreše na osnovu razdornog evrocentričnog rasuđivanja – koje je i samo, ipak, u mnogim slučajevima, vodeći arhitekta kompleksnih događaja koje nastoji da razreši. Kao što Lord (Lorde, 2007) kaže, „gospodarevu kuću ne mogu da sruše alati koji su je izgradili“. Evrocentrizam kojim je prožet teorijski i praktični kurikularni proces potpuno je obavio našu oblast opasnom otuđenošću od realnosti – ono što nazivam „kurikularnim imparitetom“ (Paraskeva, 2022a; 2022b; 2021).

Teoriciid kurikuluma

Kao što sam tvrdio, obračuni između dominantnih i specifičnih kritičkih i postkritičkih kontradominantnih tradicija demonstrirali su nam kako su postkritičke tradicije potpale pod reduktivni funkcionalistički pristup. U svojoj borbi protiv epistemicida, oni su pogoršali takav epistemicid putem izrađivanja reverzivnog epistemicida (Paraskeva, 2023; 2022a; 2022b; 2021; 2018; 2016).

Štaviše, borbe između takvih tradicija i unutar njih okrepile su ono što bih, nadahnut Žilom (Gil, 2009), nazvao „kurikularnom involucijom“ – ili mrtvom tačkom. Kao što biva u takvim – ponekad – nemilosrdnim borbama, ni dominantne ni kontradominantne tradicije nisu mogle da odnesu potpunu pobedu; stoga stalno doživljavamo sve veći jaz između, s jedne strane, odsustva konsolidacije potpuno izdvojenog kurikuluma – u čemu zaista imamo bezbroj primera pobeđe kontradominantnih tradicija – i, s druge strane, potpunog odsustva pojave novog ljudskog bića. Unutar takvog zastoja, epistemicid i reverzivni epistemicid (Paraskeva, 2023; 2022a; 2022b; 2021; 2018; 2016) nastavljaju da se održavaju. Drugim rečima, niti je „staro ljudsko biće“ umrlo, niti je „stvaranje“ novog ljudskog bića potpuno materijalizovano. Niti je stari društveni poredak ostao na sigurnom, niti se pojavilo stvaranje novog društvenog poretka; dakle, „staro umire, a novo se ne može roditi“ (Gramsci, 1999: 276). Ove bitke nisu predstavljale „pravu“ tragediju, budući da su lišene svoje tragičke dimenzije, kao što bi Žil (Gil, 2009) to sročio. Umesto toga, dogodila se kurikularna involucija (Žil, 2009), koja, na previše načina, ukazuje na „regresiju“. Stručnjaci iz

dominantnih i kontradominantnih tradicija se sluŹe argumentima zasnovanim samo na istrošenom i obmanjujućem „Prosperovom evrocentrićnom okviru“, koji je dokazani deo problema (Harding, 2008; Mignolo, 2011; Quijano, 1991; Walsh, 2012). Kao Źto Volter Minjolo (Mignolo, 2026: 144) tvrdi, „sama genealogija dekolonijalnog razmiŹljanja nepozna-ta je genealogiji evrocentrićnog razmiŹljanja“.

ŹtaviŹe, epistemicidna priroda naŹe oblasti izaziva talas oŹtećenja koja su tokom godina proŹimala naŹu oblast, teorijski „imparitet“ koji zagađuje naŹu teoriju; teoriju u permanentnom stanju kratkog spoja s realnoŹću. „Stadijum involucije“ razotkriva i po-gorŹava imparitet ove oblasti. Kurikularna teorija i „realnost“ kretale su se beskrajinim paralelnim putanjama – onemoćalost je nastanila hegemonijske i kontrahegemonijske principe ove oblasti. Takav imparitet je, pak, izazvao nelagodu u kritićeom plodnom tlu. Ovaj teoretski imparitet – ili oŹtećenje – svojstva kritike je, stoga, preplavio obale toko-va kojima su se kretale radikalne kritićeke kurikularne ideje – Źto je pojava koja je po-hvalno osuđena i ispitana u krucijalnim pristupima koje su obezbedili Veksler (Wexler, 1976; 1987), Elsvortova (Ellsworth, 1989), Liston (Liston, 1988), Gor (Gore, 1993) i drugi, pri čemu nam je omogućeno da ovu problematiku ispitamo u drugim kontekstima (Para-skeva, 2023; 2022a; 2022b; 2021; 2018; 2016). „Involucija“ i „imparitet“ pogorŹali su mrtvu tačku u kojoj se ova oblast zatekla.

Kao Źto sam ranije tvrdio, Elsvortova (Ellsworth, 1989) je ključni primer – neop-ravdano potcenjen – impariteta kritićeog u visokoŹkolskom obrazovanju i programa za obuku nastavnika. Pre nego Źto se proŹirilo rasistićeko nasilje u zajednicama i uni-verzitetским sredinama u periodu od 1987. do 1988. godine, Źto ukljućuje i Univerzitet Viskonsina, Elsvortova je iskoristila priliku da diskutuje o ovoj vrsti previranja na kursu Nastavni plan i program 608: Mediji i antirasistićaka pedagogija na Univerzitetu Viskon-sina. Prema Elsvortovoj (Ellsworth, 1989), izvesni koncepti kritićeke pedagogije, kao Źto su osnaŹivanje, glas studenata, dijalog, pa čak i sam termin „kritićeki“, reprezentativni su mitovi koji odrŹavaju odnose dominacije. Prema njenim (Ellsworth, 1989) tvrdnjama, zasnovanim na njenim tumaćenjima Nastavnog plana i programa 608, „ključne pret-postavke, ciljevi i pedagoŹke prakse fundamentalni u literaturi za kritićeku pedagogiju – naime, „osnaŹivanje“, „glas studenata“, „dijalog“, pa čak i sam termin „kritićeki“ – jesu represivni mitovi koji odrŹavaju odnose dominacije“ (Ellsworth, 1989: 298). ŹtaviŹe, ona tvrdi da su nas „naŹi napori da diskurse kritićeke pedagogije primenimo u praksi doveli do reprodukcije odnosa dominacije u ućionici [odnosno, diskurse koji su] „delovali kroz nas“ na represivne naćine, te i sami postali sredstvo represije“ (Ellsworth, 1989: 208). Dakle, kako smo se udaljili od takvih pitanja i krenuli drugim putem, „obradili smo“ izra-zito apstraktni jezik literature i delali putem njega. U svojoj posvećenosti, oslobođenju i emancipaciji, kritićeki pristupi su ućvrstili i umnoŹili odnose dominacije i sramotno su ćutali pred patrijarhatom.

Prisećanje Źta su rekli Burdje i Bauman ovde je od velike pomoći. Burdjeovi kon-cepti „imigracije“ i Baumanovi koncepti „stranaca“ krucijalni su za naŹ argument. Kritićeka kurikularna teorija – kojoj svi mi toliko dugujemo – daleko je od noćne more za hege-monijnski blok; odavno je prestala da proizvodi „ćudnovatost“; već dugo više ne oznaćava „ćudnovatu, stranu“ stvar koju su proizveli „stranci“; postala je predvidljiva. S obzirom

na njenu epistemološku predvidljivost, kritička kurikularna teorija više ne predstavlja pretnju. Ona ne može da nastavi sa „sakaćenjem i iskorenjivanjem“ (Bauman, 2005: 7) dominantne teorije mišljenja i načina izgradnje sveta. Kritička teorija je čak prestala da označava teoriju pobune (Saramago, 1999: 43). Stoga, ona je izašla iz uloge proizvođača i dirigenta „imigracije novih ideja“ (Bourdieu, 2001: 7), pri čemu čak i ono što je zamišljeno kao novo ostaje isključivo vezano onto-epistemološkim stegama, koje mu onemogućuju da se razvija dalje od evrocentričnih modernih zapadnjačkih principa. Kritičke i post-kritičke teorije istrošene su „evrocentričnom koncepcijom vremena, prostora, broja, uzroka“ (Bourdieu, 2001: 9), koja na neki način abdicira od radikalnog epistemološkog suživota „druge strane zida“ (Santos, 2014). Nesposobnost da se prevaziđu takva involucija i oštećenje jasan su dokaz *capitis diminutiu* (gubitka statusa), koji izaziva *hypertrophica theoricæ* (povećanje teorije), čime se krči put *teoricidu*.

Ratoborni sukobi koji su suprotstavljali hegemonijske i kontrahegemonijske pokrete, uključujući i sukobe unutar pokreta, podstakli su svojevrсни teorijski državni udar – napad na prostor i vreme teorije, potištenje teorije, *teoricid*, krčeći put opasnim antiintelektualnim oblicima intelektualizma, koji su jedan od enzima za dekalifikovanje prosvetnih radnika. Intelektualizam postaje redak antikvitet u obrazovnim istraživanjima i školskim okruženjima (Paraskeva, 2013).

„Neoteoretična“ atmosfera vlada. Ova teorija, u stvari, predstavlja „neteoretičnu teoriju.“ Teorija je, u suštini, odsustvo teorije. Neuznemirenost je osvojila naše područje. Utopija teorijske histerije je sahranjena. Živimo u „ateorijskom“ trenutku, pošasti koja je kontaminirala različite odeljke naše oblasti poput korozije, zatim se, noseći svu svoju imovinu, smestila u somotsku fotelju naše akademije. Teoricid je zabiberio zdrav razum, što ne mora da podrazumeva odsustvo teorije, već predstavlja pomagalo u širenju „neteoretične teorije“. Sezona lova na teoriju i teoretičare se normalizovala. Slaba teorija koju smo pokušali da proizvedemo ne komunicira s našim školama. Teorijskom talasu nedostaje istorijska perspektiva i izgubio je na kvalitetu, naročito u drugoj polovini prošlog veka. Nema teorijske strepnje u našoj oblasti. Doživljavamo paralizu. Gore od teorijske stagnacije, suočavamo se s „nepostojanjem“ bio kakve teorijske turbulencije. Bučni teorijski požari prošlosti – čak i u skorijoj istoriji – davno su iščezli. Naša oblast više nije tlo za potpirivanje vatre u domenu razvijenih društvenih nauka.

Neophodna je još jedna teorija – ruku na srce, lutajuća – što bi moglo da se postigne jedino putem novog teoretisanja, nove epistemološke logike, i koja nam, verna etičkim principima epistemološke pravde, pomaže da „posložimo reči“ na drugi način (Saramago, 1999: 86). Nema budućnosti bez smrti, kao što bi Saramago (2009) rekao. Drugim rečima, i kao što sam već tvrdio i podrobno analizirao u drugim kontekstima (Paraskeva, 2022; 2021), kritičke i postkritičke teorije, uopšte uzev, kao i kritičke i postkritičke obrazovne kurikularne teorije, posebno, moraju da izumru. Ovo nije kraj kritičkih teorija i pedagogija. Ovo je način da se stvori istinski mnogobrojan, supradisciplinarni, nederivativni kritički pristup rešavanju beskrajsnih, raznovrsnih, onto-epistemoloških izazova sveta.

Iako je provokativan, ovaj izazov ne traži okončanje u evrocentričnom smislu. On traži nešto radikalno drugačije. Traži da stvari stoje „na drugi način“ (Paraskeva, 2021).

Moramo svi da se borimo kako se ne bi, kao što bi to Žil (Gil, 1998) rekao, „kritička teorija okamenila kao tribalna teorija“. Pravedan način da se reše takvi nedostaci jeste posvećivanje „procesu razlistavanja“ (Gil, 1998: 127-128), što rasklapa trenutni razdorni „komplikovani razgovor“ (Pinar, 2004) i dekolonizuje ga, budući da je u svojoj prirodi epistemicidan (videti: Huebner, 2022).

Ovaj proglas je signalizirao uzbunu u nekim regijama naše oblasti, naročito među onima koje su se, tokom decenija, samoprolašavali jedinim čuvarima kontraargumenta sa velikim „K“, takođe jedinstvenog, zanemarujući da sve vreme delaju u domenu epistemicidne matrice – pri čemu su se upustili u epistemicidne procese i ishode. Uočavam da takve kurikularne liberalne republike tvrdoglavo odbijaju da priznaju da je njihovo vlastito rasuđivanje, ma koliko multikulturno i polihromatsko, bilo, i uvek će biti, „izraz zapadnjačke kulture koja ograničava mogućnost opstanka svih drugih kultura“ (Dussel, 2026: 104).

Teoricid govori o slepoj ulici koju su stvorile bitke vođene između hegemonijskih i kontrahegemonijskih evrocentričnih tradicija, koje nisu bile u stanju da se uključe u neevrocentrične perspektive. Ta slepa ulica pogoršava umiruću prirodu oblasti, kako je to Hjubner obznanio (Huebner, 1976). Kako bismo mogli da poreknemo da naše polje ne uživa u teorijskom blagostanju kakvo je nekada imalo? Kako bismo mogli da poreknemo da više ne doživljavamo teorijsku strepnju kakvu smo iskusili u prošlosti, čak i nedavnoj? Jedan od razloga ovom ozbiljnom zastoju leži u poricanju apsolutističke i istrošene prirode evrocentričnog rasuđivanja, koja je prožela kontrahegemonijsku matricu. Pokazalo se da ova matrica nije sposobna da nadmaši svoje epistemološke granice, razreši ili ublaži svoje inherentne kontradikcije, kao i da prizna legitimitet neevrocentričnih epistemoloških perspektiva.

Takozvana generacija utopije (Paraskeva, 2021) – koja se zalaže za toliko pohvalnih borbi za pravedno obrazovanje i kurikulum – uprkos poteškoćama nastoji da se odvoji od jezivog epistemološkog potčinjavanja zapadnim modelima, kao da su ovi modeli jedini jezik, jedini skup koncepata i jedinstvena matrica koja može da odgovori na brojne različite i raznovrsne izazove sa kojima se čovečanstvo suočava (Paraskeva, 2023; 2021). Naši kontrahegemonijski kurikularni principi nisu u stanju da zamisle „reč i svet“ mimo zapadnjačkog evrocentričnog matriksa (Paraskeva, 2023; 2021). Promena oblika teorici-da, koja kontaminira oblast, u suštini je sinhronizovana sa zamahom širenja „ateoretičnosti“ koji prožima akademsku zajednicu (videti: Reckwitz & Rosa, 2023). Dok, s jedne strane, moramo da priznamo značajne prednosti i postignuća koje su ostvarili brojni kontrahegemonijski pokreti, realnost nas, s druge strane, primorava da priznamo da su se ti pokreti pokazali kao nedovoljni da okrenu situaciju u sopstvenu korist. Ponestaje im pitanja i odgovora. Naša oblast tone u „pleonastičko [rasuđivanje] u kojem se pitanja i odgovori svode na istu stvar“, kako bi to sročio Emil Čoran (Cioran, 1975: 51). Čini se da se „komplikovani razgovor“ može odvijati samo u granicama koje nameće određeno evrocentrično rasuđivanje. Priznavanje izuzetnih postignuća koja su ostvarili brojni kontrahegemonijski pokreti nije nepodudarna realnost sa katastrofalnim teorijskim stanjem izazvanim teoricidom u kojem živimo. Naprotiv, njihova otvorena kompatibilnost bi trebalo da nas natera da se zapitamo kako je uopšte došlo do toga da se nađemo u

ovom teorijskom vakuumu, uprkos brojnim dostignućima. Teoricid ne može da se posmatra kao čin poštovanja bilo kog antikolonijalnog ili dekolonijalnog matriksa.

Negiranje epistemicidne prirode kurikuluma, negiranje despotske prirode evrocentričnog razuma u čijoj osnovi deluju hegemonijski impulsi, kao i negiranje teoriciidne prirode polja – sve to ne samo da predstavlja savršeni primer despotske smelosti modernih zapadnih evrocentričnih epistemoloških paradigmi, nego sve više opravdava centralnost sledećeg pitanja: mogu li dominantne kurikularne teorije (ovde uključujem i hegemonijske i kontrahegemonijske) da opišu stvarnost sa kojom se suočavamo kao čovečanstvo? Da li one opisuju društvo u kojem živimo? Da li one opisuju i beskonačne, bezbrojne singularnosti koje obuhvataju čovečanstvo?

Ukoliko je kurikularno rezonovanje prožeto eugeničkim prvobitnim grehom, kako bi ijedan teorijski okvir – ma kakav bio – koji proizilazi iz takvog rasuđivanja, mogao da objasni bezgraničnu raznovrsnost i epistemološke razlike stvarnosti? Beskrajno pluralno više nego ikad, o rizomatskom čovečanstvu se teorijski jedino može govoriti putem bezbrojnih rizomatskih teorija, lutajućim putem. Istrajavanje u takvom poricanju oglašava se o „nemogućnost objedinjavanja svih otpora i radnji pod jednu zajedničku veliku teoriju“ (Santos, 1999: 203); „što predstavlja samo odjek“ onoga što je Ellsworth (Ellsworth, 1989) tako prikladno proglasila, a što ne smemo ignorisati. U duhu njenog rada (Ellsworth, 1989: 301), ponovio bih da nam većina kritičnih paradigmi i dalje ne pruža

jasnu izjavu o svojim političkim agendama [a] napore ulažu u to da sakriju da oni, kao kritički pedagozi, zapravo nastoje da javne resurse (učionice, školski pribor, plate nastavnika i profesora, akademske zahteve i diplome) prilagode raznim „progresivnim“ političkim agendama u koje veruju kao zastupnike javnog dobra – koji, kao takvi, zaslužuju javne resurse.

Iako to predstavlja pravi izazov, krucijalno je odvojiti se od fundamentalizma evrocentričnog razmišljanja i postaviti se u nezapadne, neevrocentrične, antikolonijalne i dekolonijalne epistemološke okvire. Takvo raskidanje veza uspostavlja dekolonijalan zaokret, čime se izaziva ne samo komplikovan nego i nederivativan razgovor, koji poziva na „neponorne kulturne kontakte“ (De Alba, 2026), kao radikalni kurikularni kohabitus. Budući da se i dalje poriče da matriks modernosti nazaduje ili da mora pažljivo da se čuva usled svojih palijativnih potreba, upornost u poricanju „hospicidne“ prirode fundamentalizma karakterističnog za kartezijsko rasuđivanje (Andreotti 2002; Darder, 2026) ničim ne doprinosi rešavanju izazova sa kojima se suočavamo kao oblast. Na primer, upadljiva tišina koja bi zavaljala kad god bi se, tokom decenija, u bezbrojnim komplikovanim razgovorima metode *currere* povelala reč o kastama, istovremeno je upečatljivi simptom i posledica naučne oblasti koja je izgubljena u vremenu i dugoročno teorijski sakaćena, proizvođača nepredvidljivih, nepromišljenih i opasnih pravaca ili teorijski manjkave oblasti koju je zarobio ponorni intelektualni i teorijski rad, koju uporno promovise epistemicidan matriks, te je stoga nepopravljivo osuđena da nastavi da proizvodi ponorne teorijske podele i fabrikuje razdornu istoriju.

Iz navedenih razloga, ključno je otvoriti epistemicidni kanon ovog polja, koji raskršta s evrocentričnim epistemološkim impulsima (Amin, 1990) i rastavlja ponornu podelu pu-

tem izlaganja problema koje je sociološka intervencija zaobišla, poput pojave kaste, kao temu za obradu u kurikulumnim debatama (Paraskeva, 2025; 2023; 2015). Preko potrebno je da se posvetimo „multikulturnom dijalogu koji ne nagađa iluzorno prisustvo nepostojeće simetrije među kulturama“ (Dussel, 2026: 107). To implicira, kako Dasel (Dussel, 2026: 112-113) dodaje,

interkulturni dijalog koji nije, niti u većoj meri niti isključivo, tip dijaloga vođen između kulturnih apologeta koji nastoje da drugima prikažu vrline i vrednosti svoje sopstvene kulture. To je, iznad svega, dijalog između kritičkih inovatora kulture (intelektualaca na „granicama“), između njihove sopstvene kulture i modernosti. To je, pre svega, dijalog između „kriza periferije“; taj dijalog prvo mora da bude interkulturni oblik dijaloga vođen između dveju kulturnih sredina na istom razvojnem stadijumu, pre nego što može da pređe u oblik dijaloga između dveju sredina na različitim razvojnim stadijumima.

Takav potez zahteva posvećenost priznavanju legitimiteta epistemologija s juga, odnosno, iz sredina u razvoju (Santos, 2007), radikalnog kohabitusa (Paraskeva, 2023; 2024; 2025) različitih i raznovrsnih epistemoloških pravaca, što vodi do kritičke teorije kastinskog kurikuluma, krčeći put „ekologiji – kurikulumnih – znanja“ (Santos, 2014). Takva ekologija implicira raskidanje veza, što zagovara epistemološku neposlušnost kao bolji izbor od kontinuirane težnje ka „novini“ u okvirima tog istog eugenički zaraženog matriksa (Dussel, 2025; Mignolo, 2025). Takva teorija pomaže sastavljanju postponornog matriksa. Oblast pravednog kurikuluma zalaže se za teoriju pravednog kurikuluma, onakvu vrstu teorije koja je epistemološki „neambisalna“. Postponorna kurikulumna teorija i razvoj podrazumevaju deambisalni zamah širenja – „raskid veza“, koji ne stremlji nužno neponornom matriksu, već prokrčuje put „neambisalnom“ kurikulumnom nacrtu koji vešto oslikava brojne epistemološke impulse čovečanstva, pružajući položaj nedodirljivosti kurikulumnim debatama.

Ne postoji savršena teorija (Quantz, 2011). Međutim, naša kritika će uvek biti katalitična i izolovana od oblasti koja uporno ostaje dislocirana tako što ignoriše krucijalne kategorije – kao što su kaste – koje brutalizuju milijarde ljudskih bića širom sveta. Ne može biti socijalno pravedne teorije bez teorije koja odražava antikolonijalnu i dekolonijalnu misao, kao ni bez vodećih teorijskih učešća antikolonijalnih i dekolonijalnih teorija, koje takođe potiču iz globalnog juga. Od krucijalne je važnosti da priznamo da se „dekolonijalno razmišljanje razlikuje od postkolonijalne teorije i postkolonijalnih studija na taj način da njihova genealogija leži u francuskom poststrukturalizmu pre nego u teško shvatljivoj istoriji planetarnog dekolonijalnog razmišljanja“ (Mignolo, 2026: 127). Mignolo (Mignolo, 2026: 132) tvrdi:

Dekolonijalno razmišljanje se još uvek nije pojavilo, čak ni u najekstremnijim levičarskim publikacijama. A razlog tome leži u činjenici da dekolonijalno razmišljanje ne pripada levisi, već nečemu sasvim drugačijem: to je raskidanje odnosa s modernom političkom epistemom artikulisanom kao desnica, centar i levica; to otvara prolaz nečemu sasvim drugom, u hodu, tražeći sebe u razlici.

Teoriciđ jeste i posledica decenija komplikovanih razgovora koji su sistematično marginalizovali upozorenja mnogih kritiĉkih teoretiĉara, da se „kritiĉko mišljenje kao naĉin razmišljanja pomraĉilo kako u širem društvenom kontekstu, tako i u sferi javnog školanja“ (Giroux, 1979: 281). Teoriciđ je rendgenski snimak oblasti putem nederivativnog raskidanja veza, iskopavanja oblasti „iz drugih lokaliteta“ (Mignolo, 2026: 135).

Oni koji su rođeni i odrasli u Africi, ubrzo su mogli da ĉuju od svojih predaka da su problemi u svetu nastali kada su zebre belih pruga proglasile svoju superiornost nad zebra crnih pruga. U kurikulumu, svi smo mi zebre. Nema svrhe da one sa „belim prugama“ tvrde da su nadmoćne. Onima koji prihvataju postojanje u ovirima premisa koje Pjer Tejar brani – da „mi nismo ovde kao ljudska bića sa spiritualnim iskustvom, već stvari stoje suprotno: svi smo mi beskonaĉna spiritualna bića sa privremenim ljudskim iskustvom“ – metafora zebri daje drugaĉiji odjek.

Ovo je bitka beskonaĉnog, borba za beskonaĉno, vođena u beskonaĉnom, ali ipak ne beskrajna bitka. „Beskonaĉno je tada moguće“ (Pessoa, 2006: 56), a sadašnjost je moguća kao „jedina stvarnost koja je veĉno prisutna, sada neumiruća“ (Pessoa, 2006: 47). Kritiĉkim teorijama i pedagogijama potrebna je nova „postambisalna“ logika za moguću utopiju pravednog sveta. Mi moramo da teoriju „vratimo“ u epicenter visokog obrazovanja i kurikularnih debata u školovanju uĉitelja i nastavnika – ova bitka mora da bude pobeđena na univerzitetima na kojima se obrazuju uĉitelji i nastavnici. Nova teorija, ipak. Nederivativna, neponorna, samo teorija za pristojan život, kako se Santos (Santos, 2018) zalaže.

Lutajuća teorija kurikuluma (LTK): nederivativni pristup

Svestan mrtve taĉke u kojoj se našla ova oblast – i pod dubokim uticajima antikolonijalnog i dekolonijalnog neevrocentriĉnog pristupa – proglasio sam epistemicidnu prirodu ove oblasti (Paraskeva, 2011) i zagovarao potrebu za sukob „na frontu“ s njenim istorijskim epistemicidnim rasuđivanjem. Zalagao sam se za potrebu za deteritorijalizacijom *tout court* i za pretpostavku lutajuće teorijske kurikularne (LTK) perspektive. Tvrdio sam da je kurikularno rasuđivanje razdorno, eugeniĉko u svojim hegemonijskim i kontrahegemonijskim evrocentriĉnim principima, pritom i zagovarao nederivativan neponoran pristup (Santos, 2014; Paraskeva, 2023; 2022a; 2022b; 2018; 2016; 2011), jedan deteritorijalizovani, dekolonijalni, lutajući kurikularni pristup teorijskoj stazi (Paraskeva, 2023; 2022a; 2022b; 2018; 2016; 2011). Teoretiĉar LTK jeste „prelom [eugeniĉkog] toĉka vremena“, kako Fridrih Niĉe (Nietzsche, 1990: 6) prekida i destabilizuje kurikulum kao eugeniĉku privremenost ljudskog bića, kao što je Hjubner proglasio.

Takva konfrontacija izaziva istorijsko-sociološka odsustva našeg polja (Santos, 2014) i dovodi u pitanje institucionalizaciju vidljivosti i postojanja određenih formi znanja – u svojoj osnovi evrocentriĉnih – ĉime kurikularnu teoriju i istoriju ove oblasti izguruje iz kolonijalne zone. Ja ovakav moment sile nazivam „epistemološkim zaokretom“, dekolonijalnim momentom (Paraskeva, 2023; 2022a; 2022b; 2018; 2016; 2011).

LTK je bila prihvaćena od strane uĉenjaka u Sjedinjenim Ameriĉkim drŹavama i izvan njih, pri ĉemu su prihvatili i ono što Enrike Dusel (Dussel, 2013) naziva analektikom – ili

ana-dijalektičkim pristupom – što prekida ponorni jaz koji su stvorile modernističke i postmodernističke rasprave, što uporno oslikava globalni jug kao nepostojeći. LTK postavlja borbu protiv epistemicida i reverzibilnih epistemicida kao centar gravitacije nove utopijske logike, onakve kakva je posvećena svojoj ulozi performativnog iskaza (Austin, 1962), drugim rečima, „tip lutajuće teorije koja nešto učini tako što to izgovori“. LTK je osetljiv na epistemološku raznolikost i razlike u svetu. Teoretičar LTK jeste epistemološki izgnanik – njegov pravednički politički stav duboko je posvećen društvenoj, kognitivnoj i intergeneracijskoj pravdi. Kritičke i postkritičke teorije i pedagogije – način na koji svi mi razmišljamo i postupamo – moraju da se završe, kao i da se deteritorijalizuju; moraju da radikalno raskrste sa sopstvenim opresivnim zapadnjačko-evrocentričnim matriksom na takav način da ga ne odbacuju, kao i da se posvete „radikalnom suživotu obeju strana zida“ (Paraskeva, 2023). Kao što Žao (Zhao, 2019: 27) tvrdi:

LTK je oblik dekolonijalnog mišljenja koji prepoznaje ekološku koegzistenciju različitih epistemoloških oblika znanja širom sveta, obraćajući pažnju na znanje i epistemologije koje su u velikoj meri marginalizovane i diskreditovane u trenutnom svetskom poretku.

Teoretičar LTK je „epistemološki i kulturni lekar“, kako bi to Fridrih Niče (Nietzsche, 1990: 55) formulisao, koji izrađuje LTK kao, i kroz, novu konceptualnu gramatiku (Jupp, 2017), koja luta unutar i izvan: (a) kolonijalnosti moći, znanja i bivstovanja; (b) epistemicida, lingvicida, ambisalnosti i ekologije znanja; kao i (c) poststrukturalističkog hermeneutičkog lutanja koje proizvodi neponornu abecedu znanja (Paraskeva, 2022a; 2022b).

LTK teži „opštoj epistemologiji nemogućnosti opšte epistemologije“ (Santos, 2007: 67), čuvajući i negujući „besmrtnost beskrajnog pluridiverzalnog intelekta ostvarenog putem obrazovanja“ (videti: Nietzsche, 1990: 4). To je teorija ljudskih prava, kako bi Santos (Santos, 2009) nesumnjivo formulisao. LTK podrazumeva drugačijeg teoretičara, koji izaziva i izazivan je teorijskim usmerenjem koje je neprecizno, ali rigorozno; on ili ona „beži“ od svakog nesrećnog kanona; to podrazumeva teoretičara koji je posvećen kretanju put „ambisalnog epistemološkog terena“, izazivajući epistemološku apstinenciju teorijske uniformnosti i stabilizacije. Teorija (i teoretičar) lutajućeg kurikuluma jeste vulkanski lanac koji pokazuje neprestano odsustvo ekvilibrija; teorija (i teoretičar) lutajućeg kurikuluma uvek je stranac svom sopstvenom jeziku. Međutim, ne radi se o izolovanom postupku; u pitanju je nastanjenost usamljenost. LTK se hvata u koštac sa svakim oblikom *prirodno naklonjenog istraživanja*; drugim rečima, hvata se u koštac sa svakim oblikom romantizacije domorodačkih kultura i znanja, i nije povezan ni sa kakvim dihotičnim kosturom zapada, niti ostalih (Paraskeva, 2023; 2022a; 2022b; 2018; 2016). Kao i Niče (Nietzsche, 1990: 10), teoretičar LTK „nastoji da shvati unutrašnju koherentnost i potrebu svake istinske kulture“.

LTK, kako to tvrdi Darder (Darder, 2016), jeste „epistemologija oslobođenja koja je u stanju da uporno dovodi u pitanje strukture autoriteta, hijerarhije i dominacije u svakom životnom aspektu i mora da bude kultivisana, negovana i otelotvorena u blagoslovenom neredu i nezgrapnom haosu svakodnevice u školama i zajednicama“ (Darder, 2016: 12). LTK dosta govori o legitimitetu Kalibanovog koscijentizma (Nkrumah, 1964). LTK, koja je

po svojoj prirodi metamorfoza raslojavanja, „prag beskonačne žalosti“ (Couto, 2008: 105), zagovara da se ide protiv zamaha širenja „okcidentoze i mehanotike“, kao i da se to stanovište prevaziđe (Al-L-Ahmad, 1984: 31). LTK „nije samo prizivanje ili izazivanje; ono daje primer kako ideje mogu ostavljati snažan utisak kada se dodaju izvorima kurikularnih studija tako što značajno uključuju radove“ (Schubert, 2017: 10) koji nadmašuju moderne zapadne evrocentrične epistemološke dominantne i kontradominantne tradicije. Pored toga, teoretičari LTK dovode u pitanje apsolutistički kult dominantne naučnosti nauke – u osnovi evrocentrične – potčinjene merkantilističkim krugovima cirkulacije kultrune proizvodnje. LTK zagovara kurikularnu transmodernost koja je

multikulturalna, svestrana, hibridna, postkolonijalna, pluralistička, tolerantna i demokratska (ali mimo moderne liberalne demokratije Evropske države). Imaće sjajne hiljadugodišnje tradicije i uvažavaće eksterioritet i heterogene identitete. Većina čovečanstva održava, reorganizuje (obnavljajući i uključujući elemente globalnosti) i kreativno razvija kulture u svom svakodnevnom, prosvetljenom horizontu. Kulture ove većine produbljuju vrednosni „zdrav razum“ stvarnih i posebnih postojanja svojih učesnika, suprotstavljajući se isključujućem procesu globalizacije, koji upravo zbog ovog procesa nenamerno „gura“ k procesu „transmodernosti“. To je povratak ka svesti značajnih većina čovečanstva, od njihove isključene nesvesti tokom istorije! (Dussel, 2002: 236)

Drugim rečima, LTK „nastoji da ispuni nedovršeni i nepotpuni projekat dekolonizacije iz dvadesetog veka koji teži svetu izvan modernosti“ (Grosfoguel, 2007: 179). LTK prevazilazi tradicionalne dihotomije; teži artikulaciji kritičkog kosmopolitanizma koji nadilazi nacionalizam i kolonijalizam; teži proizvodnji znanja koje nadilazi fundamentalizme koji karakterišu treći svet i evrocentrizam; teži proizvodnji radikalne postkapitalističke politike koja nadilazi politiku identiteta; teži prevazilaženju tradicionalne dihotomije između političke ekonomije i kulturnih studija; nastoji da se pomakne od ekonomskog redukcionizma i kulturalizma (Grosfoguel et al., 2007).

LTK je naprasno obeznačavanje i reoznačavanje, odnosno, „trijangulisana svest u-akciji, locirano i onako-kako-se-dogodilo“ (Garza & Jupp, 2026). Kapacitet i posvećenost koje LTK gaji prema kohabitusu beskrajnih onto-epistemoloških struja na globalnom severu i globalnom jugu poništava jedan od najozbiljnijih aspekata mišljenja u domenu moderniteta, njegovu ponornu prirodu. Takav kohabituz raznovrsnih i različitih epistemoloških tokova implicira ono što su Noa de Lisovoj i Selin Norman (Lisovoy & Norman, 2016) nazvali „rekonekcija“, što se suprotstavlja eugeničkoj monumentalnosti modernog zapadnog evrocentrizma.

Dok zapadni projekat, zajedno sa iskrivljenom logikom koju proizvodi, produkuje pedagoške pristupe koji se suprotstavljaju istraživanju, dijalogu i samom razmišljanju, pluriverzalno epistemološko preusmerenje u podučavanju odbacuje prikazivanje nastavnika i kurikuluma kao fiksiranih i nepokretnih, te umesto toga pristupa podučavanju na fluidan način, znatiželjom i ljubavlju. Dekolonijalni i analektički kurikulum, neograničen zidovima koji je postavio

svet evropeidne rase, radi na tome da poremeti mit o kolonijalnoj trajnosti i zapadnoj univerzalnosti – mit koji širi ideju da ne postoje održive opcije mimo naše trenutne stvarnosti i znanja koje je u njoj konstituisano. (De Lissovoy & Norman, 2026: 326).

Raskidanje veza i dekolonizacija – uz odavanje počasti nasleđu kritičkog puta, podižući ga na drugi nivo – takođe je dekolonijalni pokušaj bavljenja kritičkom teorijom (Kellner, 1989: 2). Postupajući na taj način, lutajuća teorija kurikuluma preispituje utopizam; odgovara na Habermasov (Habermas, 1981) izazov modernosti kao nepotpunog projekta i posvećuje se procesima dekolonizacije. Pomaže nam da razumemo koliko je ključno preispitati tačne epistemološke boje naše bitke za pravedno obrazovanje i društvo. Naš zadatak nije da „pucamo u utopiste“ (Santos, 1995) niti u utopiju, koja ne samo da obitava u nama, nego i izvire iz krhotina modernosti. Zadatak koji imamo mi, kao učenjaci u polju obrazovanja i kurikulumu, jeste da dekolonizujemo tu utopiju i raskrstimo veze s njom, što jeste ključna posvećenost beskrupuloznoj kritici svake postojeće epistemologije kao sine qua non uslova za pravednu teoriju kurikulumu. Ovo je nesumnjivo najbolja bitka koju možemo da vodimo kako bismo otvorili zapadni evrocentrični kanon demokratije (Santos, 2007), te na taj način popločali put ka neponornom i pravednom društvu putem nederivativne kurikularne teorije. LTK je onto-epistemološka deklaracija nezavisnosti. To je narodna teorija koja odražava epistemološke razlike i raznolikost sveta. U tom smislu, LTK će uvek biti neizvestan manifest za manifest neizvesnosti. Teoretičar LTK razume da je, više od traženja „istine“, krucijalno da se na nederivativan način shvate metamorfoze u ljudskom biću (Nietzsche, 1990: 50).

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Pogledi učitelja i nastavnika književnosti na ekokritičku pedagogiju: preliminarno istraživanje u Srbiji

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Apstrakt

U radu se istražuju pogledi učitelja i nastavnika književnosti na zastupljenost ekokritičke pedagogije i njenu relevantnost u kontekstu osnovnih i srednjih škola u Srbiji. Obrazovni potencijal ekokritike, koja se definiše kao interdisciplinarno proučavanje veze između književnosti i životne sredine, prepoznat je širom sveta, ali je njena primena u srpskim programima ograničena i nedovoljno proučena. Cilj istraživanja je da se utvrde potencijalne razlike između prvog i drugog ciklusa osnovnog obrazovanja i srednje škole, nastavnog iskustva ispitanika, kao i percepcije vezane za mogućnosti i izazove integracije ekokritičke pedagogije. Analiza je izvršena kombinacijom metoda, korišćenjem kvantitativnih i kvalitativnih podataka prikupljenih anketiranjem 213 učitelja i nastavnika književnosti u osnovnim i srednjim školama u Srbiji. Rezultati ukazuju na generalno nizak stepen upoznatosti sa ekokritikom, kao i na to da ispitanici ekokritičku pedagogiju ne smatraju zastupljenom, ali je percipiraju kao relevantnu. Statistički značajne razlike uočene su prilikom poređenja prvog i drugog ciklusa osnovnog i srednjoškolskog obrazovanja: učitelji, naime, više smatraju da je ekokritička pedagogija zastupljena i relevantna nego što to smatraju nastavnici književnosti. Ipak, većina ispitanika prepoznaje razvoj kritičkog mišljenja kao ključni ishod ekokritičke pedagogije i izrazila je volju za primenom ekokritičkog pristupa. Nisu uočene značajne razlike vezane za radni staž, odnosno, nastavno iskustvo ispitanika. Takođe, moguće je izvesti zaključak da postoji potreba za većom podrškom učiteljima i nastavnicima radi premošćivanja jaza između teorijskog potencijala i praktične implementacije u učionici, budući da prepoznaju kapacitet nastave književnosti da doprinese holističkom, interdisciplinarnom ekološkom obrazovanju i podstakne učenike na kritičko mišljenje, empatiju i bavljenje realnim problemima današnjice.

Ključne reči: ekokritička pedagogija, ekokritika, ekološko obrazovanje, nastava književnosti, percepcije nastavnika.

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Uvod

Iako se u sve većoj meri prepoznaje da humanističke nauke moraju biti deo ekološkog obrazovanja i vaspitanja, te da pristup utemeljen isključivo na predmetima tradicionalno povezanim s ekološkim znanjem više nije dovoljan, fokus je i dalje na razgovorima o ekologiji u okvirima prirodnih nauka – a povremeno i na časovima filozofije/etike ili građanskog vaspitanja – usled čega potencijal književnih i kulturoloških pristupa nije dovoljno istražen (Siperstein et al., 2017). Različiti načini komunikacije o klimatskim promenama, uključujući kreativne oblike komunikacije kao što su umetnost, film ili pozorište (Holmes, 2020: 16; Martinez, 2024), kao i književnost u kojoj su zastupljene ekološke teme, mogu doprineti socijalizaciji mladih ljudi: na taj način bi postali odgovorni i empatični odrasli, što bi ih pozicioniralo kao „ekološki osvešćene građane“ posvećene održivom razvoju kako na lokalnom tako i na globalnom nivou – poduhvat obeležen strategijama koje su „složene, nestabilne i kontradiktorne“ (Massey & Bradford, 2011: 1090-110). Ipak, iako čitanje samo po sebi ne može „spasiti svet“ (Hoydis et al., 2023: 1), ono može doprineti povećanoj svesti o ekološkoj krizi. Mladi ljudi neretko su isključeni iz ozbiljnih diskusija zbog kompleksnosti krize, iako je ponajviše *njihova* budućnost dovedena u pitanje, a u poslednje vreme postoje naponi da se stvore književni tekstovi za decu koji podstiču dijalog o ekološkim temama (Van der Beek & Lehmann, 2024). Takva književnost se, na primer, ciljano uključuje u školske programe u Nemačkoj, što se može primetiti po preporuci lektire za Saksoniju-Anhalt, gde su istaknuti književni tekstovi s interdisciplinarnim temama kao što su održivi razvoj ili digitalni svet (Preporuka lektira..., 2022). Slično tome, u Norveškoj se od 2020. godine održivi razvoj tretira kao jedna od tri interdisciplinarne teme koje se moraju obraditi u okvirima *svih* školskih predmeta (Myren-Svelstad, 2020). U Srbiji je jedan od ciljeva osnovnog i srednjeg obrazovanja definisan kao „razvijanje svesti o značaju održivog razvoja, zaštite i očuvanja prirode i životne sredine i ekološke etike“, što se u osnovnoj školi odnosi i na uviđanje značaja „zaštite i dobrobiti životinja“ (Pravilnik o planu nastave i učenja za prvi ciklus osnovnog obrazovanja i vaspitanja..., 2017; Pravilnik o planu i programu nastave i učenja za gimnaziju, 2020; Pravilnik o programu nastave i učenja opšteobrazovnih predmeta u stručnim školama, 2023), ali ne postoje strogi zahtevi da se cilj mora postići kroz nastavu svih predmeta. Stoga se istraživanja o integrisanju ekoloških tema u nastavu književnosti, koja bi identifikovala mogućnosti za ekokritički pedagoški pristup ili ispitala percepcije nastavnika koje su od značaja za uspešnu implementaciju, do sada nisu sprovodila u osnovnim i srednjim školama u Srbiji.

Teorijski okvir

Ekokritika je, prema definiciji koja se najčešće citira, „proučavanje odnosa između književnosti i fizičke stvarnosti“ (Glottfelty, 1996: 18). Greg Gerard (Garrard, 2012; 2010) smatra da se ekokritika bavi pedagogijom od svojih začetaka, te naglašava da je inherentna obrazovna vrednost kontakta s prirodom već prisutna u tradiciji takozvanog pisanja o prirodi – *Nature Writing*. Dok se termin *ekopedagogija* ne odnosi isključivo na književnost, te zauzima stav koji je u većoj meri usmeren društvenokritički (Gaard, 2008; Misiaszek,

2015), *ekokritička pedagogija* se definiše kao pristup nastavi književnosti koji integriše principe ekokritike u obrazovnu praksu, naglašavajući ekološku osvešćenost, kritičko promišljanje odnosa čoveka i prirode, kao i etičku odgovornost prema životnoj sredini interpretacijom književnih tekstova. Drugi srodni termini, kao što su *pismenost o klimatskim promenama* (engl. *climate change literacy*) (Hoydis et al., 2023) i *književna kompetencija za održivost* (engl. *sustainable literary competence*) (Myren-Svelstad, 2020), takođe su posvećeni uključivanju ekoloških tema u podučavanje književnosti.

Polaznu tačku predstavlja ideja da književnost sa ekološkim temama može pozitivno uticati na čitaoce i doprineti razvoju ekološke svesti, iako to još uvek nije dokazano. Trenutno postoje teorijska razmatranja, kao i manji broj empirijskih studija na ovu temu (Malecki & Schneider-Mayerson, 2024; Martinez, 2024; Schneider-Mayerson, 2018), uglavnom sprovedenih među odraslim čitaocima van obrazovnog konteksta. Per Esben Miren-Svelstad (Myren-Svelstad, 2020) navodi da je, iz pedagoške perspektive, čest argument da nastava književnosti pomaže deci da postanu ekološki osvešćeni građani, ali da je potrebna detaljnija diskusija o odnosu podučavanja književnosti, etike i održivog razvoja. Autor izražava potencijalni problem vezan za takozvanu „altruističku paradigmu ekokritičke pedagogije“ (Myren-Svelstad, 2020: 3), jer altruistički stavovi, prema ekološkim izazovima, nisu sami po sebi dovoljni, a ukoliko književnost uspe da unapredi znanje ili pozitivne stavove, i dalje je neizvesno da li će se to odraziti na promene ponašanja u budućnosti. On dalje pojašnjava da indirektna iskustva sa životnom sredinom, uključujući obrazovni kontekst u učionici, značajno manje utiču na ljude u odnosu na direktna iskustva; on dalje navodi i da polisemija književnosti igra ključnu ulogu jer su reakcije čitalaca nepredvidive, te da kompetencije i dalje nisu definisane, tako da je pitanje šta književnost *može* da učini (Myren-Svelstad, 2020). Njegovo mišljenje je da se moć teksta ne nalazi u tome što bi čitaoci došli do konkretnih i konačnih zaključaka, već u tome što bi bili motivisani na konstantni proces postavljanja pitanja, razmišljanja i interpretacije (Myren-Svelstad, 2020). Roman Bartoš (Bartosch, 2019) na sličan način argumentuje da čitaoci ne uče *od* književnih tekstova, već bavljenjem njima. U monografiji *Pismenost o klimatskim promenama* (*Climate Change Literacy*, 2023) pojašnjava se da nije dovoljno komunicirati samo činjenicama, kao ni samo emocijama, kako bi se premostio jaz između uma (onoga što znamo) i ponašanja (onoga što praktično činimo), ali da primarna uloga ovakvog pristupa jeste razvoj kritičkog mišljenja putem čitanja različitih tipova književnih tekstova o klimatskim promenama (Hoydis et al., 2023). Greg Gerard (Garrard, 2017; 2010) takođe naglašava da, s obzirom na to da je održivost sama po sebi složena i kontradiktorna, obrazovanje za održivi razvoj u kontekstu proučavanja književnosti ne treba da propisuje striktno utvrđene ideje, već da pruži prioritet kritičkom mišljenju, te da fokus ne treba da bude na rupama u znanju ekologije, već na percepcijama, sistemima značenja i diskurzivnim pozicijama. U slučaju mlađe čitalačke publike, zbornik *Ekološka književnost za decu i mlade* (*Ökologische Kinder- und Jugendliteratur*, 2024) na nemačkom jeziku pruža slične smernice, naime, da cilj nije činjenična preciznost, već otvaranje pitanja i stvaranje perspektiva o zaštiti prirode, pošto je priroda sastavni deo dečje i omladinske književnosti, pa utiče na formiranje ideja o njoj bez obzira na to da li su eksplicitno prisutne ekološke teme (Goga et al., 2023; Goga et al., 2018; Mikota & Sippl, 2024).

Metodologija

Ciljevi istraživanja

Opšti cilj istraživanja bio je ispitivanje pogleda nastavnika književnosti na *zastupljenost* i *relevantnost* ekokritičke pedagogije u nastavi književnosti, kao temi koja se obrađuje u okvirima srpskog školskog sistema. Specifični ciljevi bili su da se istraže potencijalne razlike (1) prema obrazovnim nivoima (1–4. razred osnovne škole; 5–8. razred osnovne škole i srednja škola); (2) prema profesionalnom iskustvu nastavnika, kao i da se (3) analiziraju pogledi predavača na iskustva sa dosadašnjom implementacijom putem tematske obrade kvalitativnih podataka, a zatim i njihove percepcije mogućnosti i izazova vezanih za primenu ekokritičke pedagogije. Hipoteza istraživanja, izvedena na osnovu ciljeva, bila je da ekokritička pedagogija još uvek nije značajno zastupljena u srpskoj školskoj nastavi književnosti, ali da nastavnici ipak prepoznaju njen značaj.

Uzorak

Istraživanje je sprovedeno na uzorku od 213 nastavnika iz svih okruga Republike Srbije, a struktura uzorka predstavljena je u Tabeli 1. Sedamdeset i devet nastavnika (37.1%) zaposleno je u razrednoj nastavi u nižim razredima osnovne škole, 69 nastavnika (32.4%) predavalo je predmet Srpski jezik u višim razredima osnovne škole i 65 nastavnika (30.5%) bilo je angažovano u predmetnoj nastavi Srpskog jezika i književnosti u srednjoj školi (gimnazijama i stručnim školama). Na osnovu vrednosti statističke značajnosti za hi-kvadrat ($\chi^2 = 1.47$; $df = 2$; $p = .48$) zaključuje se da je uzorak ujednačen u odnosu na varijablu nivoa obrazovanja. Kad je reč o radnom stažu, 101 ispitanik (47.4%) radio je u trenutku istraživanja manje od 20 godina u nastavi, dok je 112 ispitanika (52.6%) imalo 20 ili više godina nastavnog iskustva. Ni u ovom slučaju hi-kvadrat nije statistički značajan ($\chi^2 = .57$; $df = 1$; $p = .45$), što ukazuje na to da je uzorak ujednačen i u odnosu na varijablu radnog iskustva.

Tabela 1
Struktura uzorka

Nivo obrazovanja		Frekvencija	Procenat
$\chi^2 = 1.47$ $df = 2$ $p = .48$	Osnovna škola – niži razredi	79	37.1
	Osnovna škola – viši razredi	69	32.4
	Srednja škola	65	30.5
	Ukupno	213	100.0
Radno iskustvo			
$\chi^2 = .57$ $df = 1$ $p = .45$	Manje od 20 godina iskustva u nastavi	101	47.4
	20 ili više godina iskustva u nastavi	112	52.6
	Ukupno	213	100.0

Napomena: χ^2 – hi-kvadrat, p – koeficijent statističke značajnosti.

Tehnike prikupljanja podataka

Ispitanici su odgovorili na opšta pitanja o okrugu u kome se nalazi škola u kojoj rade, obrazovnom nivou na kome su angažovani, razredima u kojima predaju književnost, kao i o radnom iskustvu u nastavi, a potom i na 16 pitanja kvantitativnog i kvalitativnog karaktera. Šest pitanja bilo je zasnovano na petostepenoj Likertovoj skali (od odgovora 1 – *uopšte ne* do 5 – *veoma*), osam pitanja podrazumevalo je višestruki izbor uz ponuđeni prostor za dodatne komentare, dok su 2 pitanja bila otvorenog tipa.

Na prikupljenom uzorku proverene su psihometrijske karakteristike instrumenta, pa su eksplorativnom faktorskom analizom (EFA) izdvojene 2 supskale: (1) *Zastupljenost* i (2) *Relevantnost ekokritičke pedagogije u srpskom školskom sistemu*, čime je objašnjeno 65.96% varijanse. Konfirmatorna faktorska analiza potvrdila je takvu strukturu ($CFI > 0.95$; $TLI > 0.9$; $RMSEA < 0.06$; $SRMR < 0.05$; i $NFI > 0.8$). Rezultati testa predstavljeni su kao prosečni, kako bi se stekla predstava o rasponu skale (1–5). Pouzdanost cele skale i subdimenzija bila je na zadovoljavajućem nivou za supskalu *Zastupljenost*, a pouzdanost je bila visoka za ukupan rezultat i za supskalu *Relevantnost* (ukupno $\alpha = .95$; *Zastupljenost* $\alpha = .70$; *Relevantnost* $\alpha = .97$).

Postupak istraživanja

Instrument istraživanja bio je upitnik napravljen ciljano za ispitivanje sprovedeno u jesen 2024. i leto 2025. godine. Podaci su prikupljeni onlajn, putem Gugl formulara, dok je upitnik podeljen mejlom i uz pomoć profesionalnih mreža nastavnika. Etički standardi su ispoštovani informisanjem ispitanika da je njihovo učešće dobrovoljno i anonimno, kao i da će se rezultati koristiti isključivo u naučne svrhe – konkretno, za preliminarno istraživanje zarad izrade predloga projekta o ekologiji u nastavi književnosti, za šta su dobijene saglasnosti etičkih komisija vezane za prikupljanje, analizu i skladištenje podataka.

U istraživanju je primenjen kombinovani pristup. Prvo su predstavljeni kvantitativni rezultati, a potom kvalitativna, tematska analiza. Tokom kvantitativne obrade podataka korišćena je aplikacija *Statistical Package for the Social Sciences*, verzija 26.0. Primenjene su deskriptivne (minimum, maksimum, aritmetička sredina i standardna devijacija) i inferencijalne statističke metode (neparametrijske tehnike, odnosno testovi Man-Vitni i Kruskal-Volis). Normalnost distribucije bila je proverena pomoću vrednosti skjunisa i kurtozisa i statističke značajnosti Kolmogorov-Smirnov testa. Pouzdanost skala merena je Kronbahovim alfa koeficijentom interne konzistencije, a validnost eksplorativnom i konfirmatornom faktorskom analizom.

Rezultati

Prikaz deskriptivnih podataka prikupljenih u sprovedenom istraživanju predstavljen je u Tabeli 2. Na osnovu vrednosti dobijenih iz empirijskih aritmetičkih sredina, uočava se da nastavnici smatraju da su pojmovi vezani za ekokritičku pedagogiju srednje visoko prisutni i relevantni u nastavi ($M = 3.68$; $SD = .84$). Prosečne vrednosti na supskalama

pokazuju da su nominalne vrednosti proseka više na supskali *Relevantnost* ($M = 3.89$; $SD = .98$) od vrednosti proseka na supskali *Zastupljenost* ($M = 2.60$; $SD = .93$). Takođe, nominalne vrednosti standardne devijacije su postavljene nešto više za *Relevantnost* u odnosu na *Zastupljenost*, što može ukazivati na veću varijaciju odgovora među nastavnicima u vezi sa percepcijama relevantnosti. Predočeno razmatranje biće dodatno obrazloženo u narednim postupcima provere razlika u odnosu na nivo obrazovanja na kojem nastavnici rade i u odnosu na njihovo nastavno iskustvo.

Tabela takođe sadrži podatke o proveru normalnosti odgovora ispitanika na ispitivanim supskalama. Iako vrednosti skjunisa i kurtozisa variraju u granicama prihvatljivog raspona za normalnu distribuciju, vrednosti statističke značajnosti Kolmogorov-Smirnov testa ($p < .01$) ukazuju da se distribucije statistički značajno razlikuju od normalne, pa su zato izabrani neparametrijski testovi za računanje razlike.

Tabela 2

Prikaz deskriptivnih rezultata istraživanja

	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Ku</i>	<i>p</i> K-S Test
Zastupljenost	1.00	4.67	2.60	.93	-.13	-.77	0.00
Relevantnost	1.00	5.00	3.89	.98	-.62	-.64	0.00

Napomena: *Min* – minimum, *Max* – maksimum, *M* – aritmetička sredina, *SD* – standardna devijacija, *Sk* – skjunis, *Ku* – kurtozis, *p* K-S – statistička značajnost Kolmogorov-Smirnov testa.

Na osnovu podataka iz Tabele 3 uočava se da postoji statistički značajna razlika između ispitanika koji rade na različitim nivoima obrazovanja – u nižim razredima osnovne škole, u višim razredima osnovne škole i u srednjoj školi – na varijabli *Zastupljenost* (27.61, $df = 2$, $p < .01$) i na varijabli *Relevantnost* (9.18, $df = 2$, $p < .05$). Kako bi se utvrdilo koji se tačno nivoi obrazovanja međusobno razlikuju, sprovedena je analiza predstavljena u narednoj tabeli.

Tabela 3

Varijacije u nivou izraženosti ispitivanih koncepata u odnosu na nivo obrazovanja

	Nivo obrazovanja	Prosečni rang	K-W Test	<i>p</i>
Zastupljenost	Osnovna škola – niži razredi	133.45	27.61	.00
	Osnovna škola – viši razredi	101.96		
	Srednja škola	80.20		
Relevantnost	Osnovna škola – niži razredi	120.04	9.18	.01
	Osnovna škola – viši razredi	109.03		
	Srednja škola	88.99		

Napomena: K-W – Kruskal-Voliss, *p* – koeficijent statističke značajnosti.

Analiza prikazana u Tabeli 4 pokazuje da je zabeležena statistički značajna razlika na supskali *Zastupljenost* između nastavnika razredne nastave u odnosu na razliku među nastavnicima starijih razreda osnovne škole (31.49, $p < 0.05$) i nastavnike srednjih škola (53.25, $p < .01$). Nastavnici razredne nastave, odnosno učitelji, izveštavaju da je sadržaj ekokritičke pedagogije zastupljeniji u nižim razredima osnovne škole nego što o tome izveštavaju nastavnici viših razreda osnovne škole i nastavnici srednjih škola. Takođe, učitelji smatraju da je sadržaj ekokritičke pedagogije u nastavi bitniji nego što to smatraju nastavnici srednjih škola.

Tabela 4

Uporedna analiza razlika po nivou obrazovanja na ispitivanim varijablama supskala Zastupljenost i Relevantnost

Nivo obrazovanja	Test statistik	p
Supskala 1 – Zastupljenost		
Srednja škola-Osnovna škola (viši razredi)	21.76	.12
Srednja škola-Osnovna škola (niži razredi)	53.25	.00
Osnovna škola (viši razredi)-Osnovna škola (niži razredi)	31.49	.01
Supskala 2 – Relevantnost		
Srednja škola-Osnovna škola (viši razredi)	20.04	.18
Srednja škola-Osnovna škola (niži razredi)	31.05	.01
Osnovna škola (viši razredi)-Osnovna škola (niži razredi)	11.02	.83

Napomena: p – koeficijent statističke značajnosti.

Upoređena su mišljenja nastavnika o relevantnosti ishoda učenja o ekološkim temama prema nivou obrazovanja. Uočene su statistički značajne razlike kod ishoda: *razvoj ekološke svesti* (9.17, $p < .05$), *prepoznavanje ekoloških izazova današnjice* (7.19, $p < .05$) i *razumevanje čovekovog uticaja na prirodni svet* (6.28, $p < .05$). U svim navedenim slučajevima, nastavnici srednjih škola smatraju ove ishode manje relevantnim u odnosu na nastavnike osnovne škole, a pre svega u odnosu na učitelje. Posebna pažnja posvećena je ishodu *razvoj kritičkog mišljenja*, gde nije uočena razlika, što znači da svi nastavnici podjednako vrednuju ovaj ishod. U proseku su označili ishod kao vrlo relevantan ($M = 4.05$, $SD = 1.12$).

Na osnovu vrednosti statističke značajnosti za Man-Vitni test, prikazan u Tabeli 5, uočava se da ne postoje statistički značajne razlike između nastavnika koji rade kraće od 20 godina i nastavnika koji u nastavi rade 20 godina ili duže.

Tabela 5

Uporedna analiza razlika po nastavnom iskustvu ispitanika

	Radno iskustvo u nastavi	Prosečni rang	Man–Vitni U	<i>p</i>
Zastupljenost	Manje od 20 godina	102.14	5165.50	.27
	20 ili više godina	111.38		
Relevantnost	Manje od 20 godina	100.88	5037.50	.17
	20 ili više godina	112.52		

Napomena: p – koeficijent statističke značajnosti.

U kvalitativnom delu studije su analizirani tekstualni odgovori nastavnika, kako bi se stekli detaljniji uvidi u njihove poglede na zastupljenost i relevantnost ekokritičke pedagogije u srpskom školskom sistemu.

Iskustva nastavnika sa ekokritičkom pedagogijom

Samo 5.63% nastavnika navelo je da je pohađalo stručno usavršavanje o ekokritici, a 1.88% istraživao je samostalno na ovu temu, dok većina (92.49%) nije pohađala nikakva usavršavanja. Mali broj nastavnika izveštava da je primenjivao ekokritičku pedagogiju, najčešće u okviru projekata (npr. *Ugasi svetlo*), vannastavnih aktivnosti ili analize likova koji su ekološki osvešćeni (npr. Astrov u Čehovljevoj drami *Ujka Vanja* ili Ljevin u Tolstojevom romanu *Ana Karenjina*). Kao primerene metode najčešće su izdvajali ambijentalnu nastavu (78.9%), korišćenje multimedijalnih sadržaja (61%) i projektno učenje (55.9%), a dodatno su predložili i glumu, takmičenja, ekološke akcije i pisanje izveštaja.

Odabir tekstova za ekokritičku pedagogiju

Nastavnicima je postavljeno pitanje da li bi mogli da identifikuju tekstove iz programa koji bi bili adekvatni za ekokritička čitanja u nastavi. Dvadeset i četiri nastavnika odgovorilo je da ne može, dok je jedan nastavnik srednje škole naveo da se u romantičarskim i modernističkim tekstovima opisuje priroda, ali da nisu ekološki. Potvrдно je odgovorilo 84 nastavnika, koji su izdvojili 70 različitih tekstova, pri čemu su u Tabeli 6 predstavljeni književni tekstovi koje su najčešće predlagani. Prilikom analize, korišćeni su zvanični programi za osnovne i srednje škole u Srbiji (Pravilnik o planu nastave i učenja za prvi ciklus osnovnog obrazovanja i vaspitanja..., 2017; Pravilnik o planu nastave i učenja za peti i šesti razred osnovnog obrazovanja i vaspitanja..., 2018; Pravilnik o programu nastave i učenja za drugi razred osnovnog obrazovanja i vaspitanja, 2018; Pravilnik o programu nastave i učenja za treći razred osnovnog obrazovanja i vaspitanja, 2019; Pravilnik o programu nastave i učenja za sedmi razred osnovnog obrazovanja i vaspitanja, 2019; Pravilnik o programu nastave i učenja za četvrti razred osnovnog

obrazovanja i vaspitanja, 2019; Pravilnik o programu nastave i učenja za osmi razred osnovnog obrazovanja i vaspitanja, 2019, Pravilnik o planu i programu nastave i učenja za gimnaziju, 2020; Pravilnik o programu nastave i učenja opšteobrazovnih predmeta u stručnim školama, 2023). Relevantno je napomenuti da su u programima za osnovnu

Tabela 6

Književni tekstovi iz zvaničnih programa koje je navelo 3 ili više nastavnika

Razred	Književni tekst(ovi) (Broj nastavnika)	Vrsta	Teme
1. (OŠ)	Tode Nikoletić, <i>Šuma život znači</i> (18)	Drama	Očuvanje šuma kao prirodnog staništa životinja
4. (OŠ)	Desanka Maksimović, <i>Paukovo delo</i> (3)	Poezija	Poštovanje prirode i empatija prema ahumanim bićima i njihovom radu
5. (OŠ)	Grozdana Olujić, <i>Mesečev cvet</i> (4)	Umetnička bajka	Magija i tajnovitost prirode i otuđenje dece od nje tokom odrastanja u urbanom okruženju
5. (OŠ)	Desanka Maksimović, <i>Srebrne plesačice i Pokošena livada</i> (3)	Poezija	Vitalnost biljaka tokom zime i čovekov uticaj na prirodu
6. (OŠ)	Anđela Naneti, <i>Moj deka je bio trešnja</i> (<i>Mio nonno era un ciliegio</i>) (12)	Roman	Povezanost prirode (drveća) i različitih generacija ljudi, kao i njihovih sećanja
6. (OŠ)	Stevan Raičković, <i>Hvala suncu, zemlji, travi</i> (7)	Poezija	Zahvalnost na prirodi i svest o (našem mestu u) njoj
6. (OŠ)	Italo Kalvino, <i>Šuma na auto-putu</i> (<i>Il bosco sull' autostrada</i>) (3)	Kratka priča	Otuđenje savremenih ljudi od prirode u urbanom okruženju
7. (OŠ)	Petar Kočić, <i>Kroz mećavu</i> (5)	Pripo- vetka	Nemilosrdnost prirode i ljudska borba protiv surovih uslova u prirodi
2. (SŠ)	Lav Nikolajevič Tolstoj, <i>Ana Karenjina</i> (<i>Anna Karenina</i>) (3)	Roman	Povezanost lika Ljevina sa prirodom (npr. kroz poljoprivredu), kao i tenzija između ruralnog i urbanog života
3. (SŠ)	Anton Čehov, <i>Ujka Vanja</i> (<i>Дядя Ваня</i>) (6)	Drama	Zaštita prirode u kojoj lik doktora Astrova vidi smisao
3. (SŠ)	Ivo Andrić, <i>Na Drini ćuprija</i> (3)	Roman	Interakcija između konstrukcija koje je stvorio čovek (most) i dinamike prirode (reka Drina), nemilosrdnost prirodnih fenomena (npr. poplava), kao i (ekološke) vremenske skale koje prevazilaze individualne ljudske živote

Napomena: OŠ – osnovna škola, SŠ – srednja škola.

školu zastupljeniji tekstovi nacionalne književnosti, dok tekstovi inostranih autora predstavljaju manje od jedne desetine tekstova, a u srednjim školama je lektira organizovana hronološki, prema književnoistorijskim principima, i obuhvata kanonske tekstove nacionalne i svetske književnosti (Varnica i Tokin, 2024).

Potrebno je napomenuti i da je šest nastavnika izdvojilo i pripovetku *Jabuka na drumu* Veljka Petrovića, koja je ranije bila deo programa za 7. razred osnovne škole i obrađuje temu ljudske (ne)zahvalnosti prema drvetu jabuke koje nesebično pruža plodove.

Tabela 7

Tematska analiza komentara nastavnika vezanih za uvođenje većeg broja književnih tekstova s ekološkim temama u programe

Teme	Kategorije	Kodovi
Pozitivna mišljenja i podrška;	Jasna podrška (38);	Da; Naravno;
	Ekološko obrazovanje i osvešćenost (28);	Razvijanje ekološke svesti; Razvijanje osećaja odgovornosti;
	Nastavni, odnosno programski aspekti (10);	Osavremenjivanje nastave i nastavnih programa; Povezivanje s drugim predmetima; Povezivanje sa svakodnevnim iskustvima van učionice;
	Motivacija i razvijanje kompetencija učenika (8);	Motivisanje učenika; Praćenje interesovanja učenika; Razvijanje kritičkog mišljenja; Prevenција skepticizma o klimatskim promenama; Ohrabrivanje ekološkog aktivizma;
Uslovna podrška;	Umetnički i didaktički kriterijumi (2);	Novi književni tekstovi moraju imati izraženu umetničku vrednost; Novi književni tekstovi moraju biti prilagođeni uzrastu;
Negativna mišljenja;	Ograničenost planova i programa (9);	Nastavni programi su preopterećeni; Učenici su preopterećeni;
Neodlučnost	Nedovoljno informacija (4)	Nedovoljna upoznatost sa ekokritičkom pedagogijom

Nastavnicima je postavljeno pitanje da li bi podržali uvođenje većeg broja književnih tekstova sa ekološkim temama, te je analiza njihovih dodatnih komentara prikazana u Tabeli 7.

Pozitivne promene uočene kod učenika

Komentare o promenama uočenim kod učenika nakon razmatranja ekoloških aspekata književnih tekstova imalo je 87 nastavnika, budući da je pitanje bilo neobavezno.

Većina nastavnika istakla je veću *ekološku osvešćenost* (31.03%), *motivaciju i angažovanost* (21.84%), *empatiju prema prirodi* (13.79%), *proekološko ponašanje* (13.79) i *kritičko mišljenje* (9.20%). Devet nastavnika izvestilo je da nije uočilo značajne promene, čemu su kao razloge naveli nedostatak predznanja (1.15%), nedostatak praktične primene (5.75%), ili nedovoljnu zastupljenost u programima (3.45%). Ipak, ovi rezultati nisu odraz sistemske uključenosti ekokritičke pedagogije, već percepcija nastavnika nakon sporadičnih razgovora o ekološkim temama u okvirima nastave književnosti.

Izazovi ekološki osvešćene nastave književnosti

Većina nastavnika (61.98%) navela je da je glavni izazov nedostatak upoznatosti sa temom i oblašću ekokritičke pedagogije. Drugi značajni izazovi uključivali su to što tekstovi nisu primereni uzrastu ili interesovanjima učenika (18.9% i 18.3%). U dodatnim komentarima istakli su nedostatak adekvatnih tekstova u programima (5.16%), manji broj pokušaja da se ekokritika primeni u nastavi (6.57%), problem složenosti usaglašavanja ekoloških ishoda učenja s književnom interpretacijom (0.47%), kao i neophodnost integrativnog, interdisciplinarnog pristupa, koji zahteva puno vremena (0.47%).

Podrška neophodna za implementaciju ekokritičke pedagogije

Nastavnicima je postavljeno pitanje šta bi im bilo od pomoći za primenu ekokritičke pedagogije u nastavi književnosti. Najčešće su navodili veći izbor književnih tekstova (61%), zatim posete autora i prevodilaca književnih tekstova s ekološkim temama (54.5%), posete stručnjaka za ekologiju (49.8%), mogućnosti za izlete u prirodi i ambijentalnu nastavu (49.8%), stručno usavršavanje (32.9%) i metodički priručnik (29.1%). Troje nastavnika (1.41%) izrazilo je stav da nisu zainteresovani za ekokritičku pedagogiju, te da ekologiji nije mesto u nastavi književnosti.

Diskusija

Deskriptivna analiza razotkrila je razlike u percepcijama nastavnika o zastupljenosti i relevantnosti ekokritičkog pristupa u srpskom obrazovnom sistemu. Prosečno mišljenje nastavnika jeste da je sam pristup relevantniji nego što je trenutno prisutan u nastavi. Njihove perspektive ukazuju na jaz između obrazovne prakse i potencijala ekokritičke pedagogije, budući da su svesni pedagoške vrednosti integrativnog, interdisciplinarnog pristupa ekologiji, koji još uvek nije sistematično integrisan u nastavu književnosti, te su se postojeća istraživanja primarno fokusirala na povezivanje obrazovanja za održivi razvoj s prirodnim naukama – biologijom, geografijom, hemijom, fizikom – i matematikom (Niklanović, 2015; Stanišić, 2015). Mišljenja nastavnika književnosti bila su ohrabrujuća i oslikavaju nastavnike kao aktivne i kritički nastrojene tumače nastavnih programa. Ipak, 6 nastavnika navelo je i tekst koji više nije u programu, premda bi uistinu bio primeren za ekokritičko čitanje, što ukazuje na potencijal za buduća

istraživanja; to uključuje i ispitivanje upoznatosti nastavnika sa programima i njihove spremnosti da ih modifikuju kako bi uključili savremene teme kao što je ekološka svest, prateći primere dobre prakse iz drugih evropskih zemalja navedene ukratko u teorijskom okviru.

Kako bi se stekao detaljniji uvid u razlike dobijene deskriptivnom analizom, odgovori nastavnika upoređeni su prema obrazovnim nivoima na kojima su angažovani, kao i prema godinama nastavnog iskustva. Analiza po nivoima obrazovanja pokazala je da postoji statistički značajna razlika u poimanju zastupljenosti i relevantnosti ekokritičke pedagogije, što je u skladu sa prvim specifičnim ciljem istraživanja i potvrđuje postavljenu hipotezu. Rezultati ukazuju na to da se učitelji izdvajaju prema percepcijama oba koncepta, što se može povezati s činjenicom da u nastavi predaju sve predmete, uključujući i one o očuvanju životne sredine – Svet oko nas, Priroda i društvo, kao i izborni predmet Čuvari prirode, stoga, stalno uspostavljaju korelacije između različitih predmeta i vannastavnih aktivnosti (Minić & Jovanović, 2019). U skladu s time, učitelji su takođe smatrali da su opšti ekološki ishodi učenja značajniji u nastavi književnosti u odnosu na to kako su ih percipirali predmetni nastavnici književnosti u višim razredima osnovne škole i u srednjim školama. Međutim, svi nastavnici su identifikovali razvoj kritičkog mišljenja kao značajan ishod, a to je primetno ukoliko sagledamo visoku prosečnu ocenu na skali, što se podudara s teorijskim perspektivama koje postavljaju kritičko mišljenje kao centralno za ekokritičku pedagogiju (Garrard, 2017; 2010; Hoydis et al., 2023; Myren-Svelstad, 2020).

Drugi specifični cilj koji se odnosio na uporednu analizu mišljenja prema godinama iskustva u nastavi nije potvrđen, budući da nisu uočene značajne razlike, što ukazuje na to da nastavno iskustvo samo po sebi nije u korelaciji sa percepcijama nastavnika, niti predstavlja ograničenje za (buduću) primenu.

Analiza kvalitativnih podataka pokazala je da je glavno ograničenje to što nastavnici nisu u dovoljnoj meri upoznati s ekokritičkom pedagogijom, s obzirom na to da ne postoje mogućnosti za stručno usavršavanje, niti smernice u programima, a to je u skladu sa postojećim tendencijama da se svet i životna sredina interpretiraju na redukcionistički način, podeljeno na odvojene predmete i izolovane fenomene, umesto kroz prizmu međupovezanosti, odnosno korelacija i problemske nastave (Andevski, 2016). Štaviše, neophodno je napomenuti da ni studije namenjene obrazovanju nastavnika (do sada) nisu ponudile pripremu za integrisanje ekoloških sadržaja u nastavu književnosti, što je zapravo slučaj i u Norveškoj, gde je istraživanje takođe pokazalo da su nastavnici-pripravnici tek nakon učestvovanja u projektu vezanom za ekokritiku počeli da osećaju veću samouverenost po pitanju primene ekološkog obrazovanja i vaspitanja u nastavi književnosti (Guanio-Uluru, 2019). Svakako, 84 nastavnika u preliminarnoj studiji u Srbiji identifikovalo je mogućnosti za integraciju ekoloških tema na osnovu književnih tekstova iz postojećih programa (npr. *Šuma život znači* ili *Moj deka je bio trešnja*), iako to ne znači nužno da poseduju temeljnije znanje o ekokritičkoj pedagogiji. Isti broj nastavnika izrazio je pozitivne stavove prema uvođenju dodatnih tekstova s ekološkim temama, što je bilo u skladu s njihovim odgovorima da bi glavna neophodna podrška bila širi izbor ponuđenih tekstova naznačenih u programima.

Naposletku, nastavnici su izvestili o potencijalnim promenama koje su uočili kod učenika nakon razgovora o ekološkim temama u nastavi književnosti, što bi se moralo tumačiti sa izvesnom merom opreza, jer se radilo o sporadičnim pominjanjima u nastavi. Ovi ishodi bili su uglavnom vezani za povećanu ekološku svest, veće interesovanje za ekološke teme, izražavanje empatije prema prirodi (često pominjanjem kućnih ljubimaca učenika) i proekološko ponašanje, koje uključuje reciklažu, izbegavanje bacanja otpada po učionici i dvorištu ili organizovanje ekoloških akcija u školi. Kao što je spomenuto u teorijskom okviru, većina empirijskih studija o posledicama čitanja ekološke književnosti sprovedena je s odraslim ispitanicima van školskog konteksta. Ipak, postoje manja pojedinačna istraživanja o eksperimentalnim lekcijama, projektima i inicijativama za obrazovanje nastavnika, koja ukazuju na slične ishode u vidu povećanog interesovanja i angažmana učenika (Lima et al., 2021), proekološkog ponašanja kao što je sadnja drveća (Carballal Miñán, 2023), te i na potencijal da se podstaknu ekološka svest i empatija (Campagnaro & Ferrari, 2024).

Zaključak

Preliminarno istraživanje o ekokritičkoj pedagogiji u srpskim osnovnim i srednjim školama ukazuje na to da nastavnici poseduju osnovne ideje o ekološki osvešćenoj nastavi književnosti i želju da je primene, premda je potrebno više podrške. Iako mnogi nastavnici smatraju da je obrada ekoloških tema u književnosti relevantna, ekokritički pristup retko je centralan u standardnim književnim interpretacijama i uglavnom je primenjivan u vannastavnim kontekstima, što je zahtevalo da nastavnici ulože dodatan trud i vreme. Svest i primena bili su najviši među nastavnicima razredne nastave, a najniži među nastavnicima srednjih škola, što ukazuje na potencijal za dalja istraživanja, a naročito u srednjim školama stručnih usmerenja (uključujući poljoprivredne, šumarske itd). Naredni koraci koje treba preduzeti moraju imati fokus na upoznavanju većeg broja nastavnika sa ekokritičkom pedagogijom, kao i na istraživanju dugoročnih posledica obrada ekoloških tema u školskoj nastavi književnosti.

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Uloga pedagoga u rekoncipiranju pripravničko-mentorske prakse u predškolskoj ustanovi: prikaz akcionog istraživanja

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Apstrakt

U svetlu pokušaja koncipiranja uloge pedagoga u predškolskoj ustanovi kao liderske uloge u procesu uvođenja i održavanja promene, rad prikazuje delovanje pedagoga u domenu podrške profesionalnom razvoju vaspitača, i to kroz prikaz rekoncipiranja pripravničko-mentorske prakse u Predškolskoj ustanovi. Profesionalni razvoj vaspitača, koji obuhvata i proces uvođenja u posao, odvija se u zajednici i oblikovan je kulturom ustanove dok istovremeno može uticati na promenu kulture. Rad prikazuje akciono istraživanje pokrenuto od strane praktičarke-pedagoškinje, sprovedeno u Predškolskoj ustanovi „Dr Sima Milošević“ u Zemunu, u periodu od septembra 2022. do maja 2025. godine. Predmet istraživanja jesu program i praksa uvođenja pripravnika vaspitača u posao, kao okosnica uspostavljanja i razvijanja refleksivne prakse u zajednici učenja u ustanovi. Istraživanje osvetljava izazove u implementaciji programa orijentisanog ka uspostavljanju refleksivne prakse u zajednici učenja i ukazuje na moguće strategije za prevazilaženje izazova. Zaključci pokazuju da postignute promene u sistemu znanja, umenja i vrednosti, kako na nivou pojedinaca tako i na nivou zajednica učenja i zajednice prakse, doprinose unapređivanju kvaliteta realnog programa. Redefinisanje uloga praktičara i odnosa moći u Programu i u istraživanju produbili su osećaj osnaženosti kod vaspitača, kao odnos poverenja i podrške između stručnih saradnika i vaspitača. Rekoncipiranje pripravničko-mentorske prakse, kao planski uvedena promena u obrazovnu praksu postavilo je temelje za dalje razvijanje refleksivne prakse u zajednici učenja u Predškolskoj ustanovi. Održivost pokrenute promene zavisiće od doslednosti u razvoju prakse, ali i daljih težnji ka sistemskom utemeljenju kroz institucionalizaciju novih obrazaca rada i kroz širenje u sistemu putem dalje diseminacije i umrežavanja sa drugim ustanovama i praksama.

Ključne reči: predškolski pedagog, profesionalni razvoj, akciono istraživanje, zajednica učenja, refleksivni praktičar.

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Uvod

Uloga stručnog saradnika – pedagoga sagledana kroz prizmu savremenih programskih koncepcija, kakva je koncepcija na kojoj se temelje „*Godine uzleta*“ (Godine uzleta, 2019), prevazilazi prethodno uspostavljenu administrativno-evaluatorsku funkciju i može se razumeti kao liderska uloga u procesu uvođenja i održavanja promene (Krnjaja i sar., 2023). Pedagog svojim profesionalnim delovanjem oblikuje obrazovnu paradigmu, odnosno doprinosi stvaranju (ne)koherentnog sistema znanja i značenja u praksi predškolskog vaspitanja. Kako bi se uspostavio koherentni sistem znanja i odnosa značenja i razumevanja, potrebno je kontinuirano preispitivanje vrednosti koje oblikuju profesionalno delovanje svih praktičara. Terminom „praktičar“ podrazumevamo stručne saradnike i vaspitače, a termin „vaspitač“ odnosi se i na medicinske sestre-vaspitače (Godine uzleta, 2019:11).

Obrazovna paradigma obuhvata lična uverenja i vrednosti praktičara, koja direktno usmeravaju njihovo ponašanje i način na koji razvijaju praksu (Čamber Tambolaš & Vujičić, 2023), i ta lična uverenja mogu biti (ne)usklađena sa uverenjima i vrednostima na kojima se temelji programska koncepcija. Promene u praksi i kulturi predškolske ustanove (u daljem tekstu će se pod terminom „ustanova“ podrazumevati predškolska ustanova) stoga ne mogu biti održive bez preispitivanja i transformacije ovih uverenja, i filozofije obrazovanja koju praktičari zastupaju (Fullan, 2007).

Pedagog ima važnu ulogu u stvaranju uslova za profesionalno učenje koje vaspitačima omogućava sticanje novih uvida i znanja, prilagođavanje i promenu stilova rada, ali i modifikaciju temeljnih vrednosti i stavova (Čamber Tambolaš & Vujičić, 2019). Ovaj proces ne može biti individualan, već zahteva promenu na nivou cele obrazovne zajednice, uključujući i rukovodstvo, stručne saradnike, roditelje i ostalo osoblje, budući da upravo međuljudski odnosi i svakodnevna komunikacija grade stvarnu kulturu ustanove (Vujičić & Čamber Tambolaš, 2019).

U ovom radu će uloga pedagoga biti prikazana kroz njegovo delovanje u domenu podrške profesionalnom razvoju praktičara, i to kroz prikaz razvijanja i implementacije Programa uvođenja u posao pripravnika vaspitača (u daljem tekstu „Program“). Pomenuti program, razvijan u predškolskoj ustanovi „Dr Sima Milošević“ u Zemunu (u daljem tekstu „Ustanova“), može se razumeti kao lokalizovani pokušaj promene pristupa obrazovanju, saglasno savremenim tumačenjima prema kojima se pomenuti pristup definiše kao koherentan korpus profesionalnih znanja, vrednosti i praksi, koji se kolektivno uspostavlja i institucionalno prenosi (Krnjaja i sar., 2023). Ne samo da ovaj program teži uvođenju novih sadržaja i metoda rada sa pripravniciima već je osmišljen tako da utiče na sve tri dimenzije koje Fullan (Fullan, 2007) prepoznaje kao ključne za suštinsku promenu obrazovne prakse: (1) primenu novog programa, (2) upotrebu novih strategija i aktivnosti u okviru programa, i (3) promenu uverenja i pedagoških pretpostavki praktičara. Polazeći od toga, uloga pedagoga u ovom procesu biće predstavljena kao „liderstvo u procesu promene“ (Krnjaja i sar., 2023).

Pomenuti Program razvijan je u toku 2.5 godine (9. 2022. – 5. 2025.) i ne možemo ga svesti na izolovanu inovaciju u praksi, već se može razumeti i prikazati kao okosnica promene pristupa, odnosno, promene koja uključuje kolektivno preuzimanje odgovornosti za razvijanje i održavanje nove profesionalne kulture u ustanovi.

Kontekstualno-konceptualni okvir istraživanja

Uvođenje *Godina uzleta* (2019) predstavlja ključnu tačku u rekoncepiranju prakse predškolskog vaspitanja i obrazovanja u Srbiji, pa time i u transformaciji uloga vaspitača i stručnih saradnika. Profesionalne uloge vaspitača i stručnih saradnika u predškolskim ustanovama jasno su određene kroz važeće pravilnike (Pravilnik o standardima kompetencija za profesiju vaspitača i njegovog profesionalnog razvoja, 2018; Pravilnik o standardima kompetencija za profesiju stručnog saradnika u predškolskoj ustanovi i njegovog profesionalnog razvoja, 2021).

Ipak, usaglašavanje prakse sa postavljenim okvirima i dalje ostaje zahtevan proces, uprkos različitim oblicima podrške koji su pružani praktičarima. Način na koji se program sprovodi u značajnoj meri zavisi od profesionalne spremnosti i angažovanosti praktičara. Upravo je iz tog razloga suštinski značajno da podrška profesionalnom razvoju svakog praktičara bude osmišljena tako da podstiče angažovanje u složenom i promenljivom kontekstu, uz oslanjanje na savremena saznanja o deci i detinjstvu, kao i na relevantne teorijske postavke koje prate važeće Osnove programa jedne zemlje (Slunjski & Lančić, 2022).

Akciono istraživanje započeto u septembru 2022. godine realizovano je u kontekstu koji je u značajnoj meri oblikovan realizacijom programa obuke *SNOP – Stručni saradnici kao nosioci promene* (Pavlović Breneselović i Krnjaja, 2021, prema: Krnjaja i sar., 2023), kojima je u periodu 2021-2022. bilo obuhvaćeno 268 stručnih saradnika iz predškolskih ustanova. Ovaj program, usmeren na osnaživanje stručnih saradnika za iniciranje i vođenje promena u predškolskoj praksi, vodi preispitivanju uloge pedagoga u ustanovi. Uvidi koji su ponuđeni kroz tematske celine obuke, kao i putem prostora za refleksiju o praksi, otvorili su mogućnost za iskorak ka promenama u razumevanju i rekoncepiranju profesionalnog razvoja vaspitača kao zajedničkog procesa učenja i promene kulture ustanove.

Stručno usavršavanje (kao element profesionalnog razvoja vaspitača) predstavlja ključni korak ka unapređenju kvaliteta vaspitno-obrazovnog rada i razvoja profesionalne kulture u okviru predškolske ustanove. Međutim, stručno usavršavanje vaspitača nije samo njihova odgovornost, već je potrebno da u tom domenu pedagog deli odgovornost sa vaspitačima. Kao što se od vaspitača očekuje da kreiraju podržavajuće okruženje u kojem deca uče kroz odnose, igru i aktivno učešće u različitim situacijama, isto tako je važno da stručni saradnici kreiraju sličnu atmosferu među vaspitačima, odnosno, da kreiraju prostor u kojem će oni imati priliku da uče kroz zajednički rad, razmenu ideja i promišljanje o sopstvenoj praksi (Vujičić & Čamber Tambolaš, 2017a).

Uvođenje pripravnika vaspitača u posao, odnosno pripravničko-mentorska praksa, zakonski je uređena pravilnikom (Pravilnik o dozvoli za rad nastavnika, vaspitača i stručnih saradnika, 2022) kojim se definišu uloge pripravnika i mentora, kao i pitanje ispunjenosti formalnih uslova za izlazak na ispit čijim polaganjem praktičari dobijaju licencu za samostalno obavljanje vaspitno-obrazovnog rada. Odgovornost za organizovanje pripravničko-mentorske prakse formalno ima direktor ustanove.

Bliže određenje pripravničko-mentorske prakse možemo pronaći u dokumentu *Vodič za vaspitače u predškolskim ustanovama – Mentorstvo* (Mentorstvo..., 2025), u kojem se mentori-vaspitači imenuju kao „važan resurs za učenje pripravnika“ (Mentorstvo..., 2025:5), dok se drugi akteri (posebno stručni saradnici i direktori) pominju kao oni koji bi trebalo da budu uključeni u proces i dele odgovornost za realizaciju pripravničko-mentorske prakse u svojim ustanovama. Ovako formulisano, mentorstvo je u vrednosnom smislu zasnovano na modelu prenošenja znanja sa „resursa“ ka „korisniku“, što ne korespondira sa teorijskim polazištima Osnova programa (Godine uzleta, 2019), u kojima je naglašena važnost međuzavisnosti, refleksivnosti i participacije u zajednici učenja.

Pomenuti Vodič (Mentorstvo..., 2025) predstavlja iskorak u domenu obrazovne politike zato što, za razliku od prethodnog Vodiča (Mentor i pripravnik..., 2009, 2012), kojim se pripravničko mentorska praksa definiše kroz iste okvire za kontekst predškolske ustanove i škole, pokušava da pripravničko-mentorsku praksu učini smislenom za kontekst predškolskog vaspitanja i obrazovanja i profesiju vaspitača, koji se razlikuje od školskog konteksta i profesije učitelja i nastavnika. Međutim, ono što još uvek izostaje jeste ne samo liderska uloga već i jasno definisana profesionalna odgovornost stručnog saradnika u poslu stručnog usavršavanja vaspitača, kroz pripravničko-mentorsku praksu, kao i potencijal za razvijanje refleksivne prakse u zajednici učenja, kroz sistemski pristup uvođenju pripravnika vaspitača u posao.

Metodologija istraživanja

Ovo istraživanje usmereno je na promenu u praksi koja je predmet istraživanja (promena pristupa u programu i praksi uvođenja pripravnika vaspitača u posao), što ga jasno određuje kao akciono istraživanje. Akciono istraživanje izranja iz prakse i podrazumeva sprovođenje akcije sa ciljem postizanja promene, a od istraživača/praktičara zahteva da bude refleksivni proaktivni praktičar koji na temeljima svojih uvida preduzima dalje akcije kako bi unapredio praksu (Pavlovski, 1989; Pešić, 1989; Kemmis & McTaggart, 2005; Mukherji & Albion, 2015).

Za potrebe prikaza faza ovog istraživanja iskoristićemo šemu (Šema 1) koja sadrži i grafički prikaz, preuzet u prevedenom izdanju (Kemmis & McTaggart, 2005, prema: Malović & Stojanović, 2018).

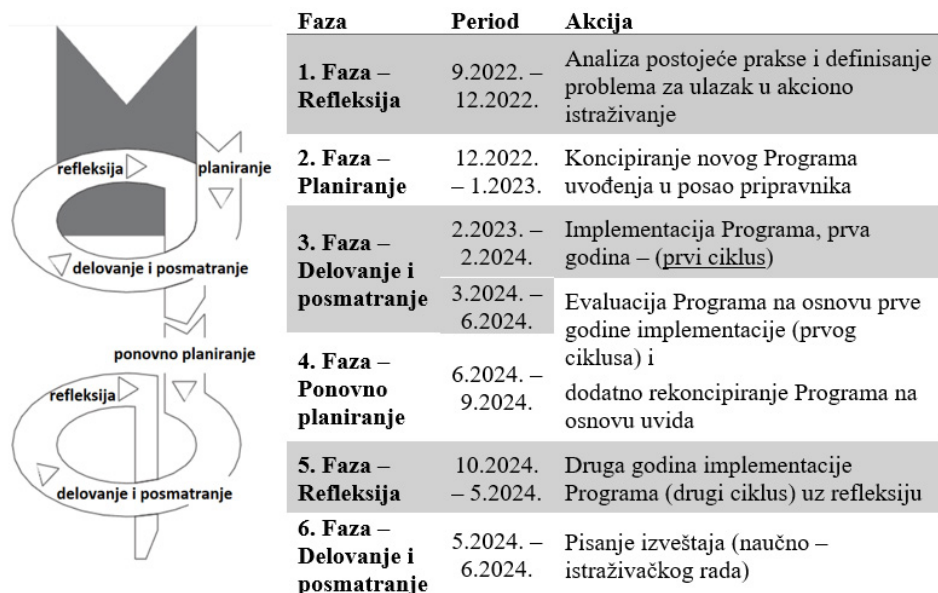
Pored promene prakse, akciona istraživanja zahtevaju i aktivno uključivanje praktičara i promenu značenja, kako na subjektivnom tako i na kolektivnom nivou (Pešić, 1989). Ovo istraživanje pokrenula je stručna saradnica-pedagoškinja, ali su u njemu aktivno učestvovali druge stručne saradnice i vaspitačice.

U prvoj godini implementacije Programa (prvom ciklusu) bilo je 26 pripravnica (30 na početku programa, ali ih je 4 odustalo), dok je drugi ciklus okupio njih 35 (40 na početku, ali ih je 5 odustalo). U prvom ciklusu je Program (od februara, 2023. do februara, 2024. godine) implementirao tim stručnih saradnica koji su činile 4 pedagoškinje i 2 psihološkinje, dok se timu u drugom mesecu implementacije u drugom ciklusu (od septembra, 2024., do kraja istraživanja) pridružila još jedna pedagoškinja. U toku pisanja

ovog rada, implementacija drugog ciklusa i dalje traje za grupu od 35 pripravnica i njihovih mentorki. U junu 2025. godine je istraživačica i autorka rada napustila radno mesto stručnog saradnika-pedagoga u Ustanovi u kojoj je Program implementiran, te rad sadrži uvide stečene do tada.

Šema 1

Prikaz faza akcionog istraživanja



Prikupljanje podataka podrazumevalo je dokumentovanje procesa (izveštavanje i planiranje kroz dokumenta ustanove, sačinjavanje izveštaja o realizaciji različitih koraka – sastanaka, aktivna, fokus grupa beleženje uvida praktičara, sačinjavanje beleški istraživača). Podaci do kojih smo došli u ovom istraživanju ne predstavljaju nalaze našeg istraživanja, već, u skladu sa prirodom akcionog istraživanja (Pešić, 1989), čine sistematski prikupljeni materijal za sledeću fazu u istraživačkom ciklusu.

Prikaz akcionog istraživanja kroz faze

Ulazak u akciono istraživanje

Na početku radne 2022/2023. godine, Ustanova je brojala 252 vaspitne grupe u 33 objekta, a posao stručnih saradnika obavljalo je ukupno 8 stručnih saradnika različitih

profila (Godišnji plan rada predškolske ustanove „Dr Sima Milošević“ u radnoj 2021/2022). Kada se uzmu u obzir zakonom predviđeni uslovi u pogledu zaposlenih (Pravilnik o bližim uslovima za osnivanje, početak rada i obavljanje delatnosti predškolske ustanove, 2023), vidljivo je da je Ustanova funkcionisala sa 8 umesto 10 stručnih saradnika, te da je svaki saradnik bio prosečno opterećen 30% više u odnosu na predviđeni normativ usled nedovoljnog broja zaposlenih.

U opisanim uslovima je svaka stručna saradnica preuzela inicijativu i vodeću ulogu za određenu oblast delanja iako su se svi poslovi i zadaci radili timski, što govori o odgovornosti i pokazuje postojanje kulture delotvornog i podržavajućeg liderstva, u kojem se podstiču zajedničko delovanje, razmena i saradnja. Odgovornost za osmišljavanje Programa uvođenja u posao vaspitača, kao i razvijanje pripravničko-mentorske prakse, preuzela je stručna saradnica-pedagoškinja, što je bio i povod za pokretanje akcionog istraživanja, a kako posao pedagoga jeste i istraživački, autorka ovog rada preuzela je i ulogu istraživačice.

Ideja da se praksa uvođenja u posao rekoncipira u odnosu na raniju praksu nastala je kao rezultat kontinuirane saradnje i zajedničkih uvida stručnih saradnica, uzimajući u obzir: potrebe za podrškom vaspitača u ulogama pripravnika i mentora; potrebu za unapređivanjem kulture ustanove kroz jačanje zajednice učenja; profesionalnu ulogu i odgovornost pedagoga.

Za potrebe analize prethodne prakse uvođenja pripravnika u posao korišćeni su Izveštaj o radu (Izveštaj o radu i realizaciji godišnjeg plana rada predškolske ustanove „Dr Sima Milošević“ u radnoj 2021/2022) i uvidi stečeni u praksi u radnoj 2021/2022. godini. Zaključci koji se mogu izvući pokazuju da se Program koji se ranije realizovao u Ustanovi zasnivao na razumevanjima uloga praktičara, kao i pripravničko-mentorske prakse delimično utemeljene na postojećim legislativno-programskim okvirima, čiji delovi nisu bili najbolje usklađeni.

Programski okvir i uvidi o implementaciji „Godina uzleta“ (2019) u praksi postavljali su imperativ razvijanja refleksivne prakse u zajednici učenja, a profesionalna uloga pedagoga već je bila i određena donetim pravilnikom (Pravilnik o standardima kompetencija za profesiju stručnog saradnika u predškolskoj ustanovi i njegovog profesionalnog razvoja, 2021) gde su razvijanje refleksivne prakse i negovanje kulture saradnje i zajedništva (što je osnov za razvijanje zajednice učenja) definisani kao profesionalna odgovornost pedagoga. Međutim, u Izveštaju o radu Ustanove (2022), rad pedagoga na razvijanju Programa uvođenja u posao pripravnika nije prepoznat kao usmeren na razvijanje zajednice učenja u Ustanovi.

Program koji se ranije razvijao u Ustanovi zasnivao se na razumevanju pripravničko-mentorske prakse kao dijadnog modela, u kom su ključne uloge pripravnika i mentora kao partnera u ovom procesu (Mentor i pripravnik..., 2009, 2012), čime su definisane uloge vaspitača u poziciji pripravnika i mentora, ali i gde je definisanje uloge stručnog saradnika izostalo, te se u praksi svelo na organizacione komponente razvijanja Programa (usklađivanje formalnog plana programa sa krovim dokumentima u ustanovi, formiranje grupe pripravnika i mentora, posredovanje u komunikaciji i delegiranje zadataka).

Pedagog je u procesu razvijanja Programa imao ulogu „predavača“, koji kroz nekoliko susreta prenosi pripravnici i mentorima uvide i daje im smernice za osmišljavanje sopstvene prakse uvođenja u posao. Pripravnici su dobijali i realizovali zadatke, dok su mentori bili u ulozi posmatrača i evaluatora. Ne samo da se u izveštaju ne govori o razvijanju zajednice učenja već se o aktivnoj ulozi pripravnika govori kao o ulozi aktera koji učestvuju u „horizontalnim razmenama“.

U tom pravcu su osmišljeni i aktivni u formi pauerpoint prezentacija, koje su ilustrovale primere dobre prakse u razvijanju programa u skladu sa Osnovama „Godine uzleta“ i sadržale smernice i zadatke za unapređivanje sopstvene prakse.

Pripravnici su zajedno sa mentorom korak po korak ovladavali strategijama razvijanja tema/projekata, i primere sopstvene prakse uobličavali u prezentacije sa kojima su upoznati stručni saradnici i koordinator Aktiva.

Mentori su kontinuirano tokom godine pratili rad pripravnika i u realizaciji planiranih situacija učenja iznoseći svoja zapažanja o radu pripravnika.

Većina evidentiranih pripravnika aktivno je učestvovala u uvođenju promena u vaspitno-obrazovnu praksu u skladu sa novim Osnovama kroz učešće u horizontalnoj razmeni na nivou pojedinačnih jaslica i vrtića.

(Izvodi iz Izveštaja o radu i realizaciji godišnjeg plana rada predškolske ustanove „Dr Sima Milošević“ u radnoj 2021/2022)

Koncipiranje novog Programa uvođenja u posao pripravnika vaspitača

Novi Program usklađen je kako sa zvaničnim dokumentima, koji određuju obrazovnu politiku u oblasti predškolskog vaspitanja i obrazovanja, tako i sa internim dokumentima ustanove. Pravilnik o stalnom stručnom usavršavanju i napredovanju u zvanja nastavnika, vaspitača i stručnih saradnika, koji se odnosi i na vaspitače i na stručne saradnike, definiše da se stručno usavršavanje zaposlenih u predškolskim ustanovama (u koje spada pripravnčko mentorska praksa) „planira u skladu sa potrebama i prioritetima obrazovanja i vaspitanja“ (Pravilnik o stalnom stručnom usavršavanju i napredovanju u zvanja nastavnika, vaspitača i stručnih saradnika, 2021, član 3). Kao potreba i prioritet, prepoznato je razvijanje refleksivne prakse u zajednici učenja, što je trasiralo put koncipiranja novog programa.

Program uvođenja pripravnika u posao zasniva se na savremenim teorijskim postavkama, koje profesiju vaspitača definišu kao etičku i refleksivnu praksu zasnovanu na vrednostima, dijalogu i višeperspektivnosti (Pavlović Breneselović, 2014). Utemeljen je u diskursu kompetentnosti, koji kompetenciju ne vidi kao skup unapred datih znanja i veština, već kao dinamički proces građenja u praksi. Program je osmišljen tako da se u velikoj meri oslanja na Pravilnik, kojim se definiše kompetentnost vaspitača kroz određenje znanja,

umenja i vrednosti koje određuju profesiju vaspitača (Pravilnik o standardima kompetencija za profesiju vaspitača i njegovog profesionalnog razvoja, 2018).

Polazi se od sistemskog modela profesionalnog razvoja, u kojem se učenje dešava unutar profesionalne zajednice, kroz saradničke odnose i zajedničko delovanje svih aktera u predškolskoj ustanovi (Pavlović Breneselović i Krnjaja, 2012; Vujičić & Čamber Tambolaš, 2017a; Vujičić & Čamber Tambolaš, 2017b). Poseban akcenat stavljen je na zajednicu učenja, koja se razvija kroz međusobno deljenje odgovornosti i izgradnju zajedničkih znanja praktičara, što doprinosi transformaciji same obrazovne prakse, a ne samo razvoju pojedinaca (Rogoff, 1994, prema: Pavlović Breneselović i Krnjaja, 2018).

U skladu s tim, Program je osmišljen kao pokušaj oblikovanja konteksta tako da omogućava učenje kroz akciju i (zajedničku) refleksiju, čime se gradi profesionalni identitet pripravnika u realnom okruženju, ali se istovremeno menjaju i uloga pedagoga i sama kultura ustanove i teži se održivoj promeni obrazovne prakse, budući da se profesionalni razvoj razume kao kolektivni proces usmeren na unapređivanje zajedničke realnosti, odnosno realnog programa (Malović, 2023).

Implementacija Programa (prvi ciklus)

Za potrebe realizacije Programa osmišljena su tri materijala, koja su odštampana i podeljena svim pripravicama i mentorkama na prvom sastanku (februar, 2023.): Program uvođenja u posao; Dnevnik pripravnika i Dnevnik mentora. Grupu je inicijalno činilo 30 pripravnica (od kojih je nekoliko odustalo u toku godine, uglavnom iz zdravstvenih/porodičnih razloga). Pedagoškinja i autorka Programa i materijala upoznala je ceo tim stručnih saradnica, kao i sve pripravnice i mentorke, sa novom koncepcijom programa i pozvala ih da budu aktivni učesnici u procesu učenja, te da budu otvorene za sugestije usmerene na unapređivanje procesa.

Vremenska dinamika bila je donekle uslovljena kalendarom rada i već postavljenim Godišnjim planom rada ustanove.

Kako bi se postavila održiva vremenska dinamika, koja uvažava predviđene obaveze i opterećenje svih praktičara u ustanovi, u Program su uvrštena dva tematska aktivna (termin „aktiv“ se interno u ustanovi koristi da označi planirane situacije (zajedničkog) učenja praktičara kroz predavanja ili radioničarski rad), definisana Godišnjim planom (Godišnji plan rada predškolske ustanove „Dr Sima Milošević“ u radnoj 2022/2023). Ovo preklapanje (istih tematskih aktivna predviđenih Programom za pripravnike i mentore i predviđenih za sve praktičare kroz plan rada Tima za stručno usavršavanje), pored gore pomenutog cilja, imalo je za cilj i da se stvore uslovi za razmenu između pripravnika i praktičara koji nisu u toj ulozi, kao i da se osnaži ideja zajedničkih razmena, odnosno uspostavljanje zajedničkih značenja.

Program (...) u trajanju od godinu dana predviđa organizaciju 9 sastanaka aktivna, kojima prisustvuju pripravnici, mentori i stručni saradnici. Sedam sastanaka organizovani su kao aktivni pripravnika i mentora namenjeni onima koji učestvuju

u Programu (...), dok su dva sastanka tematski aktivni koji se, prema Godišnjem planu rada (...) realizuju u Ustanovi. (Izvod iz Programa)

Aktivni kao forma jesu zadržani iz starog programa, ali je izmenjen pristup njihovoj organizaciji i redefinisane su uloge učesnika. Ovaj vid učenja u novoj koncepciji, osmišljen u formi radionica, omogućavao je da se otvore nove teme koje će nakon aktivna biti praćene dodatnim zadacima, kao i da se pokrene razmena između svih učesnika.

...pripravnici vode Dnevnik pripravnika u kom je zadato 12 zadataka, koji će se zajednički analizirati na posebnim sastancima – biće realizovane 4 fokus grupe koje organizuje stručni saradnik sa manjom grupom pripravnika i mentora. U dnevnicima pripravnika nalaze se i smernice za pripremu 3 zadataka za rad na aktivima. Pored toga predviđeno je i rešavanje 5 onlajn zadataka u čiju će evaluaciju biti uključeni svi pripravnici. (Izvod iz Programa)

Zadaci su bili osmišljeni tako da podržavaju transformativno učenje (*double-loop learning*) (Argyris & Schön, 1978) i razmenu između praktičara. Težilo se prevazilaženju oblika profesionalnog učenja poznatog kao učenje unutar postojećih okvira (*single-loop learning*), koje podrazumeva uočavanje i ispravljanje grešaka. Kada dođe do problema ili odstupanja, praktičari najčešće prvo pokušavaju da pronađu novu strategiju koja bi omogućila rešavanje situacije unutar postojećih ciljeva, pravila i vrednosti bez dovođenja u pitanje osnovnih pretpostavki, u pokušaju da se deluje efikasnije u okviru postojećih obrazaca. Za razliku od toga, transformativno učenje podrazumeva preispitivanje upravo tih osnovnih vrednosti, ciljeva, normi i pravila na kojima se zasnivaju strategije delovanja. Takvo učenje vodi dubljim promenama u načinu razmišljanja i postupanja jer ne ostaje na korekciji ponašanja, već uključuje i transformaciju samih temelja profesionalne prakse (Argyris & Schön, 1978).

U kontekstu predškolske ustanove, učenje unutar postojećih okvira može se prepoznati, na primer, kada pedagog uoči da prostor radne sobe nije adekvatno strukturisan, pa sugeriše vaspitaču da načini promene ili ih pedagog načini samostalno – pomeranjem polica, premeštanjem materijala i slično – nakon čega vaspitač nastavlja da radi bez dubljeg preispitivanja smisla unetih promena. U tom slučaju, ispravljanje „greške“ se dešava u okviru postojećih profesionalnih normi, bez njihovog preispitivanja. Nasuprot tome, transformativno učenje se događa kada pedagog ne nastupa isključivo kao korektivni autoritet, već kao inicijator i facilitator zajedničkog učenja. On podstiče vaspitače da kroz kolektivne refleksivne aktivnosti – poput stručnih radionica, zajedničke analize prakse ili profesionalnih dijaloga – kritički preispituju sopstvene vrednosti i uverenja na kojima temelje svoj rad. Takva praksa jača zajednicu učenja u kojoj vaspitači ne samo da usavršavaju strategije, već oblikuju i redefinišu svoje profesionalne identitete. Transformativno učenje uključuje dublju, refleksivnu praksu i promišljanje o tome zašto nešto radimo na određen način, a ne samo kako to radimo. To ujedno predstavlja i temelj za dugoročne promene u kvalitetu realnog programa.

Kako bi se omogućila kvalitetnija razmena između svih učesnika u procesu, osmišljene su fokus grupe koje su podrazumevale da svaki stručni saradnik (njih 6) koji učestvuje u procesu održi po jednu tematski fokusiranu refleksivnu razmenu, koja će okupiti 8-10 učesnika (pripravnika i mentora) i koja će biti posvećena zajedničkom osvrtu na prethodni period i zadatke. Kako bi fokus grupe doprinele stvaranju koherentnog sistema značenja u Ustanovi, svaka je bila unapred osmišljena kroz fleksibilni protokol za vođenje fokus grupe i kroz formu za izveštavanje o radu fokus grupe (za stručne saradnice) i beleškama nakon vođenja fokus grupa (za pripravnice i mentorke), gde je trebalo sumirati zaključke i uvide do kojih se došlo.

Na kraju ćemo šematski prikazati (Šema 2) nivoe razmene koji su podržani kroz implementaciju Programa, u težnji da se sa koncepta „horizontalne razmene“ u učenju pripravnika pređe na koncept razvijanja zajednice učenja.

Šema 2

Prikaz dinamike Programa koncipiranog ka razvijanju zajednice učenja



Osmišljavanje novog ciklusa Programa

Paralelno sa procesom implementacije prvog ciklusa Programa, tekla je i refleksija o procesu razvijanja pripravničko-mentorske prakse. Uvidi koji su se iskristalisali kroz zajedničko sagledavanje procesa implementacije Programa oslanjali su se na: dokumentovanje rada aktiva i fokus grupa; kontinuirani dijalog unutar zajednice; analizu dnevnika pripravnika i mentora, kao i praćenje učešća praktičara u onlajn zadacima i zadacima sa aktiva; uvide stečene putem upitnika, sačinjenog sa ciljem boljeg razumevanja perspektive pripravnika i mentora, i poslužili su kao osnov za izdvajanje nekoliko celina koje u nastavku približavaju složenost iskustva svih učesnika u procesu: mreže podrške, prihvaćenosti uvedenih promena i uloge mentora.

Mreža podrške

Izazovi uslovljeni složenom organizacionom strukturom, koja u ustanovi postoji bez jasno postavljenih procedura i sistema rukovođenja, dovodili su do različitih poteškoća u prvom ciklusu realizacije Programa, a jedan od izazova je ilustrovan u odgovoru pripravnice na upitniku:

...često se pripravnik (kao nov radnik) šalje na ispomoć u druge objekte, i ne uspe da odradi sve zadatke onako kako treba, ne može da isprati npr. projekat za koji je on bio zadužen od početka do kraja... (P10, O1)

Prevazilaženje ovakvih i sličnih izazova zahtevalo je razvijanje mreže podrške za sve učesnike u Programu. Ceo tim stručnih saradnica bio je uključen u realizaciju Programa, što je podrazumevalo brojne sastanke sa ciljem usklađivanja značenja i preuzimanja uloge aktivnih učesnika u realizaciji Programa. Takođe je zahtevalo i da svaka stručna saradnica u praksi ima jasnu predstavu o zadacima na kojima rade pripravnice i mentorke, a koji neretko podrazumevaju i uključivanje šireg kolektiva i preduzimanje koraka ka promeni kulture vrtića, odnosno ka boljem usklađivanju realnog programa sa „*Godinama uzleta*“ (2019).

Pored toga, u proces su uključeni i rukovodioci vrtića i jasli, ali i drugi praktičari, koji nisu bili u ulogama pripravnika, što je podrazumevalo pisanu i usmenu komunikaciju (obraćanje putem zvaničnih mejlova i sastanci praktičara na kojima se razgovaralo o nekim delovima Programa) sa jasnim pojašnjenjem o zadacima kojima se bave pripravnice i mentorke, kao i o značaju koji ima za razvijanje kvaliteta realnog programa uključivanje šireg kolektiva u realizaciju zadatka (recimo, pripravnice su osnaživane da u svojim kolektivima budu inicijatorke promene kroz aktivno učešće u razvijanju realnog programa). Cilj je bio da koncepcija Programa bude transparentna i jasna svima, ali i da se pripravicama i mentorkama olakša pozicioniranje u zajednici kako bi lakše prevazilazili sve izazove na putu učenja.

Prihvaćenost uvedenih promena

Prvi ciklus implementacije Programa pratio je izazov u pogledu mogućnosti da praktičari (najpre vaspitači) prihvate uvedene promene u pogledu rekoncipiranja ustaljene prakse, koje su bile pokrenute od strane pedagoškinje na temeljima njenih uvida, kao i uvida drugih stručnih saradnica u ustanovi. Kako bi se stekao uvid o tome kako uvedene promene doživljavaju pripravnice i mentorke, prikazaćemo kako su odgovarale na pitanje u upitniku formulisano kao: „Opišite ukratko vaše iskustvo iz prakse uvođenja u posao (šta biste istakli kao dobre, a šta kao loše strane Programa, organizacije prakse uvođenja u posao i angažovanja svih aktera u ovom procesu...)“.

Na ovo pitanje dobili smo ukupno 24 odgovora (od 12 pripravnica i 12 mentorki). Odgovori pripravnica u najvećoj meri pokazuju da su se u programu osetile podržano, osetile da pripadaju zajednici učenja i da su prihvaćene, da su zadovoljne načinom na koji je praksa organizovana i da im je učešće u Programu pomoglo da bolje razumeju koncepciju „*Godina uzleta*“ (2019).

U toku pripravničkog rada sam dobila dosta podrške od strane svog mentora i stručnog saradnika, svog sobnog kolege i ostalih koleginica, među njima i pripravnica takođe, u vidu razmene iskustava i ideja, pomoći pri izradi zadataka ali i boljeg razumevanja u istraživačkom radu, trudila sam se da deca kroz podršku njihovoj dobrobiti imaju jednake mogućnosti za učenje i razvoj, da se povezujem što više sa roditeljima i koleginicama iz drugih objekata, da učim i radim na sebi konstantno, da proširujem svoja iskustva i znanja, da posmatram i osluškujem decu i njihove potrebe. (P27, O1)

Mentorke su u svojim odgovorima uglavnom isticale da su zadovoljne načinom organizovanja prakse i podrškom koju su i same imale u Programu.

Program je osmišljen tako da se jačaju kompetencije u različitim oblastima - zadaci konkretni, jasni - svi akteri angažovani. (M13, O1)

Posebno značajne uvide dale su mentorke koje su imale iskustvo mentorisanja u prethodnim ciklusima realizacije pripravničko-mentorske prakse (njih 7 je dalo odgovor na pitanje: „Kada se osvrnete na sopstveno iskustvo u procesu mentorstva po starom i novom programu, da li možete da istaknete najznačajnije promene u pogledu programa uvođenja pripravnika u posao?“). Navešćemo neke njihove odgovore koji jasno oslikavaju promenu pristupa uvedenu kroz novi Program.

Na jedan vrlo koncizan način se oslikava rad pripravnika i mentora. Materijal i smernice na aktivima jasno definišu put kojim treba ići, na čemu se bazirati i šta je cilj.... tj. šta treba postići. (M18, O21)

Dnevnici dosta pomažu i organizuju proces uvođenja pripravnika u posao. Zadaci su konkretniji i razumljiviji. (M9, O21)

Veće angažovanje stručnog saradnika da nama kao mentorima takođe pruže podršku u radu sa pripravnikom. Postojanje dnevnika za Pripravnike i mentore je nešto što nam je olakšalo rad. (M6, O21)

Novi program se tumači više kroz praksu i ima više veze sa realnim programom. Stari program je zahtevao pisanje priprema koje se nisu pisale u svakodnevnom radu. Mi smo praktičari tako da sam se u mentorstvu ovog programa lakše snalazila kako da približim i objasnim ono što piše u Osnovama programa. (M3, O21)

Ovi uvidi nam govore da je rekoncipiranje pripravničko-mentorske prakse dovelo do toga da se i pripravnice i mentorke osele podržano i osnaženo, što nas je navelo da i u narednom ciklusu planiramo da Program koncipiramo oko ideje razvijanja zajednice učenja.

Uloga mentora

Početak realizacije prvog ciklusa Programa pratili su izazovi u razumevanju uloge mentorki. Kako bi se mentorkama olakšao proces refleksije o sopstvenoj ulozi, u prvom ciklusu je bio osmišljen Dnevnik mentora.

Mentori vode dnevnik mentora koji svedoči o ispunjenosti njihove uloge u Programu i predstavlja: evidenciju o vidovima podrške koju su pružili pripravniku u razvijanju osnovnih znanja, umenja i vrednosti pripravnika neophodnih za kvalitetan neposredan rad sa decom, saradnju u zajednici učenja i razvijanje profesionalne prakse; zapažanja mentora o radu pripravnika u toku trajanja Programa uvođenja u posao i procenu razvijenosti osnovnih znanja i umenja pripravnika neophodnih za kvalitetan neposredan rad sa decom, saradnju u zajednici učenja i razvijanje profesionalne prakse. (Izvod iz Programa)

Sistemska definisana uloga mentora, koja se mogla učitati u tada postojećem Vodiču (Mentor i pripravnik..., 2009, 2012), uspostavljeni sistem polaganja ispita za licencu, koji je sledio Programu uvođenja u posao i iskustva mentorki iz prethodne pripravničko-mentorske prakse, prouzrokovali su neusklađenost očekivanja mentorki sa idejom mentorstva na kojoj se temelji Program. Program je mentorke stavljao u poziciju učesnica u zajednici učenja, uz uspostavljenju mrežu podrške na koju mogu da se oslone i pripravnice i mentorke. Ranije definisana uloga mentora kao formalnih evaluatora (čija se evaluacija u prethodnim ciklusima bila svedena na formalnost) kočila je mentorke u preuzimanju uloge koja im je Programom bila nuđena.

Navedeni izazov je u implementaciji prvog ciklusa Programa zahtevao osmišljavanje i organizovanje posebnog sastanka pedagoškinje, autorke sa celim timom mentorki. Na sastanku smo se bavili preispitivanjem uloge mentora, počevši od razumevanja toga šta su odgovornosti mentora, sve do pojašnjavanja sistema podrške kreiranog za mentorke u Programu.

Implementacija Programa (drugi ciklus)

Drugi ciklus implementacije Programa započeo je u septembru 2024. godine, sastankom pedagoškinje (autorke) sa grupom mentorki. Tema je bila uloga mentora u Programu, te je na sastanku zajednički tumačen materijal „Smernice za izradu izveštaja mentora“. Ovaj materijal sačinjen je na osnovu uvida iz prethodnog ciklusa o poteškoćama mentorki da razumeju i prihvate svoju ulogu. Na prvom zajedničkom sastanku (aktivu) svih pripravnica i mentorki sa stručnim saradnicama, čija je tema bila upoznavanje svih vaspitača sa programom u kojem učestvuju, podeljeni su štampani materijali (Dnevnik pripravnika i mentora i Smernice za izradu izveštaja mentora).

Kako bi se odgovorilo na izazov percipiranih odnosa moći između stručnih saradnika i vaspitača u Programu (o kom će više reči biti prilikom obrazlaganja uloge pedagoga), odnosno kako bi se odnosi moći učinili ravnopravnijim, novi ciklus realizacije u organizacionom smislu podrazumevao je sledeće:

1. Aktivni, radionice za sve pripravnice i mentorke, organizovani su u dve grupe (u prvom ciklusu su na aktive dolazile sve pripravnice i mentorke u istom terminu na istoj lokaciji) sa datom mogućnošću svim učesnicama da same izaberu termin i lokaciju koja im više odgovara;

2. Fokus grupe su organizovane u više termina (između 8 i 10 termina i na dve lokacije), sa datom mogućnošću da pripravnice i mentorke same odaberu termin i lokaciju koja im najviše odgovara.

Vremenska dinamika, predviđene teme i tok implementacije Programa u drugom ciklusu prikazani su šematski (Šema 3) u nastavku.

Odgovornost za osmišljavanje i realizaciju svih aktivna i fokus grupa u drugom ciklusu preuzela je pedagoškinja, autorka programa. Za razliku od prvog ciklusa, u kojem jedan od planiranih aktivna nije bio realizovan i u kojem organizacija fokus grupa nije bila ujednačena ni koordinisana, u drugom ciklusu su sve predviđene aktivnosti realizovane u skladu sa vremenskim planom. Ova promena ne ukazuje na superiornost individualne u odnosu na deljenu odgovornost, već, pre svega, na značaj jasne raspodele uloga i dogovorene koordinacije u procesima deljenog liderstva. Iskustvo iz prvog ciklusa pokazalo je da deljeno liderstvo ne podrazumeva odsustvo strukture ili jednaku uključenost u sve segmente, već da je neophodno vreme za uspostavljanje međusobnog poverenja, komunikacionih kanala i precizne raspodele zadataka. Preuzimanje vodeće uloge u organizacionom aspektu od strane pedagoškinje u drugom ciklusu nije umanjilo doprinos ostalih stručnih saradnica, već je doprinelo tome da se zajedničke odluke doslednije sprovedu u praksi, čime je podržan kontinuitet u procesu razvoja kulture saradnje.

Uvidi o poteškoćama koje su pripravnice i mentorke imale u prethodnom ciklusu sa zadacima korišćeni su u cilju unapređenja Dnevnika pripravnika i mentora (kao osnovnog materijala), kao i svih pratećih materijala.

Na primer, u prethodnom ciklusu je bilo predviđeno da pripravnice zabeleže svoje uvide nakon svake fokus grupe (kao refleksiju o procesu učenja), međutim, u samom dnevniku su izostala dodatna pojašnjenja o tome na šta treba staviti fokus, pa se dešavalo da pripravnice navedu tehničke informacije o održanom sastanku (gde je održan i ko je prisustvovao), a ne navedu ni jedan bitan sopstveni uvid o temi, čime beleške gube svoju funkciju. Stoga je u ovom ciklusu precizno navedeno šta je fokus u pisanju beleški nakon fokus grupe (nakon prve zadatak je bio sačinjavanje liste znanja i značenja o koncepciji „Godina uzleta“; nakon druge bio je sačinjavanje liste smernica za uređivanje prostora u vrtiću kojih se pripravnik može u svom radu pridržavati...).

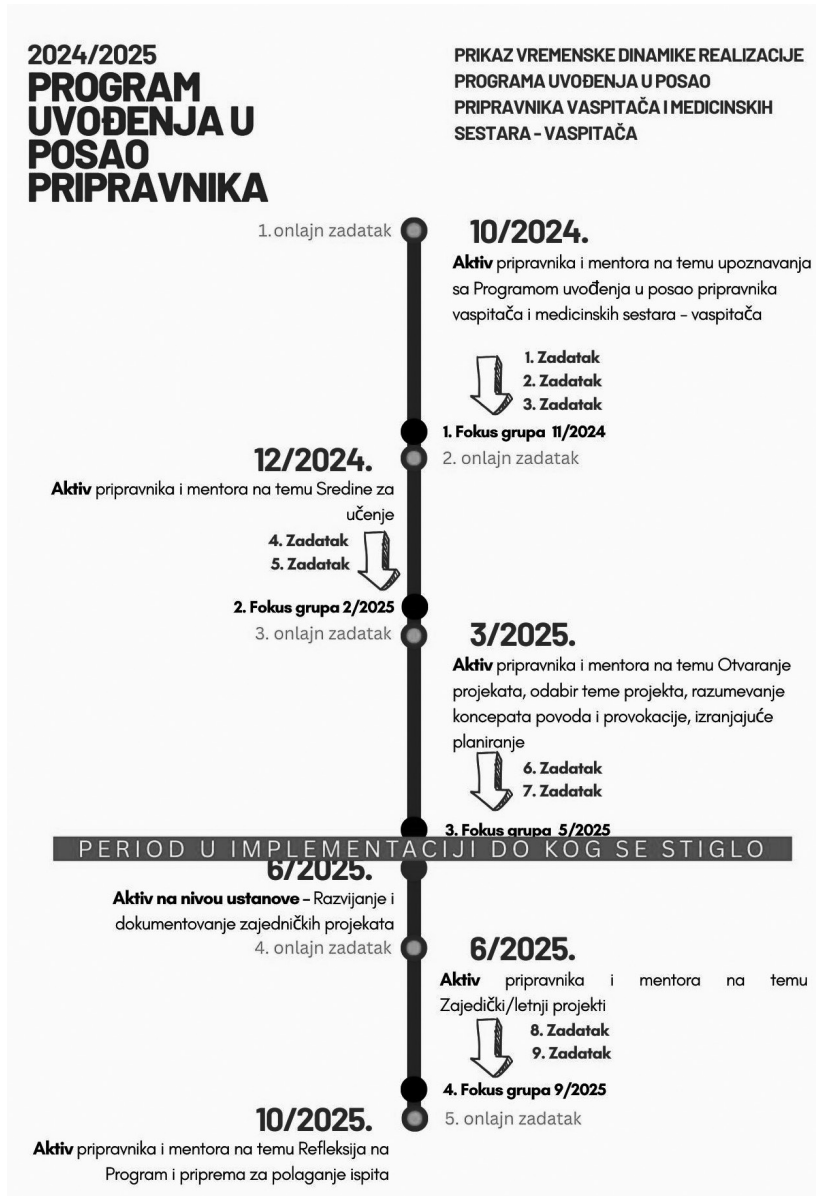
U cilju uspostavljanja zajedničkih značenja i izbegavanja „šumova“ koji su nastajali u prvom ciklusu (recimo, zbog nedovoljno dobro uvremenjenog i međusobno usklađenog realizovanja fokus grupa), ozbiljnije se pristupilo dogovaranju oko zadataka i davanju instrukcija i povratnih informacija na svakom koraku.

Na primer, nakon prve serije fokus grupa, koje su usledile nakon prvog aktivna i realizacije prvih nekoliko zadataka (tema razumevanje koncepcije „Godina uzleta“) koja je realizovana u novembru, analizirane su beleške svih pripravnika. Uočeno je da u beleškama postoje pokazatelji pogrešnog razumevanja ključnih koncepata.

Preduzeto je sledeće: putem mejla je svim pripravnicama poslat detaljan izveštaj o beleškama nakon prve fokus grupe, koji je (bez imenovanja pojedinaca) sadržao podatke o kvalitetu beleški u odnosu na kriterijume koji su na početku svake fokus grupe bili dogovoreni i nakon fokus grupa ponovo obrazloženi u mejlu koji su sve pripravnice dobile.

Šema 3

Prikaz vremenske dinamike drugog ciklusa implementacije Programa



Sačinjeni su i dodatni materijali (1. evidentirane nejasnoće i pogrešna razumevanja sa pojašnjenjima; 2. zajednička lista „ulaznih“ znanja i značenja izvedena na osnovu analize svih beleški; 3. „propeler“ – grafički prikazani sadržaj Godina uzleta sa obeleženim temama i

brojem stranica u programu, za lakše snalaženje u dokumentu). Pripravnice su, na osnovu materijala i pojašnjenja koje su dobile na narednom aktivu, analizirale svaka svoju belešku i prepoznavale kojoj „zoni“ pripadaju (crvena – beleške koje ukazuju na postojanje nejasnoće; žuta – beleške bez fokusa; zelena – dobre beleške) i u odnosu na to dopunjavale ili korigovale beleške u skladu sa uočenim nedostacima.

Analiza beleški nakon druge serije fokus grupa pokazala je da u tim beleškama nema pokazatelja pogrešnih razumevanja i nedoumica, odnosno da su sve pripravnice imale dobre i fokusirane (u većoj ili manjoj meri detaljne) beleške.

Pedagog u liderskoj ulozi u procesu uvođenja i održavanja promene

Profesionalna odgovornost u odnosu na to kako je kompetentnost predškolskog pedagoga definisana važećim Pravilnikom (Pravilnik o standardima kompetencija za profesiju stručnog saradnika u predškolskoj ustanovi i njegovog profesionalnog razvoja, 2021) bila je vrednosni orijentir za repozicioniranje pedagoškinje u Programu i praksi uvođenja u posao.

Ovaj program je javno prezentovan tri puta u 2023. godini sa različitim fokusom u izlaganjima i radovima (Malović, 2023, 2023a, 2023b) koji su pratili izlaganja. Ovi prikazi mogu se razumeti kao delanje pedagoškinje u području vlastitog profesionalnog delovanja i razvoja, jer su imali za cilj da širu profesionalnu zajednicu upoznaju sa mogućim drugačijim pristupom u organizovanju pripravničko-mentorske prakse u ustanovi, koji bi bio usklađeniji sa programskom koncepcijom i koji bi predstavljao aktualizaciju profesionalne uloge pedagoga sagledane kroz okvir kompetentnosti.

O tome kako je program koncipiran tako da polazi od definisane kompetentnosti stručnog saradnika za strateško (razvojno) planiranje svedoči rad (Malović, 2023) čiji je fokus stavljen na ulogu pedagoga kao stručnog saradnika koji, svojim kompetencijama za strateško planiranje i praćenje prakse, doprinosi osmišljavanju, realizaciji i unapređivanju Programa, podržavajući profesionalni razvoj vaspitača i negujući kulturu refleksivne prakse u zajednici učenja u ustanovi. Druga dva rada fokusirana su na osvetljavanje kompetentnosti u domenu uspostavljanja saradnje i zajedništva, razvijanja refleksivne prakse i kvaliteta realnog programa (Malović, 2023a, 2023b).

Značaj uloge stručnog saradnika, kao organizatora i nekoga ko podržava sve aktere u pripravničko mentorskoj praksi je bio prepoznat, o čemu takođe svedoče i odgovori pripravnica i mentorki na upitniku.

Od stručnog saradnika smo dobijali materijal, koji nam je uz aktive pripravnika i mentora, olakšao Program uvođenja pripravnika u posao. Takođe, zadaci su bili tako koncipirani da je saradnja pripravnika i mentora bila veća. (M6, O1)

Smatram da su dobre strane Programa aktivni, fokus grupe, razvijanje zajednice za učenje i podrška koju dobijamo od stručnih saradnika i mentora, ali i zadaci koji podstiču pripravnika da sarađuje sa svim akterima u vrtiću. (P15, O1)

Međutim, aktualizacija liderske uloge u procesu uvođenja i održavanja promene nailazila je na brojne izazove. Kontinuirani izazov u toku prvog ciklusa realizacije Programa predstavljalo je u blagovremenom i međusobno usklađenom realizovanju fokus grupa zbog toga što je Program bio tako koncipiran da je podrazumevao usklađeno delovanje tima stručnih saradnika na ovom zadatku. Ovaj izazov u praksi realizacije prvog ciklusa Programa ostavljao je „šumove“, koji su se mogli uočiti, recimo, analizom beleški sa fokus grupa iz Dnevnika pripravnika. Iz tog razloga je u novom ciklusu Programa organizacija i realizacija fokus grupa bila drugačije koncipirana sa preciznije definisanim fokusom za sve učesnike (stručnog saradnika, pripravnika i mentora).

Značaj uloge stručnog saradnika u organizaciji i vođenju fokusiranih diskusija prepoznale su i same pripravnice.

Dobra strana su aktivni na kojima smo razmenjivali iskustva, mišljenja, rešavali problemske situacije... ali je tu falilo malo više primera iz prakse. Dopale su mi se fokus grupe i smatram da bi bilo dobro i značajno za pripravnike da ih je bilo više, jer smo tu sa stručnim saradnikom najlakše uspevali da odgovorimo na sva pitanja. (P14, O1)

Preispitivanje odnosa moći između vaspitača i stručnih saradnika predstavljalo je još jedan izazov. Uvidi vaspitača o uspostavljenim odnosima moći zahtevali su preispitivanje organizacije kako fokusiranih diskusija tako i aktiva.

Dobre strane su česti sastanci, razmena iskustva, saradnja sa kolegama... loša strana je to što se sastanci (+ fokus grupe) organizuju u vrtićima koji su blizu saradnicima, a ne pripravicima i ponekad imamo poteškoća sa organizacijom rada, prevoza itd. (M7, O1)

Sumiranje zaključaka

Govoreći o akcionim istraživanjima koja se sprovode u školama, Ševkušić (2011) ističe da akciona istraživanja imaju potencijal popravljanja „tradicionalno lošeg odnosa između nastavnika i istraživača“ (Ševkušić, 2011:198). Ono što nakon sprovedenog istraživanja možemo zaključiti jeste da se odnos poverenja i podrške između stručne saradnice-istraživačice i vaspitača u Ustanovi osnažio kroz istraživanje. Pored toga, možemo reći da je primetno ojačan duh zajedništva, odnosno da se kultura razmene i zajedničkog učenja prenela i izvan Programa uvođenja u posao. Pripravnice i mentorke svedoče o ličnom osećaju osnaženosti i podržanosti, dok stručne saradnice i rukovodioci vrtića i jasli ukazuju na to da su čitavi kolektivi osnaženi nakon različitih akcija pokrenutih u okviru Programa.

Prikazano akciono istraživanje može se razumeti kao oblik intervencije u institucionalnu praksu sa ciljem pokretanja i podrške promeni u pravcu zajedničkog učenja, profesionalne refleksije i transformacije uloge praktičara. Ukoliko se, kako navodi Pavlović

Breneselović (2008), intervencija razume kao plansko uvođenje promene u obrazovnu praksu, tada se pitanje održivosti te promene nameće kao ključno i konstitutivno za samu intervenciju.

Promena započeta ovim istraživanjem jeste usmerena ka razvoju prakse i profesionalnih kapaciteta zaposlenih, što može voditi ostvarivanju prve dimenzije održivosti, odnosno održavanju kvaliteta, pod uslovom da postignuti put promene, u pogledu uspostavljene prakse uvođenja pripravnika u posao, kontinuirano nastavi da se razvija na postavljenim temeljima. Izazov predstavlja kultura ustanove koju gradi cela obrazovna zajednica, a rukovodstvo ustanove do sada nije pokazalo zainteresovanost da pruži doprinos razvijanju refleksivne prakse u zajednici učenja. Nezainteresovanost se, između ostalog, može učitati u nevoljnosti da se zaposli dovoljan broj stručnih saradnika, kao i da se posao pedagoga uvaži kao značajan za razvoj cele Ustanove.

Da bi pokrenute promene bile dugoročne i imale sistemski značaj, bilo bi neophodno da se daljim radom obuhvate i preostale dve dimenzije koje čine održivost – sistemsko utemeljenje kroz institucionalizaciju novih obrazaca rada i širenje u sistemu kroz diseminaciju i umrežavanje sa drugim ustanovama i praksama. Ovakav pristup podrazumeva izgradnju i korišćenje socijalnog kapitala kroz umrežene odnose subjekata unutar i van ustanove, kao i kontinuiranu izgradnju kapaciteta zaposlenih za refleksivno i smisaono delovanje u sopstvenoj praksi (Pavlović Breneselović, 2008).

Sistemsko utemeljenje se ne čini kao izgledno u trenutno uspostavljenoj obrazovnoj politici, u kojoj je primetna težnja da se teret osmišljavanja i realizovanja pripravničko-mentorske prakse prebaci na mentore, te da se uloga stručnog saradnika odredi kao sporedna u toj praksi. Sa druge strane, čini se da je, uprkos podršci koju su stručni saradnici u predškolskim ustanovama dobili kroz obuke „SNOP“ i druge vidove podrške, smisaono delovanje u sopstvenoj praksi otežano pod teretom uspostavljenih kultura u predškolskim ustanovama u kojima se rad pedagoga ne vrednuje dovoljno, niti se njegova uloga pepoznaje kao značajna. Takođe, narativ o razvoju zajednice učenja ne može se održivo graditi u kontekstu u kom sistemski okviri i podrška kroz obuke ostaju neusklađeni sa vrednosnim i teorijskim polazištima koje zajednica nastoji da utemelji, budući da takva nedoslednost razara mogućnost uspostavljanja zajedničkih značenja kao temelja kolektivnog učenja i razvoja.

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Analiza uspeha učenika sedmog razreda na državnim matematičkim takmičenjima u odnosu na oblast i tip zadataka: poređenje učenika iz specijalizovanih i klasičnih odeljenja¹

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Apstrakt

Matematička takmičenja sve više privlače pažnju istraživača u oblasti matematičkog obrazovanja, budući da donose brojne benefite za učenike – od produbljivanja i proširivanja matematičkih znanja do razvoja kompetencija za rešavanje problema. Imajući u vidu da je učenicima sedmog razreda u Republici Srbiji već dugi niz godina omogućeno pohađanje specijalizovanih odeljenja učenika sa posebnim sposobnostima za matematiku (SM odeljenja), postavlja se pitanje da li njihovo grupisanje u homogena odeljenja utiče na postignuća na državnom takmičenju iz matematike. Cilj ovog rada je da se podrobnije uporede postignuća učenika sedmog razreda SM i klasičnih odeljenja na državnom takmičenju, kao i da se analiziraju zadaci na kojima su učenici dve grupe ostvarili statistički značajno različite rezultate. Analizom uspeha u rešavanju 50 takmičarskih zadataka utvrđeno je da su učenici SM odeljenja ostvarili statistički značajno bolje rezultate u 23 zadatka, dok su učenici klasičnih odeljenja imali značajno bolje rezultate u samo jednom zadatku. Najveće razlike u korist učenika SM odeljenja zabeležene su u zadacima iz teorije brojeva, zatim geometrije i kombinatorike, dok su najmanje razlike uočene u zadacima iz algebre. Takođe, učenici SM odeljenja su u značajno većoj meri bili uspešniji u rešavanju dokaznih zadataka nego učenici klasičnih odeljenja. Detaljna analiza sadržaja zadataka ukazuje da razlike u postignućima mogu biti posledica šireg i temeljnijeg matematičkog obrazovanja kojem su učenici SM odeljenja izloženi, kao i njihove bolje sposobnosti za sintezu različitih matematičkih pojmova i tvrđenja u postupku rešavanja. Rezultati ovog istraživanja mogu poslužiti kao smernice nastavnicima i učenicima u pripremi za buduća matematička takmičenja.

1 Rad nastao u okviru projekta *Prediktori postignuća učenika 7. i 8. razreda na matematičkim takmičenjima – PREDIMAT 7–8.* finansiranog od strane Centra za naučnoistraživački rad SANU i Univerziteta u Kragujevcu.

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Ključne reči: *matematička takmičenja, tip odeljenja, matematičke oblasti, tipovi zadataka, postignuća učenika.*

Uvod

Takmičenja iz matematike učenika osnovnih škola imaju dugu tradiciju u Republici Srbiji. Od prvih takmičenja šezdesetih godina prošlog veka i prvog republičkog takmičenja 1967. godine (Mičić i Kadelburg, 2022) sve do danas, postala su najmasovnija takmičenja, na kojima svake godine između 60000 i 70000 učenika od 4. do 8. razreda započinje takmičarski ciklus (Vulović i sar., 2023).

Državno takmičenje iz matematike je četvrti nivo takmičenja, na kojem učestvuju učenici od 6. do 8. razreda osnovne škole. Iako do sada nije rađeno mnogo istraživanja koja se bave konkretnim postignućima učenika na ovim takmičenjima, dostupna istraživanja pokazuju da učenici koji pohađaju specijalizovana odeljenja učenika sa posebnim sposobnostima za matematiku (SM odeljenja) postižu statistički značajno bolja postignuća u odnosu na učenike koji pohađaju klasična odeljenja. Vulović i sar. (Vulović i sar., 2024) empirijski su utvrdili da su učenici SM odeljenja u poslednjih 18 godina ostvarili statistički značajno bolje rezultate čak 11 puta.

Ovim radom želimo da ispitamo postignuća učenika sedmog razreda osnovne škole na državnim takmičenjima iz matematike u odnosu na oblast i tip zadataka, u zavisnosti od toga da li učenici pohađaju klasična ili SM odeljenja u periodu od 2015. do 2024. godine. Razlog tome nalazimo u činjenici da su zadaci koji su obuhvaćeni programima takmičenja, idući od školskog ka međunarodnom nivou matematičkih takmičenja, sve manje zasnovani na školskom kurikulumu. Analizom zadataka koje su učenici sa najboljim rezultatima na državnim takmičenjima u posmatranom periodu dominantno uspešnije rešavali, želimo da pružimo doprinos u identifikaciji faktora koji utiču na uspeh učenika na nacionalnim matematičkim takmičenjima.

Teorijski okvir istraživanja

Jedna od funkcija matematičkih takmičenja jeste buđenje interesovanja za dublje bavljenje matematikom i razvoj kompetitivnosti među učenicima. Ona pružaju podršku učenicima budući da učenici, tokom rešavanja zadataka, demonstriraju svoje visoke matematičke sposobnosti do čijeg je formiranja došlo tokom procesa pripreme za matematička takmičenja (Keldibekova, 2020). Kenderov navodi da rešavanje složenih matematičkih zadataka omogućava bolje znanje, ali i razvija veštine učenika za prevazilaženje realnih problemskih situacija (Kenderov, 2022).

Liljedahl razlikuje „učionice u kojima se misli“ i „učionice u kojima se uči bez razmišljanja“: prvi tip „učionica“ odnosi se na podsticajno školsko okruženje u kome učenici aktivno razmišljaju prilikom učenja, a drugi tip se odnosi na školsko okruženje u kome učenici tek oponašaju razmišljanje (Liljedahl, 2019). Upravo matematička takmičenja predstavljaju sredinu u kojoj se afirmiše razmišljanje učenika kao važno iskustvo za bavljenje matema-

tikom na višem nivou. Razmatrajući kompetencije učenika potrebne za bavljenje matematikom na višem nivou, Falk de Losada i Tejlor ističu da rešavanje takmičarskih zadataka dovodi do razvijanja kompetencija učenika za rešavanje problema i boljeg usvajanja i korišćenja matematičke terminologije (Falk de Losada & Taylor, 2022). Dok školska matematika prati tradicionalnu strukturu izlaganja sadržaja, matematička takmičenja integrišu date sadržaje sa načinima razmišljanja i strategijama za rešavanje novih problema i izazova, proširujući um učenika i upoznavajući ih sa načinom rezonovanja profesionalnih matematičara (Nieto-Said & Sanchez-Lamoned, 2022).

Zadaci na takmičenjima pripadaju oblastima algebre, geometrije, teorije brojeva i kombinatorike, ali najčešće istovremeno uključuju dve ili više oblasti. Ključ u rešavanju takvih zadataka jeste u domišljatosti, kreativnosti i veštini rešavanja problema. Istraživanja pokazuju da učesnici takmičenja ostvaruju različit uspeh u zavisnosti od oblasti koja dominira u zadatku. Često su uspešniji u rešavanju zadataka iz algebre, kombinatorike i teorije brojeva, u odnosu na zadatke iz geometrije (Facciaroni et al., 2023; Keldibekova, 2020; Špijunović & Maričić, 2013; Vulović i sar., 2024).

Fačaroni i saradnici su na uzorku od 29592 učenika devetog razreda, koji su od 2018. do 2020. godine učestvovali na okružnom nivou takmičenja u Italiji, ispitivali razlike u postignućima učenika u odnosu na matematičku oblast zadataka (Facciaroni et al., 2023). Fokus istraživanja bio je na geometriji i poteškoćama koje učenici imaju u rešavanju ovih zadataka i u izvođenju dokaza. Svake godine, prvih četrnaest od ukupno sedamnaest zadataka na takmičenju nije zahtevalo izvođenje dokaza, ali je bilo neophodno da učenici poznaju teoreme i postupke radi uspešnog rešavanja tih zadataka. Nasuprot tome, poslednja tri zadatka (po jedan iz teorije brojeva, kombinatorike i geometrije) zahtevala su izvođenje dokaza, ali i nosila 40% ukupnog broja bodova, što je impliciralo da pravilno rešavanje upravo tih triju zadataka determiniše koji će učenici nastaviti takmičenje na nacionalnom nivou. Utvrđeno je da postoji razlika u uspešnosti učenika u zavisnosti od oblasti, premda veliki procenat učenika nije ni pokušao da uradi dokazni zadatak iz geometrije. U sve tri godine obuhvaćene istraživanjem, prosečan broj poena osvojenih na dokaznom geometrijskom zadatku bio je znatno niži od prosečnog broja poena druga dva dokazna zadatka. U okviru istog istraživanja, autori su 2020. godine sproveli i anketiranje 486 učesnika okružnog takmičenja u okrugu Rim. Prilikom anketiranja, učenici su odgovorili da se u proseku podjednako prijatno osećaju prilikom rešavanja zadataka iz svake oblasti. Iako nisu bile statistički značajne, razlike u srednjim vrednostima pokazuju da učenici geometriju ipak percipiraju kao najtežu od navedenih oblasti, dok im je teorija brojeva najlakša. Razlog za ovako male razlike u srednjim vrednostima stavova učenika autori pronalaze u činjenici da je skoro trećina učenika odgovorila da su im takmičarski zadaci iz geometrije poznati sa redovne nastave (bilo po složenosti, sadržaju ili strukturi), dok je u slučaju ostale tri oblasti u proseku svaki peti učenik odgovorio da su takmičarski zadaci slični onima koje su rešavali na časovima. To potvrđuje činjenicu da, iako poznaju osnovna pravila geometrije, kojima ovladavaju na časovima redovne nastave, i učenici koji ostvaruju iznadprosečna postignuća imaju poteškoća sa rešavanjem takmičarskih zadataka iz geometrije (Sal'kov et al., 2017).

Iako se mogu rešiti primenom elementarnih metoda, zadaci na matematičkim takmičenjima mogu biti veoma izazovni za rešavanje. Za razliku od konvencionalnih zadataka iz školske matematike, koji obično zahtevaju reprodukciju poznatih procedura, zadaci na takmičenju su inkluzivni, budući da uzimaju u obzir različite situacije, nagađanja, ispitivanje pretpostavki i postavljanje novih pitanja (Leikin, 2007), pri čemu se njihovo rešenje smatra potpunim ako i samo ako učenik pruži potpun dokaz onoga što tvrdi. Falk de Losada i Tejlor navode da učenici na takmičenjima, slično profesionalnim matematičarima, proces dokazivanja najčešće započinju opisivanjem onoga što se želi dokazati (predlaganjem argumenta), a zatim nastavljaju sa izvođenjem dokaza (Falk de Losada & Taylor, 2022). Tom prilikom, učenici koriste jedan od četiri tipa dokaza (Balacheff, 1988, prema: Laamena et al., 2018): naivni empirizam, kojim se nakon provere posebnih slučajeva potvrđuje istinitost argumenta; ključni eksperiment, koji se koristi za izbor između dve prethodno formulisane hipoteze; generički primer, kojim se objašnjava zašto je argument istinit uz navođenje specifičnih osobina i struktura; i misaoni eksperiment, kojim se argument uopštava i diferencira od posebnih slučajeva.

Uticaj grupisanja učenika na njihova postignuća jeste tema koja je razmatrana u literaturi, ali je u manjoj meri ispitivan uticaj homogenog grupisanja na postignuća učenika na takmičenjima. Glavni cilj ovakvog tipa grupisanja jeste da se zadovolje interesovanja i specifične obrazovne potrebe učenika koji imaju posebne sposobnosti za matematiku, a koji najčešće učestvuju na matematičkim takmičenjima. Karp navodi da nastavu u školama u kojima su matematički daroviti učenici grupisani u posebno odeljenje karakteriše postavljanje problema, rešavanje problema, traženje originalnih metoda rešavanja problema i pronalaženje veza između novih i starih problema (Karp, 2009). Kulik i Kulik su sprovedli 90 studija obuhvaćenih metaanalizom i među njima izdvojili 25 istraživanja čiji je predmet bilo ispitivanje efekata nastave u odeljenjima u kojima su grupisani učenici sa posebnim sposobnostima (Kulik & Kulik, 1987). Rezultati 19 studija pokazali su da daroviti učenici postižu bolje rezultate kada su grupisani u homogena odeljenja, dok su u 11 istraživanja te razlike statistički značajne. Isti autori takođe navode da grupisanje darovitih učenika u homogena odeljenja ne daje željene efekte ukoliko izostane odgovarajuća transformacija kurikuluma kojom bi se zadovoljile njihove obrazovne potrebe. Ove nalaze potvrđuju i rezultati studije Stinbergen-Hu i saradnika, koja je obuhvatila sto godina istraživanja efekata koje grupisanje učenika ostavlja na njihova akademska postignuća (Steenbergen-Hu et al., 2016).

Pozitivan uticaj prelaska učenika iz klasičnih odeljenja u gimnazije sa organizovanom nastavom za učenike osnovne škole posebno nadarene za matematiku uočen je i u studiji Asmata (Asmat, 2021). S obzirom na mogućnost da učenici posle završenog petog ili osmog razreda upišu ovakva odeljenja, jedan od ciljeva istraživanja Asmata bio je i da se utvrdi u kojoj meri izbor škole i vrsta odeljenja utiče na ostvarivanje postignuća učenika na takmičenjima. Pokazalo se da učenici koji su nastavu pohađali u gimnazijama ostvaruju prosečno za 6% viša postignuća od učenika iz heterogenih odeljenja. Ovakav podatak potvrđuje prednosti načina rada koji se sprovodi u odeljenjima homogenog tipa, u kojima je akcenat na obogaćenom programu nastave matematike (Kim, 2016; Rochayati & Rochayani, 2024).

Sriraman navodi da su složeni matematički zadaci odličan način da se učenicima pruži šansa da razvijaju matematičke procese višeg reda (pre svega reprezentaciju, apstrakciju i generalizaciju) (Sriraman, 2003). U studiji koju je sproveo, Sriraman je grupi od devet učenika devetog razreda dao zadatak da reše pet nerutinskih kombinatornih problema, pri čemu je generalizacija koju je trebalo upotrebiti za rešavanje pet problema data u obliku Dirihleovog principa. Četiri učenika koji su prethodno identifikovani kao matematički daroviti bili su uspešni u otkrivanju i formulaciji opštosti, koju je trebalo upotrebiti za rešavanje tih pet zadataka, dok, sa druge strane, pet učenika koji nisu posedovali posebne sposobnosti za matematiku nisu uspeali da prepoznaju generalizaciju skrivenu u problemu (Sriraman, 2003).

Sama suština grupisanja matematički darovitih učenika nije izdvajanje od vršnjaka prosečnih sposobnosti, već spajanje sa onima koji dele ista interesovanja. Kada su učenici grupisani u ista odeljenja, imaju priliku da ih vršnjaci istih sposobnosti stimulišu da brže i efikasnije obrađuju složenije sadržaje (Neihart, 2007; Swiatek & Lupkowski-Shoplik, 2003), jer nastavu matematike u ovakvim odeljenjima odlikuju strategije akceleracije, obogaćivanja i produbljivanja.

U svom istraživanju su Vulović, Milenković i Milikić (Vulović i sar., 2024) analizirali zastupljenost i postignuća na državnim takmičenjima iz matematike u Srbiji koja su u periodu tokom osamnaest godina ostvarivali učenici sedmog i osmog razreda koji pohađaju SM odeljenja pri gimnazijama i učenici iz heterogenih odeljenja. Autori ističu da su i u sedmom i u osmom razredu prosečne vrednosti broja bodova koje su ostvarili učenici SM odeljenja svake godine bile više u odnosu na učenike iz klasičnih odeljenja. Prosečni rezultati ukazuju da su učenici sedmog razreda iz SM odeljenja za 39% imali viša postignuća u odnosu na učenike iz klasičnih odeljenja, dok je uspeh učenika osmog razreda bolji za 32% od uspeha učenika iz klasičnih odeljenja.

Metodologija istraživanja

Zakon u Republici Srbiji prepoznaje mogućnost grupisanja učenika darovitih za matematiku u posebna odeljenja. Po završetku šestog razreda osnovne škole, učenici imaju mogućnost prelaska u gimnazije koje organizuju nastavu za učenike sa posebnim sposobnostima za matematiku (Pravilnik o nastavnom planu i programu za učenike sedmog i osmog razreda osnovnog obrazovanja i vaspitanja obdarene za matematiku, 2019). Prilikom upisa, učenici polažu poseban kvalifikacioni ispit na kome se vrednuju sledeće stavke: rezultati na testu sposobnosti iz matematike, opšti uspeh u petom i šestom razredu, ocene iz matematike u ovim razredima i učešće na državnom takmičenju iz matematike u šestom razredu.

Takmičenje iz matematike na državnom nivou održava se svake godine u maju, a pravo učešća na njemu ima približno po sto učenika šestog, sedmog i osmog razreda osnovne škole sa najboljim postignućima na okružnim takmičenjima u toku te školske godine.

Cilj ovog istraživanja je analiza postignuća učenika sedmog razreda SM i klasičnih odeljenja na državnim takmičenjima iz matematike u odnosu na matematičke oblasti

kojim zadaci sa takmičenja pripadaju i u odnosu na tip zadatka. U skladu sa ciljem, ispitivane su razlike u postignućima učenika klasičnih i SM odeljenja u rešavanju tih zadataka, kao i analiza sadržaja datih zadataka. Iz cilja proističu zadaci istraživanja kojima treba utvrditi:

- 1) odnos broja zadataka u kojima su učenici SM odeljenja ostvarili bolje rezultate od učenika iz klasičnih odeljenja, broja zadataka u kojima su ove dve grupe učenika postigle jednake rezultate i broja zadataka u kojima su učenici iz klasičnih odeljenja ostvarili bolje rezultate od učenika iz SM odeljenja;
- 2) odnos broja zadataka u kontekstu postignuća učenika SM i klasičnih odeljenja u zavisnosti od matematičke oblasti kojoj zadaci pripadaju;
- 3) odnos broja zadataka u kontekstu postignuća učenika SM i klasičnih odeljenja u zavisnosti od toga da li su zadaci računski ili dokazni.

U radu je vršena sekundarna analiza postignuća učenika 7. razreda na državnim takmičenjima iz matematike, u periodu od 2015. do 2024. godine. Učenici su na takmičenjima rešavali po pet zadataka koje je sastavila Državna komisija za takmičenje učenika osnovnih škola, a za čiju su izradu imali 180 minuta. Svi zadaci su javno dostupni na zvaničnom sajtu Društva matematičara Srbije. Državno takmičenje se svake godine održava uživo, kao i na svim prethodnim nivoima, u školskim uslovima, na osnovu Pravilnika o takmičenjima. Sadržaji zadataka su definisani Programom takmičenja koji donosi Društvo matematičara Srbije na početku takmičarskog ciklusa. Pravilnik i Program takmičenja su javno dostupni. Ocenjivanje zadataka se vrši na osnovu precizno definisane skale i uputstva za pregledanje (zadaci se boduju parcijalno). Svaki zadatak se boduje maksimalno sa 20 bodova.

Rezultati dobijeni na državnim takmičenjima svake godine se objedinjuju u jedinstvenu bazu koja je korišćena u ovom istraživanju. Uzorak istraživanja čine svi učenici sedmog razreda koji su učestvovali na državnim takmičenjima iz matematike u periodu od 2015. do 2024. godine, čiji ukupan broj iznosi 1014. Struktura populacije u odnosu na tip odeljenja koje učenici pohađaju data je u Tabeli 1.

Tabela 1
Struktura populacije istraživanja

Godina	Klasično odeljenje		SM odeljenje	
	<i>F</i>	%	<i>F</i>	%
2015.	64	66,67%	32	33,33%
2016.	50	50,00%	50	50,00%
2017.	57	58,16%	41	41,84%
2018.	53	52,48%	48	47,52%
2019.	60	62,50%	36	37,50%

Godina	Klasično odeljenje		SM odeljenje	
	F	%	F	%
2020.	60	61,22%	38	38,78%
2021.	50	50,00%	50	50,00%
2022.	61	54,46%	51	45,54%
2023.	64	61,54%	40	38,46%
2024.	67	61,47%	42	38,53%
Ukupno	586	57,79%	428	42,21%

Dobijeni podaci obrađeni su u softverskom paketu SPSS 20. Od statističkih mera i postupaka korišćeni su: frekvencije, procenti, aritmetička sredina, statistički test Šapiro-Vilk (engl. Shapiro-Wilk) za određivanje normalnosti raspodele numeričkih podataka, Studentov t-test za nezavisne grupe i Man-Vitnjev (engl. Mann-Whitney) za poređenje raspodele podataka u dve grupe.

Rezultati istraživanja i diskusija

U skladu sa ciljem istraživanja, analizirali smo da li postoje statistički značajne razlike u postignućima učenika koji pohađaju SM i klasična odeljenja, u rešavanju zadataka za sedmi razred, na državnim takmičenjima iz matematike, za svaki zadatak pojedinačno, u prethodnih deset godina (ukupno 50 zadataka). Za svaki zadatak je u obe grupe učenika ispitano da li broj poena koji su učenici ostvarili ima normalnu raspodelu. U slučajevima kada su obe grupe imale normalnu raspodelu, Studentovim t-testom nezavisnih grupa upoređivane su aritmetičke sredine broja ostvarenih poena, dok su u suprotnim slučajevima Man-Vitnijevim testom upoređene raspodele broja poena koje su učenici dveju grupa ostvarili. Rezultati su prikazani u Tabeli 2. Za svaki zadatak su navedene aritmetičke sredine broja poena koje su učenici dve grupe ostvarili, dok su rezultati Man-Vitnijevog testa navedeni u slučajevima kada su ustanovljene statistički značajne razlike. Ni u jednom zadatku u kome su razlike ispitivane Studentovim t-testom nisu ustanovljene statistički značajne razlike u rezultatima učenika.

Tabela 2

Postignuća takmičara sedmog razreda, u odnosu na vrstu odeljenja, po zadacima, u periodu od 2015. do 2024. godine

Godina	Redni broj zadatka									
	1.		2.		3.		4.		5.	
	Klasično	SM	Klasično	SM	Klasično	SM	Klasično	SM	Klasično	SM
2015.	5,72	8,97	2,73	5,56	2,39	4,09	6,42	9,13	1,31	3,50
			U=798.0 Z=-3.100 p=.002							
2016.	7,90	8,38	9,86	12,72	3,44	8,78	12,00	15,98	3,64	4,56
					U=914.0 Z=-2.414 p=.016		U=1009.5 Z=-1.994 p=.046			
2017.	7,00	11,56	4,30	9,85	4,65	9,90	3,21	8,02	7,18	11,32
	U=798.0 Z=-2.766 p=.006		U=644.5 Z=-3.946 p=.000		U=782.5 Z=-2.833 p=.005		U=861.5 Z=-2.349 p=.019		U=849.0 Z=-2.371 p=.018	
2018.	17,08	16,96	8,58	12,54	2,17	2,35	3,02	4,73	6,57	13,42
			U=990.0 Z=-2.071 p=.038						U=742.0 Z=-3.800 p=.000	
2019.	10,32	13,39	6,75	12,17	10,00	12,06	6,90	8,06	7,03	3,72
			U=664.5 Z=-3.178 p=.001						U=862.0 Z=-1.962 p=.050	
2020.	9,62	13,08	8,55	13,95	10,50	18,71	2,67	6,58	4,40	9,76
			U=745.0 Z=-3.056 p=.002		U=591.0 Z=-4.545 p=.000		U=829.5 Z=-2.394 p=.017		U=690.0 Z=-3.491 p=.000	
2021.	6,00	7,60	11,06	12,18	11,10	15,62	14,22	15,54	2,00	1,20
					U=865.0 Z=-2.987 p=.003					
2022.	9,18	12,65	2,26	7,94	4,25	4,90	8,08	12,84	0,84	5,35
	U=1193.5 Z=-2.306 p=.021		U=866.5 Z=-4.523 p=.000				U=1063.5 Z=-2.960 p=.003		U=1146.5 Z=-3.147 p=.002	
2023.	6,53	8,75	4,48	7,03	10,08	12,15	4,84	5,50	1,39	3,57
2024.	18,33	17,83	10,21	15,14	9,76	11,57	2,96	7,07	11,30	14,38
			U=931.0 Z=-3.064 p=.002				U=1011.5 Z=-2.781 p=.005		U=1080.0 Z=-2.095 p=.036	

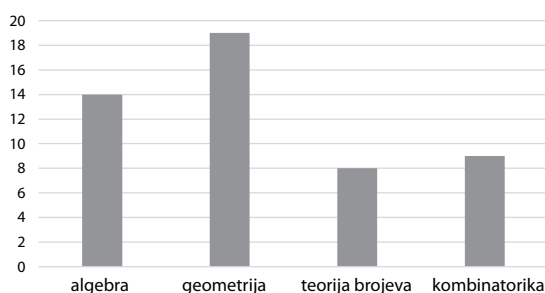
Od 50 posmatranih zadataka, učenici SM odeljenja postigli su statistički značajno bolje rezultate u 23 zadatka, u 26 zadataka razlike nisu bile statistički značajne, dok su učenici klasičnih odeljenja u jednom zadatku postigli statistički značajno bolje rezultate.

Uspeh učenika u zavisnosti od oblasti kojima pripadaju zadaci

Već je napomenuto da zadaci pripadaju oblastima algebre, geometrije, teorije brojeva i kombinatorike, a da su za rešavanje određenog broja zadataka potrebna znanja i umenja iz dve ili tri oblasti. Svaki zadatak svrstali smo u jednu oblast koja je dominantna u njegovom rešavanju sudeći po sadržajima i postupcima. Na osnovu Grafikon 1, uočavamo da je u posmatranom periodu najveći broj zadataka na državnim takmičenjima bio iz geometrije, zatim iz algebre, pa kombinatorike, a najmanji broj iz oblasti teorija brojeva.

Grafikon 1

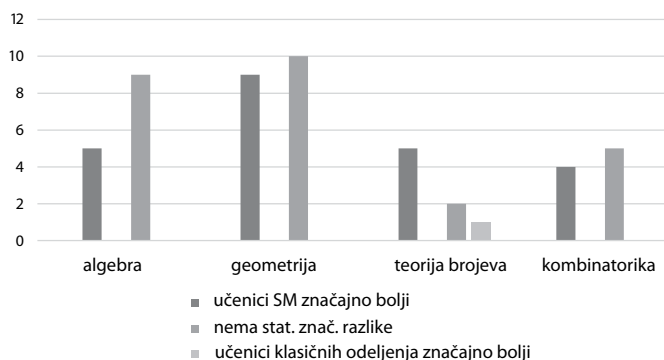
Broj zadataka na državnim takmičenjima učenika 7. razreda od 2015. do 2024. godine, po oblastima



Ako uporedimo uspeh po zadacima učenika SM i klasičnih odeljenja, u odnosu na oblasti kojima zadaci pripadaju, dobijamo rezultate prikazane na Grafikonu 2.

Grafikon 2

Postignuća učenika 7. razreda iz SM i klasičnih odeljenja u odnosu na oblast iz koje su zadaci na takmičenju u periodu od 2015. do 2024. godine



Uočavamo da je razlika u postignućima u korist učenika SM odeljenja najveća na zadacima iz teorije brojeva. Od 8 zadataka iz ove oblasti, učenici SM odeljenja su u 5 zadataka imali statistički značajno bolji rezultat. Analizom sadržaja ovih zadataka uočavamo da svi sadrže delove koji se mogu rešiti poznavanjem sadržaja sa redovne nastave, npr. rastavljanja broja na proste činioce ili deljivosti i ostatka pri deljenju prirodnim brojem, ali da je za uspešno sprovođenje čitavog rešenja obično neophodno i dobro poznavanje sadržaja dodatne nastave, npr. dešifrovanje brojeva u dekadnom zapisu u skladu sa datim uslovima, primena Dirihleovog (kombinatornog) principa (na deljivost prirodnim brojem). Stoga je npr. primena kongruencija za određivanje ostatka pri deljenju, kao i specijalno za određivanje poslednje cifre višecifrenog broja (kao specijalan slučaj deljenja sa 10), nešto sa čime se prosečan učenik osnovne škole ne susreće, osim ako nastavnik tome ne posveti posebnu pažnju na dodatnoj nastavi. S druge strane, veće su šanse da će učenici sedmog razreda SM odeljenja imati priliku da nauče osobine kongruencija jer se one i javljaju u njihovom programu rada. Pored toga, Dirihleov princip se takođe obrađuje isključivo na dodatnoj nastavi matematike (i naglašen je u programu takmičenja). Napominjemo da se zadaci u kojima se primenjuje Dirihleov princip svrstavaju u kombinatorne, ali da je jedan konkretan zadatak (iz 2018. godine) klasifikovan u teoriji brojeva, budući da je u rešavanju akcenat na primeni osobina deljivosti.

Na geometrijskim zadacima su učenici SM odeljenja na 9 zadataka ostvarili statistički značajno bolje rezultate, dok razlika u rezultatima kod 10 zadataka nije postojala. Sadržaji zastupljeni u ovim zadacima su usvajani pre sedmog razreda (osobine kvadrata i pravougaonika, uglova i trouglova, podudarnost trouglova, površina trouglova i četvorouglova, osna simetrija, simetrala duži, simetrala ugla, opisana i upisana kružnica u trougao, itd), a od sadržaja sedmog razreda zastupljeni su: Pitagorina teorema sa primenom na trougao, četvorougao i mnogougao, krug, periferni i centralni ugao. Posebno treba naglasiti da se u svim zadacima očekivalo poznavanje većeg broja definicija, tvrdjenja i osobina iz različitih tema, kao i njihovo sintetisanje u rešenje zadatka. Iz tog razloga je bilo zadataka u kojima je trebalo povezati znanja iz dve teme (podudarnost trouglova i uglovi trougla; zbir uglova u trouglu i periferni ugao...), tri teme (trougao, četvorougao, Pitagorina teorema; visina trougla, podudarnost trouglova, mnogougao...), ali i četiri teme (osobine pravouglog trougla, kružnica upisana u trougao, obim trougla, površina trougla; simetrala ugla, kružnica upisana u trougao, uglovi trougla, podudarnost trouglova). Analizom zahteva u ovim zadacima uočavamo da se sadržaji koje učenici treba da poznaju kako bi rešili date zahteve obrađuju gotovo u punom obimu u redovnoj nastavi. Ipak, neophodnost povezivanja sadržaja iz više oblasti i kreiranje različitih strategija jesu ono što njihovo rešavanje čini zahtevnim. Pored sposobnosti za prepoznavanje strategije i poznavanja potrebnih sadržaja, neophodna je i određena uvežbanost učenika, odnosno iskustvo u rešavanju složenih zadataka, koje se do određene mere stiče vežbom. Do takvih iskustava dolaze kroz saradnju sa vršnjacima koji imaju slična iskustva, ali i uz podršku nastavnika koji vodi učenike kroz postupak rešavanja, bar u prvom susretu sa takvim zadacima.

Na zadacima iz oblasti kombinatorike učenici SM odeljenja postigli su statistički značajno bolje rezultate u četiri zadatka, a skoro svi zadaci pripadali su oblastima dodatne

nastave: kreiranje pobedničke strategije matematičke igre, primena kombinatorike za rešavanje problema bojenja, prebrojavanje palindroma, prebrojavanje načina na koji se elementi skupa mogu razbiti u podskupove (koji nisu obavezno disjunktni) sa zadatim svojstvom itd. Ovdje se posebno ističe primena Dirihleovog principa u geometriji, kod kojeg je potrebno poznavanje geometrijskih sadržaja koji se obrađuju na redovnoj nastavi, ali je u rešavanju akcenat na prebrojavanju geometrijskih objekata i dokazivanju da je odabirom bilo kog određenog broja tih objekata moguće da se izabere njihov podskup takav da ispunjava zadati uslov.

Najmanje razlike u postignućima učenika su iz oblasti algebre i u ovoj oblasti se javljaju u 5 od 14 zadataka. U zadacima iz oblasti algebre akcenat je na primeni algebarskih transformacija, dokazivanju algebarskih jednakosti, određivanju vrednosti algebarskih izraza, primeni stepena i faktorizaciji prirodnog broja, što se obrađuje na redovnoj nastavi, dok se iz tema dodatne nastave izdvajaju rešavanje linearnih i nelinearnih Diofantovih jednačina, algebarski razlomci i složeniji zadaci iz stepena i operacije sa stepenom. Učenici SM odeljenja su statistički značajno bolje rešili zadatke u kojima je trebalo primeniti osobine stepena i algebarske transformacije, odrediti vrednost izraza u kojima se javljaju algebarski razlomci, faktorizaciju polinoma i određivanje skupa rešenja sistema nelinearnih jednačina. Možemo uočiti da se sadržaji zastupljeni u ovim zadacima pretežno javljaju na redovnoj nastavi, ali i da su zahtevi u njima prilično ozbiljni za taj uzrast učenika, budući da i podrazumevaju iskustvo u rešavanju sličnih zadataka, odnosno primenu odgovarajuće strategije rešavanja.

Uspeh učenika u zavisnosti od tipa zadataka

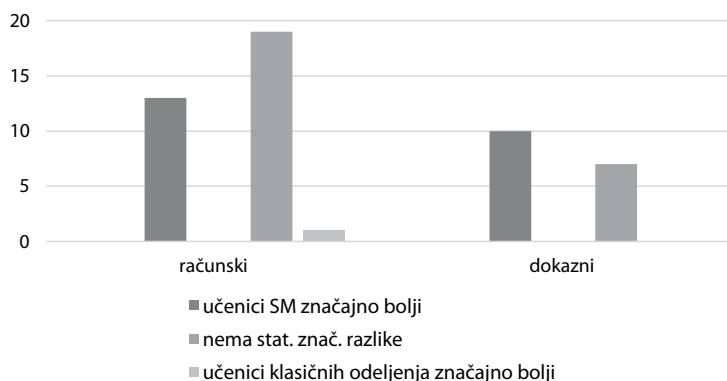
Pored matematičke oblasti kojoj pripadaju zadaci, želeli smo da analiziramo uspeh učenika SM i klasičnih odeljenja u odnosu na vrstu (tip) zadataka. U skladu sa time, podelili smo zadatke na računске i dokazne. Prvom tipu zadataka pripadaju svi zadaci u kojima je trebalo odrediti: vrednost brojevnog izraza, meru nekog geometrijskog objekta (dužinu duži, površinu i/ili obim figure, meru ugla), ostatak pri deljenju, nepoznatu vrednost i sl. Drugom tipu zadataka pripadaju oni zadaci u kojima se traži izvođenje neke vrste dokaza: jednakost mera geometrijskih objekata, deljivost algebarskog izraza prirodnim brojem, valjanost algebarskih jednakosti, egzistencija podskupova čiji elementi zadovoljavaju određeno svojstvo itd. Dokazni zadaci su obično zahtevniji od računskih, što potvrđuje i način bodovanja na određenim takmičenjima, gde se dokazni zadaci vrednuju značajno većim brojem poena (Facciaroni et al., 2023). U ovim zadacima učenici uglavnom prilaze rešenju tako što prvo opišu tvrđenje koje treba dokazati, pa zatim postupno izvode dokaz (Falk de Losada & Taylor, 2022). Postignuća učenika na osnovu ovako definisane klasifikacije data su na Slici 3.

Od 33 zadatka računskog tipa, učenici SM odeljenja ostvarili su statistički značajno bolja postignuća u 39,39% zadataka, u 57,58% zadataka nije bilo statistički značajne razlike, a samo jedan zadatak (3,03%) učenici iz klasičnih odeljenja su statistički značajno

bolje uradili. Od preostalih 17 zadataka dokaznog tipa, učenici SM odeljenja su ostvarili statistički značajno bolje rezultate u 10 (58,82%) zadataka, dok u ostalim zadacima razlike nisu bile statistički značajne.

Grafikon 3

Postignuća učenika sedmog razreda na državnim takmičenjima u zavisnosti od tipa zadataka



Učenike koji pohađaju SM odeljenja, sa jedne strane, karakterišu dobre predispozicije za bavljenje matematikom na visokom nivou jer su neretko ostvarivali dobre rezultate na takmičenjima u šestom razredu, gde se već javljaju dokazni zadaci, a polaganjem kvalifikacionog ispita za upis u SM odeljenje potvrdili su svoje sposobnosti za rešavanje zahtevnih matematičkih zadataka. S druge strane, u okviru redovne i dodatne nastave, učenici SM odeljenja su zahvaljujući podršci nastavnika imali priliku da rešavaju veći broj dokaznih zadataka (u odnosu na učenike iz klasičnih odeljenja), čime su uvežbali sposobnost argumentacije, pa samim tim i naučili da, navođenjem odgovarajućih kontraprimera, pretežno dokazuju da zadatak nema rešenja ili da ne postoji matematički objekat koji zadovoljava zahtevana svojstva – osim što su svakako na časovima algebre i geometrije u većoj meri dokazivali poznata matematička tvrđenja.

Ukoliko posmatramo konkretne sadržaje kod dokaznih zadataka koje su učenici SM odeljenja bolje uradili, izdvaja se primena Dirihleovog principa u geometriji. Od tri zadatka primene Dirihleovog principa (jedan u teoriji brojeva, a dva u geometriji), razlike su u sva tri zadatka bile statistički značajne u korist učenika SM odeljenja (5. zadatak, 2018; 5. zadatak, 2020; 4. zadatak, 2022. godine). Poteškoća za učenike klasičnih odeljenja bila je generalizacija određene karakteristike matematičkih objekata. Upravo sposobnost generalizacije, kao misaoni proces, i Dirihleov princip, kao konkretan matematički sadržaj, predstavljaju kombinaciju gde učenici koji poseduju posebne sposobnosti za matematiku po pravilu ostvaruju bolja postignuća (Sriraman, 2003).

Zaključak

Rezultati ranijih istraživanja pokazuju da učenici sedmog razreda grupisani u homogena odeljenja, gde se u radu sa njima podrazumeva produbljivanje i obogaćivanje nastavnog programa, postižu statistički značajno bolje rezultate od svojih vršnjaka iz heterogenih odeljenja (Neihart, 2007; Swiatek & Lupkowski-Shoplik, 2003; Vulović i sar., 2024) na državnim takmičenjima. Do sličnih rezultata došli smo i našom analizom. Rezultati ukazuju da su učenici SM odeljenja postigli statistički značajno bolje rezultate u 46% zadataka na državnim takmičenjima u poslednjih deset godina. Statistički značajna razlika u korist učenika SM odeljenja se najviše puta javila u zadacima iz oblasti teorije brojeva, nakon čega slede geometrija i kombinatorika, da bi taj procenat zadataka bio najmanji iz algebre.

Za rešavanje zadataka iz određenih oblasti, poput teorije brojeva i kombinatorike, kao preduslov bilo je neophodno poznavanje određenih postupaka, tvrđenja i osobina matematičkih koncepata sa kojima se učenici u najvećoj meri sreću van redovne nastave matematike. Za njihovo usvajanje nije dovoljna sama izloženost tim sadržajima, već je neophodna i sposobnost argumentacije, uopštavanja i generalizacije. S druge strane, pored sposobnosti za prepoznavanje strategije i poznavanja sadržaja iz drugih oblasti, poput geometrije i algebre, potrebna je uvežbanost, odnosno iskustvo, za šta je uloga nastavnika koji treba da upozna učenike sa određenim procedurama u početku od krucijalnog značaja.

Kada je reč o tipu zadataka, u računskim zadacima su učenici SM odeljenja ostvarili statistički značajno bolje rezultate u nešto manje od 40% zadataka, dok je kod dokaznih zadataka taj procenat skoro 60%. Rešavanje dokaznih zadataka zahtevalo je temeljno poznavanje sadržaja iz više nastavnih tema, kao i sposobnost održavanja i sintetisanja toka misli u koherentan i logički zasnovan dokaz, koji je potkrepljen odgovarajućom argumentacijom. Dakle, potvrđeno je da poznavanje školske matematike nije dovoljno za uspešno rešavanje takmičarskih zadataka koji se zasnivaju na izvođenju dokaza i odgovarajućem rezonovanju prilikom tog postupka (Sal'kov et al., 2017).

Možemo zaključiti da su kombinacija prisustva nadarenosti učenika za matematiku, zajedno sa detaljnijim (obogaćenim i produbljenim) nastavnim programom, uz formalnije bavljenje određenim sadržajima doveli do toga da učenici SM odeljenja u znatnoj meri nadmašuju postignuća svojih vršnjaka iz klasičnih odeljenja. Pravac narednih istraživanja može se ogledati u sprovođenju kvalitativnih istraživanja kako bi se rasvetlilo koji je od ova dva efektdominantniji kod većeg broja učenika i u kojoj meri.

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Put ka simbolima u algebri: od realističnih situacija do simboličkog jezika

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Apstrakt

U radu autori predstavljaju okvir učenja za uvođenje slova kao oznake za nepoznatu i promenljivu, koji se zasniva na situacijama iz realnog konteksta, njihovom modelovanju i prevođenju na algebarski jezik. U empirijskom delu rada organizovano je istraživanje s ciljem da ispitaju efekti ovakvog pristupa na razvijanje algebarske simbolike kod učenika mlađih razreda osnovne škole. Istraživanje je sprovedeno na uzorku od 257 učenika četvrtog razreda osnovnih škola u Republici Srbiji, primenom eksperimentalne metode sa paralelnim grupama. Rezultati istraživanja pokazuju pozitivne efekte primenjenog pristupa na bolje razumevanje simboličke notacije i veći stepen algebarske generalizacije. Ovi nalazi potvrđuju hipotezu da uvođenje algebarskih simbola kroz realistične probleme i kontekstualno povezane aktivnosti može značajno unaprediti sposobnost učenika da pravilno interpretiraju i koriste algebarsku notaciju.

Ključne reči: algebra, kontekstualni pristup, matematika, nepoznata, promenljiva.

Uvod

Prvi susret učenika sa simbolikom i matematičkim jezikom dešava se već sa početkom matematičkog obrazovanja i učenjem aritmetike. Dete sa formiranjem pojma prirodnog broja i njegovim simboličkim označavanjem počinje da upoznaje matematičke simbole i da prevodi realne konkretne situacije u matematičke zapise i rešava probleme. Poseban izazov na ovom uzrastu predstavlja uvođenje algebarske simboličke notacije i ulazak u oblast algebre. Upravo se prvi susret sa algebrom posmatra kao „prelomni trenutak za većinu ljudi u odluci da matematika nije za njih i da oni takve matematičke ideje

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ne razumeju" (Milinković i Maričić, 2022: 245). U aritmetici dete operiše brojevima, a u algebri ispoljava sposobnost da manipuliše brojevnim i simboličkim reprezentacijama, odnosno, da koristi i razume ulogu slova u matematičkom zapisu. Uvođenje simboličke algebarske notacije predstavlja veliki izazov kako za praktičare, tako i za teoretičare i istraživače matematičkog obrazovanja, koji postavljaju pitanje kako i kada uvesti matematičku simboliku (Brizuela et al., 2015; Carraher et al., 2008; Dabić Boričić, 2019; Milinković i Maričić, 2022; Radford, 2011).

Od aritmetike ka algebri u razvoju simboličkog jezika

Istraživanje Kristou i saradnika (Christou et al., 2005) pokazuje da na učenički doživljaj slovnih oznaka u algebri intenzivno utiče iskustvo koje učenici imaju sa brojevima u kontekstu aritmetike. Zapravo, uspešan prelaz na algebru, zasnovan na čvrstim aritmetičkim osnovama, može biti koristan i u procesu rešavanja problema (Akkan et al., 2011). Do sličnih rezultata dolaze Sun i saradnici (Sun et al., 2023), čije istraživanje pokazuje da se u nastavnim programima moraju pronaći sadržaji elementarne aritmetike na kojim će se uvesti algebarska simbolika. Razvojni putevi u ranom algebarskom mišljenju učenika imaju smer od „aritmetičkog mišljenja“, preko „generalizovanog algebarskog“ do konačno „simboličkog algebarskog“ mišljenja. Moglo bi se reći da je „matematička algebarska simbolizacija generalizacija aritmetike, dok je kognitivno tačnije reći da je simbolizacija algebre artikulacija aritmetike“ (Heffernan & Koedinger, 2022: 484).

Međutim, treba imati u vidu da se jedan od razloga pogrešnog tumačenja ideje nepoznate i promenljive, kao i simbola za njihovo označavanje, krije upravo u činjenici da se slova pojavljuju i u aritmetici, ali na sasvim drugačiji način. Slovne oznake u aritmetici predstavljaju najčešće skraćenice naziva objekata i predmeta i direktno upućuju na sam pojam, dok je uloga slova u algebri potpuno drugačija. Ovakvo shvatanje i upotreba slovnih oznaka od strane učenika kasnije vodi do grešaka i dubljeg nerazumevanja simbola kao oznake za promenljivu. U rešavanju algebarskih zadataka i razvijanju algebarskog načina razmišljanja posebno se mogu izdvojiti dva značajna trenutka: 1) prelaz sa verbalnog jezika na simbolički zapis, 2) prelaz sa aritmetike na algebru. Svaki od njih uslovljen je određenim odnosima koji postoje između mišljenja učenika, nastave i karakteristika algebre (Milinković i Maričić, 2022).

Ako se u obzir uzme značenje simbola, Kijeran (Kieran, 1981) smatra da je taj proces u direktnoj vezi sa formiranjem pojma jednačine. Prema tome, polazeći od aritmetike i imajući u vidu Brunerove ravni predstavljanja (akcioni, ikonički i simbolički), učenik bi mogao da stekne intuitivno razumevanje značenja jednakosti i tek onda da ga postepeno transformiše do razumevanja pravog oblika jednačine. Na ovaj način bi njegova algebra bila usidrena u aritmetici. Ovaj proces bi polazio od aritmetičke jednakosti u kojoj bi se u prvom koraku prstom sakrio jedan od brojeva, dok bi se kasnije prst zamenio nekim od držača mesta, tako da bi se na kraju čitav proces završio uvođenjem simbola kao oznake za nepoznatu. Na ovaj način bi slovo koje skriva broj bilo nepoznata – termin koji blisko odgovara ideji o skrivenom broju koji se može odrediti. Ako se, uz sve nave-

deno, u obzir uzme nastava algebre, može se postaviti pitanje: *Na koji način treba početi sa uvođenjem slova i algebarske notacije u početnoj nastavi matematike i kako taj proces da teče prirodnim putem?* Da bi se dao odgovor na ovo pitanje, mora se imati u vidu složenost i apstraktnost algebarskih pojmova, ali i činjenica da učenici mlađeg školskog uzrasta imaju poteškoće u razumevanju ideje nepoznate i promenljive (Akgün & Özdemir, 2006; Carraher et al., 2008; Stephens et al., 2015), pri čemu se pojavljuju i problemi u njihovom simboličkom označavanju (Booth, 1988; MacGregor & Stacey, 1997; McNeil et al., 2010; Specht, 2005).

Zadatak koji se postavlja pred učenike na ovom uzrastu treba da bude vezan za razvijanje ideje simbola u algebarskim zapisima u obliku:

- nepoznate (skriveni broj čiju vrednost treba otkriti, kao nepoznata, ali fiksna veličina – jednačine);
- promenljive (skup brojeva koji ispunjavaju određene uslove funkcionalne zavisnosti – nejednačine, funkcije, niz);
- slobodne promenljive (simbol koji predstavlja bilo koji broj u određenom skupu brojeva - generalizacija) (Milinković i Maričić, 2022).

Realni kontekst kao polazište za uvođenje algebarske simbolike

Proces formiranja pojmova promenljive i nepoznate, zatim i simbola za njihovo označavanje, krije u jedinstvu značenja i oznake, odnosno, oznaku pojma i oznaku simbola za njegovo predstavljanje. Presudnu ulogu u tom procesu ima kontekst kao nosilac značenja pojma. Ovaj kontekst, ukoliko je izražen kroz jezik svakodnevnog života, omogućava da se generalizaciji pruži smisao, te da se tim putem tako apstraktan pojam približi razumevanju učenika. Upravo iz tog razloga, osnova za razvijanje pojma simbola, kao i njegovog značenja kroz ulogu nepoznate i promenljive, mora da potiče od realnog konteksta i problema koji su vezani za ono sa čim se učenik susreće svakodnevno. Dakle, značaj razumevanja slova u algebarskom izrazu u direktnoj je vezi sa kontekstom koji postoji u problemu. Tako Risted i saradnici (Rystedt et al., 2016) smatraju da korišćenje različitih konteksta i razgovora o njima može pomoći u prelasku primitivnih na naprednije interpretacije simbola, pri čemu je važan kontekst u izražavanju odnosa koji postoje između veličina. Sa druge strane, prema mišljenju Radforda (Radford, 2002), verbalni jezik omogućava ljudima da osmisle tekstove koji odgovaraju opisanim radnjama i koje su opremljene nizom mogućnosti da se značenja razjasne i adekvatno obeleže, što sa druge strane nije slučaj sa algebarskom notacijom. Konstruisanje simboličkog zapisa za tekstualni problem zahteva drugačiji pristup iz razloga što se problemska situacija odvija prema načinu na koji se i čita, s leva na desno, dok početna tačka u simboličkom zapisu nema stalno mesto. U simboličkom zapisu je redosled zapisivanja izraza potpuno drugačiji i zavisi od suštine odnosa između veličina. Upravo iz tog razloga Ferari (Ferrari, 2006) smatra da učenici u procesu rešavanja problema prvo treba da koriste skraćenice koje su vezane za specifičan kontekst, dok se kasnije te skraćenice generalizuju izražavajući karakter nepoznate, koja se koristi u bilo kom

problemu. U tom slučaju, isti autor tvrdi, da to zavisi od jezičkih kompetencija samog učenika, ali i njegovog potpunog uključivanja u ostvarivanje ciljeva aktivnosti.

Prema mišljenju Van Rejvika (Van Reeuwijk, 2001) u mnogim nastavnim programima algebarske teme se uvode veoma brzo, tako da učenici jedva imaju vremena da razviju pojmovno razumevanje algebarskih koncepata. Često ne postoji veza sa postojećim neformalnim znanjem učenika. Iz perspektive učenika, to implicira besmisleno predstavljanje i korišćenje simbola. Iz tih razloga nastavu algebre treba zasnovati na situacijama koje su bliske učenikovom iskustvu, njegovom neformalnom znanju, utkati ih u aritmetiku i u kontekst koji je blizak učeniku, kao i situaciji učenja koja za učenike imaju smisla. Sa druge strane, učenicima treba sugerisati da koriste različite oblike vizuelno-šematskih reprezentacija kada rešavaju probleme realnog konteksta, kako bi razumeli odnose i bili uspešni u njihovom predstavljanju (Milinković et al., 2022).

Realni kontekst se vidi kao situacija koja je iskustveno bliska učeniku, pri čemu predstavlja polaznu tačku koja će poslužiti učeniku za ponovno otkrivanje matematičkih istina. Na taj način, cilj realnog konteksta predstavlja stvaranje pogodne situacije koja će omogućiti formiranje formalnog matematičkog znanja učenika, u ovom slučaju korišćenje simbola kao oznake za nepoznatu i promenljivu. Osnova ovakvog pristupa u nastavi leži u tome da učenje matematike treba da ima karakteristike kognitivnog rasta, a ne da se pojmi isključivo kao proces slaganja delova matematičkog znanja. Stoga je proces učenja zasnovan na konstrukciji matematičkih znanja i modela na osnovu učeničkog iskustva iz realnog života.

Problem izražen u obliku realnog konteksta može biti značajan motivišući faktor kako bi se uticalo na razvijanje pojma promenljive, ali i uvođenje simbola za označavanje iste. Navedimo primer koji izdvaja Arkavi (Arcavi, 1994), u kojem se pred učenike postavlja problem u obliku fotografije, koja prikazuje vozilo na ulazu u tunel na čijem vrhu se nalazi znak: "2.90". Od učenika je zatraženo da protumače šta broj može značiti. Neki od predloga bili su da se broj odnosi na težinu vozila u prolazu, njegovu širinu, njegovu visinu, ali su takođe razmatrane i relevantne merne jedinice. Na kraju su se učenici složili da bi oznaka mogla biti samo „maksimalna visina za prolaz vozila“, pri čemu su navodili moguće visine. Na kraju je od njih zatraženo da sve to zapišu i na matematički način. Ovakav način uvođenja simbola bio je u vezi sa razumevanjem konkretne situacije, ali i duboko vezan za značenje promenljive, što je jedan od najznačajnijih ciljeva – simbol ne može da postoji bez značenja, ali ni značenje bez simbola (Radford, 2004). Iste stavove iznose i Karaher i saradnici (Carraher et al., 2008), koji smatraju da algebru na mlađem školskom uzrastu treba učiti u pozadini konteksta realnog problema, postepeno uvodeći formalni zapis i kroz čvrsto povezivanje svih sadržaja matematike. Na primer, autori su pred decu postavili dve iste kutije bombona. Učenicima je predloženo da se u njima nalazi isti broj bombona. Na jednoj kutiji stajale su 3 bombone. Učenici su imali zadatak da broj bombona izraze simbolički. Veliki broj učenika pokušao je da reši problem tako što je nepoznatoj količini dao određenu vrednost, dok je drugi pak pokušao da reši koristeći se crtežom koji izražava situaciju, kako bi grafičkim prikazom ublažio ap-

straktnost problema. Algebarski postoji samo jedno tačno rešenje, ali logički gledano, tačno je svako rešenje koje izražava odnos gde u jednoj kutiji ima za 3 više bombona u odnosu na broj bombona u drugoj kutiji. Rezultati upućuju na to da će učenici možda moći da preusmere fokus sa pojedinačnih elemenata na skupove i njihove međusobne odnose. Stoga realni kontekst služi kao pozadina da bi se opisale veze između fizičkih veličina, pri čemu se na kraju formiraju generalizacije u obliku formalnih predstava, tako da „matematički predmet više nije pojedinačni slučaj ili vrednost, već odnos, odnosno funkcionalni odnos između dve promenljive” (Carraher et al., 2008: 247).

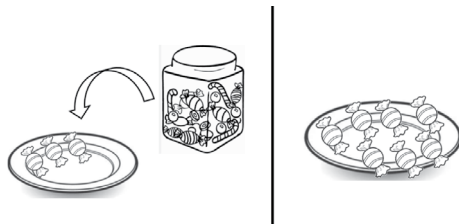
Svakodnevni jezik omogućava da se generalizaciji pruži smisao, prenese informacija i upotpuni kontekst koji nedostaje u algebarskoj notaciji. Iz navedenog razloga, polazište za uvođenje nepoznate i promenljive jeste prirodni jezik učenika, odnosno problemi izraženi kroz realne situacije svakodnevnog života, koji predstavljaju dobru osnovu za razumevanje ideja algebre i razvoj algebarskih sposobnosti.

Modelovanjem realističnih situacija ka konceptualnom razvijanju algebarske simbolike

Prvi korak na putu uvođenja i razvijanja algebarske simbolike jeste stvaranje realnog konteksta u kojem učenici mogu da prepoznaju problem, razmišljaju o njegovom rešavanju i grade osnov za postepen saznanji prelazak sa konkretnog na apstraktni, simbolički nivo. Realistične situacije deluju kao inicijalni pokretač, koji omogućava da se apstraktna ideja promenljive ili nepoznate pojavi iz iskustva učenika. Na ovaj način obezbeđuje se postepena matematizacija (Freudenthal, 1991), u kojoj se kroz više nivoa reprezentacije gradi most između svakodnevnog iskustva i formalnog algebarskog jezika. Okvir takvog učenja možemo predstaviti kroz sledeće faze:

- 1) realistična situacija kojom se izražava algebarski problem;
- 2) modelovanje realistične situacije korišćenjem različitih načina reprezentacije problema;
- 3) prevođenje ideje na konkretno područje referentnog algebarskog jezika uz korišćenje algebarskih simbola i operacija (Milinković i Maričić, 2022).

Kako bismo ilustrovali navedene faze učenja, navešćemo nekoliko primera problema realnog konteksta, koji mogu predstavljati oslonac za uvođenje simbola kao oznake za promenljivu i nepoznatu u mlađim razredima osnovne škole.

Primer 1**Crtež 1***Koliko bombona je dodato na tanjir?*

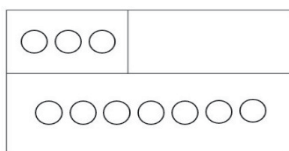
Na osnovu problema izraženog u vidu realne situacije (Crtež 1), učenik je u situaciji da zaključuje o odnosima i količinama bombona koje postoje u zadatku. Osnovni problem vezan je za uočavanje nepoznatog broja, tako da je učenik u situaciji da na osnovu očiglednog primera postepeno pređe na polje formalne algebarske notacije. Pošto je očigledna brojnost bombona u tanjiru pre i posle dodavanja, može se zaključiti da je broj dodatih bombona nepoznat. Formiranje pojma nepoznatog broja započinje bez simbolizacije, pa se ovaj problem u matematičkom obliku može predstaviti i kao jednakost sa „držačem mesta“, koji u ovom smislu predstavlja ulogu nepoznatog sabirka:

$$3 + \quad = 7$$

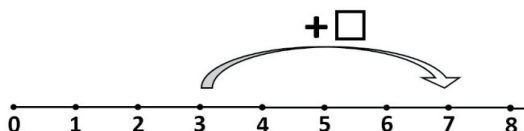
Ovim putem se problem svodi na matematički oblik koji bismo mogli izraziti u formi pitanja „Koji broj treba dodati broju 3 da bi se dobio broj 7?“ Ovakav tip zadatka, u obliku realnog konteksta, poslužio bi kao oslonac u prelasku na jezik formalne algebre, a rešavanje ovog problema moglo bi da se svede na prethodno iskustvo u sabiranju brojeva do 10.

Navedeni način zapisivanja ($3 + \quad = 7$), omogućava učenicima da uoče strukturu izraza i pojam nepoznatog pre susreta sa apstraktnim simbolom (x), na šta posebno ukazuju Radford (Radford, 2000) i Kijeran (Kieran, 1981), ističući da ovi zadaci olakšavaju prelaz od aritmetičkog načina mišljenja ka algebarskom. Prema njihovom mišljenju, zadaci sa *držačima mesta* omogućavaju učenicima da razviju osećaj za nepoznatu veličinu u konkretnom kontekstu, pre formalnog prihvatanja simboličkog jezika algebre. Ovakvi zadaci predstavljaju korak ka postepenoj simbolizaciji, jer kroz *držače mesta* učenici prvo shvataju ideju nepoznate vrednosti, zatim uče da je označe slovnim simbolom, a kasnije da izvode operacije nad njom. Na taj način *držači mesta* funkcionišu kao most između aritmetike i algebre, uvodeći učenike u novi način mišljenja koji podrazumeva apstrakciju i generalizaciju.

Sledeći korak u razvijanju ideje nepoznate, ali i simbola za njegovo označavanje, može se zasnivati na slikama ili ideografima, koji predstavljaju nešto apstraktnije forme (Crtež 2).

Crtež 2*Modelovanje problema ideografom*

Dalje udaljavanje od konkretnog je prelazak na modelovanje situacije na brojevnoj polupravoj (Crtež 3).

Crtež 3*Modelovanje problema na brojevnoj polupravoj*

Korišćenje ovih modela u velikoj meri može ublažiti apstraktnost algebarske notacije, tako što stvara uporište u uvođenju pojma nepoznatog broja „h“, kao broja čija se vrednost može utvrditi. Ovakvi grafički prikazi, implicirajući problem izražen u obliku realne situacije, mogu poslužiti kako bi se konačno zapisala jednačina u čisto algebarskoj formi:

$$3 + h = 7$$

Rešenje novog zadatka u algebarskom obliku bilo bi:

$$h = 4$$

Učenik na kraju zaključuje da je broj dodatih bombona 4. U procesu provere tačnosti rešenja jednačine, sledeći zadatak je ispitati da li je izraz koji se nalazi sa desne strane znaka jednakosti ekvivalentan broju koji se nalazi sa njegove leve strane, odnosno:

$$3 + 4 = 7$$

$7 = 7$, što znači da smo dobili tačno rešenje.

Primer 2

Bibliotekarka Milica za mesec dana rasporedi određeni broj knjiga na police. Bibliotekarka Milica rasporedi 120 knjiga manje od bibliotekara Petra. Napiši izraz koji pokazuje broj knjiga koje rasporedi bibliotekar Petar za mesec dana.

Proces rešavanja problema ponovo počinje od analize kontekstualno zasnovanog problema, koji dalje prelazi u polje apstraktne matematike. Učenik, razmišljajući o odnosima

koji postoje u zadatku, može zaključiti sledeće: ako bibliotekarka Milica za mesec dana rasporedi 120 knjiga manje od bibliotekara Petra, to znači da bibliotekar Petar mesečno složi 120 knjiga više od bibliotekarke Milice. Uzimajući to u obzir i uvažavajući činjenicu da je broj knjiga koje bibliotekarka Milica složi za mesec dana označen sa h , taj broj knjiga koje složi bibliotekar Petar mora biti $h + 120$. U razmišljanju o odnosima, misao učenika je na polju apstraktne matematike potpuno izdvojena od realnog problema. Na ovaj način ostvarena je veza između značenja i simbola.

Primer 3

Miloš je na testu postigao određeni broj poena i položio. Na narednom testu postigao je 12 poena više nego na prvom. Da li to znači da je i drugi test položio? Zašto? Kako bi matematički zapisao broj poena koje je osvojio na drugom testu?

Na osnovu podataka koji su iskazani u zadatku, možemo reći da postoji promenljiva, odnosno vrednost koja nije tačno određena. U ovom slučaju to je broj poena koje je Miloš postigao na prvom testu. Analizirajući odnose između podataka koji su dati u zadatku, učenik može da zaključi da postoji određeni nepoznat broj poena na prvom testu, kao i da je na drugom testu Miloš postigao 12 poena više. Pored toga, razmišljajući o odnosima, da bi se moglo odgovoriti na pitanje da li je i drugi test položen, mora se imati u vidu još jedna nepoznata veličina, a to je broj poena dovoljnih za polaganje testa, tako da je nemoguće dati tačan odgovor na ovo pitanje. U razmišljanju o odnosima, poslednji korak u procesu matematizacije jeste simbolizacija u kojoj se izražavaju odnosi između nepoznatog broja na prvom i drugom testu, u ovom slučaju: broj Miloševih postignutih poena na prvom testu: h ; broj Miloševih postignutih poena na drugom testu: $h + 12$.

Ovim putem smo želeli da na konkretnim primerima pokažemo na koji način je moguće uvesti slovne oznake kroz primere realnog konteksta. Povezivanjem sa problemima svakodnevnog života, kroz procese modelovanja, pokušava se prevazići problem razumevanja simbola koji se pojavljuju nerazdvojivo od svog značenja. Na taj način se osigurava da simbolizacija i značenje istovremeno postoje u jedinstvu realnog konteksta, podržavajući konstrukciju neke nove matematičke stvarnosti.

Na bazi ovakvih ideja smo želeli da istražimo da li prikazani pristup uvođenja slova u nastavu algebre doprinosi razvijanju sposobnosti pravilnog razumevanja simbola, kao što su oznake za promenljivu ili nepoznatu u sadržajima algebre na ranom školskom uzrastu.

Metodološki okvir

Uzorak istraživanja

Uzorak istraživanja ($N = 257$) odabran je iz populacije učenika koji su pohađali četvrti razred osnovne škole u Republici Srbiji. Istraživanje je sprovedeno primenom eksperimentalne metode sa paralelnim grupama. Eksperimentalnu grupu činili su učenici pet odelje-

nja iz jedne osnovne škole (N = 130), dok su kontrolnu grupu činili učenici pet odeljenja iz druge dve osnovne škole (N = 127). Grupe su bile ujednačene prema uspehu, socijalnom statusu i polu, a pored toga je ujednačenost kontrolisana i analizom kovarijanse.

Metod istaživanja

Tehnika korišćena u istraživanju bila je testiranje, a istraživački instrument bio je test. Za potrebe našeg istraživanja, i u skladu sa usvojenom metodom istraživanja, osmišljena su dva ekvivalentna testa: inicijalni test – za ispitivanje početnog nivoa razumevanja simbola, kao znaka za nepoznatu i promenljivu i finalni test – za utvrđivanje efekata eksperimentalnog programa. Problemi u testu su izražavali realne situacije, kao i probleme iz svakodnevnog života u kojima je upotreba simbola bila važna za razumevanje sadržaja algebre.

Pouzdanost testa je procenjena pomoću Kronbahovog alfa koeficijenta, kao indikatora pouzdanosti naših testova (inicijalnog i finalnog testa). Ovim testom se pokušava odrediti postojanje unutrašnje saglasnosti skale, odnosno stavki iz kojih se ona sastoji (Tabela 1).

Tabela 1

Vrednosti Kronbahovog alfa koeficijenta za testove

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Inicijalni test	.795	.885	10
Finalni test	.813	.926	10

Napomena: N – broj stavki; Kronbahov alfa – koeficijent pouzdanosti unutrašnje konzistentnosti; vrednosti veće od 0,7 ukazuju na prihvatljivu pouzdanost instrumenta.

Vrednosti Kronbah alfa koeficijenta (Tabela 1) za inicijalni i finalni test pokazuju rezultate veće od 0,7 što, prema mišljenju Palant (Pallant, 2017), predstavlja prihvatljive i poželjne vrednosti relijabilnosti.

Na početku eksperimenta izvršili smo inicijalno testiranje kako bismo utvrdili nivo razumevanja simbola kao znaka za nepoznatu i promenljivu u obe grupe. Nakon početnog testiranja, a u skladu sa kontekstualnim pristupom, uveli smo eksperimentalni program u rad eksperimentalne grupe. Oba testa su sadržala probleme koji su imali za cilj testiranje nivoa razumevanja simbola kao oznake za nepoznatu i promenljivu.

Postupak istraživanja

Nastava matematike u svim grupama se odvijala prema redovnom nastavnom planu i programu koji je propisalo Ministarstvo prosvete Republike Srbije. Eksperi-

mentalni program je sproveden tokom redovne nastave matematike u periodu od tri meseca i realizovan je kroz 27 časova. Sadržaji koji su obuhvaćeni istraživanjem su: jednačine sa sabiranjem, oduzimanjem, množenjem i deljenjem; nejednačine sa sabiranjem i oduzimanjem; funkcionalna zavisnost između rezultata i komponenata računskih operacija sabiranja, oduzimanja, množenja i deljenja. Na ovaj način su obuhvaćeni svi sadržaji u kojima se simbol pojavljuje kao oznaka za nepoznatu, promenljivu ili slobodnu promenljivu.

Eksperimentalna grupa je radila prema programu koji su činili posebno pripremljeni časovi, gde su se sadržaji algebre koji se odnose na pravilno razumevanje simbola kao oznake za promenljivu i nepoznatu podučavali modelovanjem realnog konteksta. Nastava je započinjala postavljanjem problema u realnom kontekstu, gde su učenici bili podstaknuti da identifikuju nepoznate veličine i vežbaju predstavljanje istih korišćenjem algebarske notacije. Zatim su učenici, uz podršku učitelja, rešavali nekoliko primera zadatka primenom iste metodologije. Nakon zajedničkog rada, učenici su samostalno rešavali zadatke iz udžbenika, koristeći usvojenu terminologiju i algebarski zapis za rešavanje zadataka, uz proveru tačnosti dobijenih rezultata.

Program je bio direktno usmeren na: (a) korišćenje realnog konteksta za razvijanje algebarskih pojmova; (b) razumevanje veze koja postoji između verbalnih opisa i algebarskih izraza; (v) strukturno razumevanje slovnih izraza kao matematičkih objekata i (g) modelovanje stvarnih životnih situacija uz korišćenje različitih reprezentacija (verbalna reprezentacija, didaktička sredstva, dijagrami ili slike, simbolička reprezentacija). Učitelji koji su realizovali program u eksperimentalnoj grupi prošli su obuku u trajanju od pet časova pre početka eksperimentalne faze. Trening je organizovao istraživački tim i obuhvatao je metodološka uputstva za sprovođenje intervencije i korišćenje pripremljenih materijala. Tokom realizacije, nastavni sadržaji su izvođeni u tesnoj saradnji sa istraživačima, što je omogućilo veću doslednost postupaka i povećalo pouzdanost dobijenih rezultata.

Kontrolna grupa radila je u skladu sa programom matematike zasnovanom na nastavi u kojoj dominira frontalni oblik rada, a koji nije bio zasnovan na realističnim situacijama i modelovanju, već na okvirima koji su postavljani u udžbeniku. I eksperimentalna i kontrolna grupa koristile su iste udžbenike iz matematike. Tipičan čas je uključivao rad na primerima kroz objašnjavanje, rešavanje zadataka na tabli i učeničko individualno rešavanje zadataka. Naglasak je bio na proceduri rešavanja zadatka i pravilnoj simboličkoj manipulaciji, a ne na postupku modelovanja ili korišćenja višestrukih reprezentacija u procesu učenja i rešavanja zadataka. Upotreba didaktičkog materijala, dijagrama i zadataka koji zahtevaju prevođenje stvarnog konteksta u algebarske iskaze bila je ograničena ili izostala. Rad u kontrolnoj grupi bio je fokusiran pretežno na procedure rešavanja zadataka (npr. ispravno rešavanje jednačina) umesto na konceptualno razumevanje i transfer znanja. Učitelji u kontrolnoj grupi nisu imali dodatnu obuku osim redovnog školskog stručnog usavršavanja.

Analiza i obrada podataka

Rezultati do kojih smo došli u istaživanju su obrađeni kvantitativno i kvalitativno. U kvantitativnoj analizi dobijenih podataka koristili smo analizu varijanse i analizu kovarijanse, kako bi se utvrdile moguće statistički značajne razlike u postignuću između grupa. U kvalitativnoj analizi analizirana su rešenja finalnog testa, pri čemu smo posebno pažnju posvetili analizi postupka i načina rešavanja zadataka. U radu smo se posebno osvrnuli na način na koji učenik pristupa rešavanju zadataka i greške koje se u tom procesu javljaju. Kvalitativna analiza obuhvatila je rešenja svih učenika, bez obzira na grupu kojoj učenik pripada.

Rezultati i diskusija

Efekti kontekstualnog pristupa na razumevanje algebarske simbolike

Rezultati inicijalnog testiranja (Tabela 2) pokazuju je da je eksperimentalna grupa na inicijalnom merenju ($M = 4.62$; $SD = 3.07$) prosečno postigla približno isti broj bodova kao i kontrolna grupa ($M = 4.56$; $SD = 2.94$). Analiza varijanse ($F(1, 255) = .023$, $p = .881$) rezultata na inicijalnom merenju pokazuje da između eksperimentalne i kontrolne grupe na inicijalnom merenju ne postoje statistički značajne razlike u pravilnom razumevanju simbola u ranoj algebri (Tabela 3). Vrednosti Levenovog testa inicijalnog merenja ($F(1, 255) = .074$; $p = .786$) (Tabela 3) pokazuju da je ispunjena pretpostavka o jednakosti varijanse, usled čega se analiza varijanse ovih rezultata može smatrati pouzdanom.

Tabela 2

Postignuća učenika eksperimentalne i kontrolne grupe u sposobnosti pravilnog shvatanja simbola u algebri na inicijalnom i finalnom merenju

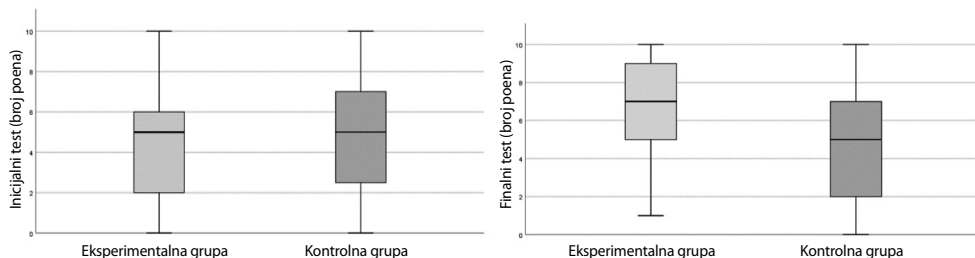
		<i>N</i>	<i>M</i>	<i>SD</i>
Inicijalni test	Eksperimentalna grupa	130	4.62	3.07
	Kontrolna grupa	127	4.56	2.94
Finalni test	Eksperimentalna grupa	130	6.89	2.41
	Kontrolna grupa	127	4.60	2.83

Napomena: *N* – broj ispitanika; *M* – aritmetička sredina; *SD* – standardna devijacija.

Rezultati finalnog merenja pokazuju da je eksperimentalna grupa u proseku postizala bolje rezultate ($M = 6.89$; $SD = 2.41$) u odnosu na kontrolnu grupu ($M = 4.60$; $SD = 2.83$) u merenju ove sposobnosti (Tabela 1). Za razliku od eksperimentalne grupe, kontrolna grupa je ostala na približno istom prosečnom broju poena kao na inicijalnom merenju (Grafikon 1).

Grafikon 1

Postignuće učenika eksperimentalne i kontrolne grupe u shvatanju simbola u algebri



Kako bismo utvrdili razlike u razvijenosti sposobnosti pravilnog shvatanja simbola u algebri, koristimo analizu varijanse. Vrednosti Levenovog testa finalnog merenja ($F(1, 255) = 4.796; p = .209$) pokazuju da je i na finalnom merenju ispunjena pretpostavka o jednakosti varijanse, pa se analiza varijanse ovih rezultata takođe može smatrati pouzdanom.

Tabela 3

Analiza varijanse inicijalnog i finalnog merenja sposobnosti pravilnog shvatanja simbola u algebri

		Levene Statistic	df1	df2	Sig.
Inicijalni test		.074	1	255	.786
Finalni test		4.796	1	255	.209

		Sum of Squares	df	Mean Square	F	Sig.
Inicijalni test	Između grupa	.204	1	.204	.023	.881
	Unutar grupa	2306.076	255	9.043		
	Ukupno	2306.280	256			
Finalni test	Između grupa	338.031	1	338.031	48.837	.000
	Unutar grupa	1765.012	255	6.922		
	Ukupno	2103.043	256			

Napomena: Levene Statistic – vrednost Levenovog testa jednakosti varijansi; df – stepen slobode; Sig. – nivo značajnosti; F – vrednost Fišerovog testa; Between/Within Groups – vrednosti varijanse u ANOVA modelu.

Rezultati analize varijanse finalnog merenja ($F(1, 255) = 48.837; p = .000$) pokazuju da postoji statistički značajna razlika u postignuću kontrolne i eksperimentalne grupe. Dobijeni rezultati pokazuju da su učenici eksperimentalne grupe statistički značajno postigli bolje rezultate u odnosu na kontrolnu grupu kada se, pod uticajem eksperimentalnog programa, ispitivalo u kojoj je meri razvijena njihov sposobnost pravilnog razumevanja simbola u algebri.

Kako bismo bili sigurni da su dobijeni rezultati pouzdani i da na njih nije uticala eventualna neujednačenost grupa, sproveli smo analizu kovarijanse. Na ovaj način, analizom kovarijanse, želeli smo istražiti uticaj eksperimentalnog programa, zasnovanog na principima kontekstualnog pristupa u nastavi algebre, na sposobnost pravilnog razumevanja ideje simbola u algebri. Vrednost Levenovog testa $F(1, 255) = 1.059$; $p = .305$ pokazuje da je ispunjena pretpostavka o jednakosti varijansi, tako da je moguće uraditi analizu kovarijanse kako bi se utvrdile razlike (Tabela 4).

Tabela 4

Levenov test analize varijanse

Zavisna varijabla: Finalno merenje			
F	df1	df2	Sig.
1.059	1	255	.305

Testira nultu hipotezu da je varijansa greške zavisne promenljive jednaka u svim grupama.

a. Model istraživanja: Konstanta + Simbol1 + Grupa

Napomena: F – vrednost Fišerovog testa; df_1 – broj stepeni slobode za faktor (grupe); df_2 – broj stepeni slobode za grešku; $Sig.$ – nivo statističke značajnosti (p -vrednost).

Analizom kovarijanse u postupku uklanjanja kovarijata (rezultata inicijalnog merenja) utvrdili smo postojanje statistički značajnih razlika između eksperimentalne i kontrolne grupe u finalnom merenju sposobnosti razumevanja simbola u algebri ($F(1, 254) = 117.010$; $p = .000$) (Tabela 5). Ovakav rezultat pokazuje značajne razlike između eksperimentalne i kontrolne grupe u merenju ove sposobnosti. Veličina parcijalnog eta kvadrata iznosi .315, što predstavlja veliki uticaj. To znači da je 31.5% varijanse u finalnom merenju (sposobnosti razumevanja simbola) objašnjeno je nezavisnom promenljivom (grupom – načinom rada). Ako se u obzir uzme uticaj kovarijata na finalno merenje (rezultati finalnog merenja sposobnosti razumevanja simbola), kada se ukloni uticaj nezavisne promenljive (grupe) uočljive se takođe statistički značajne razlike ($F(1, 254) = 377.835$; $p = .000$). To znači da je kontekstualni pristup učenju značajno doprineo razvoju sposobnosti razumevanja simbola, nezavisno od početnog znanja učenika. S druge strane, kada se kontroliše uticaj nezavisne varijable (grupe), rezultati inicijalnog merenja – kao kovarijata – objašnjavaju čak 59.8% varijanse u finalnom postignuću ($F(1, 254) = 377.835$; $p = .000$). To pokazuje da je početni nivo znanja najjači pojedinačni prediktor kasnijeg razumevanja simbola u algebri. Drugim rečima, iako početno znanje ima dominantnu ulogu u predviđanju uspeha, način rada (kontekstualni pristup) takođe ima značajan uticaj na razvoj sposobnosti razumevanja algebarskih simbola.

Tabela 5

Analiza kovarijanse inicijalnog i finalnog merenja u sposobnosti pravilnog shvatanja simbola u algebri

Zavisna varijabla: Finalno merenje						
Izvor	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Korigovani model	1393,502 ^a	2	696,751	249,421	0,000	0,663
Konstanta modela	536,250	1	536,250	191,966	0,000	0,430
Početno merenje	1055,471	1	1055,471	377,835	0,000	0,598
Grupa	326,864	1	326,864	117,010	0,000	0,315
Greška	709,541	254	2,793			
Ukupno	10626,000	257				
Korigovano ukupno	2103,043	256				

a. R Squared = 0,663 (Adjusted R Squared = 0,660)

Napomena: Type III Sum of Squares – mera varijanse; F – odnos srednjih kvadrata; Sig. – nivo značajnosti; Partial Eta Squared – mera veličine efekta; R² – koeficijent determinacije.

Na osnovu analize dobijenih rezultata možemo zaključiti da se može stimulisati pravilno razumevanje simbola kao oznake za promenljivu ili nepoznatu ukoliko je nastava algebre organizovana u skladu sa principima kontekstualnog pristupa i realnim situacijama svakodnevnog života. Nakon sprovedenog eksperimenta, rezultati su pokazali da postoje statistički značajne razlike između grupa, iz čega može proizići zaključak da se kontekstualnim pristupom može uticati na pravilno razumevanje simbola u algebri. Simbol predstavlja značajan pojam u algebri, pa je iz tog razloga veoma važno pravilno razvijanje ovog pojma od najranijeg uzrasta. Slovna oznaka (simbol) predstavlja značajan pojam rane algebre, koji na određeni način, kao oznaka, upućuje na algebru kao posebnu oblast matematike. Simbol ima moć da skрати zapis i izrazi kompleksne i raznovrsne zakonitosti na jednostavan način, a samim tim i olakša komunikaciju. Ovim istraživanjem smo dokazali da se putem nastave organizovane u skladu sa kontekstom realnih (životnih) situacija, može uticati pozitivno na pravilan razvoj ovog pojma kod učenika. U nastavi algebre na mlađem školskom uzrastu pojam simbola (slova za označavanje nepoznate i promenljive) suštinski je vezan sa drugim pojmovima kao što su jednačine, nejednačine, nizovi, formule i drugo. Kada je reč o nastavi matematike, učenici simbol često koriste kao oznaku u kojoj slovo etiketira predmet na koji se odnosi, što može doprineti ometanju pravilne interpretacije slova kao oznake u početnoj nastavi algebre (McNeil et al., 2010). Nasuprot ovim rezultatima, analiza rešenja učenika u ovom istraživanju pokazala je da određeni broj učenika jeste koristio slova za označavanje predmeta ili osoba, ali i da takva upotreba simbola nije ometala algebarske manipulacije i da su učenici uvek dolazili do tačnog rešenja. Nasuprot re-

zultatima prethodno navedenih istraživanja, u ovom istraživanju su učenici koristili različite interpretacije kao oznake za promenljivu ili nepoznatu, ali su njima manipulirali kao standardnim algebarskim simbolima.

Dobijeni rezultati, u skladu sa istraživanjem Stivensa i saradnika (Stephens et al., 2015) koji su u okviru istraživanja, pokazali su da se kroz adekvatan pristup i vežbanje algebarske sposobnosti na zadacima realnog konteksta mogu razvijati pojmovi nepoznate i promenljive, kao i simbola za njihovo označavanje. Prema tome, autori sugerišu da se algebarskim obrazovanjem u mlađim razredima osnovne škole mogu ublažiti neke od poteškoća koje učenici imaju sa učenjem algebre u starijim razredima.

Na osnovu dobijenih rezultata, možemo zaključiti da problem izražen u obliku konteksta svakodnevnog života može pomoći u interpretaciji i lakšem razumevanju suštinske ideje, zatim i uloge simbola u matematičkim jednakostima ili nejednakostima, jednačinama ili nejednačinama. U prilog ovim rezultatima navedimo i primer istraživanja Blantona i saradnika (Blanton et al., 2017) koje je pokazalo određene mogućnosti razumevanja slova kao oznaka za nepoznatu i promenljivu, i to već kod učenika prvog razreda osnovne škole. Autori smatraju da se i na ovako ranom uzrastu deca mogu naučiti da razmišljaju na sofisticiraniji način o promenljivim količinama, kao i da ih pri tom označavaju koristeći simbole. Ključnu ulogu u shvatanju ideje promenljive i simbola za njeno označavanje treba da imaju različite vrste nestandardnih oblika označavanja, što uključuje i prirodni jezik. Naše istraživanje pokazalo je slične rezultate, pri čemu se slažemo sa autorima da se kroz dugoročna iskustva sa simboličkim notacijama može graditi i pojam promenljive, a samim tim i predupređiti kasniji potencijalni problemi u shvatanju ovog pojma. Tako je istraživanje Risted i saradnika (Rystedt et al., 2016) pokazalo da su dvanaestogodišnji učenici sposobni da koriste bogatstvo različitih kontekstualnih resursa. Učenici su uspeali da koriste širok spektar interpretacija slova, kao simbola za oznaku promenljive ili nepoznate, ali da su u tom odabiru pokazali određenu neodlučnost. Njihovo istraživanje je pokazalo da je dijalog između dece predstavljao ključnu pomoć u prelasku sa primitivne na napredniju interpretaciju simbola, što potvrđuje značaj situacija svakodnevnog života, ali i moć reči i govora svakodnevnog života.

Do rezultata sličnih našim dolazi i Radford (Radford, 2022) u istraživanju u kojem su, umesto korišćenja zadataka koji uključuje otvorene aritmetičke jednakosti ili jednačine, korišćene priče-problemi kroz vizuelne interpretacije kako bi se formirao pojam jednačine, znaka jednakosti i pojma nepoznate. Ove priče bile su uokvirene u narative koji su omogućavali nastavniku i učenicima formiranje jednačina kroz kontekstualna značenja. Rezultati su pokazali bolje rezultate u relacionom razumevanju delova jednačine i dublje razumevanje matematičkih operacija koje igraju centralnu ulogu u uprošćavanju jednačina.

Naše istraživanje potvrdilo je rezultate drugih istraživača, kao što je istraživanje Van Ruvejka (Van Reeuwijk, 2001), u kojem su rezultati pokazali potrebu učenika za korišćenjem različitih veština i alata za manipulisanje u procesu rešavanja jednačina. Proces učenja započinje od problema realnog konteksta, u čijem rešavanju učenici imaju potrebu da samostalno razvijaju strategije kojima će pomoći učeniku da savlada formalnu algebarsku notaciju, samim tim i pravilnu upotrebu simbola u algebri.

Karakteristične greške učenika u razumevanju algebarske simbolike

Analizom radova učenika želeli smo da sagledamo i identifikujemo tipične greške koje su učenici pravili na zadacima iz testa, i tako proniknemo u suštinu dečjeg razumevanja slova kao oznake za nepoznatu i promenljivu u algebarskom izrazu. Ako se u obzir uzme način na koji učenik shvata odnose između promenljivih, analiza radova je pokazala da je najveći broj grešaka učenika vezan za upotrebu slova kao oznake za promenljivu u algebarskom izrazu, što ćemo ilustrovati kroz analizu Primera 1.

Primer 1. *Maja ima x dinara. Maja ima za 3000 dinara manje od Svetlane. Zaokruži izraz koji prikazuje koliko Svetlana ima novca.*

a) $x : 3000$

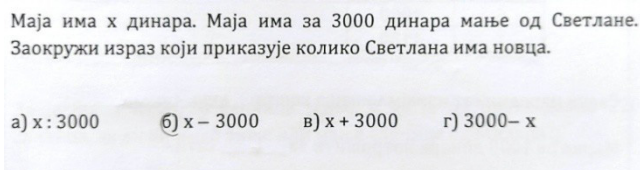
b) $x - 3000$

c) $x + 3000$

d) $3000 - x$

Slika 1

Rešenje zadatka sa Majom i Svetlanom – inicijalni test



Određeni broj učenika se u rešavanju navedenog zadatka odlučio za rešenje pod b) (Slika 1). Razlog tome možemo pronaći u nepravilnom shvatanju odnosa između suma novca koje imaju Maja i Svetlana. Ovde se radi o takozvanoj „grešci preokreta”, u kojoj se doslovno prebacuje značenje koje simbol kao promenljiva ima u problemu. Do sličnih rezultata u svom istraživanju dolaze i Veinberg i saradnici (Weinberg et al., 2016), koji izvor *greške preokreta* pronalaze u nepotpunom razumevanju simbola, odnosno nerazumevanju pojma promenljive ili nepoznate i znaka jednakosti. Ova vrsta greške nastaje usled nepotpunog razumevanja simbola, nepoznate veličine ili znaka jednakosti. Ukoliko se zadaci predstavljaju u realnom kontekstu bližem iskustvu učenika, veća je verovatnoća da će oni uspeti da izgrade smislaono razumevanje simbola i da izbegnu ovakve tipične greške. Stoga, razmatranje „greške preokreta” služi kao pokazatelj kako uvođenje realnih situacija može ublažiti ili prevazići teškoće u simboličkom mišljenju. Neke od zahteva koji se očekuju kod učenika mlađeg školskog uzrasta i prelasku na algebarsku notaciju izdvaja Ferari (Ferrari, 2006), koji smatra da jezičke kompetencije učenika treba da omoguće učenicima da u međusobnoj komunikaciji postanu svesni prelaska na algebarsku notaciju. Značajno je potpuno aktivno učešće učenika i u nematematičkim aktivnostima, dok je uloga učitelja od presudnog značaja u određivanju učničkih cilje-

va i aktivnosti u tako organizovanoj nastavi. Rezultati istraživanja koje je sprovedla Van Amerom (Van Amerom, 2002) pokazali su da se simbolizacija teško razvija u učenju i nastavi algebre na mlađem školskom uzrastu. Tačnije, rezultati pokazuju da su neki od učenika, pod uticajem realističnih problema, sposobni da rasuđuju o nepoznatom, ali da će zapis i dalje ostati aritmetički. Isto istraživanje je pokazalo da čak i matematički nadareni učenici, koji postižu uspeh u algebarskom rezonovanju, ipak imaju slabo razvijenu sposobnost simbolizacije. Sa druge strane, istraživanja pokazuju da su učenici starijih razreda (9. razred) sposobni da razumeju i koriste algebarske vizuelne reprezentacije kada se to od njih zahteva, ali da se ipak u objašnjavanju jednačina i nejednačina oslanjaju na standardne algoritme, što je u vezi sa boljim algebarskim zaključivanjem (Ünal et al., 2023). Analiza učeničkih grešaka u korišćenju simbola kao znakova za nepoznatu ili promenljivu u skladu je sa ciljem istraživanja, jer upravo one pružaju uvid u nivo razumevanja i način na koji učenici interpretiraju algebarske simbole. Greške nisu samo propusti, već dragoceni pokazatelji procesa mišljenja, kao i tipičnih teškoća sa kojima se učenici susreću u ranoj algebri. U tom smislu, analiza ovih grešaka omogućava da se jasnije sagledaju razlike između kontrolne i eksperimentalne grupe, kao i efekti primenjenog pristupa u razvijanju simboličke kompetencije.

Analiziraćemo neke od primera grešaka karakterističnih za upotrebu simbola kao oznake za promenljivu ili nepoznatu, koje su se pojavile kod dela učenika kontrolne grupe u finalnom testiranju. U Primeru 2 smo prikazali nekoliko najčešćih grešaka u rešavanju zadataka koji su bili karakteristični kod učenika u upotrebi simbola kao oznake za nepoznatu ili promenljivu. Učenici su rešavali sledeći zadatak (Primer 2).

Primer 2. *Bojana i Marko imaju istu količinu novca svako u svojoj kasici. Bojana u ruci ima još 200 dinara.*

Izrazi koliko novca ima Marko. _____

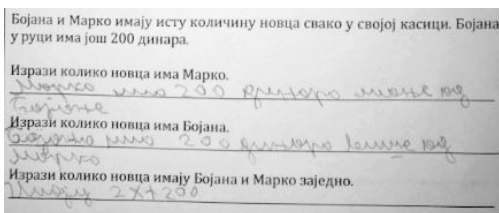
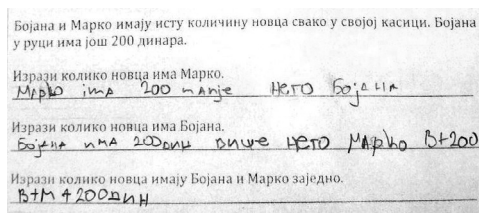
Izrazi koliko novca ima Bojana. _____

Izrazi koliko novc imaju Bojana i Marko zajedno. _____

Na slici 2 prikazane su neke tipične greške koje su pravili učenici prilikom rešavanja zadatka.

Slika 2

Rešenje zadatka sa Bojanom i Markom – finalni test

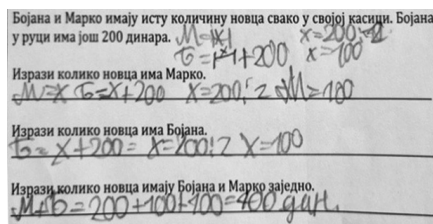
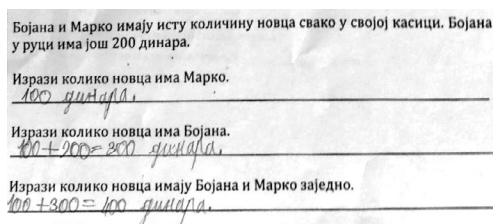


U navedenim rešenjima Primera 2 može se uočiti da učenik nije sposoban da na pravi način iskoristi simbol kao oznaku za nepoznatu količinu novca Marka i Bojane. U ovim primerima rešenja učenici su koristili reči da bi izrazili količinu novca svakog od dvoje dece. Dakle, učenici su bili u situaciji da promenljive zanemaruju ili odbace, već umesto toga koriste reči kojima pokušavaju utvrditi i izraziti odnose. Na potrebu za izražavanjem generalizacija i matematičkih istina korišćenjem reči, pre uvođenja algebarske notacije ukazali su Rasel i saradnici (Russell et al., 2011). Tek u primeru koji se odnosio na zajedničku količinu novca, učenici koriste simbole kao oznaku za nepoznatu količinu novca. Slične greške u rezultatima učenika su pokazalo je istraživanje Stivensa i saradnika (Stephens et al., 2015) koje je imalo sličan karakter kao i naše.

Pored toga, određeni broj učenika je imao potrebu da u rešavanju ovog zadatka potpuno izbegne nepoznatu, tako da je umesto simbola nepoznatu davao tačno određenu vrednost (Slika 3).

Slika 3

Rešenje zadatka sa Bojanom i Markom – finalni test



U nemogućnosti da shvate ideju nepoznate, učenici izbegavaju zapisivanje algebarskom notacijom. Nasuprot tome, deo njih se odlučuje da je bolje dati proizvoljnu određenu vrednost, kako bi se ispunili zahtevi u zadatku. Generalno govoreći, zadatak rešen na ovaj način daje rešenje koje je empirijski tačno, ali izraženo konkretnim brojem bez generalizacija. Ista pojava zapažena je u istraživanju koje su sprovedi KaraHER i saradnici (Carragher et al., 2008), gde je deo učenika u rešenju izbegavao da koristi promenljive, već je umesto njih nepoznatoj količini davao proizvoljnu vrednost. Neka od istraživanja, kao što je i istraživanje Stejsija i Mekgregora (Stacey & MacGregor, 1999), pokazuju da se čak i učenici starijeg uzrasta pre orijentišu na aritmetički način rešavanja problema, nego

na rešavanje korišćenjem simbola (algebarski zapis – jednačina). Do sličnih rezultata u svom istraživanju dolazi i Zeljić (Zeljić, 2014), koja navodi da su učenici imali tendenciju da promenljivoj dodeljuju numeričku vrednost, da zanemaruju ili ignorišu promenljivu, da slovo tretiraju kao konkretan objekat ili da pogrešno razumeju matematičku strukturu problema na koji se promenljiva odnosi. Na sličan način i Özgeldi (Özgeldi, 2013) u svom istraživanju dolazi do zaključka da neki učenici nisu sposobni da predstavljaju generalizacije sve dok ne postanu sposobni da manipulišu upotrebom promenljive. Kako bi se podržalo razumevanje generalizacija, od pomoći mogu biti različite koncepcije promenljivih. U njih spada i prazno mesto u zapisu ili crtež i skica koja ima ulogu promenljive ili nepoznate u prvom susretu učenika sa idejom nepoznate ili promenljive. Korišćenjem reprezentacija, učenici podstiču svoje matematičko mišljenje konstruisanjem apstraktne ideje, kao što su algebarski pojmovi u konkretne ideje, koristeći se pri tom logičkim mišljenjem (Goldin, 2020).

Tako Radford (Radford, 2018) u istraživanju dolazi do zaključka da prirodni jezik sa svojim širokim sistemom mogućnosti može ponuditi kvalitetan semiotički materijal za stvaranje kontekstualnih generalizacija, ali da se isti mora vremenom povući u pozadinu kako bi njegovo mesto zauzeo novi kognitivni oblik simbolizacije. Ova kontekstualna upoštanja mogu se razumeti kao ikonički oblik označavanja koji će vremenom prerasti u čist algebarski simbolizam. Rezultati ovog istraživanja potvrdili su prethodno rečeno, jer su učenici u prelasku na simboličku notaciju često koristili različite vrste ikoničkih reprezentacija u obliku skica ili slika, kako bi pojednostavili odnose i problemsku situaciju približili sopstvenom mišljenju.

Zaključak

Na osnovu dobijenih rezultata, može se zaključiti da primenjeni kontekstualni pristup, koji je zasnovan na realnim životnim situacijama, može pozitivno uticati na sposobnost učenika da pravilno razumeju simbole kao oznake za promenljivu ili nepoznatu. Ovaj zaključak je posebno važan ako uzmemo u obzir činjenicu da je simbol jedan od najznačajnijih pojmova u algebri, kao i da je značajan za kasnije usvajanje apstraktnijih algebarskih sadržaja. Vrednost jednog takvog pristupa, koji karakteriše visok stepen očiglednosti, kroz procese prelaska sa nižeg na viši nivo apstraktnog mišljenja modeliranjem situacija, prvenstveno se ogleda u njegovoj efikasnosti. Posebno je važno naglasiti da usvajanje takvog pristupa u matematičkom obrazovanju može dovesti do razvoja složenijih matematičkih pojmova, gde simbolička notacija postaje osnova za stvaranje generalizacija, kao i za druge grane matematike. U Republici Srbiji je program matematike tako osmišljen da podržava ideju uvođenja algebarskih sadržaja uz oslanjanje na aritmetiku od prvog razreda osnovne škole. Imajući u vidu tu činjenicu, kao i činjenicu da smo inicijalnim testiranjem pokazali određene nedostatke u razumevanju sadržaja algebre na uzrastu učenika četvrtog razreda, možemo reći da može i treba primenjivati model učenja zasnovan na situacijama realnog konteksta i procesa matematizacije. Za razvoj algebarskog mišljenja, od presudnog značaja je razumevanje i upotreba slova kao oznake za nepoznatu ili promenljivu, a put do razumevanja njegovog značenja

može biti kroz pažljivo odabrane sadržaje oblikovane u realnom kontekstu. Tako Sfard i Linčevski (Sfard & Linchevski, 1994) smatraju da učenik, dok se suočava sa jednačinama i nejednačinama, mora biti u stanju da se kreće između operativnog pristupa kada se njegova misao usredsređuje na procese (predstavljene algebarskim izrazima) i strukturalni pristup, kada se fokusiraju na apstraktne objekte koji se kriju iza simbola (Sfard & Linchcvski, 1994). Upravo u ovom odnosu se i ogleda značaj kontekstualnog pristupa koji omogućava učeniku da u svakom trenutku njegova misao putuje između algebarske notacije i realnog konteksta, pri čemu mu na tom putu može pomoći model koji učenik u postupku učenja sam gradi.

Podaci dobijeni u istraživanju Jupri i saradnika iz TIMCS testiranja (Jupri et al., 2014), pokazali su značajne probleme kod učenika u učenju iz oblasti algebre u mnogim državama širom sveta. Najveće poteškoće se odnose na razumevanje osnovne algebarske forme, ali posebno funkciju nepoznate i promenljive sadržane u algebarskom izrazu. Ako se ova činjenica ima u vidu, posebno se ističe značaj dobijenih rezultata u našem istraživanju.

Na osnovu dobijenih rezultata možemo zaključiti da je značajna prednost kontekstualnog pristupa u tome što on u nastavni proces uvodi sve faze modelovanja – razumevanje realne situacije, transformaciju situacionog modela u matematički model i postepeni prelaz na formalnu algebarsku notaciju. Upravo izostajanje ovih faza u radu sa učenicima kontrolne grupe može objasniti slabije rezultate koje su postigli u pravilnom razumevanju simbola. Za razliku od njih, učenici iz eksperimentalne grupe imali su priliku da problem sagledaju kroz realističan kontekst, da ga modeluju različitim predstavama, a zatim da ga prevedu u simboličku formu. Ovakvo postepeno prelaženje iz realnog u simboličko doprinelo je dubljem razumevanju funkcije simbola u algebri.

Ograničenje ovog istraživanja odnosi se na činjenicu da su u eksperimentalnoj i kontrolnoj grupi nastavu realizovali različiti nastavnici, što je moglo uticati na ishode nezavisno od primenjenog pristupa. Dizajn istraživanja bio bi metodološki snažniji ukoliko bi u svakoj školi bilo obuhvaćeno više odeljenja koja bi služila kao eksperimentalne i kontrolne grupe, čime bi se umanjio uticaj individualnih stilova nastavnika. U budućim istraživanjima moglo bi se razmotriti kako obezbediti da sve grupe učenika budu u što ravnopravnom položaju, odnosno kako nakon istraživanja omogućiti i kontrolnoj grupi pristup istim benefitima koji su pruženi eksperimentalnoj.

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Međujezički uticaji pri istovremenom učenju francuskog i engleskog jezika među učenicima trećeg razreda osnovne škole u Alžiru

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Apstrakt

Višejezične reforme sve češće dovode mlade učenike u učionice u kojima se istovremeno uče dva nova jezika. Ipak, malo se zna o tome kako takvi konteksti oblikuju međujezički uticaj (CLI) na samom početku formalnog obrazovanja. Ova studija ispituje istovremeno usvajanje francuskog i engleskog jezika kod učenika trećeg razreda u Alžiru nakon reforme iz 2022. godine, koja je uvela engleski jezik pored francuskog jezika u osnovnim školama. Kombinovanim metodama – dijagnostičkim testovima sa 372 učenika, anketama sa 48 nastavnika i intervjuima sa 60 roditelja – istraženi su obrasci transfera i uslovi u kojima se javljaju. Rezultati pokazuju da je CLI češće sistematski nego slučajan. Učenici su dosledno pribegavali francuskom jeziku, stvarajući predvidljive leksičke (32%), fonološke (28%) i ortografske (22%) transfere. Ovi obrasci odražavaju strukturno preklapanje jezika, ali su i pojačani dugotrajnom dominacijom francuskog jezika u alžirskom obrazovanju. Nastavnici su često koristili francuski pri formulisanoj instrukciji, dok su roditelji, bez znanja engleskog, pružali podršku uglavnom na francuskom. Studija doprinosi teoriji pokazujući da CLI nije samo kognitivni već i socijalno uslovljen fenomen. Pedagoški, naglašava potrebu za obukom nastavnika u višejezičnim metodama i kontrastivnoj pedagogiji, dok na nivou politike ističe da simbolička promocija engleskog zahteva kontinuirana ulaganja u resurse i razvoj nastavnika.

Ključne reči: međujezički uticaj, rano višejezično usvajanje, učenje francuskog i engleskog jezika, alžirsko osnovno obrazovanje.

Uvod

Višejezičnost postaje norma u obrazovanju, ali su se dosadašnja istraživanja uglavnom fokusirala na dvojezično usvajanje, a ne na istovremeno učenje dva strana jezika. Malo se zna o tome kako učenici nižih razreda paralelno upravljaju učenjem L2 i L3, uprkos specifičnim kognitivnim i pedagoškim zahtevima. Ovaj problem je posebno kritičan u Alžiru, gde je reforma iz 2022. godine uvela engleski jezik pored francuskog u trećem razredu, stvarajući nov i neviđen kontekst ranog višejezičnog obrazovanja u Severnoj Africi.

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Postojeće teorije o usvajanju L2 i L3 slažu se da je CLI neizbežan kada se više jezika usvaja zajedno. Dok neki modeli naglašavaju značaj razumljivog inputa i afektivnih faktora (Krashen, 1982), druge teorije, poput *Teorije složenih dinamičkih sistema* (De Bot et al., 2007; Larsen-Freeman, 2017), ističu međuzavisnost razvijajućih jezičkih podsistema. Bez obzira na razlike, sve ove teorije predviđaju da će transfer nastati sistematski u različitim domenima.

Empirijska istraživanja su dala neujednačene rezultate. Neke studije dokumentuju olakšani prenos znanja i kognitivno jačanje kao rezultat (Cenoz, 2003; Maluch, 2017), dok druga ukazuju na interferenciju ili sporiji razvoj zbog konkurencije za kognitivne resurse (Antunez Aguilar, 2022; Lara & Pillot-Loiseau, 2022; Vujović, 2022). Većina ovih istraživanja potiče iz evropskih i azijskih konteksta (Kutsuki, 2016; Little & Kirwan 2021; Zehetgruber, 2023), često uključujući bilingvalnu decu koja uče treći jezik. Stoga su empirijski dokazi iz Severne Afrike, a posebno iz Alžira, i dalje ograničeni (Bouabdallah, 2022; Maraf & Osam, 2022; Meghaghi, 2011).

Alžir predstavlja specifičnu sociolingvističku ekologiju. Francuski jezik održava već dugo ulogu jezika obrazovanja i administracije (Kerma, 2018), dok je engleski postavljen kao globalni jezik nauke i mogućnosti (Maraf & Osam, 2022). Za decu, izloženost oba jezika odvija se u kontekstu u kojem takođe cirkulišu arapski dijalekti, moderni standardni arapski i berberski jezik. Način na koji ove ukrštene hijerarhije utiču na rano učenje još uvek nije sistematski istražen.

Ova studija popunjava taj jaz ispitujući kako učenici trećeg razreda u Alžiru istovremeno usvajaju francuski i engleski, sa posebnim fokusom na obrasce i mehanizme CLI. Konkretno, cilj je da se identifikuju najčešće greške transfera, kako se one razlikuju u fonološkom, leksičkom i ortografskom domenu, i kako ih nastavnici i roditelji percipiraju i reaguju na njih. Na taj način, istraživanje doprinosi tekućim raspravama o kognitivnim i lingvističkim mehanizmima koji stoje u osnovi ranog višejezičnog usvajanja, pedagoškim izazovima implementacije istovremene nastave L2/L3 u uslovima ograničenih resursa, kao i implikacijama nedavnih reformskih politika u Alžiru.

Shodno tome, istraživanje se vodi trima centralnim pitanjima:

- 1) Koji su najčešći obrasci međujezičkog uticaja kod učenika trećeg razreda u Alžiru koji istovremeno uče francuski i engleski?
- 2) Kako se ovi obrasci razlikuju u fonološkom, leksičkom i ortografskom domenu?
- 3) Kako nastavnici i roditelji percipiraju i reaguju na međujezički uticaj učenika u učionici i kod kuće?

Pregled literature

Simultano usvajanje više jezika u detinjstvu dugo intrigira istraživače, posebno u vezi sa fenomenom međujezičkog uticaja (CLI). Iako razvoj bilingvizma često prati monolingvalne putanje (De Houwer, 2009), istraživanja dosledno pokazuju da upravljanje s dva jezička sistema paralelno može proizvesti specifična odstupanja u fonologiji, morfologiji,

sintaksi i semantici (Paradis & Genesee, 1996; Serratrice, 2013). U Alžiru, gde su francuski i engleski prvi put simultano uvedeni u trećem razredu 2022. godine, ova pitanja zahtevaju poseban osvrt.

Jedan od centralnih teorijskih okvira je hipoteza strukturnog preklapanja, koja predviđa da CLI nastaje kada dva jezika dele delimično preklapajuće strukture na osetljivim gramatičkim interfejsima (Hulk & Müller, 2000). Međutim, kasnija istraživanja naglašavaju da CLI nije ograničen samo na takvo preklapanje, već može proizaći i iz procesa koaktivacije u bilingvalnom govoru (Kopečková et al., 2022; Nicoladis, 2006). Ovi nalazi sugerišu da je malo verovatno da će deca u Alžiru u potpunosti razdvajati francuski i engleski jezik; naprotiv, veća je verovatnoća da će njihove jezičke produkcije biti oblikovane konkurencijom aktivacija iz različitih jezičkih kodova.

Empirijske studije bilingvizma francuskog i engleskog ilustruju složenost CLI. U longitudinalnoj studiji dece uzrasta od 2-4 do 3-7 Erve i Seratris-a (Hervé i Serratrice, 2018) dokumentovali su dvosmerni CLI u razvoju određenih reči: upotreba određenih reči u engleskom jeziku se ubrzala, dok je u francuskom došlo do kašnjenja u pluralnim i generičkim kontekstima. Slično tome, Kopečková i saradnici (Kopečková et al., 2022) pokazali su da se CLI proteže izvan morfosintakse i u konceptualne domene, poput konstrukcije događaja kretanja, gde bilingvalni govornici usvajaju hibridne strategije kodiranja. Na fonološkom nivou, bilingvalni govornici pokazuju merljiv međujezički uticaj u segmentnom vremenu i zvučnosti. Studije o vremenu početka glasa potvrđuju da se fonetske kategorije kod englesko-francuskih bilingvala menjaju u zavisnosti od jezičkog konteksta, što odražava duboku koaktivaciju tokom planiranja govora (Caramazza et al., 1973; Flege, 1987; Sundara et al., 2006).

Ortografija i pismenost takođe utiču na CLI. Istraživanja o dvopismenosti pokazuju da, iako deca mogu razlikovati ortografske obrasce u svakom jeziku, interferencija između pisama ostaje česta, što naglašava potrebu za eksplicitnim učenjem međujezičke pismenosti (Schwartz et al., 2014). U školskom pisanju, leksički CLI se manifestuje kroz kreativne pozajmljenice i kalkove koje odražavaju sociolingvističke hijerarhije, pri čemu prestiž jezika oblikuje vidljivost transfera (Ballinger, 2013).

Izvan bilingvalnih konteksta, studije simultanog usvajanja L2 i L3 pokazuju da transfer zavisi od prethodnog jezičkog iskustva, tipološke sličnosti i kvaliteta nastave. Rani bilingvalni govornici često koriste reprezentativne resurse iz postojećih jezika prilikom učenja dodatnog, ali rezultati takvog učenja zavise od inputa i pedagoškog dizajna (Flynn et al., 2004; Westergaard et al., 2017). Ovi nalazi su posebno relevantni za Alžir, gde je engleski brzo uveden zajedno sa francuskim, bez kontinuirane obuke nastavnika ili koherentne međujezičke strukture (Saoudi, 2022).

Sagledano u celini, literatura prikazuje ambivalentnu sliku. S jedne strane, CLI može biti olakšavajući faktor, povećavajući metajezičku svest i podstičući fleksibilnu upotrebu jezika (Ballinger, 2015; Cook, 2003). S druge strane, kada se simultana nastava uvodi bez adekvatnog planiranja ili resursa, transfer se često pojavljuje kao interferencija, a ne olakšanje. Ono što je manje istraženo - i na šta se ovo istraživanje fokusira - jeste kako se ovi procesi odvijaju u alžirskim učionicama trećeg razreda, gde ukorenjeni institucionalni status francuskog jezika koegzistira sa rastućim globalnim prestižom engleskog. Ispitujući

kvantitativne obrasce fonološkog, leksičkog i ortografskog transfera, kao i kvalitativne uvide nastavnika i roditelja, ovo istraživanje smešta iskustva alžirskih učenika u širu debatu o tome da li CLI treba shvatiti kao razvoju prepreku ili resurs za učenje više jezika.

Metodologija

Dizajn istraživanja

Ovo istraživanje primenjivalo je konvergentni paralelni miks-metod dizajn, kombinujući kvantitativni i kvalitativni pristup prikupljen u okviru istog školskog polugodišta. Kvantitativna komponenta obuhvatala je dijagnostičke testove iz francuskog i engleskog jezika, osmišljene radi identifikovanja pojava CLI u učeničkom govoru i pisanju. Kvalitativna komponenta sastojala se od upitnika za nastavnike i intervju sa roditeljima, koji su učeničke obrasce grešaka postavljali u širi pedagoški i porodični kontekst. Istovremeno prikupljanje i analiziranje obe vrste podataka omogućilo je triangulaciju, čime je ojačana interpretativna snaga studije (Creswell & Plano Clark, 2018). S obzirom na to da prethodna obimnija istraživanja istovremenog učenja francuskog i engleskog u Alžiru ne postoje, dizajn je zamišljen kao istraživanje eksplorativnog tipa i prva studija šireg dometa u ovom nacionalnom kontekstu, koja obezbeđuje polazne dokaze za buduća komparativna i longitudinalna istraživanja.

Tok istraživanja i učesnici

Podaci su prikupljeni u dvanaest javnih osnovnih škola u centru Batne, u periodu od 1. aprila do 8. maja 2025. Ovaj period je namerno odabran jer je bio van rasporeda tromesečnih provera znanja, čime je smanjen pritisak na učenike i nastavno osoblje. Do tog trenutka, učenici trećeg razreda imali su približno osam meseci formalne nastave iz francuskog i engleskog, što je pružilo dovoljno vremena za pojavu značajnih obrazaca međujezičkog uticaja (CLI).

Uzorak učenika obuhvatao je po dva odeljenja trećeg razreda iz svake škole, sa brojem učenika u odeljenju od 30 do 36. Ukupno je učestvovalo 372 učenika, uzrasta od osam do devet godina. Deca sa dijagnostikovanim jezičkim ili poremećajem sluha su isključena, ne zato što njihova multijezička iskustva nisu bila relevantna, već zbog nedostatka specijalizovane opreme potrebne za pravedno uključivanje u dijagnostičke zadatke.

Uzorak nastavnika obuhvatio je sve nastavnike francuskog i engleskog jezika koji su podučavali odeljenja obuhvaćena istraživanjem (N=48; 24 nastavnika francuskog jezika, 24 nastavnika engleskog jezika). Oni su se razlikovali po starosti, obrazovanju i profesionalnom iskustvu, što je omogućilo reprezentativnost raznolikosti nastavnika osnovnih škola u Batni.

Uzorak roditelja obuhvatao je 60 učesnika, po pet roditelja po školi. Roditelji su namerno odabrani da predstavljaju decu sa visokim, srednjim i niskim nivoom CLI, merenim

dijagnostičkim testovima. Intervjui su bili osmišljeni da pruže komplementarne uvide u kućne aktivnosti i stavove roditelja, a ne da funkcionišu kao primarni izvori podataka.

Instrumenti za prikupljanje podataka

Dijagnostički testovi uključivali su po dva zadatka po jeziku: zadatak za izgovor i zadatak za vokabular/ortografiju. Svaki test je imao 20 stavki, što je ukupno činilo 40 po učeniku, raspoređenih u fonološke, leksičke i ortografske kategorije. Relativno kratka dužina testova bila je namerna, kako bi se obezbedilo pokrivanje ključnih oblasti, a zadaci ostali prikladni za uzrast i izvodljivi za učenike trećeg razreda sa ograničenim kapacitetom pažnje.

Upitnik za nastavnike sastojao se iz tri dela: 1) demografskih i profesionalnih informacija, 2) Likertova skala koja ispituje percepciju CLI, uočene obrasce i nastavničke strategije u učionici, i 3) otvorenih pitanja koja pozivaju nastavnike da opišu konkretne primere interferencije i da procene adekvatnost nastavnih materijala.

Intervjui sa roditeljima bili su polustrukturirani i trajali su približno 30 minuta. Vodič za intervju uključivao je pitanja o: 1) upotrebi jezika kod kuće, 2) stavovima prema francuskom i engleskom, 3) izloženosti dece jeziku van škole, i 4) roditeljskom uključivanju u izradu domaćih zadataka i podršci u učenju.

Analiza podataka

Kvantitativna analiza izvršena je u SPSS-u. Deskriptivne statistike sumirale su prosečne frekvencije grešaka i raspodelu po fonološkim, leksičkim i ortografskim kategorijama. Svaka prepoznatljiva greška transfera računala se kao jedan poen, čime je osigurana doslednost i transparentnost. Ukupan CLI indeks izračunat je za svakog učenika deljenjem ukupnog broja grešaka sa ukupnim brojem stavki testa (40), što je dalo proporcionalni rezultat između 0 i 1. Podindeksi su takođe izračunati zasebno za fonološki, leksički i ortografski domen.

Da bi se ispitali prediktori CLI, primenjeno je višeslojno modeliranje kako bi se uzeo u obzir ugnježdjeni strukturalni raspored podataka (učenici unutar odeljenja, odeljenja unutar škola). Ovaj pristup omogućio je analizu i na individualnom i na školskom nivou, identifikujući obrasce koji prevazilaze samu učestalost grešaka.

Kvalitativna analiza pratila je šestofazni tematski okvir Brauna i Klarka (2006). Odgovori na upitnike nastavnika i transkripti intervju sa roditeljima kodirani su induktivno, a zatim grupisani u šire teme, poput „fonološke konfuzije“, „leksičke zavisnosti od francuskog“ i „roditeljsko davanje prednosti francuskom jeziku“. Tematska analiza omogućila je nijansiranu interpretaciju načina na koji CLI percipiraju i njime upravljaju nastavnici i porodice.

Integracija nalaza ostvarena je kroz zajedničke matrice prikaza koje usklađuju kvantitativne rezultate sa kvalitativnim uvidima. Na primer, učenici sa visokim fonološkim CLI skorom upoređeni su sa izveštajima roditelja o ograničenoj izloženosti engleskom kod

kuće, a potom su nastavnički izveštaji o leksičkoj zameni povezani sa odgovarajućim dijagnostičkim podacima. Ova integracija pružila je bogatiju interpretativnu perspektivu nego što bi to bilo moguće korišćenjem samo jednog tipa podataka.

Validnost i pouzdanost

Primenjene su različite procedure kako bi se obezbedila pouzdanost/validnost istraživanja. Sadržajna validnost dijagnostičkih testova i protokola intervjua potvrđena je stručnim pregledom od strane dva stručnjaka za primenjenu lingvistiku. Pilot-testiranje sa 20 učenika iz neparticipirajuće škole potvrdilo je jasnoću i prikladnost zadataka za uzrast.

Pouzdanost ocenjivanja osigurana je dvostrukim kodiranjem. Dvadeset procenata testova nezavisno su ocenila dva obučena doktorska kandidata iz EFL, što je dalo Koenove *kappa* vrednosti iznad 0,80 za sve kategorije — što ukazuje na visoku saglasnost između ocenjivača. Korišćenje proporcionalnog CLI indeksa omogućilo je standardizovane rezultate među učenicima, dok su podindeksi po domenima povećali dijagnostičku preciznost.

Triangulacija među izvorima podataka - testovima, upitnicima koji su namenjeni nastavnicima i intervjuima roditelja - dodatno je ojačala kredibilitet rezultata. Istraživački tim je vodio refleksivne beleške sa terena, koje su dokumentovale potencijalne pristrasnosti i služile kao osnova za interpretativne odluke.

Etička razmatranja

Etičko odobrenje je dobijeno od institucionalnog odbora za etiku istraživanja, uz dodatnu saglasnost Direkcije za obrazovanje u Batni i direktora škola. Pisani informisani pristanak dobijen je od roditelja, dok je od učenika tražen usmeni pristanak prikladan uzrastu. Učešće je bilo dobrovoljno, a učenici su mogli da se povuku u bilo kojem trenutku. Poverljivost je očuvana korišćenjem anonimizovanih identifikatora. Učenici sa dijagnostikovanim jezičkim ili slušnim poremećajima isključeni su iz istraživanja isključivo iz metodoloških razloga, zbog nedostatka specijalizovanih alata koji bi osigurali pravednost tokom testiranja.

Prikaz rezultata

Ukupan CLI indeks

Ukupan CLI indeks iznosi 0,27, što znači da je u proseku više od jednog od četiri odgovora pokazivalo transfer.

Tabela 1

Ukupni CLI rezultati po domenima

Domen	Prosečne greške (od 40)	CLI indeks (proporcija)	Procenat pogođenih odgovora
Fonološki	3.2	0.28	28%
Leksički	4.1	0.32	32%
Ortografski	3.3	0.22	22%
Ukupno	10.6	0.27	27%

Leksički transfer bio je najčešći (32%), zatim fonološki (28%) i ortografski (22%). Ovo potvrđuje da se deca u učenju francuskog i engleskog snažno oslanjaju na sličnosti u rečniku ili zamene, dok ortografska i fonološka interferencija odražava delimično savladavanje odnosa zvuk–simbol.

Fonološki transfer

Izgovor učenika pokazivao je sistematski transfer između dva jezika. Neki primeri su prikazani u Tabeli 2.

Tabela 2

Primeri fonoloških grešaka transfera

Ciljna reč	Očekivani izgovor	Česta greška	Izvor uticaja
chocolat (Fr)	/ʃɔkɔla/	“choklat” (/tʃ/)	Engleski početni /tʃ/
school (En)	/sku:l/	“esku:l”	Francuska epenteza slogova
orange (Fr)	/ɔʁɑ̃ʒ/	/ɔ:rændʒ/	Engleski izgovor
three (En)	/θri:/	“trée” (/tʁi:/)	Francuska zamena za /θ/
teacher (En)	/ˈti:tʃə/	“tishair”	Francuski ortografski transfer
merci (Fr)	/mɛʁsi/	“mersi”	Engleski /ɹ/
papa (Fr)	/papa/	“phapa”	Engleska aspiracija

Fonološki CLI odražava i strukturne praznine (npr. odsustvo /θ/ u francuskom dovodi do “trée” za three) i percepcione navike (englesko aspirirano /p/ utiče na francusko *papa*). Greške poput teacher → “tishair” pokazuju i transfer grafema u zvuk, pri čemu učenici primenjuju francuske pravopisne konvencije na engleski izgovor.

Leksički transfer

Leksičke greške dominirale su u zadacima. Primeri su dati u Tabeli 3.

Tabela 3

Primeri leksičkih grešaka transfera

Ciljna reč	Tačan odgovor	Česta greška	Izvor uticaja
dog (En)	dog	Chien	Francuska zamena
house (En)	house	Maison	Francuska zamena
apple (En)	apple	Pomme	Francuska zamena
mother (En)	mother	Maman	Francuska zamena
livre (Fr)	book	Library	Engleski lažni kognat
stylo (Fr)	stylo	Pen	Engleska zamena
lundi (Fr)	lundi	Monday (nepravilno korišćeno u francuskom kontekstu)	Engleska pozajmljenica

Leksički transfer često odražava strateško pozajmljivanje: učenici koriste rečnik koji im je dostupniji. Oslanjanje na francuski za engleske reči (*pomme* za *apple*, *maman* za *mother*) ističe dominantni status francuskog u školskom okruženju. Lažni kognati poput *livre/library* pokazuju da čak i nešto složenije jedinice izazivaju sistematsku konfuziju.

Ortografski transfer

Ortografske greške pokazale su oslanjanje dece na vizuelne tragove i fonetske aproksimacije.

Tabela 4

Primeri ortografskih grešaka transfera

Ciljna reč	Tačan oblik	Česta greška	Izvor uticaja
blue (En)	Blue	Bleu	Francuski pravopis
école (Fr)	École	Ecole	Englesko izostavljanje akcenata
school (En)	School	schol / école	Francuski uticaj
garçon (Fr)	Garçon	Garson	Engleska fonetska aproksimacija
friend (En)	Friend	Frend	Francuska fonemsko-grafemska zamena
maître (Fr)	Maitre	Maitre	Engleska simplifikacija
red (En)	Red	Rède	Francuski pravopis

Ortografski transfer ilustruje da deca primenjuju pravila iz poznatog koda. Na primer, garçon → “garson” pokazuje uklanjanje cedille (dijakritički znak u obliku male kuke (,) postavljene ispod slova, najčešće slova c) kroz englesku fonetsku aproksimaciju, dok friend → “frend” odražava pojednostavljenje pravopisa pod uticajem francuske fonologije. Ove greške potvrđuju roditeljske izveštaje da učenici često kopiraju reči vizuelno ili ih speluju “kako zvuče”, umesto da internalizuju ortografska pravila.

Kvantitativni nalazi iz upitnika nastavnika

Tabela 5

Percepcija nastavnika o CLI

Stav	Potpuno se slažem (%)	Slažem se (%)	Neutralno (%)	Ne slažem se (%)	Potpuno se ne slažem (%)
Učenici često mešaju zvuke francuskog i engleskog.	45	38	10	5	2
Leksička interferencija je najteži problem.	52	35	8	5	0
Porodično okruženje utiče na CLI učenika.	48	40	7	5	0
Simultano učenje francuskog i engleskog je previše zahtevno za treći razred.	41	37	12	8	2
Nastavnici su adekvatno obučeni za upravljanje CLI.	5	15	18	40	22

Rezultati pokazuju da nastavnici snažno percipiraju leksičku interferenciju kao najvažniji izazov (85% saglasnosti), zatim fonološku konfuziju. Otvoreni odgovori dodatno osvetljavaju ove brojke, pokazujući kako CLI konkretno nastaje u učionicama.

Kvalitativni uvidi iz upitnika nastavnika

Tabela 6

Teme iz upitnika nastavnika

Tema	Frekvencija	Primer citata
Fonološka konfuzija	34	„Uvek kažu ‘chocklat’ umesto chocolat i ‘trée’ umesto three. Ne znaju zvuk /θ/, pa ga zamenjuju sa /tʃ/.” (Nastavnik francuskog, 12 godina iskustva)
		„Na času engleskog mnogi izgovaraju chair kao ‘shair’ sa francuskim /ʃ/. Čak i kada ih ispravim, konfuzija se vraća.” (nastavnik engleskog, 7 godina iskustva)
		„Kada ne znaju reč na engleskom, automatski prelaze na francuski. Na primer, kažu ‘pomme’ umesto apple ili ‘maman’ umesto mother.” (Nastavnik engleskog, 4 godine iskustva)
Leksička zavisnost od francuskog	31 nastavnik	„Dešava se i na času francuskog: učenici pišu ‘blue’ umesto bleu. Mešaju, a da ni ne primete.” (Nastavnik francuskog, 15 godina iskustva)
		„Nismo obučeni da predvidimo ovakvu sistematsku interferenciju. Improvizujemo, ali kada pišu ‘garson’ umesto garçon ili ‘frend’ umesto friend, nisam siguran kako da ispravno reagujem.” (Nastavnik francuskog, 9 godina iskustva)
Nedostatak obuke	29 nastavnika	„Previše je za treći razred. Još uče čitanje na arapskom, a odjednom moraju da savladaju francuski i engleski zajedno. Zato vidimo greške poput ‘monday’ u francuskoj rečenici ili ‘house’ zamenjeno sa maison.” (Nastavnik engleskog, 11 godina iskustva)
Pritisak nastavnog plana	26 nastavnika	

Svedočenja nastavnika potvrđuju obrasce u dijagnostičkim testovima. Reference na konkretne primere (pomme/apple, maman/mother, garson/garçon) pokazuju da leksička i ortografska interferencija nije povremena već sistematska. Nastavnici takođe dosledno navode nedovoljnu obuku za ranu multijezičku nastavu, što dodatno pogoršava postojanost CLI.

Intervjui sa roditeljima

Tabela 7

Teme iz intervju sa roditeljima

Tema	Frekvencija	Primer citata
Francuski kao prioritet	41 roditelj	„Pomažem mu svakodnevno oko domaćeg iz francuskog, ali za engleski ne mogu. Zato kada mora da kaže ‘apple’, kaže ‘pomme.’” (Majka, srednja škola)
		„Za ispite se fokusiramo na francuski. Meša engleske reči, ali francuski je važniji.” (Otac, činovnik)

Tema	Frekvencija	Primer citata
Ograničena izloženost engleskom	38 roditelja	„Kod kuće nema engleskog. Gleda crtane, ali uglavnom na francuskom ili arapskom. Zato kaže ‘maman’ umesto mother.” (majka, domaćica)
Pozitivan stav prema engleskom	46 roditelja	„Kažem ćerki da je engleski važan za budućnost. Ali kada piše ‘frend’ umesto friend, ne mogu da ispravim jer ne znam pravila.” (Otac, univerzitetski profesor)
Vizuelne/kopirajuće strategije	29 roditelja	„Kopira tačno iz knjige, ali ne primećuje akcenat. Za ‘école’ uvek piše ‘ecole.’” (Majka, osnovna škola) „Ispravno je spelovala garçon kao ‘garson’ i rekla: ‘Ali učitelj je tako napisao!’ Samo je prepisala bez razmišljanja.” (Otac, radnik u fabrici)

Roditeljski odgovori potvrđuju sociolingvističku neravnotežu između francuskog i engleskog kod kuće. Francuski je prioritetan jer je relevantan za ispite, dok je engleski aspirativan, ali ne i podržan. Primeri koje daju (apple/pomme, maman/mother, friend/frend, garçon/garson) blisko odražavaju dijagnostičke rezultate, što sugeriše snažnu konvergenciju između kvantitativnog i kvalitativnog segmenta podataka. Roditelji takođe potvrđuju upotrebu „prepisivanja“, što potvrđuje zabrinutost nastavnika da učenici uče vizuelno, a ne kroz pravila.

Diskusija

Cilj ove studije bio je da ispita kako se međujezički uticaj (CLI) manifestuje kod učenika trećeg razreda u Alžiru koji istovremeno uče francuski i engleski jezik, te da interpretira nalaze u širem kontekstu višejezičnog obrazovanja. Kombinovanjem dijagnostičkog testiranja, anketiranja i intervjuisanja, studija je pokazala da je CLI istovremeno sistematski i kontekstualno ukorenjen.

Sistematika i predvidljivost CLI

Rezultati su pokazali da CLI nije nasumičan niti povremen, već sistematska i predvidljiva strategija koju učenici koriste dok se snalaze u nepoznatom jezičkom okruženju. Učenici su dosledno zamenjivali francuske reči za engleske ekvivalente (pomme/apple; maman/mother; chien/dog), pogrešno izgovarali engleske zvuke koji ne postoje u francuskom (three → “trée”) i prenosili ortografske konvencije između jezika (garçon → “garson”). Ovi obrasci potvrđuju tvrdnju Hulka i Milera (Hulk & Müller, 2000) da se transfer pokreće u tačkama strukturnog preklapanja ili na ranjivim gramatičkim primerima. Međutim, dokazi iz ove studije idu korak dalje - transfer funkcioniše i kao strategija prevazilaženja nesigurnosti u komunikaciji, pokazujući da mladi učenici aktivno koriste resurse svog jačeg jezika kako bi popunili praznine u slabijem jeziku. Ova sistematičnost naglašava potrebu

da se CLI ne doživljava kao nasumična „konfuzija“, već kao razvojna strategija u stvaranju značenja u multijezičkom okruženju. Predvidljivost ovih grešaka takođe naglašava njihov dijagnostički potencijal - anticipirajući tačke transfera, nastavnici mogu osmisлити ciljanu nastavu umesto da svaku grešku tretiraju kao izolovan slučaj.

Leksički transfer kao dominantna strategija

Leksički transfer pokazao se kao najčešći domen CLI (32%). Učenici su se sistematski oslanjali na francuski vokabular kada im engleski odgovori nisu bili dostupni, dok su nastavnici povremeno nenamerno jačali ovu zavisnost koristeći francuske konstrukcije, a roditelji su priznali da se gotovo isključivo fokusiraju na domaće zadatke iz francuskog. Ovi nalazi se slažu sa zapažanjima Balingera (Ballinger, 2013, 2015) da je vokabular najranjiviji domen u bilingvalnim kontekstima. Novost ovde je što su ovakvi obrasci uočeni nakon samo osam meseci nastave, što sugeriše da leksički transfer nije kasnija razvojna „greška“, već ključna karakteristika rane simultane bilingvalne akvizicije, naročito kada jedan jezik ima institucionalnu i socijalnu dominaciju.

Iz perspektive „multikompetencije“ Kuka (Cook, 2003), leksički CLI ne mora se gledati isključivo kao greška, već kao dokaz fleksibilnog korišćenja dostupnih resursa od strane učenika. Pedagoški izazov, dakle, nije potpuno suzbijanje transfera, već podizanje svesti o njemu i njegovo korišćenje u kontrastivnom učenju, vodeći učenike ka eksplicitnom prepoznavanju sličnosti i razlika između jezika.

Fonološka interferencija i manjak izloženosti jeziku

Fonološki transfer (28%) odražava i strukturne praznine i ograničenja okruženja. Zamena /tʁ/ za engleski /θ/ u reči *three* pokazuje kako učenici zamenjuju nepoznate zvuke najbližom dostupnom fonemom, što potvrđuje nalaze Sandara (Sundara et al., 2006). Međutim, ove zamene nisu bile isključivo razvojne pojačavane su nedostatkom autentičnog engleskog inputa van škole i ograničenom fonetskom obukom nastavnika. Roditelji su izveštavali da engleski nije prisutan u svakodnevnom životu kod kuće, a nastavnici su priznali da imaju poteškoća u ispravljanju upornog izgovora. Ovi nalazi odražavaju Saoudijevu (Saoudi, 2022) kritiku jezičke politike u Alžiru, koja je uvela engleski u nastavni plan za osnovnu školu bez adekvatne obuke nastavnika i resursa za izlaganje jeziku.

Fonološki CLI stoga najbolje treba posmatrati kao produkt i jezičke strukture i socio-lingvističke ekologije. Bez povećanog pristupa autentičnom inputu i sistematske fonološke nastave, ovakve greške imaju veću verovatnoću da se fiksiraju nego da nestanu.

Ortografski transfer i učenje na površinskom nivou

Ortografski transfer (22%) pokazuje oslanjanje učenika na površinske strategije, poput vizuelnog kopiranja i fonetske aproksimacije. Greške poput *blue* → *bleu*, *garçon* →

“garson” i friend → “frend” ilustruju kako deca mapiraju reči između jezika koristeći površinsku sličnost. Nastavnici su se žalili da učenici „kopiraju bez razmišljanja”, dok su roditelji primetili izostavljanje dijakritika (école → ecole) i „francizaciju” engleskog (red → “rède”). Ovi nalazi potvrđuju Ballingerovo (Ballinger, 2015) zapažanje da multijezična deca često prioritet daju vizuelnim oblicima u odnosu na pravila pravopisa.

U Alžiru, ovaj trend je pojačan činjenicom da deca istovremeno stiču pismenost na arapskom. Upravljanje trima pismima — arapskim, francuskim i engleskim — nameće velike kognitivne zahteve, povećavajući oslanjanje na kratkoročne strategije „prepisivanja”. Ortografski CLI stoga odražava ne samo interferenciju između jezika, već i pritiske rane višepismenosti.

CLI kao produkt alžirske obrazovne ekologije

Verovatno najznačajniji doprinos studije je demonstracija da CLI mora biti posmatran unutar obrazovne ekologije alžirske učionice. Francuski uživa privilegovani položaj kao ustaljeni strani jezik, podržan ispitnim zahtevima, istorijom kurikuluma (nastavnog plana i programa) i roditeljskom kompetencijom. Engleski, iako simbolički snažan, ostaje slabo podržan roditelji nemaju kompetenciju da pruže pomoć, nastavnici nemaju specijalizovanu pripremu, a autentični resursi su retki.

Ova neravnoteža objašnjava zašto učenici dosledno prelaze na francuski kada su nesigurni. Drugim rečima, CLI ovde nije samo psiholingvistički predvidljiv, već i sociolingvistički uslovljen. Sistematsko oslanjanje na francuski pokazuje kako obrasci transfera zavise podjednako od jezičkih hijerarhija koliko i od strukturnog preklapanja. Ovaj nalaz ne samo da proširuje Saoudijevu (Saoudi, 2022) kritiku alžirskih reformi višjezičnosti, već i preciznije definiše Hulkov i Milerov (Hulk & Müller, 2000) strukturalistički model pokazujući da je prekid u prenosu jezičkih struktura (CLI) posredovan kontekstualnim asimetrijama moći i podrške.

Implikacije za teoriju i praksu

Nalazi imaju važne implikacije za teoriju i praksu. Teorijski, oni sugerišu da modeli CLI moraju da prevaziđu isključivo strukturna objašnjenja i uključe kontekstualne okidače, uključujući jezičke hijerarhije, asimetriju izloženosti i pedagoške prakse. CLI se stoga javlja kao fenomen koji je istovremeno kognitivan, socijalni i pedagoški.

Praktično, rezultati ističu hitnu potrebu za programima obuke nastavnika koji eksplicitno obrađuju fonološku svesnost, multijezičku pedagogiju i kontrastivne pristupe francuskom i engleskom. Nastavni plan i program bi trebalo da kreira strukturirane prilike da učenici razmotre sličnosti i razlike između dva jezika, pretvarajući transfer u svesni alat učenja, a ne u nesvesnu potporu. Čak i uz ograničenu englesku kompetenciju, roditelji bi trebalo da dobiju dostupne resurse koji im omogućavaju da pojačaju osnovnu izloženost kod kuće, dok kreatori politika moraju shvatiti da simboličko promovisanje engleskog jezika neće biti efikasna bez kontinuiranog ulaganja u razvoj nastavnika i autentični input.

Ograničenja i predlozi za buduća istraživanja

Iako studija doprinosi razumevanju CLI, postoje ograničenja. Uzorak, iako značajan, obuhvatao je samo dvanaest škola u centru Batne. Ruralna područja, gde izloženost francuskom i engleskom može biti znatno različita, nisu predstavljena, što ograničava generalizaciju nalaza. Dijagnostički instrumenti obuhvatili su samo fonološke, leksičke i ortografske domene, dok morfosintaksički i pragmatički transferi nisu istraženi, a mogli bi pokazati različite obrasce CLI, posebno zbog strukturnih razlika između arapskog, francuskog i engleskog.

Studija se takođe oslonila na relativno kratke intervju sa roditeljima, koji su pružili vredne, ali ograničene informacije o jezičkim praksama kod kuće. Bogatiji etnografski ili longitudinalni dizajn mogao bi da osvetli kako se roditeljski stavovi i strategije podrške razvijaju kroz vreme i kako oni oblikuju tok CLI. Slično tome, iako su upitnici za nastavnike otkrili značajne zabrinutosti u vezi sa obukom i spremnošću, posmatranja u učionici mogla bi pružiti direktnije dokaze o tome kako pedagoške prakse utiču na transfer znanja u realnom vremenu.

Buduća istraživanja trebalo bi da usvoje longitudinalne i višestruke lokacije dizajna, prate učenike u urbanim i ruralnim sredinama, uključe posmatranje nastavnih časova i prošire analizu na morfosintaksu i pragmatiku. Komparativna istraživanja u severnoj Africi mogao bi dodatno razjasniti da li su obrasci uočeni u ovoj studiji specifični za francuski-dominantnu ekologiju Alžira ili deo šireg regionalnog trenda. Konačno, interventne studije koje testiraju specifične pedagoške strategije - poput fonološke obuke, kontrastivne nastave ili inicijativa uključivanja roditelja — pružile bi praktične dokaze za smanjenje neproduktivnog transfera i korišćenje njegovog pedagoškog potencijala.

Zaključak

Ova studija pokazuje da je međujezički uticaj (CLI) sastavni i sistematski element istovremenog usvajanja francuskog i engleskog jezika kod alžirskih učenika. Ključno otkriće jeste da prenos nije samo rezultat strukturnog preklapanja između jezika, već je u velikoj meri oblikovan sociolingvističkim okruženjem u kojem se učenje odvija. Oslanjanje učenika na francuski jezik u leksičkoj, fonološkoj i ortografskoj sferi odražava kako kognitivne strategije, tako i duboko ukorenjenu dominaciju francuskog jezika u alžirskom obrazovnom sistemu.

Studija dodatno pokazuje da je međujezički uticaj u alžirskom kontekstu istovremeno kognitivno neizbežan i društveno uslovljen. Ovaj uvid doprinosi međunarodnim raspravama o višejezičnom usvajanju time što ukazuje da modeli prenosa moraju uzeti u obzir jezičke hijerarhije i nejednaku izloženost jezicima, pored psiholingvističkih mehanizama.

Sa stanovišta prakse i obrazovne politike, nalazi naglašavaju da će reformski napor u Alžiru biti uspešni samo ako se međujezički prenos transformiše iz prepreke u resurs. To podrazumeva osposobljavanje nastavnika za višejezičku pedagogiju, obezbeđivanje

autentičnih jezičkih inputa na francuskom i engleskom jeziku, kao i podršku roditeljima u jačanju izloženosti engleskom kod kuće.

U najkraćem, uspeh obrazovnih reformi u Alžiru neće zavisiti od eliminisanja prenoša, već od njegovog usmeravanja. Kada se međujezički uticaj prepozna kao predvidiva i adaptivna strategija, on može postati sredstvo za produbljivanje višejezične kompetencije učenika, umesto da učvršćuje postojeće jezičke nejednakosti.

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Prilozi

Prilog A: Dijagnostički testovi

A.1. Zadaci izgovora (primeri stavki)

Od učenika se tražilo da naglas pročitaju sledeće reči. Stavke su odabrane tako da odražavaju uobičajene tačke međujezičke interferencije (CLI).

Francuski: chocolat, merci, papa, orange, école

Engleski: school, three, teacher, friend, red

Svaka lista sadržala je po 20 reči po jeziku (ukupno 40).

A.2. Zadaci iz oblasti vokabulara/pravopisa (primeri stavki)

Od učenika se tražilo da napišu sledeće reči nakon što ih učitelj izgovori.

Francuski: livre, stylo, lundi, garçon, maître

Engleski: dog, house, apple, mother, blue

Svaki test je sadržao po 20 reči po jeziku (ukupno 40).

Prilog B: Upitnik za nastavnike

Odeljak 1: Demografski podaci

- Starost:
- Godine nastavničkog iskustva:
- Jezik (jezici) koji se predaju:
- Profesionalna obuka/zanimanje:

Odeljak 2: Percepcije međujezičkog uticaja (CLI)

(1 = Potpuno se ne slažem ... 5 = Potpuno se slažem)

1. Učenici često mešaju francuske i engleske glasove.
2. Leksička interferencija predstavlja najveću poteškoću.
3. Porodično okruženje snažno utiče na CLI učenika.
4. Istovremeno podučavanje francuskog i engleskog previše je zahtevno za učenike trećeg razreda.
5. Nastavnici su adekvatno obučeni za upravljanje CLI u učionici.

Odeljak 3: Otvorena pitanja

1. Opišite uobičajene primere međujezičke interferencije u vašoj učionici.
2. Koje strategije koristite da rešite takve slučajeve?
3. Koliko su postojeći nastavni materijali adekvatni za upravljanje CLI?

Prilog C: Vodič za intervju sa roditeljima

Sa roditeljima su obavljani intervjui pomoću sledećih pitanja:

1. Koji jezik(e) koristite kod kuće sa svojim detetom?
2. Koliko često vaše dete koristi francuski i engleski izvan škole?
3. Na koji način podržavate detetovo učenje francuskog i engleskog jezika?
4. Koje ste poteškoće primetili u govoru vašeg deteta (npr. mešanje jezika, zamene reči)?
5. Kakvo je vaše mišljenje o uvođenju engleskog jezika u trećem razredu?

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Apstrakt

Rezultati međunarodnih testiranja PIRLS (2021) i PISA (2022) pokazuju da učenici osnovnih škola u Srbiji postižu znatno slabije rezultate od međunarodnog proseka kada je reč o naprednom nivou čitalačke pismenosti. Zbog toga je sprovedeno istraživanje sa ciljem da se utvrde potencijalni problemi u razumevanju tekstova učenika VII i VIII razreda osnovne škole koji postižu najbolje rezultate iz oblasti književnosti. Uzorkom je obuhvaćeno 410 učenika koji su 2024. godine učestvovali na Republičkom takmičenju iz književnosti Književna olimpijada. Krenulo se od sledećih istraživačkih zadataka: 1. analizirati elemente sadržaja i tipova zadataka na republičkim testovima i utvrditi uspeh učenika u njihovom rešavanju radi identifikacije koje najveći broj takmičara nije rešio; 2. analizirati izdvojene zadatke sa aspekta predmetnih ishoda i obrazovnih standarda, koji stoji u osnovi razumevanja pročitano. Za utvrđivanje uspeha učenika u rešavanju zadataka primenjene su deskriptivne statističke mere, a u delu istraživanja koji se odnosio na analizu zadataka korišćena je metoda analize sadržaja. Utvrđeno je da u testovima dominiraju zadaci zatvorenog tipa i da se ispituju znanja koja se povezuju sa razumevanjem konkretnih tekstova. Identifikovano je pet zadataka koje je uspešno rešilo manje od 75% učenika. Njihova analiza pokazuje da se potencijalni problemi tiču razumevanja neknjiževnih tekstova, razumevanje značenja termina, razumevanja leksike stranog porekla i izdvajanja strukturnih elemenata u književnim tekstovima kojima se pokazuje pojmovno znanje. S pedagoške strane, navedene oblasti impliciraju promovisanje različitih strategija čitanja, akademskog jezika, leksička vežbanja i motivaciju za čitanje.

Ključne reči: metodika nastave srpskog jezika i književnosti, motivacija za čitanje, razumevanje tekstova, Republičko takmičenje iz književnosti za učenike osnovnih škola, čitalačka pismenost.

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Uvod

Identifikovanje problema u nastavi pomaže da se oni prevaziđu. Jedan od problema tiče se i čitalačke pismenosti učenika koja se, prema *Programu za međunarodnu procenu učenika* (PISA) „definiše kao kapacitet pojedinca da razume, upotrebi, razmišlja i angažuje se na pisanim tekstovima da bi ostvario svoje ciljeve, da bi razvio svoje znanje i potencijal i da bi učestvovao u društvu“ (Čaprić i Videnović, 2024: 14). Nedovoljno razumevanje tekstova se odražava na celokupni uspeh učenika: na primer, rezultati istraživanja sprovedenog u Slovačkoj pokazuju „korelaciju između neuspeha i niskih ocena studenata na testiranju i čitalačkoj pismenosti“ (Delgadova, 2015: 50), te se ističe „značaj čitanja za aktivnu participaciju u društvu“ (Pavlović Babić i Baucal, 2010: 241). Potrebno je da se tokom školovanja razvija veština razumevanja pročitano (Huang, 2024), tj. čitalačka pismenost kao „sposobnost pravilnog razumevanja sadržaja, pronalaženja eksplicitnih i implicitnih značenja, analize sadržaja i dobijenih informacija i sposobnost da se pravilno protumači sadržaj i prenese dalje“ (Delgadova, 2015: 50). Naglašava se ne samo „sposobnost učenika da u tekstu pronađu informacije, da ih analiziraju“, već i da „na osnovu toga izvede zaključke, saopštavaju i primjenjuju rešenja ili saznanja do kojih su došli, te da stečena znanja i vještine primjene u realnim životnim situacijama“ (Popović, 2013: 113).

Međunarodno istraživanje razvoja čitalačke pismenosti PIRLS (*Progress in International Reading Literacy Study*) realizovano je 2021. godine „u 57 obrazovnih sistema širom sveta i u 8 izdvojenih obrazovnih entiteta, tzv. benčmarking učesnika“ (Randelović i sar., 2023: 5). U istraživanju u Srbiji (PIRLS 2021) jeste „učestvovalo 4.037 učenika iz 169 škola, koje su činile nacionalni reprezentativni uzorak“ (Randelović i sar., 2023: 30). Reč je o učenicima četvrtog razreda, a rezultati pokazuju da je prosečno postignuće na našem području više od prosečnih vrednosti koje su utvrđene kao referentne, budući da ono „iznosi 514 poena i više je od prosečne vrednosti PIRLS skale“, koja iznosi 500 poena (Randelović i sar., 2023: 37). Pored toga, 33% učenika postiže visoki međunarodni nivo (550 poena), „što je neznatno manje od međunarodnog proseka (34%)“, a učenici koji postižu ovaj nivo „relativno su kompetentni čitaoci, sposobni da tumače, povezuju i procenjuju različite tekstualne i vizuelne elemente u tekstovima srednje težine i u složenijim tekstovima“ (Randelović i sar., 2023: 55). Razlike u odnosu na međunarodni prosek postoje u naprednom nivou (625 poena), jer „od ukupnog broja testiranih učenika četvrtog razreda, njih 5% uspeva da reši zadatke koji zahtevaju napredne kompetencije čitalačke pismenosti, što je manje u odnosu na međunarodni prosek od 7%“ (Randelović i sar., 2023: 55). Na naprednom nivou od učenika se zahteva da tumače i povezuju različite elemente strukture književnih tekstova i procenjuju njihov uticaj na recipijenta, a kada je reč o informativnim tekstovima, traži se da „izvedu zaključke o kompleksnim informacijama iz različitih delova teksta ili sa različitih veb-stranica tako što uočavaju relevantne informacije i argumentuju svoje ideje na osnovu konteksta; [...], prepoznaju tačku gledišta autora i druge stavove u kontekstu i argumentovano ih obrazlažu“ (Randelović i sar., 2023: 52).

Rezultati na PISA testiranju u Srbiji iz 2022. godine, u kojem je učestvovalo 6413 petnaestogodišnjaka, pokazuju da prosečno postignuće učenika na skali čitalačke pismenosti iznosi „440 poena“, što je u odnosu na prosek OECD zemalja za „36 poena manje“, a budući da su prosečni rezultati takođe niži od međunarodnog proseka i kada je reč o matematičkoj pismenosti i naučnoj pismenosti, procena je „da bi učenici iz naše zemlje trebalo da provedu godinu i po dana u obrazovnom sistemu neke OECD zemlje kako bi razlika nestala“ (Čaprić i Videnović, 2024: 18). Takođe, uporedna analiza rezultata koje naši učenici postižu kada je reč o čitalačkoj pismenosti na PISA testiranjima pokazuje da je nakon 2009. godine procenat onih učenika koji ne dostižu nivo funkcionalne čitalačke pismenosti relativno stabilan, kao i da on iznosi „oko 36%“ (Čaprić i Videnović, 2024: 24). Dakle, više od jedne trećine učenika ne dostiže osnovni nivo čitalačke pismenosti, te Gordana Čaprić i Marina Videnović ističu da se 25% učenika nalazi na nivou razumevanja teksta koji je nazvan *1a* (nivo koji je blizak osnovnom nivou), jer mogu da izdvoje relevantne informacije iz teksta na koje su eksplicitno upućeni, budući da su one „u tekstu obično upadljive, a paralelnih informacija ima malo ili nimalo“ (Čaprić i Videnović, 2024: 22). S druge strane, učenici koji postižu najbolje rezultate (*nivo 5 ili 6*) „mogu da razumeju duge tekstove, da se bave konceptima koji su apstraktni i da uspostave razlike između činjenica i mišljenja, na osnovu implicitnih znakova koji se odnose na sadržaj ili izvor informacija“ (Čaprić i Videnović, 2024: 21). U Srbiji je procenat učenika koji dostižu ove nivoe veoma mali (2%), dakle, niži od OECD proseka (7%), a lošije rezultate nego kod nas ostvarili su učenici u Crnoj Gori i Severnoj Makedoniji (v. Čaprić i Videnović, 2024: 21-22).

Iz prethodno izloženog se može rezimirati da su rezultati testiranja (PIRLS 2021 i PISA 2022) pokazali da učenici u Srbiji zaostaju u odnosu na učenike u drugim zemljama kada je reč o naprednom nivou čitalačke pismenosti i da, ukoliko uporedimo rezultate ova dva testiranja, sa povećanjem starosti učenika ne dolazi do razvoja čitalačke pismenosti, već, naprotiv, ona opada. Evidentna je potreba da se sistemski reaguje, a jedan od pokušaja da se prevaziđe problem jeste i javna rasprava koju je u periodu od 22. 11. do 6. 12. 2024. godine organizovao Zavod za vrednovanje kvaliteta obrazovanja i vaspitanja povodom predloga *Nacionalnog programa za razvoj i vrednovanje čitalačke pismenosti* (videti <https://ceo.edu.rs/javna-rasprava/>). Predloženi dokument obuhvata period „od predškolskog do srednjoškolskog obrazovanja sa ciljem da se sistematski i kontinuirano unaprede čitalačke veštine dece i učenika“ i sadrži Akcioni plan za razvoj i vrednovanje čitalačke pismenosti, koji ima široku namenu, ali prvenstveno „vaspitačima, nastavnicima razredne nastave, nastavnicima srpskog jezika i školskim bibliotekarima“ (*Nacionalni program za razvoj i vrednovanje čitalačke pismenosti*, 2024: 3).

Iz navedene namene i posebnog izdvajanja nastavnika za predmet Srpski jezik i književnost uočava se značaj ovog predmeta za razvoj čitalačke pismenosti učenika. Neki od opštih ciljeva ovog predmeta u završnom razredu osnovnog obrazovanja jesu da učenik „kroz čitanje i tumačenje književnih dela razvija čitalačke kompetencije [...]“; da se odgovarajućim vrstama čitanja osposobljava da usmereno pristupa delu i prilikom tumačenja otkriva različite slojeve i značenja“ (*Pravilnik o programu nastave i učenja za*

osmi razred osnovnog obrazovanja i vaspitanja, 2019: 63). Čitanjem književnih dela razvijaju se i čitalačke navike. One utiču na čitalačku pismenost (Stevanović i sar., 2020: 137), te se u novijim radovima ističu brojna istraživanja u oblasti čitalačke pismenosti koja pokazuju da kvantitet i razlikolikost čitanja pozitivno utiču na postignuća učenika, ali i da mladi sve manje čitaju (v. De Smedt et al., 2020; Winberg et al., 2022) i čitanje doživljavaju kao obavezu (Bozan, 2024). I istraživanja koja su vršena u Srbiji pokazuju da za većinu naših srednjoškolaca „čitanje nije jedna od preferiranih aktivnosti“ (Krnjaić i sar., 2011: 277) na šta ukazuje i podatak da u obuhvaćenom uzorku od 2426 srednjoškolaca „najmalobrojnija je grupa pasioniranih čitalaca koji gotovo uvek čitaju neku knjigu (oko 7%)“ (Krnjaić i sar., 2011: 272). Takođe, rezultati pokazuju da srednjoškolci nerado čitaju školsku lektiru (Božić i Novaković, 2020; Stevanović i sar., 2020). Istraživanje kojim je obuhvaćen uzorak od 1378 učenika pokazuje da „samo 46,9% učenika čita sve knjige koje pripadaju opusu koji je propisan kurikulumom. Poneku knjigu iz korpusa školske lektire pročitao 41,2% učenika, gotovo da ne čita 7% njih, a školsku lektiru uopšte ne čita 4,9% učenika“, a autori istraživanja se pozivaju i na izvore međunarodnih studija koji, takođe, pokazuju „da čitalačke preferencije adolescenata neretko nisu usmerene na obavezno školsko štivo“ (Stevanović i sar., 2020: 143–144). Takođe, rezultati istraživanja kojim je obuhvaćen uzorak od 1177 srednjoškolaca u Srbiji pokazuju da samo 8,3% ispitanih učenika „sa zadovoljstvom“ čita školsku lektiru, a „69,2% ispitanika navodi da lektiru čita uglavnom ili isključivo zbog ocene“ (Božić i Novaković, 2020: 21). Neki od prethodno navedenih rezultata mogu se dovesti u neposrednu vezu sa čitalačkom pismenošću, jer nalazi pokazuju da srednjoškolci iz gimnazija u odnosu na učenike iz srednjih stručnih škola „češće čitaju školsku lektiru“, što autori istraživanja dovode u vezu sa boljim rezultatima gimnazijalaca na PISA testu čitalačke pismenosti u odnosu na učenike koji pohađaju stručne srednje škole, pa daju preporuku „da bi u programu nastave i učenja u srednjim stručnim školama trebalo u znatno većoj meri insistirati na ishodima koji su direktno povezani sa unapređivanjem čitalačkih interesovanja i navika srednjoškolaca“ (Stevanović i sar., 2020: 145). Osim što se slažemo s navedenom preporukom, smatramo da na ishodima tog tipa valja insistirati i u osnovnoj školi, naročito u starijim razredima, ako uzmemo u obzir to da rezultati istraživanja pokazuju da učenici u mlađim razredima vole da čitaju (Purić i Stojanović, 2019), i uživaju u čitanju (Ivković, 2016), te da motivacija za čitanje opada sa godinama školovanja. To uočeno još u mlađim razredima osnovne škole, u nalazima istraživanja koji pokazuju da učenici trećeg razreda imaju veća čitalačka interesovanja u odnosu na učenike koji pohađaju četvrti razred (v. Purić i Stojanović, 2019: 287). Opadanje motivacije za čitanje (i pisanje) zapaženo je u višim razredima osnovne i nižim razredima srednje škole, a naročito kada je reč o autonomnim ličnim motivima učenika, jer „manje su vođeni svojom urođenom ljubavlju prema čitanju i pisanju ili svojom svešću o njihovom značaju“ (De Smedt et al., 2020: 13). Pored toga, autori navode pozitivnu povezanost između motivacije za čitanje i čitalačke pismenosti, budući da motivisani učenici više pažnje posvećuju tekstu i veći je nivo njihovog interesovanja (v. Liu et al., 2022). Predmet Srpski jezik i književnost ima važnu ulogu u prevazilaženju navedenih problema koji utiču na kvalitet čitalačke pismenosti, a tiču se kako motivacije za čitanje tako i čitalačkih navika učenika.

Teorijske osnove

Značaj književnosti za razvoj čitalačke pismenosti

Čitalačka pismenost se usavršava kroz sadržaje predmetnih područja (Književnost, Jezik i Jezička kultura) predmeta Srpski jezik i književnost i predstavlja važan segment književnog znanja koje čini osnovu opšte kulture svakog pojedinca. Književnost je važna za razvoj čitalačke pismenosti učenika jer se proučavanje književnih dela u nastavi obavlja pomoću više metodičkih radnji, a među prve i osnovne spada „veština čitanja, koju prati razumevanje pročitano“ (Mrkalj i Pejić, 2021: 153-154). „Postignuće u čitalačkoj pismenosti je mera razumevanja čitanja zasnovanog na tekstu“ (Araujo, 2014: 5004), a razumevanje čitanja zasnovanog na književnom tekstu zahteva i razumevanje konteksta, interakciju i dijalog sa čitaocem kroz koji se preispituju vrednosti i sopstvena ličnost. Uostalom, „pismenost je strateška i disciplinarna“, obuhvata „složene, multimodalne transakcije između čitalaca, tekstova, akciju i sociokulturni kontekst“ i predstavlja „konstruktivan, integrativan i kritički proces koji se nalazi u društvenim praksama“ (Frankel et al., 2016: 14), a složenost značenja književnih tekstova omogućava da se uvaži uticaj sociokulturnih faktora koji je naglašen u novijoj literaturi, gde se ističe značaj konteksta (društvenog, političkog, istorijskog) za učenje pismenosti (Jackson et al., 2024). Pored toga, književni tekstovi su pogodni jer su njihovi strukturni elementi povezani različitim semantičkim odnosima i čine integrisanu celinu, što doprinosi stvaranju mentalnih reprezentacija koje su koherentne, a to je u literaturi istaknuto kao važan segment razumevanja (Van den Broek & Espin, 2012: 316). Književno delo zahteva da učenici koji ga čitaju i tumače primene otvoren i stvaralački pristup, da rešavaju probleme, da koriste stvaralačko mišljenje i svoje životno, jezičko i literarno iskustvo. U metodičkoj literaturi se ukazuje na to da se učenici u Srbiji na PISA testiranjima „mnogo bolje snalaze u čitanju, doživljavanju i tumačenju književnoumetničkih dela nego što je to slučaj sa čitanjem i razumevanjem tekstova drugog tipa“ (Mrkalj, 2016: 165). To su tekstovi „koji nisu narativni, već su informacije saopštene u nekom drugom formatu, npr. tabelarno, u obliku mape, grafikona, formulara“, što učenicima, prema mišljenju Ivane Stojkov, otežava „snalaženje u samom tekstu“ (Stojkov, 2024: 98). Do boljih rezultata, kada je reč o književnim tekstovima, dovodi i „aktiviranje tzv. unutrašnje čulnosti čitalaca i prepoznavanje estetskih vrednosti književnoumetničkog teksta koje podstiče na formiranje čitalačkih doživljaja“ (Mrkalj, 2016: 165), te su i metodički zahtevi usmereni ka tome „da se umetnički utisci povezuju, upoređuju i obrazlažu činjenicama iz teksta“ (Nikolić, 2012: 293).

Važno je istaći da se još u osnovnoj školi formiraju različiti tipovi čitalaca, poput onih koji su *funkcionalno-pragmatični*, pa „u tekstu traže korisne informacije“ ili onih koji su *racionalno-intelektualni*, „koji čitanje pretvaraju u aktivnu misaonu delatnost, te raspravljaju sa tekстом, raščlanjuju poruke i problematizuju zaključke koji su u tekstu istaknuti“ (Mrkalj, 2016: 165). Nastavnici, a naročito nastavnici srpskog jezika i književnosti, aktivno utiču na formiranje ovih tipova na taj način što pripremaju i analizu teksta u zavisnosti od vrste teksta koji se obrađuje. Analiza obuhvata i istraživačke zadatke

koje prethode čitanju, a kojima se podstiču različite strategije čitanja, te se u takve zadatke, u skladu sa ciljevima interpretacije, može uključivati fokusiranje na bitne informacije, kao i njihovo pronalaženje u tekstu u cilju povezivanja, upoređivanja, problematizovanja i dr. Pored toga, razumevanje pročitano „ne zavisi samo od karakteristika čitaoca, kao što su prethodno znanje i radna memorija, već i od jezičkih procesa“ (Moore, 2014: 1). Naglašava se i važnost *dekodiranja, rečenika i osetljivosti na strukturu teksta* (Moore, 2014: 1). Ukazuje se na to da *automatizacija identifikacije ili dekodiranje reči* predstavlja *kritičnu komponentu*, jer ukoliko se „pažnja iscrpljuje dekodiranjem reči, malo ili nimalo kapaciteta je dostupno za proces razumevanja koji zahteva pažnju“ (Pikulski & Chard, 2005: 511), pa razvijene veštine dekodiranja utiču da se u prepoznavanju smanji uticaj konteksta diskursa (Artelt et al., 2001). Autorka Kim (Young-Suk Grace Kim) poziva se na studije koje pokazuju da razumevanju čitanja doprinosi *razumevanje slušanja, fonološka, morfološka i ortografska svest*, ali i drugi faktori, poput *tečnosti čitanja teksta, radne memorije, pažnje, rečenika, sintaksičkog znanja, zaključivanja i praćenja razumevanja*. Stoga se ona zalaže za *integrativni teorijski model čitanja (Direct and Indirect Effects Model of Reading)*, koji se oslanja „na brojne jezičke i kognitivne veštine“, uključuje i pozadinska znanja (znanja o sadržaju koji se čita i znanja o diskursu), kao i socioemocije i drugo; reč je o modelu koji integriše postojeće „hijerarhijske, dinamičke i interaktivne odnose“ između brojnih faktora koji utiču na razumevanje pročitano. Na primer, u skladu s ovim modelom, zapaženo je da su razvijen rečnik i gramatičko znanje neophodni za kognitivne sposobnosti višeg reda (zaključivanje, zauzimanje perspektive i dr.) (Kim, 2020: 667-669).

Iz svega izloženog može se uočiti da brojni faktori, poput prethodnih znanja, čitalačkog tipa, ličnih karakteristika, kao i jezičkih sklonosti i sposobnosti učenika, utiču kako na njihovu sklonost prema tekstovima određene vrste tako i na samo razumevanje pročitano. Činjenica da naši učenici zaostaju na testiranjima u čitalačkoj pismenosti i razumevanju tekstova na naprednom nivou u odnosu na međunarodni prosek (Čaprić i Videnović, 2024; Randelović i sar., 2023) usmerila nas je ka tome da identifikujemo potencijalne probleme u razumevanju tekstova kod učenika osnovne škole koji postižu najbolje rezultate iz književnosti. Konkretno mere preduzete za identifikaciju bile su analiza rezultata pomenute grupe učenika na Republičkom takmičenju iz književnosti za školsku 2023/2024. godinu i, u slučaju zadataka koji su najslabije rešeni, utvrđivanje elemenata koji su neposredno povezani sa razumevanjem tekstova.

Najbolji učenici osnovne škole iz književnosti u Republici Srbiji školske 2023/2024. godine

Kriterijum po kojem smo izdvojili najbolje učenike osnovne škole u književnom znanju u Srbiji jesu njihovi rezultati, konkretno, učešće na Republičkom takmičenju iz književnosti *Književna olimpijada*. Reč je o najvišem rangu državnog takmičenja, koje se u Srbiji održava (zvanično) od 2012/2013. godine, a čija su hronologija i analiza po godinama u našoj literaturi detaljno obrađeni (v. Mrkalj i Stakić, 2024). Na ovom je ta-

kmičenju školske 2023/2024. godine, pored srednjoškolaca, učestvovalo i 410 učenika završnih razreda osnovne škole (258 učenika VIII razreda i 152 učenika VII razreda) (Mrkalj i Stakić, 2024: 311-312). Ukoliko uzmemo u obzir otvorene podatke iz Jedinog informacionog sistema prosvete (JISP) Ministarstva prosvete Republike Srbije, prema kojima je školske 2023/2024. godine 63750 učenika pohađalo VIII razred, a od tog broja 60248 slušalo nastavu na srpskom jeziku i 63989 učenika pohađalo VII razred, od čega 60425 na srpskom jeziku (v. *Osnovno obrazovanje – učenici*, 2023/2024) i uporedimo broj učenika koji su nastavu pohađali na srpskom jeziku sa brojem učenika koji su učestvovali na Republičkom takmičenju, uočava se da je na takmičenju ovog ranga učestvovalo svega 0,43% učenika VIII razreda i 0,25% učenika VII razreda. Dakle, reč je o najboljim učenicima, koji su zahvaljujući svom visokom plasmanu na školskom, opštinskom i okružnom takmičenju učestvovali na Republičkom takmičenju iz književnosti. Ilustracije radi, „na poslednjem Republičkom takmičenju (2024. godine) takmičilo se 410 osnovaca, a na Okružnom 1333, što praktično znači da se 30,76% takmičara plasiralo za učešće na Republičkom takmičenju“ (Mrkalj i Stakić, 2024: 312). Imajući u vidu da je reč o visokom rangju takmičenja iz književnosti koje je namenjeno najboljim učenicima, istražićemo koje elemente neophodne za razumevanje teksta sadrže zadaci koje nije rešio najveći broj takmičara, i tako utvrditi potencijalne probleme u razumevanju.

Metodologija

Predmet istraživanja su rezultati koje su učenici VII i VIII razreda osnovne škole pokazali rešavajući zadatke na Republičkom takmičenju iz književnosti – *Književna olimpijada* (takmičenje je održano 20. aprila 2024. godine u Sremskim Karlovcima). Istraživanje je organizovano sa ciljem da se identifikuju potencijalni problemi u razumevanju tekstova najboljih učenika iz književnosti u Srbiji, odnosno, da se u zadacima koje nije rešio najveći broj takmičara utvrde elementi koji stoje u osnovi razumevanja pročitnog. Pošlo se od sledećih zadataka: 1. izvršiti analizu elemenata sadržaja i tipova zadataka na republičkim testovima iz književnosti za osnovnu školu i utvrditi uspeh učenika u njihovom rešavanju kako bi se identifikovali zadaci koje najveći broj takmičara nije rešio; 2. analizirati izdvojene zadatke sa aspekta predmetnih ishoda i standarda koji stoji u osnovi razumevanja pročitnog.

Istraživanjem je obuhvaćen uzorak od 410 učenika završnog nivoa drugog ciklusa osnovnoškolskog školovanja u Srbiji koji su učestvovali na Republičkom takmičenju iz književnosti – *Književna olimpijada* 2024. godine, preciznije, 152 učenika VII razreda i 258 učenika VIII razreda.

Predmet analize bili su i testovi, budući da je književno znanje na republičkom nivou takmičenja upravo njima i vrednovano (v. *Republičko takmičenje učenika osnovnih škola Književna olimpijada, VII razred* [test], 2023/2024; *Republičko takmičenje učenika osnovnih škola Književna olimpijada, VIII razred* [test], 2023/2024). Reč je o zvaničnim testovima koji su javno dostupni na sajtu Društva za srpski jezik i književnost Srbije (www.drustvosj@fil.bg.ac.rs). Testovi za republičko takmičenje za VII i VIII razred

osnovne škole sadržali su po 20 pitanja i svako tačno rešeno pitanje vrednovano je 1 bodom, tako da su takmičari maksimalno mogli osvojiti 20 bodova (v. *Republički zimski seminar 2024*, 2024: 55). Oni se kao merni instrumenti oslanjaju na obavezne sadržaje iz književnosti i veštine razumevanja pročitano, objavljene u informatoru Društva za srpski jezik i književnost Srbije (*Republički zimski seminar 2024*, 2024), u kojem eksplicitno stoji da na osnovu opisa „učeničkih postignuća, takmičar na „Književnoj olimpijadi“ će biti u stanju da čita sa razumevanjem književnoumetničke tekstove i ostale tipove tekstova primenjujući različite strategije čitanja“ (*Republički zimski seminar 2024*, 2024: 67). Kao strategije čitanja, u informatoru su posebno promovisani „informativno, doživljajno i istraživačko čitanje“, a samo razumevanje tekstova ogleda se i kroz opis učeničkih postignuća na takmičenju. Stoga je, između ostalog, istaknuto da je takmičar osposobljen da „povezuje informacije i ideje iznesene u tekstu, uočava jasno iskazane odnose i izvodi zaključak zasnovan na tekstu“ i drugo (*Republički zimski seminar 2024*, 2024: 67-68).

Za potrebe istraživanja primenjene su deskriptivna metoda i metoda analize sadržaja. U delu istraživanja kojim se istraživao uspeh učenika u rešavanju zadataka na Republičkom takmičenju iz književnosti primenjena je deskriptivna metoda, a podaci su obrađeni u programu IBM SPSS Statistics 25 uz primenu frekvencije (*f*) i procenata (%) kao deskriptivnih statističkih mera. Za predstavljanje zadataka na republičkim testovima primenjena je analiza sadržaja, a jedinice analize su: 1. elementi sadržaja koje svaki zadatak sadrži i 2. tip zadatka. U delu istraživanja koji se odnosi na zadatke koje najveći broj takmičara nije rešio, jedinice analize su i konkretizovani predmetni ishodi i obrazovni standardi koji stoje u osnovi razumevanja pročitano, a na osnovu kojih su zadaci definisani.

Rezultati i diskusija

Zadaci na Republičkom takmičenju i književnosti i uspeh učenika u njihovom rešavanju

Na osnovu prikazanih elemenata sadržaja u zadacima sa Republičkog takmičenja uočava se da dominiraju zadaci kojima se ispituju književna znanja (v. Tabela 1).

Tabela 1

Elementi sadržaji zadataka na Republičkom takmičenju

Elementi	Razred	
	VII	VIII
	Redni broj zadatka	Redni broj zadatka
Prepoznavanje autora na osnovu kratkog biografskog opisa	prvi	prvi
Prepoznavanje pisca i naslova dela na osnovu datog odlomka		šesti, osmi
Određivanje naslova dela i imena autora na osnovu datog opisa	dvadeseti	dvadeseti
Određivanje naslova književnog dela na osnovu datog asocijativnog niza		drugi
Izdvajanje naslova dramskih dela u odnosu na ponuđeno		treći
Određivanje pisca, književnog roda i vrste dela	trinaesti	
Prepoznavanje dela koje ne pripada književnonaučnoj vrsti		jedanaesti
Razlikovanje naslova dela autorske književnosti od dela narodne književnosti	šesti	
Imenovanje likova na osnovu rečenica koje se u delima izgovaraju	četvrti	
Određivanje karakteristika junaka narodne epike	četnaesti	
Izdvajanje motiva u književnom delu	dvanaesti	
Povezivanje internacionalnog motiva sa konkretnim delom obrađivanim u školi		sedamnaesti
Interpretiranje književnoumetničkog teksta		dvanaesti
Određivanje istorijske podloge književnoumetničkog teksta	petnaesti	
Sintetizovanje znanja; prepoznavanje najave zapleta u različitim odlomcima narodnih epskih pesama	sedamnaesti	
Obeležavanje reči koje se rime u datom odlomku	deseti	
Određivanje vrste rime		devetnaesti
Određivanje strukture stiha (lirski deseterac)	drugi	
Izdvajanje traženog oblika kazivanja u datom primeru	treći	sedmi
Izdvajanje rečenica iz datog teksta kojima se ilustruje retrospektivno pripovedanje	osmi	
Određivanje pripovedačkog lica (u poetskom tekstu)		trinaesti
Precizno određivanje didaskalija u datom odlomku		četnaesti
Prepoznavanje tražene stilske figure i njeno precizno obeležavanje	deveti	četvrti
Određivanje naziva stilske figure na osnovu komparativnog pristupa		deveti
Određivanje manje poznate reči iz konteksta	sedmi	šesnaesti
Određivanje toponima u tekstu	osamnaesti	osamnaesti
Povezivanje naziva književnoteorijskih pojmova sa delima u kojima ti pojmovi dominiraju		deseti
Imenovanje književnog termina na osnovu datog opisa (književnog junaka)	peti	
Određivanje termina na osnovu datog opisa	jedanaesti	
Izbacivanje „uljeza“ iz niza datih književnih pojmova	šesnaesti	
Tumačenje datih izraza (frazelogija)		peti
Određivanje tačnog ili netačnog iskaza na raznorodnim primerima	devetnaesti	petnaesti

Zapaža se da se poznavanje imena autora i naziva dela proverava na osnovu biografskih detalja, elemenata sadržaja ili pripadnosti dela određenom književnom rodu ili vrsti: pet zadataka u testu za VII razred i šest zadataka u testu za VIII razred, kao i da se književna znanja povezuju sa konkretnim delima koja su bila predmet analize ili se posmatraju na nivou definisanja, npr. kada je reč o stilskim figurama ili književnim terminima. Poznavanje leksike se ispituje kroz pet zadataka (2 zadatka u testu za VII razred i 3 zadatka u testu za VIII razred). Određen broj zadataka sadrži više zahteva, pa njihovo rešavanje objedinjuje različite oblasti: na primer, neophodno je znanje o narodnoj književnosti i teoriji književnosti (znanje o terminima i versifikaciji) – devetnaesti zadatak u testu za VII razred; književnoj terminologiji i književnoj istoriji – petnaesti zadatak u testu za VIII razred; znanje iz različitih programskih oblasti, npr. povezuju se znanja iz nastave jezika (pravopisa) i književna znanja – petnaesti zadatak u testu za VII razred. Navedena znanja se ispituju zadacima različitog tipa (v. Tabela 2).

Tabela 2

Tipovi zadataka na Republičkom takmičenju

Tip zadatka		Razred	
		VII	VIII
		redni br. zadatka	Redni br. zadatka
Otvoreni tip	kratak odgovor	prvi, četvrti peti, jedanaesti, četrnaesti, petnaesti, dvadeseti	prvi, drugi, šesti, osmi, deveti, dvadeseti
	klasifikovanje (dopunjavanje tabela)	trinaesti	
Zatvoreni tip	dvostruki izbor	devetnaesti	petnaesti
	višestruki izbor	drugi, treći, šesti sedmi, osmi, deveti, deseti, dvanaesti, šesnaesti, sedamnaesti, osamnaesti	treći, četvrti, sedmi, jedanaesti, dvanaesti, trinaesti, četrnaesti, šesnaesti, sedamnaesti, osamnaesti, devetnaesti
	sparivanje		peti, deseti

Napomena. Tipovi zadataka imenovani su prema tipovima koji se javljaju u testovima Zavoda za vrednovanje kvaliteta obrazovanja i vaspitanja, a više o njima može se videti u doktorskoj disertaciji Željka Tešića *Metodologija izrade zadataka za proveru znanja iz književnosti u starijim razredima osnovne škole* (2023).

Zapaža se da u republičkim testovima dominiraju zadaci zatvorenog tipa, i to višestrukog izbora (jedanaest zadataka u testu za VII razred i jedanaest zadataka u testu za VIII razred). Zadaci otvorenog tipa su zadaci dopunjavanja, tj. kratkih odgovora koji uglavnom (ne svi) zahtevaju reproduktivna znanja, pa je opravdano što ih je manje u odnosu na zadatke višestrukog izbora zatvorenog tipa. Među zadacima višestrukog izbora posebno bismo istakli zadatke nalaženja grešaka (šesnaesti zadatak u testu za VII razred i jedanaest

sti zadatak u testu za VIII razred) i zadatke grupne alternacije (šesti i dvanaesti zadatak u testu za VII razred i osamnaesti zadatak u testu za VIII razred), koji sa aspekta razumevanja tekstova zahtevaju upoređivanje podataka kako bi se izvukli zaključci. Pažnju privlače i dva zadatka (devetnaesti zadatak u testu za VII razred i petnaesti zadatak u testu za VIII razred) koji sadrže više zahteva (tri), a svaki od njih nudi dvostruki izbor. Da bi uspešno rešio zadatak ovog tipa, neophodno da učenik svaki zahtev pažljivo pročita i da u njemu uoči važne informacije, zatim i da te informacije poveže sa svojim prethodnim znanjem. Pored toga, traži se i poznavanje definicije termina koje se nalazi u osnovi akademskog jezika, a u literaturi je prisutan stav da se kod učenika postepeno razvija „poznavanje akademskog jezika“ jer potencijalni uspeh ili neuspeh „u razumevanju školskih tekstova mogu, stoga, proizaći iz čitaočeve upoznatosti (ili nedostatka iste) sa akademskim jezikom teksta“ (Galloway et al., 2020: 332). Izdvojili bismo i dvanaesti zadatak u testu za VIII razred u kojem je višestruki izbor uslovljen razumevanjem književnog teksta i ućavanjem veze između uzroka i posledica. I u literaturi je prisutno mišljenje da ovakav tip zadataka zahteva „viši nivo znanja učenika koji podrazumeva složenije kognitivne procese poput analize, sinteze i evaluacije“ (Tešić, 2023: 127).

Iz navedenog opisa zadataka zapaža da je reč o zadacima kojima se ispituje razumevanje tekstova i znanja koja su disciplinarna, tj. vezana za predmetno područje Književnost, što je i osnovna namena ovih testova. Za uspeh učenika u njihovom rešavanju od značaja su metakognicija i prethodna znanja (književni tekstovi su obrađivani tokom nastave), a rezultatima istraživanja je potvrđeno da su metakognitivna znanja prediktivna u slučajevima kada se procenjuju efekti prethodnog znanja, zatim i tematskog interesovanja na razumevanje tekstova, koje je zasnovano na memoriji (Artelt et al., 2001). Tokom rešavanja zadataka bilo je neophodno se u pamćenju selektuju važne informacije iz književnih tekstova koji su prethodno obrađeni i dovedu u vezu sa zahtevom kako bi se izvukao zaključak, tj. došlo do tačnog rešenja. Samo plasiranje učenika na ovako visoki rang takmičenja svedoči o kvalitetu prethodnih znanja i opravdava dobre rezultate koje su postigli: stepen rešenosti $\geq 75\%$ u VIII razredu ima 17 zadataka, a u VII razredu 18 zadataka (v. Tabela 3).

Tabela 3

Rezultati učenika VII i VIII razreda po zadacima na Republičkom takmičenju

Zadatak	Broj bodova	Razred			
		VII		VIII	
		F	%	F	%
Prvi	1	134	88,2	252	97,7
	0	18	11,8	6	2,3
Drugi	1	116	76,3	217	84,1
	0	36	23,7	41	15,9
Treći	1	131	86,2	256	99,2
	0	21	13,8	2	0,8

Zadatak	Broj bodova	Razred			
		VII		VIII	
		F	%	F	%
Četvrti	1	138	90,8	215	83,3
	0	14	9,2	43	16,7
Peti	1	140	92,1	242	93,8
	0	12	7,9	16	6,2
Šesti	1	151	99,3	257	99,6
	0	1	0,7	1	0,4
Sedmi	1	134	88,2	253	98,1
	0	18	11,8	5	1,9
Osmi	1	137	90,1	236	91,5
	0	15	9,9	22	8,5
Deveti	1	140	92,1	217	84,1
	0	12	7,9	41	15,9
Deseti	1	143	94,1	256	99,2
	0	9	5,9	2	0,8
Jedanaesti	1	112	73,7	251	97,3
	0	40	26,3	7	2,7
Dvanaesti	1	147	96,7	247	95,7
	0	5	3,3	11	4,3
Trinaesti	1	146	96,1	181	70,2
	0	6	3,9	77	29,8
Četrnaesti	1	140	92,1	251	97,3
	0	12	7,9	7	2,7
Petnaesti	1	117	77,0	122	47,3
	0	35	23,0	136	52,7
Šesnaesti	1	143	94,1	144	55,8
	0	9	5,9	114	44,2
Sedamnaesti	1	126	82,9	254	98,4
	0	26	17,1	4	1,6
Osamnaesti	1	112	73,7	247	95,7
	0	40	26,3	11	4,3
Devetnaesti	1	118	77,6	254	98,4
	0	34	22,4	4	1,6
Dvadeseti	1	139	91,4	206	79,8
	0	13	8,6	52	20,2
UKUPNO		152	100	258	100

Napomena. f – frekvencija, % – procenat.

U VII razredu preko 90% učenika uspešno rešava 10 zadataka (99,3% – šesti zadatak; 96,7% – dvanaesti zadatak; 96,1% – trinaesti zadatak; 94,1% – deseti i šesnaesti zadatak; 92,1% – peti, deveti i četrnaesti zadatak; 90,8% – četvrti zadatak; 90,1% – osmi zadatak). U VIII razredu preko 90% učenika uspešno rešava 13 zadataka (99,6% – šesti zadatak; 99,2% – treći i deseti zadatak; 98,4% – sedamnaesti i devetnaesti zadatak; 98,1% – sedmi zadatak; 97,7% – prvi zadatak; 97,3% – jedanaesti i četrnaesti zadatak; 95,7% – dvanaesti i osamnaesti zadatak; 93,8% – peti zadatak; 91,5% – osmi zadatak).

U VII razredu je reč o zadacima kojima se identifikuju dela koja (ne)pripadaju zadatoj vrsti (šesti zadatak); prepoznaju i izdvajaju ključni motivi u književnom delu (dvanaesti zadatak); proverava poznavanje imena pisca, naziva njegovog književnog dela i pripadnosti tog dela konkretnoj književnoj vrsti i rodu (trinaesti zadatak); pronalaze i izdvajaju reči koje se rimuju (deseti zadatak); proverava poznavanje književnog termina na osnovu opisa (peti zadatak); prepoznaju književni pojmovi koji pripadaju drami (šesnaesti zadatak); prepoznaje stilska figura – personifikacija (deveti zadatak); pokazuje poznavanje imena književnih likova (četvrti zadatak); pokazuje poznavanje karakteristika (titula) književnih likova i pravopisa (četrnaesti zadatak); izdvaja retrospektiva iz književnog teksta (osmi zadatak). Zadacima koje u VIII razredu uspešno rešava preko 90% učenika određuje se književno delo i autor na osnovu odlomka (šesti i osmi zadatak); identifikuju dela koja (ne) pripadaju zadatoj književnoj vrsti ili žanru (treći i jedanaesti zadatak); povezuju književnoteorijski pojmovi sa književnim delima (deseti zadatak); prepoznaje književno delo na osnovu ključnog motiva (sedamnaesti zadatak); prepoznaju i pronalaze elementi (toponimi) koji se javljaju u konkretnom delu (osamnaesti zadatak); prepoznaje rima (devetnaesti zadatak); imenuje pisac na osnovu biografskih podataka (prvi zadatak); izdvajaju iz teksta zadate forme pripovedanja – unutrašnji monolog (sedmi zadatak) i didaskalije (četrnaesti zadatak), pokazuje razumevanje teksta i postupka književnog lika (dvanaesti zadatak) i razumevanje značenja izraza (peti zadatak). Ova kratka analiza pokazuje da su i u VII i u VIII razredu najbolje urađeni (rešava ih preko 90% učenika) zadaci sličnog tipa i da se najveći broj njih tiče književnih znanja (navođenje imena pisca, naziva dela i imena likova, poznavanja ključnih motiva i književnoteorijskih pojmova). Kao zadatak kojim se u celini ispituje razumevanje teksta izdvajamo dvanaesti zadatak u testu za VIII razred, koji uspešno rešava 95,7% učenika. U ovom zadatku višestrukog izbora od učenika se tražilo da odgovore na pitanje koje zahteva razumevanje književnog teksta (pripovetka „Deca“ Ive Andrića), a njegovo uspešno rešavanje uključuje vrednovanje postupka lika na osnovu uviđanja uzroka i posledice koje je povezano sa ličnim doživljajem. Težina ovog zadatka ogleda se u određivanju odgovora koji je najpribližniji zahtevu, pošto se, šire gledano, svi ponuđeni odgovori mogu smatrati tačnima.

Visoki procenat rešenosti (80–90%) imaju četiri zadatka u Republičkom testu za VII razred (88,2% – prvi i sedmi zadatak, 86,2% – treći zadatak i 82,9% – sedamnaesti zadatak) i tri zadatka u testu za VIII razred (84,1% – drugi i deveti zadatak i 83,3% – četvrti zadatak). Analiza ovih zadataka je pokazala da je u VII razredu reč o zadacima kojima se proverava poznavanje značenja leksike stranog porekla (sedmi zadatak); imenuje pisac na osnovu biografskih podataka (prvi zadatak); izdvaja naracija (treći zadatak) i razumevanje teksta kombinuje sa primenom znanja o kompoziciji epske pesme (sedamnaesti zadatak).

U VIII razredu to su zadaci u kojima se navode nazivi književnih dela na osnovu ključnih pojmova (drugi zadatak) i pokazuje prepoznavanje i poznavanje stilskih figura (četvrti i deveti zadatak). Neki od prethodno opisanih zadataka, poput sedmog zadatka u testu za VII razred, tiču se korelata koji utiču na uspešnost razumevanja pročitano. Učenici su u ovom zadatku višestrukog izbora imali direktivu da odrede značenje manje poznate ili nepoznate reči iz grčkog jezika (reč *čivot*) na osnovu konteksta, a kao odgovori bili su im ponuđeni distraktori koji su, skupa gledano, bliski jedan drugom, te se ovaj zadatak može smatrati težim. Takođe, i zahtev u sedamnaestom zadatku ovog testa, gde im je bilo zadato da zaokruže slova ispred dva odlomka koji najavljuju zaplet u epskim pesmama, utemeljen je na razumevanju pročitano, tj. na povezivanju događaja iz tekstova epskih pesama kako bi bio izveden zaključak ne o samom zapletu, već o događajima koji ga najavljuju. Osim što je zahtev zadatka složen, ovakav tip zadataka spada u kompleksne i zbog toga što učenik nema pred sobom tekstove pesama iz kojih su ponuđeni odlomci, te je neophodno da prvo aktivira prethodna znanja kako bi prepoznao iz kojih su pesama dati primeri, potom da se seti kompozicije tih pesama i onda da utvrdi i zaključi u kojim od ponuđenih stihova se prepoznaje najava zapleta.

U uspešno rešene zadatke valja ubrojati i one koje uspešno rešava od 75% do 80% učenika. U VII razredu takvu rešenost imaju tri zadatka: devetnaesti (77,6%), petnaesti (77%) i drugi (76,3%). U devetnaestom zadatku se na osnovu informativnih iskaza proverava znanje o književnom liku, književnoj vrsti i stihu; u petnaestom se proverava poznavanje istorijskog konteksta koji je uslovio nastanak književnog dela, a u drugom zadatku prepoznaje se i izdvaja lirski deseterac. U VIII razredu samo jedan zadatak ima takav procenat rešenosti. Reč je o dvadesetom zadatku (79,8%), u kojem se određuje ime pisca i naziv dela na osnovu opisa koji je dat u informativnom tekstu.

U najslabije rešene zadatke na Republičkom takmičenju spadaju oni koje uspešno rešava manje od 75% učenika. U VII razredu to su jedanaesti i osamnaesti zadatak (73,7%), a u VIII razredu – trinaesti (70,2%), šesnaesti (55,8%) i petnaesti zadatak (47,3%).

Analiza zadataka koje nije rešio najveći procenat takmičara na Republičkom takmičenju iz književnosti za osnovce

Najslabije rešeni zadaci u testu za VII razred utemeljeni su na književnom znanju koje se tiče poznavanja značenja i naziva termina (jedanaesti zadatak) i njihovog pronalaženja u tekstu (osamnaesti zadatak). Najslabije urađeni u testu za VIII razred tiču se razumevanja poetskog teksta kako bi se uočilo koje reči upućuju na lice u kojem su ispevani stihovi (trinaesti zadatak), određivanja značenja leksema stranog porekla u kontekstu književnog teksta (šesnaesti zadatak) i razumevanja stručnih iskaza koji zahtevaju poznavanje književnoteorijskih pojmova (petnaesti zadatak). Ovi zadaci, kao i svi drugi na republičkim testovima, odgovaraju predmetnim ishodima (v. *Pravilnik o programu nastave i učenja za osmi razred osnovnog obrazovanja i vaspitanja*, 2019; *Pravilnik o programu nastave i učenja za sedmi razred osnovnog obrazovanja i vaspitanja*, 2019)

i definisani su prema obrazovnim standardima koji su u vreme njihove izrade bili na snazi (*Obrazovni standardi za kraj obaveznog obrazovanja za nastavni predmet Srpski jezik*, 2010: 17-24). Daljom revizijom (25. 12. 2024. godine) objavljeni su novi standardi obrazovnih postignuća (v. *Pravilnik o standardima obrazovnih postignuća za kraj prvog ciklusa osnovnog obrazovanja i za kraj osnovnog obrazovanja*, 2024), ali u vreme kada se održavalo Republičko takmičenje (novi) standardi još uvek nisu bili na snazi.

Tabela 4

Ishodi i standardi na osnovu kojih su definisani najslabije rešeni zadaci na Republičkom takmičenju

Redni broj zadatka	Razred	Ishodi (<i>Pravilnik o programu nastave i učenja za osmi razred osnovnog obrazovanja i vaspitanja</i> , 2019: 63; <i>Pravilnik o programu nastave i učenja za sedmi razred osnovnog obrazovanja i vaspitanja</i> , 2019: 62–63)	Standardi (<i>Obrazovni standardi za kraj obaveznog obrazovanja za nastavni predmet Srpski jezik</i> , 2010: 17–24)
Jedanaesti	VII	čita sa razumevanjem različite vrste tekstova;	CJ.1.3.14. zna značenja reči [...]koje se često javljaju u školskim tekstovima (u udžbenicima, tekstovima iz lektire i sl.; CJ.3.1.2. izdvaja ključne reči i rezimira tekst
Trinaesti	VIII	čita sa razumevanjem književnoumetničke tekstove i ostale tipove tekstova primenjujući različite strategije čitanja; razlikuje oblike kazivanja (forme pripovedanja);	CJ.3.1.2. izdvaja ključne reči i rezimira tekst CJ.3.4.6. tumači različite elemente književnoumetničkog dela pozivajući se na samo delo; CJ.1.4.7. uočava bitne elemente književnoumetničkog teksta [...]
Petnaesti	VIII	tumači značenja, jezičke, estetske i strukturne osobine umetničkih tekstova koristeći književne termine i pojmove; povezuje književna dela sa istorijskim ili drugim odgovarajućim kontekstom;	CJ.3.1.1. izdvaja iz teksta argumente u prilog nekoj tezi (stavu)ili argumente protiv nje; CJ.1.1.6. razlikuje u tekstu bitno od nebitnog, glavno od sporednog;
Šesnaesti	VIII	Čita sa razumevanjem književnoumetničke tekstove i ostale tipove tekstova primenjujući različite strategije čitanja; razume značenje zastarelih reči;	CJ.3.3.7 ume da odredi značenja nepoznatih reči i izraza na osnovu njihovog sastava, konteksta u kojem su upotrebljeni, ili na osnovu njihovog porekla;
Osamnaesti	VII	Čita sa razumevanjem različite vrste tekstova; identifikuje jezičko-stilska izražajna sredstva i razume njihovu funkciju;	CJ.1.4.7. uočava bitne elemente književnoumetničkog teksta [...]

Jedanaesti zadatak u testu za VII razred definisan je na osnovu ishoda koji se tiče čitanja sa razumevanjem različitih vrsta tekstova. Učenici su čitali i tumačili informativni tekst i u njemu je, pored potrebe da prepoznaju književni termin (*aforizam*), bilo neophodno i

da poredbeno sagledaju pojmove: *poslovica* – *aforizam* i povežu ih sa gradivom koje se u VII razredu proučava (odabranim aforizmima Duška Radovića). Kako u ovom zadatku nije dat konkretan primer aforizama, već samo opis pojma, pronalaženje tačnog odgovora u zadatku otvorenog tipa (rešenje treba napisati), predstavlja izazov. Pored toga, dati opis pojma zapravo predstavlja njegovo posredno definisanje putem dvostrukog poređenja (po sličnosti i po razlikama) sa drugim pojmom, a poznavanje pojmova i njihovog značenja spada u karakteristike razvijenosti akademskog jezika, čija je forma „mnogo preciznija u referiranju od običnog govornog jezika“ (Durbaba i Vučo, 2016: 952). Ako uzmemo u obzir i to da se učenici VII razreda nalaze na uzrastu (12-14 godina) koji sa aspekta razumevanja semantičkog sadržaja karakteriše „sposobnost sažimanja definicija datih u rečniku“ (Stevanović i Lazarević, 2014: 302), tačno rešenje ovog zadatka zahtevalo je i sažimanje opisne definicije, a iz nje i izdvajanje bitnih elemenata koji se odnose na definisanje traženog pojma.

U osamnaestom zadatku od učenika VII razreda se tražilo da prepoznaju nazive toponima koji se javljaju u datom odlomku iz lirske pesme. Slabiju urađenost ovog zadatka (<75%) u odnosu na druge zadatke ne možemo objasniti nepoznavanjem značenja termina *toponim*, jer je u samom zadatku dato njegovo objašnjenje. Pretpostavka je da je izostalo razumevanje samog teksta, odnosno da učenici nisu uočili bitne elemente (standard CJ.1.4.7.) i da su toponime *Savina stopala*, *Savin kuk* i *Savin lakat* razumeli kao prisvojne prideve.

Na razumevanje određenog književnog pojma utiče i frekventnost primera koji se njime označavaju i to može biti pokazatelj da je razumevanje književnih pojmova povezano i sa razredom kada se oni uvode u nastavu, jer je potrebno vreme da učenici prihvate određeni pojam i da ga upoznaju i shvate kroz književnu analizu ukoliko se on javlja kao strukturni element dela. Stoga u metodičkim radovima imamo preporuke da se i u mlađim razredima uvede imenovanje određenih književnih termina i pojmova, npr. nekih stilskih figura, koji su po važećim programima planirane za obrađivanje u starijim razredima (videti Stakić, 2021). Iz tih razloga ne čudi to što trinaesti zadatak u testu za VIII razred, gde se od učenika zahtevalo da prepoznaju lice u kom su ispevani stihovi spada, u lošije urađene zadatke (rešava ga 70,2% učenika), pri čemu je važno napomenuti da je tačno rešenje ovog zadatka 2. lice, koje nije frekventno u književnim delima, poput prvog ili trećeg lica. Međutim, slabiji rezultat u rešavanju ovog zadatka može biti i pokazatelj izvesnih slabosti u razumevanju poetskog teksta koji je uzet za predložak kojim se proveralo književno znanje, jer je u datim stihovima Ivana V. Lalića valjalo uočiti ličnu zamenicu *ti*, koja upućuje na to da se lirski subjekt obraća drugoj osobi (dečaku). Navedeno se može dovesti u neposrednu vezu sa standardima koji se tiču razumevanja teksta, a odnose se na izdvajanje ključnih reči (CJ.3.1.2.) i uočavanje bitnih elemenata u tekstu (CJ.1.4.7.).

Jedan od najslabije urađenih zadataka na Republičkom testu za VIII razred je še-snaesti (rešava ga 55,8% učenika), u kojem se od učenika tražilo da odrede značenje nepoznate reči stranog porekla (mađarski jezik), imenice *palošina*, na osnovu konteksta (odlomak iz pripovetke „Kanjoš Macedonović“ Stjepana Mitrova Ljubiše). Navedeni rezultat implicira i pitanje razumevanja konteksta, tj. njegove jasnosti sa aspekta uče-

ničkog iskustva. Iako se odlomak iz ove pripovetke obrađuje (sastavni deo obrade je i analiza nepoznatih ili manje poznatih reči), Kanjoševo junaštvo i veština usmerili su učenike ka odgovorima: *junački štit* ili *svinjska mešina* (što im je po melodiji reči najviše nalikovalo *palošini*), a tačan odgovor je *dvosekli mač*. Da poznavanje leksike stranog porekla nije na visokom nivou u nastavi pokazuje anketiranje učenika šestog razreda, kojim se utvrđivalo njihovo poznavanje značenja najfrekventnijih imenica stranog porekla u čitankama za peti razred. Ono je dalo rezultate koje Rajna Dragičević naziva „poražavajućim“ (Dragičević, 2006: 30). Istraživanja takođe pokazuju da kod učenika mlađih razreda osnovne škole „semantički razvoj nije na zadovoljavajućem nivou“, i to naročito u oblasti metonimije, koja predstavlja „jedan od osnovnih mehanizama za bogaćenje leksičkog fonda“ (Stevanović i Lazarević, 2014: 314). Situacija nije bolja ni kada je reč o leksičkim metaforama, koje su podjednako važne za bogaćenje rečnika i mogu biti „pokazatelj viših nivoa znanja, odnosno razumevanja kod učenika“ (Lazarević i Stevanović, 2013: 213), te ovaj nezadovoljavajući iskaz, prema mišljenju autorki ovog istraživanja, „otvara pitanje obuhvatnosti aktivnog i pasivnog leksikona naših učenika“ (Lazarević i Stevanović, 2013: 212). Ovo je važno i ako uzmemo u obzir da rečnik utiče na razumevanje pročitano (Braze et al., 2007; Duff, 2019; Moore, 2014; Oakhill & Cain, 2012; Richter et al., 2013; Vučković, 2017). Pored toga, učenici kroz čitanje tekstova bogate i svoj rečnik, budući da se u njima sreću sa novim rečima koje nisu frekventne u njihovom rečniku (Duff et al., 2015). Reč je o međusobno uslovljenom procesu, s obzirom na to da je odnos između rečnika i razumevanja pročitano recipročan: bogat rečnik pomaže razumevanju i obrnuto (Wagner & Meros, 2010).

Najslabiji rezultat na Republičkom testu za VIII razred učenici su pokazali na petnaestom zadatku, jer ga nije uspešno rešilo više od polovine učenika, tačnije 52,7%. Zadatak je sadržao tri zahteva, a svaki od njih je morao biti uspešno rešen kako bi se zadatak vrednovao kao tačan. Reč je o zadatku zatvorenog tipa, dvostrukog izbora. Od učenika se traži čitanje i razumevanje tri različita stručna iskaza, napisanih stilom koji je prilagođen njihovom uzrastu, kako bi pokazali razumevanje književnoteorijskog pojma (*komika*) i prethodno stečeno znanje iz istorije narodne književnosti, na taj način što bi svaki iskaz vrednovali kao tačan ili netačan. Mada su za tačno rešavanje prvog i drugog zahteva bila neophodna znanja o poznavanju tipova komike koja zahtevaju poznavanje termina i njihovo definisanje, opredeljujući se za tačnost ili netačnost tvrdnje, učenici su sa aspekta razumevanja tekstova morali da izdvoje ono što je u iskazu važno (standard CJ.1.1.6.), kao i da izdvoje elemente na osnovu kojih se razlikuje komika likova od komike situacije, tj. „argumente u prilog nekoj tezi (stavu) ili argumente protiv nje“ (standard CJ.3.1.1.).

Pedagoške implikacije za prevazilaženje identifikovanih problema u razumevanju tekstova

Analiza rezultata učenika VII i VIII razreda na Republičkom takmičenju iz književnosti usmerava nas ka potencijalnim problemima u razumevanju tekstova. Međutim, moramo

istaći našu sprečenost da izvršimo generalizaciju rezultata usled nedovoljno velikog uzorka zadataka koji su bili predmet analize, usled čega rezultate stavljamo u okvire Republičkog takmičenja iz književnosti održanog 2024. godine. Ograničenje predstavlja činjenica da zadaci na republičkim testovima nisu prvenstveno namenjeni ispitivanju razumevanja pročitano, zatim i sadržaj pojedinih zadataka: sačinjavalo ih je više zahteva, od kojih se neki mogu dovesti u vezu sa razumevanjem, a drugi se tiču eksplicitnih znanja, a učenik je morao da reši sve zahteve da bi se zadatak vrednovao kao tačan (npr. petnaesti zadatak na Republičkom testu za VIII razred).

U najslabije urađenim zadacima se od učenika tražilo da povezuju znanja i pokažu razumevanje tekstova koji nisu književnoumetnički, a učenici su ispoljili i poteškoće u razumevanju književnih termina i leksike stranog porekla.

Interesovanje za temu i iskustvo su u pozitivnoj korelaciji sa razumevanjem (Unsworth & McMillan, 2013), čime se može objasniti da učenici koji se takmiče iz književnosti pokazuju bolje razumevanje književnih tekstova od tekstova koji pripadaju drugim oblastima, jer je interesovanje „povezano sa pažnjom, dubljom obradom podataka, upotrebom složenijih strategija, osećanjem uživanja i učenjem“ (Wade, 2001: 243). Interesovanju za čitanje doprinosi i zanimljivost teksta, a naši rezultati pokazuju da učenici slabije rezultate pokazuju kada je reč o razumevanju informativnih tekstova u kojima se javljaju termini. U praksi „od nastavnika se zahteva da koriste određeni tekst bez obzira na njegovu interesantnost“, pa ueničko interesovanje može biti dodatno podstaknuto (Schraw & Dennison, 1994: 14), naročito ako uzmemo u obzir to da rezultati novijih istraživanja pokazuju da prisustvo u naučnim tekstovima interesantnih, ali nevažnih i „zavodljivih“ detalja ne deluje pozitivno na razumevanje i pamćenje važnog sadržaja (Mensink, 2021). Rešenje ovog problema može biti u tome da decu još na ranom uzrastu valja izlagati informativnim tekstovima (Massey, 2014), jer izlaganje informativnom tekstu „može da pomogne deci u njihovom konceptualnom razvoju i podstiče ih na razmišljanje višeg reda“ (Massey, 2014: 399). U cilju razumevanja tekstova pisanih akademskim jezikom, mogu biti od pomoći aktivnosti koje se promovišu u literaturi, poput uprošćavanja složenih informacija posredstvom razumevanja složenih sintaksičkih struktura (npr. umetnutih rečenica), obrada vezanih reči zarad povezivanja ideja na logičan način, npr. *prvo... drugo* [ili u navedenom primeru jedanaestog zadatka u testu za VII razred – antonimijski par: *sličan i razlikuje se*] i drugih aktivnosti (Galloway et al., 2020: 334). Stoji i preporuka da se moraju razvijati jezički resursi koji su neophodni za snalaženje u tekstovima koji su fokusirani na apstraktne koncepte i sadržaje koji nisu poznati, te da je potrebno da se veća pažnja posvećuje karakteristikama rečenica koje su tipične u školskim tekstovima, što podrazumeva rad na razvijanju sintaksičke svesti i poznavanju specijalizovanog i opšteg rečnika (v. Galloway et al., 2020: 333).

Pored toga, bolje razumevanje književnih od stručnih tekstova potvrđuje metodički stav da se zahvaljujući doživljajnom ili istraživačkom čitanju praćenom odgovarajućim zadacima „omogućava sticanje uvida u kvalitet čitalačkih kompetencija“ (Mrkalj i Pejić, 2021: 154). Zbog toga je poželjno obučiti učenike osnovnih škola različitim strategijama i vrstama čitanja, a naročito istraživačkom čitanju, u čemu važnu ulogu imaju jasno istaknuti nalozi kojima se učenici upućuju da izdvoje iz teksta važne podatke, upo-

rede ih, povežu i slično. Navedeni metodički postupci se mogu pokazati kao efikasni i u slučajevima kada iz tekstova valja izdvojiti elemente koji svedoče o književnom znanju, što se pokazalo kao potencijalni problem u razumevanju književnih tekstova na Republičkom takmičenju kada je učenicima bilo zadato da izvoje toponime i prepoznaju lice u kojem su ispevani stihovi. Istraživanja pokazuju da efikasne strategije čitanja pozitivno utiču na čitalačku pismenost i veštinu razumevanja čitanja (Chunjin, 2020; Gilakjani & Sabouri, 2016a), a pored toga, istraživanje njihovog uticaja na razumevanje teksta može doprineti unapređenju instrukcija za čitanje (Habok et al., 2024: 2). Da bi instrukcija za razumevanje bila dobra, ona mora da sadrži „eksplicitnu instrukciju o specifičnim strategijama razumevanja“ (Duke & Pearson, 2009: 107). Postoje različite strategije koje doprinose razumevanju tekstova (*korišćenje prethodnog znanja, postavljanje važnih pitanja, predviđanje, sažimanje i sumiranje teksta, vizuelizacija kod narativnih tekstova* i dr.) (Ezell et al., 1997; Gilakjani & Sabouri, 2016b; Moore, 2014; Ness, 2011; Spörer et al., 2009), a razvijeni su i postupci kako bi se kod učenika poboljšale veštine razumevanja teksta, poput kombinovanja različitih strategija čitanja (Spörer et al., 2009). Pored toga, i u našoj novijoj literaturi detaljno je razrađen sistem pedagoških intervencija kojima se pruža podrška čitalačkoj pismenosti učenika, a koji obuhvata više činilaca („modifikacija teksta iz kojeg se čita/uči; podrška razvoju kognitivnih veština učenika koje su povezane sa čitanjem; podrška razvoju afektivnih aspekata ličnosti učenika koji su povezani sa razumevanjem čitanja, na kraju i efikasne aktivnosti čitanja s razumevanjem u nastavi, nastavnim situacijama, metodama nastave/učenja“), koji „deluju u dinamičnoj interakciji“ (Antić i Stevanović, 2024: 349).

Rezultat koji ukazuje na problem razumevanja leksike stranog porekla u književnim tekstovima implicira važnost leksičkih vežbanja. To je istakla i Rajna Dragičević, navodeći kao predlog za prevazilaženje problema da bi bilo „korisno na skoro svakom času raditi s učenicima petominutne leksičke vežbe, koje bi ih podstakle da razmišljaju o rečima i njihovim značenjima“ (Dragičević, 2006: 31). Smatramo da je sa leksičkim vežbama koje su sastavni segment skoro svakog časa poželjno početi još od prvog razreda osnovne škole kako bi se kontinuirano bogatio rečnik učenika, a i učitelji su istakli rad „na usvajanju i razvoju rječnika“ kao važan segment za unapređenje čitalačke pismenosti (Vučković, 2017: 68).

Zaključak

Stručnjaci upozoravaju da je prvo potrebno „identifikovati slabosti u specifičnim kognitivnim veštinama“, a potom „imati procedure za unapređenje tih specifičnih veština, a ne opšte intervencije koje ciljaju na ograničen broj veština bez obzira na identifikovane snage ili slabosti“ (Moore, 2014: 2). Zbog toga smo, uzimajući u obzir rezultate koji pokazuju da učenici osnovnih škola u Srbiji postižu slabije rezultate od međunarodnog proseka u kategoriji naprednih nivoa čitalačke pismenosti (Čaprić i Videnović, 2024; Randelović i sar., 2023), sprovedi istraživanje sa ciljem da utvrdimo potencijalne probleme u razumevanju tekstova kod učenika koji postižu najbolje rezultate iz književnosti, konkretno, učenika VII

i VIII razreda koji su se plasirali na republički nivo takmičenja iz književnosti *Književna olimpijada*. Kako bismo ostvarili navedeni cilj, izvršili smo analizu elemenata sadržaja i tipova zadataka na republičkim testovima i ispitali kakav su uspeh imali u rešavanju zadataka. Analiza je pokazala da u testovima dominiraju zadaci višestrukog izbora zatvorenog tipa i da je razumevanje tekstova povezano sa znanjem i utemeljeno na propisanim programskim ishodima za predmet Srpski jezik i književnost, kao i na obrazovnim standardima koji su u to vreme bili na snazi. Na osnovu analize se može zaključiti da zadaci na republičkim testovima nisu napisani u duhu PISA (OECD, 2019) i PIRLS (Mullis & Martin, 2021) istraživanja, već u skladu sa svojom namenom provere znanja na takmičenju najvišeg ranga. Ipak, u njima možemo izdvojiti neke elemente koji se tiču upravo onakve čitalačke pismenosti kakva se proverava na međunarodnim testiranjima, poput *obraćanja pažnje na eksplicitno navedene informacije u tekstu, donošenja zaključaka o informacijama koje nisu eksplicitno navedene i tumačenja i povezivanja informacija* (Mullis & Martin, 2021: 12–14). Razumevanje tekstova u zadacima je povezano sa književnim znanjem, a u nekim slučajevima se znanje povezuje sa književnim tekstovima koji nisu predmet neposrednog čitanja u zadatku jer su bili predmet obrade u nastavi. To ne umanjuje značaj zadataka, jer svedoči o razumevanju književnih tekstova koji su u nastavi osnovno polazište za sticanje teorijskih znanja iz oblasti nauke o književnosti.

Analizom uspeha učenika u rešavanju zadataka na Republičkom takmičenju identifikovali smo zadatke (2 zadatka u VII i tri zadatka u VIII razredu) koje nije rešila jedna trećina učenika. Njihova analiza implicira zaključke da postoje potencijalni problemi u razumevanju tekstova, koje zbog visoko selektovanog uzorka ne možemo generalizovati, odnosno da najbolji učenici iz književnosti imaju poteškoće u razumevanju tekstova koji su pisani akademskim jezikom i teškoće u razumevanju termina. Kada je reč o književnim tekstovima, potencijalne teškoće se ogledaju u izdvajanju strukturnih elemenata kojima se pokazuje pojmovno znanje i u razumevanju leksike stranog porekla.

Navedeno upućuje na specifične mere intervencija, pod kojima podrazumevamo kontinuirana leksička vežbanja, kao i vežbanja koja imaju za cilj bolje razumevanje akademskog jezika, rad na povećanju motivacije za čitanje i upoznavanje učenika sa različitim strategijama čitanja, koje ne treba vezivati samo za predmet Srpski jezik i književnost, već i za sve druge predmete koji se izučavaju u osnovnoj školi. Potrebna su dalja istraživanja u ovoj oblasti i dodatna edukacija nastavnog kadra kako bi se u nastavu implementirale efikasne strategije čitanja i razumevanja tekstova.

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Tabela 1

Način formatiranja naslova i podnaslova odeljaka prema nivoima

Nivo	Način formatiranja
1	Centrirano, bold, font 12
2	Levo poravnanje, bold, font 12
3	Levo poravnanje, bold i kurziv, font 12
4	Uvučeno, bold, font 12, tačka na kraju. (tekst u nastavku)
5	Uvučeno, bold i kurziv, font 12, tačka na kraju. (tekst u nastavku)

Napomena. Primeri formata dati su samo za naslove i podnaslove odeljaka i ne odnose se na naslov

rada.

Tabele i grafikoni. Svaka tabela, odnosno grafikon označava se odgovarajućim brojem. Jasno i precizno formulisani naslov tabele ili grafikona daje se u novom redu, u kurzivu. Naslov tabele ili grafikona treba da bude pozicioniran iznad tabele ili grafikona (videti Tabelu 1 ovog uputstva). Sve skraćenice navedene u tabelama i grafikonima treba da budu objašnjene. U objašnjenju (legendi), ispod tabele ili grafikona reč napomena piše se kurzivom sa tačkom na kraju reči (Napomena. ili Note. u zavisnosti od jezika rada, videti primer u Tabeli 1). Tabele ne treba da sadrže vertikalne linije. Horizontalne linije treba koristiti samo između zaglavlja tabele i prikazanih podataka (kao na primeru u Tabeli 1) i na dnu tabele. Izuzetno, horizontalne linije dozvoljene su i u okviru samog zaglavlja ukoliko to doprinosi preglednosti tabele.

Tabele i grafikone priložiti u Microsoft Word formatu, kreirati i dostaviti u programu koji omogućava njihovo dodatno uređivanje. Informacije na grafikonima se ne ističu bojama, već šrafiranjem. Digitalne fotografije ili slike dostavljaju se u rezoluciji najmanje 300 dpi, grayscale color mode.

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Fusnote i skraćenice. Fusnote i skraćenice trebalo bi izbegavati.

Reference u radu. Pozive na izvore u tekstu i spisak korišćene literature na kraju rada treba dati u skladu sa APA stilom (*APA Citation Style - American Psychological Association 7th Edition*, <https://apastyle.apa.org/instructional-aids/reference-examples.pdf>).

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Colić, V. (2012). Roditelji i vaspitači o pripremi dece za polazak u školu. *Pedagogija*, 67(2), 252-260.

Emmer, E. T., & Stough, L. M. (2001). Classroom management: A critical part of educational psychology, with implications for teacher education. *Educational Psychology*, 36(2), 103-112. https://doi.org/10.1207/S15326985EP3602_5

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Maksić, S. i Pavlović, J. (2013). Nastava koja podržava kreativnost. U R. Nikolić (ur.), *Nastava i učenje, Kvalitet vaspitno-obrazovnog procesa* (str. 53-64). Učiteljski fakultet u Užicu Univerziteta u Kragujevcu.

Cruse, D. A. (2002). Hyponymy and its varieties. In R. Green, C. A. Bean, & S. H. Myaeng (Eds.), *The semantics of relationships: An interdisciplinary perspective* (pp. 3-22). Kluwer Academic Publishers.

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Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020, March 27). *The difference between emergency remote teaching and online learning*. EDUCASE Review. <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>

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Curriculum Theorycide! Calling for an Itinerant Curriculum Theory¹

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Abstract *The curriculum field faces a ‘theorycide’, which is not necessarily the absence of a theory, but the yoke of a ‘non-theory theory’ momentum which has worsened, especially in the last half of the last century. Drawing on a critical, anticolonial, and decolonial theoretical framework, my aim in this essay is to examine the hegemonic and counter-hegemonic Eurocentric debates in our field, but within the context of modernity and its eugenic coloniality, the Prosperous reason, thus framing the epistemicidal nature of the field. In so doing, the essay dissects the contemporary theoretical hemorrhage we face as a field, what I have called ‘curriculum involution’ and ‘curriculum imparity’. A lethal theoretical void has emerged from the epistemological civil war within and between dominant and counter-dominant traditions, triggering what I call the theorycide. The article advocates a way out of such ‘involution’ through an itinerant curriculum theory, a non-derivative anti-colonial and de-colonial approach responsive to the world’s epistemological difference, and diversity. The essay frames ICT as a declaration of epistemological independence against the scientific monumentalism of Eurocentrism that egregiously dehumanizes the legitimacy of Caliban’s reason.*

Keywords: *curriculum epistemicide, theorycide, itinerant curriculum theory, curriculum involution, curriculum imparity, delinking.*

1 This article is an updated version of a previous piece. A word of gratitude to Ian Kinchin and Sarah Hayes for their valuable comments on previous versions of this essay. Also, many thanks to my doctoral students at the University of Strathclyde for some of the ideas in this piece. Our theoretical discussions, in particular in our Friday seminars on Marxism and Education make us better understand the political nature of education, and how it is crucial to frame it within the complex dynamics of ideological production.

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The itinerant Curriculum theory is an epistemology of liberation that can persistently challenge structures of authority, hierarchy, and domination in every aspect of life.

(Darder, 2016)

Introit

More than a century after its emergence, the field of curriculum studies spends the first decades of the 21st century plunged in what I have persistently called ‘theorycide’, which is not exactly the absence of a theory, but rather the inauguration of ‘non-theory theory.’ Crafting within a critical and anti-colonial theoretical framework, this essay builds upon previous examinations I have conducted in other contexts (Paraskeva, 2024; 2023; 2022; 2021), exploring and presenting newer possible paths. The aim of this piece is a threefold exfoliation (Gil, 2009) process that respects one of the pillars of my trajectory – to confront the reasons for reasoning curriculum theory and its history. First, to examine the hegemonic and counter-hegemonic Eurocentric wrangles in our curriculum field (Schubert & Schubert, 1980) but within the context of modernity and its eugenic coloniality reason (Walsh, 2012), the Prosperous reason (Paraskeva, 2023; 2021; Henry, 2000), thus framing the epistemicidal nature of the field. Second, to dissect the coetaneous theoretical hemorrhage we faced as a field, what I have called ‘curriculum involution’ and ‘curriculum imparity’ (Paraskeva, 2024; 2023; 2021; 2016), a lethal theoretical void erupted from the clashes between dominant and counter-dominant traditions. The smithereens of such wrangles exhibit the insufficiencies of our theory glaringly, leading to a dangerous regression and perpetuating a ‘curriculum occidentosis’ (Paraskeva, 2021). Third, to advocate a way out of such ‘involution’ through an itinerant curriculum theory (ICT); I argue ICT as a non-derivative anti-colonial and de-colonial approach responsive to the world’s epistemological difference and diversity - a world in a perpetual dynamic of change; that is a theory of translation (Santos, 2014) out of the yoke of Eurocentrism – yet not necessarily against. ICT requests an interdisciplinary learning matrix addressing real challenges facing humanity and its development.

The chapter highlights the urgent need to disentangle from Eurocentric fundamentalism and engage in a decolonial endeavor to develop a more robust, non-derivative critical theory; it advocates how ICT constitutes a declaration of epistemological independence and freedom against the male scientific monumentalism of Eurocentrism (Harding, 2008; Popkewitz, 1976) that egregiously dehumanizes the legitimacy of the Caliban reason (Fanon, 2001; Henry, 2000).

An Exhausted and Divisive Prosperous Reason

Our field’s history - or what’s left (Paraskeva & Huebner, 2022) - is saturated with pugnacious battles between and within hegemonic and counter-hegemonic traditions. As I have persistently argued elsewhere (2022a, p. 63; also, 2022b; 2014; 2011), the field is:

theoretically shattered and profoundly disputed, to the extent that disputes have become an endemic part of the field's DNA. In some cases, such quarrels have been intellectually sanguinary. Sometimes, the field appears to be an estuary of ideological corpses and debris upon which new cultural battles will be fought.

Our field, Carlson (2005) accurately argues, can no longer be considered 'a distinctive field, with a unique history, a complex present, and uncertain future, because the category does not become reified (p. 3). He underlines that the field needs to be understood as 'a historical construct assembled out of cultural battles over power and knowledge, and... it needs to be treated as a 'slippery' category whose meaning is unsettled and even contested.' Curriculum theorizing is indeed a 'challenging undertaking [framed] by the total rational potential of [man]' (Macdonald, 1967, pp. 166 -169).

A careful analysis of the core of these disputes enables us to unpack a set of issues, of which I would like to highlight two. One is related to the fact that at no historical moment has there been absolute supremacy of any one group over another (Baker, 2009; Cremin, 1964; Kliebard, 1995; Krug, 1969; Schubert, 1986; Tyack, 1974; Watkins, 1993). Successive 'dominant groups' have never been able to annihilate/exterminate other groups or movements within and beyond their platforms. Since the field's emergence at the end of the nineteenth century - with the quarrels between 'humanists,' 'developmentalists,' 'social efficiencists,' and 'social meliorists' until today, with the brutal power of 'neo-liberal movements' that somehow imposed a neoliberal education, curriculum, and pedagogy (Ball, 2007; Giroux, 2004; Harvey, 2005) - we can see that none of the movements or groups - hegemonic or (let alone) counter-hegemonic - managed to impose their views in an absolutist way. There has been—and will always be—ferocious resistance (Paraskeva, 2022b; 2021; see also: Apple, 1979; Giroux, 1981). The other relates to the fact that the battles within and between hegemonic and counter-hegemonic movements fell into radioactive functionalism – a dangerous and lethal theoretical zone. That is, counter-dominant movements in their complex fight against the functionalist perspectives produced and defended by the dominant traditions – despite notable accomplishments - ended up falling into appalling reactionary functionalism as well - paradoxically the same 'functionalism' that they historically criticized and fought against (Paraskeva, 2023; 2022a; 2018; 2012).

As I have been arguing throughout my work (Paraskeva, 2025; 2024; 2023; 2022a; 2022b; 2021; 2018; 2016; 2015; 2014; 2011), it is crucial to pose, among others, the following questions: Why did the counter-hegemonic movements sink into the same functionalist quagmire they fought so hard for? Why were they unable to establish themselves as a hegemonic bloc? Why has it been so difficult for critical theories and pedagogies to become hegemonic? Why has it become so oddly tough for critical theories and pedagogies to become dominant, *even* within counter-hegemonic platforms? In a world with so much to criticize, 'why has it become so difficult to produce a [dominant] critical [curriculum] theory? - as Santos (1999) would have put it? If there is no shortage of issues to criticize, 'what is this lack of utopia due to?' (Alba, 1998, p. 12) What happened? Why is it not dominant in Higher Education and teacher education programs? How did we get here? How was it possible? Where did 'we' fail? Who failed? Why were counter-hegemonic

approaches overtly unable to empower the 'have-nots'? (Ellsworth, 1989) Who benefits from such an inability? Why were the cries of particular critical intellectuals persistently ignored? How can critical approaches, Walter Mignolo (2026, p. 125) argues, "be subsumed into the project of modernity/coloniality and decolonization"? If we inject Marxist steroids into the critical curriculum debate, we must question whose guardians are preventing these questions from being placed at the core of our curriculum concerns. At a time when the curriculum has become a commodity and neoliberalism imposes itself as the dominant pedagogy and curricular forms, the fact that powerful deconstructions, such as those of Ellsworth (1989), for example, do not even constitute the periphery in our field's proclamations should make us stop and think. The functionalist and deterministic rationale that permeates the curriculum is also related to use value and exchange value, in which the curriculum is socially constructed and articulates and disarticulates the modes and conditions of production of the capitalist system. (Marx, 1976). Alongside Huebner (Paraskeva & Huebner, 2023; 2022), in another forum, we attempted to contribute to this critical debate. One somehow senses the realization of Dwayne Huebner's predictions decades ago (Huebner, 1976). The field is facing a heavy price for ignoring such a predicament.

As I have already examined elsewhere, part of this failure is related to the triumphalism of dominant groups with positivist and behaviorist inclinations. But this triumphalism explains only one side of the coin. The other side resides precisely at the core of the counter-hegemonic hemisphere and its limited Eurocentric epistemological matrix. That is, the battles between dominant and counter-dominant groups in our field occur within the Eurocentric epistemological hemisphere of modernity; however, they also unveil the inability of a pluriverse 'critical and post-critical river' – what I have called 'the generation of utopia' (Paraskeva, 2021) – to break with such hemisphere. Such a hemisphere is millennially framed within the 'monumentality of white reason' (Mbembe, 2017; Santos, 2018) and refuses to recognize the legitimacy of non-Eurocentric epistemological platforms within and beyond Western modernity.

Like the dominant traditions, counter-hegemonic groups always showed overt incapability – and in some cases refusal – to delink from different 'Prosperous cognitive matrixes' (Henry, 2000) that promote a unique scientific way of reading 'the word and the world' (Freire, 1985) – based fundamentally on a Eurocentric epistemological platform (Mignolo, 2011; Walsh, 2012). In doing so, critical and post-critical pundits became entangled in the complex functionalism – and 'derivativism' (Santos, 2014) – that they had so vividly opposed. Thus, the struggle for the curriculum occurred within the limits imposed by a modern Western Eurocentric reason, disregarding the existence of other epistemological platforms beyond the Eurocentric logic, which reflects the eugenic nature of our field. Eugenics is the field's original sin (Paraskeva, 2022b). The battles between hegemonic and counter-hegemonic traditions mirror the field's epistemicidal nature. While the former – in many cases openly – championed the epistemicide (the killing of knowledge), the latter ended up being incapable of interrupting such epistemicide and, in many ways, ended up helping the scientific and social perpetuation of such anathema (Paraskeva, 2023; 2012; 2022a; 2018). In challenging the epistemicide, the latter produced a reversionary epistemicide (Paraskeva, 2023; 2022a; 2021).

Hegemonic and counter-hegemonic movements in the field laboured within a divisive eugenic epistemological matrix. They crafted their arguments and drilled their disputes based on an exhausted, divisive, and derivative reason. As I have argued throughout my work (Paraskeva, 2016; 2011), our field's history, theory, design, and development cannot be grasped accurately out of the modern Western Eurocentric epistemological eugenic reason, accurately defined by Santos (2007, p. 45) as an abyssal thinking. That is,

[it] consists of a system of visible and invisible distinctions, the invisible ones being the foundation of the visible ones. The invisible distinctions are established through radical lines that divide social reality into two realms: the realm of 'this side of the line' and the realm of 'the other side of the line.' The division is such that 'the other side of the line' vanishes as reality, becomes nonexistent, and is indeed produced as nonexistent. Nonexistent means not existing in any relevant or comprehensible way of being. Whatever is produced as nonexistent is radically excluded because it lies beyond the realm of what the accepted conception of inclusion considers to be its other. What most fundamentally characterizes abyssal thinking is thus the impossibility of the co-presence of the two sides of the line. To the extent that it prevails, this side of the line only prevails by exhausting the field of relevant reality. Beyond it, there is only nonexistence, invisibility, non-dialectical absence.

Santos (2007) goes far beyond the position articulated by Enrique Dussel (2026, p. 103), which places Western thought and culture, "with its obvious 'Occidentalism,' has positioned all other cultures as primitive, pre-modern, traditional, and underdeveloped." Beyond the abyssal line, Santos (2007) argues, reality is defined by non-existence.

Such abyssal reason goes well beyond the impossibility of co-presence of 'both sides of the line;' it constitutes a fundamental, radical negation of [the] [an] other existences. The radicalization of such an abyssal episteme is outshone by the 'intensely visible distinctions structuring social reality on this side of the line are grounded on the invisibility of the distinction between this side of the line and the other side' (Santos, 2007, p. 46). In a way, Santos goes well beyond Todorova (1997) regarding the 'incomplete other.' There is no 'incomplete other' (and 'incomplete self') because nothing is beyond the abyssal line. Invisibility and nonexistence of the 'one side' are the roots of visibility and existence of the '(an)other side.' Hegemonic and counter-hegemonic movements fought 'on this side of the line'; pundits from endless diverse critical epistemological rivers wrangled within a matrix defined and proclaimed as unique, the only worldly one able to produce scientific knowledge so dear to unpack the curriculum challenges.

Within the field of curriculum knowledge, 'abyssal thinking consists in granting to modern science the monopoly of the universal distinction between true and false' – as Santos (2007, p. 47) would have framed, to the detriment of ceaseless other ways to grasp the real. The 'exclusionary character of this monopoly is at the core of the modern epistemological disputes between scientific and nonscientific forms of truth' (Santos, 2007, p. 47) that saturates our field. Such a monopoly has confined the

epistemological struggle within a particular framework regarding 'certain kinds of objects under certain circumstances and established by certain methods' (Santos, 2007, p. 47).

Curriculum reason is subjugated to the hegemony of positivism and learning theories (Paraskeva & Huebner, 2023). It is a form of reason that became "the prevailing cultural hegemony, saturating a technocratic rationality as the source of logic that denies the importance of historical consciousness" (Giroux, 1979, p. 267). Dominant curriculum reason mirrors a "positivist rationality that contains a philosophy of history that robs history of its critical possibilities" (Giroux, 1979, p. 267); it thus reflects historically the accurate epistemological colours of the monopoly of the monumentality of a divisive cognitive Empire (Santos, 2018) that produces forms of knowledge of 'the other side' as nonexistent - because unfitted within the scientific scientificity of Western modern thinking (Giroux, 2004). What is worth fighting for can only be grasped from and within 'this side of the line' - fundamentally Eurocentric. On 'the other side of the line,' Santos (2007, p. 47) adds, 'there is no real knowledge; there are beliefs, opinions, intuitive or subjective understandings, which, at the most, may become objects or raw materials for scientific inquiry.' The struggles over 'whose knowledge is of most worth,' sunk into an overt epistemicide. It was an epistemicidal battle.

As I argued in other contexts (Paraskeva, 2022a; 2022b; 2018; 2016; 2011), in such a 'eugenic' context, not just knowledge but the very question/answer 'what is to think' is totally 'prostituted.' How can 'one' claim that one knows what one claims to know if an immense epistemological platform that congregates an endless myriad of other epistemic forms has been viciously produced as nonexistent? (Paraskeva, 2016). In a society so endlessly diverse, our curriculum is not - as Dewey (1916; 1902) so tirelessly fought for - a microcosm of society. Our curriculum reflects a 'selective tradition' (Williams, 1976, p. 205) but drilled within 'this side of the line.' Curriculum is 'the reason of unreason' as Golberg (2018) would have phrased it. The subjects of the curriculum do not exist within a web provided by modern Western epistemologies.

That the nature of our field is epistemicidal is irrefutable. Curriculum - from kindergarten to Higher Education - is the lab of a divisive eugenic Prosperous reason, the lab of the epistemicide. It produces and certifies the non-existence of 'Caliban reason' (Fanon, 2001; Henry, 2000). By limiting the debate to just 'this side of the line,' - a discussion woven into the epistemological web of Western Eurocentric modernity that drives and is propelled by a eugenic and divisive reason -, hegemonic and counter-hegemonic movements have not only sharpened the epistemicidal nature of the field but also driven it to an - almost irreversible - theoretical *cul-de-sac*. Along with Henry Giroux (1979, pp. 268-269), I would argue that curriculum "theory ossified within certain circumscribed methodological prohibitions." If the culture of positivism rejects the future, celebrating the present, as Henry Giroux (1979, p. 271) so vehemently proclaims, and if the dominant curricular logic is terribly positivist, then the dominant forms of curricular knowledge in our schools also conflict with the future and venerate the present, regardless of its chaos, castrating any utopian aspiration, annihilating any future purpose, and destroying the infinite power of the utopian nature of humankind. The much-maligned one-dimensional

man, unpacked by Herb Marcuse (2002), finds its birthplace in our curriculum, and teachers are its perfect midwives.

We live in a time of stagnation - complete theoretical decay - a curriculum involution, a dangerous theoretical regression. The answers to the challenges of a limitless epistemologically diverse and different humanity cannot 'only' be found 'on this side of the line;' they cannot be resolved based on a divisive Eurocentric reason - itself, after all, in many cases, the leading architect of the sagas it seeks to solve. As Lorde (2007) says, 'the tools that built the master's house cannot destroy it.' The Eurocentrism that saturated the theoretical and practical process of the curriculum has completely sunk the field into a dangerous disconnect with reality – what I call 'curriculum imparity' (Paraskeva, 2022a; 2022b; 2021)

Curriculum Theorycide

As I have argued, the clashes between dominant and specific critical and post-critical counter-dominant traditions have demonstrated how the latter fell into the reductive functionalist approach. In their struggle against the epistemicide, they aggravated such epistemicide by crafting a reversionary epistemicide (Paraskeva, 2023; 2022a; 2022b; 2021; 2018; 2016).

Moreover, the struggles between and within such traditions fueled what I would call, drawing from Gil (2009), a 'curriculum involution' – a deadlock. As in such – sometimes -ruthless struggles, neither the dominant nor the counter-dominant traditions were able to claim a complete victory; we thus keep experiencing an increasing void between, on the one hand, the absence of the consolidation of a fully segregated curriculum – we do have countless examples of counter-dominant victories – and, on the other hand, the whole absence of the emergence of the new human being. And, within such an impasse, epistemicide and reversionary epistemicide (Paraskeva, 2023; 2022a; 2022b; 2021; 2018; 2016) continue to be perpetuated. That is, neither the 'old human being' died nor the 'creation' of the new human being was fully materialized. Neither the old social order remained safe, nor the new social order emerged; that is, 'the old is dying, and the new cannot be born.' (Gramsci, 1999, p. 276). These battles represented no 'real' tragedy as they were stripped of their tragic dimension, as Gil (2009) would have put it. Instead, a curriculum involution occurred (Gil, 2009), which, in too many ways, points to a 'regression.' Pundits within both dominant and counter-dominant traditions wield arguments based just on an exhausted and misleading particular 'Prosperous Eurocentric framework' that proved to be part of the problem (Harding, 2008; Mignolo, 2011; Quijano, 1991; Walsh, 2012). As Walter Mignolo (2026, p. 144) argues, "the very genealogy of decolonial thinking is unknown in the genealogy of European thinking".

Moreover, the epistemicidal nature of our field triggers an impairment wave that historically saturates the field, a theoretical 'imparity' that contaminates our theory, a theory that is in a permanent state of short circuit with reality. The 'involution stage' exposes and aggravates the field's imparity. Curriculum theory and 'reality' have been

walking endless parallel lines – a malaise populates the field’s hegemonic and counter-hegemonic platforms. Such imparity has triggered discomfort within the critical turf, though. This theoretical imparity - or impairment - of the critical has thus flooded the banks of the radical critical curriculum river—laudably denounced and scrutinized in crucial approaches provided by Wexler (Wexler, 1974; 1987), Ellsworth (1989), Liston (1988), Gore (1993), and others as we had the opportunity to examine in other contexts (Paraskeva, 2023; 2022a; 2022b; 2021; 2018; 2016). ‘Involution’ and ‘imparity aggravated the field’s deadlock.

As I have argued, Ellsworth (1989) is a key example – unjustifiably undermined - of the imparity of the critical within Higher Education and teacher preparation programs. Before the nationwide eruption of racist violence in communities and on campuses from 1987 to 1988, including the University of Wisconsin–Madison, Ellsworth took the opportunity to discuss this kind of turmoil in the course Curriculum and Instruction 608: Media and Anti-Racist Pedagogies at the University of Wisconsin-Madison. According to Ellsworth (1989), particular concepts of critical pedagogy, such as empowerment, student voice, dialogue, and even the term ‘critical’, are representative myths that perpetuate relations of domination. As she (1989) argues, based on her interpretation of C&I 608, ‘key assumptions, goals, and pedagogical practices fundamental to the literature on critical pedagogy - namely, ‘empowerment,’ ‘student voice,’ ‘dialogue,’ and even the term ‘critical’ - are repressive myths that perpetuate relations of domination’ (Ellsworth, 1989, p. 298). Moreover, she (Ellsworth, 1989, p. 208) claims that ‘our efforts to put discourses of critical pedagogy into practice led us to reproduce relations of dominations in the classroom [discourses that] were ‘working through us’ in repressive ways and had themselves become vehicles of repression’. Thus, as we detached from such issues and moved into a different way, ‘we worked through’ and out of the literature’s highly abstract language. In their commitment to liberate and emancipate, critical approaches solidified and multiplied relations of dominance and were egregiously silent against patriarchy.

Revisiting Bourdieu and Bauman is of great help here. The concepts of ‘immigration’ in the former and that of ‘strangers’ in the latter are crucial to our argument. Critical curriculum theory - which we all owe so much - is far from being a nightmare for the hegemonic bloc; long ago, it ceased to produce ‘strangeness’; it ceased to be a ‘strange’ thing created by ‘strangers’; it became predictable. Given its epistemological predictability, critical curriculum theory is no longer a threat. It cannot continue to ‘mutilate or eradicate’ (Bauman, 2005, p. 7) the dominant thinking theory and way of building the world. Critical theory even ceased to be the theory of mutiny (Saramago, 1999, p. 43). Thus, it ceased to be a producer and conductor of the ‘immigration of new ideas’ (Bourdieu, 2001, p. 7), and even what is intended as new remains reductively tied to an onto-epistemological corset incapable of going beyond the Eurocentric modern Western platform. Critical and post-critical theories are exhausted with a ‘Eurocentric conception of time, space, number, causes’ (Bourdieu, 2001, p. 9) that somehow abdicates from a radical epistemological co-presence of the ‘other side of the line’ (Santos, 2014). The incapacity to overcome such involution and impairment is clear evidence of the curriculum’s *capitis diminutiu*, which triggers its *hypertrophía theoricae*, paving the way for the *theorycide*.

The belligerent battles that opposed hegemonic and counter-hegemonic movements, as well as the disputes within each movement, promoted a kind of theoretical *coup d'état* - an attack on the space and time of theory, a theoretical mope, a *theorycide*, paving the way for a dangerous anti-intellectual intellectualism, one of the enzymes of the de-skilling of educators. Intellectualism is becoming a rare collectible in educational research and school settings (Paraskeva, 2013).

A 'non-theoretical' atmosphere reigns. This is the theory, that is, the theory of 'non-theory'. The theory is, indeed, the absence of theory. Non-disquiets conquered the field. The utopia of theoretical hysteria was buried. We live in an 'atheoretical' moment, a plague that has contaminated the various areas of our field like rust and settled down with all its belongings in the velvet armchairs of our academy. The *theorycide* peppers the commonsense, which is not necessarily the absence of a theory, but the yoke of a 'non-theory theory' momentum. The hunting season for theory and theorists was normalized. The pale theory we have been trying to produce does not speak with/to our schools. The theoretical wave is ahistorical and has worsened, especially in the last half of the last century. There is no theoretical trepidation in our field. We are experiencing paralysis. Worse than a theoretical stagnation, we face the 'non-existence' of any theoretical turbulence. The roaring theoretical fires of the past - of even recent history - are long gone. Our field is no longer theoretically combustible within the vast social sciences.

Another theory is essential—admittedly itinerant—which can only be achieved with another theorizing, another epistemological logic, and which, faithful to the ethical principles of epistemological justice, helps us to 'arrange the words' in another way (Saramago, 1999, p. 86). There is no future without death, as Saramago (2009) would say. That is, and as I have argued and analyzed in greater depth in another context (Paraskeva, 2022, 2021), critical and post-critical theories, in general, and critical and post-critical educational and curricular theories, in particular, as we have discussed them, have to die. This is not the end of critical theories and pedagogies. It is a way to produce a truthfully plural, supradisciplinary, non-derivative critical approach to address the endless, diverse, onto-epistemological challenges of the world.

While provocative, the challenge is not begging for an end in Eurocentric terms. It begs something radically different. It begs 'the otherwise' (Paraskeva, 2021). We must fight collectively so that, as Gil (1998) would say, 'critical theory does not become petrified as a tribal theory.' A just way to address such insufficiencies is to commit to an 'exfoliation process' (Gil, 1998, pp. 127-128), which dismantles the current divisive 'complicated conversation' (Pinar, 2004) and decolonizes it, as it is itself epistemicidal (see Huebner, 2022).

This proclamation sounded alarm bells in some regions of the field, especially among those who, for decades, self-proclaimed themselves the sole guardians of 'thy' counterargument, also unique, ignoring that they were working within an epistemicidal matrix - thus engaging in epistemicidal processes and outcomes. I see such a curriculum liberal Republics stubbornly refusing to acknowledge that their own reason, however multicultural and polychromatic it might be, was, is, and always will be "an expression of Western culture and restricts the possibility for the survival of all other cultures" (Dussel, 2026, p. 104).

The *theoricide* speaks to the impasse created by the battles between hegemonic and counter-hegemonic Eurocentric traditions that were unable to engage with non-Eurocentric perspectives. This impasse exacerbates the moribund nature of the field, as Huebner proclaimed (1976). How can we deny that our field does not enjoy the theoretical health it once did? How can we deny that we do not experience a theoretical trepidation today like we did in the past, and even in the very recent past? One of the reasons for this gridlock lies in the denial of the absolutist and exhausted nature of Eurocentric reason, which has saturated the counter-hegemonic matrix. This matrix has proven incapable of transcending its epistemic boundaries, resolving or mitigating its inherent contradictions, and acknowledging the legitimacy of non-Eurocentric epistemological perspectives.

The so called generation of utopia (Paraskeva, 2021) – who champion so many laudable battles for a just education and curriculum – struggle to detach themselves from a chilling epistemological submission to Western models, as if within these models were the only language, the only concepts, and the unique matrix to respond to the many different and diverse challenges facing humanity (Paraskeva, 2023; 2021). Our counter-hegemonic curriculum platforms cannot envision the ‘word and the world’ beyond the Western, Eurocentric epistemological matrix. (Paraskeva, 2023; 2021). The *theoricide* morph contaminating the field is actually in sync with the normalized ‘atheoretical’ moment that saturates academia (see Reckwitz & Rosa, 2023). While on one hand, we must recognize the significant advances and accomplishments achieved by numerous counter-hegemonic movements, on the other hand, reality forces us to acknowledge that such advancements have proved to be quite insufficient to ‘flip the table’. They run out of questions and answers. Our field is sinking in a “pleonastic [reason] in which the questions and answers amount to the same thing” as Emi Cioran (1979, p. 51) would put it. It appears that the ‘complicated conversation’ can only occur within the confines imposed by a particular Eurocentric reason. The recognition of outstanding achievements made by many counter-hegemonic movements and the calamitous theoretical condition framed by the *theoricide* in which we live are not incompatible realities. On the contrary, this overt compatibility should lead us to consider how it was possible to find ourselves in this theoretical vacuum, despite numerous achievements. The *theoricide* cannot be seen as an act of veneration of any of the anti-colonial and decolonial matrices.

The denial of the epistemicidal nature of the curriculum, the denial of the despotic nature of Eurocentric reason on which counter-hegemonic impulses fundamentally operate, and the denial of the *theorycidal* nature of the field not only epitomizes the despotic nerve of Modern Western Eurocentric epistemological paradigms, but also increasingly justify the centrality of the following question: can the dominant curriculum theories (and here I include hegemonic and counter-hegemonic ones) narrate the reality we face as humanity? Do they narrate the society in which we live? Do they narrate the endlessly plural singularities that encompass humanity?

If curriculum reasoning is impregnated with a eugenic original sin, how can any theoretical framework - whatever it may be - deriving from such a reasoning explain the limitless diversity and epistemological difference of reality? An endless plural more than

ever, rhizomatic humanity can only be theoretically narrated through an endlessly plural rhizomatic theory, itinerantly. To persevere in such a denial ignores the “impossibility of bringing together all resistances and agencies under a common grand theory” (Santos, 1999, p. 203); it does nothing more than echo what Ellsworth (1989) so aptly proclaimed, which we must not ignore. Along with her (1989, p. 301), I would reiterate that most critical paradigms persist in not providing

a clear statement of their political agendas [and] the effort is to hide the fact that as critical pedagogues, they are in fact seeking to appropriate public resources (classrooms, school supplies, teacher/professor salaries, academic requirements and degrees) to further various ‘progressive’ political agendas that they believe to be for the public good—and therefore deserving of public resources.

While it is quite a challenge, it is crucial to disentangle oneself from the fundamentalism of Eurocentric thinking and to engage with non-Western, non-Eurocentric, anti-colonial, and decolonial epistemological frameworks. Such de-linking establishes a decolonial turn, triggering not just a complicated but a non-derivative conversation calling for ‘non-abysal cultural contacts’ (De Alba, 2026) as a radical curriculum cohabitus. Continuing to deny that the matrix of modernity is in decline and/or in intensive care suffering from palliative needs, the persistence in denying the ‘hospicidal’ nature of the fundamentalism of the Cartesian reason Andreotti (2002; see also: Darder, 2026), contributes absolutely nothing to address the challenges we face as a field. For example, the noisy silence on caste on decades of countless ‘currere complicated conversations’ is simultaneously a vivid symptom and consequence of a field lost in time, historically and theoretically mutilated, a producer of erratic, reckless, and dangerous avenues, a theoretically deficient field hostage to an abyssal intellectual and theoretical work that persistently promotes an epistemicidal matrix, and thus irremediably condemned to keep producing abyssal theoretical lines and fabricate a divisive history.

It is, therefore, crucial to open the field’s epistemicidal canon, delinking from absolutist Eurocentric epistemological impulses (Amin, 1990), and dismantling the abyssal divide by placing sociological absences such as caste at the table of curriculum debates (Paraskeva, 2025; 2023; 2015). It is vital to commit to “multicultural dialogue that does not presuppose the illusion of a non-existent symmetry between cultures” (Dussel, 2026, p. 107). It implies, Dussel (2026, pp. 112-113) adds,

an intercultural dialogue which is neither only nor principally a dialogue between cultural apologists who attempt to demonstrate to others the virtues and values of their own culture. It is, above all, a dialogue between a culture’s critical innovators (intellectuals of the “border,” between their own culture and Modernity. It is more than anything a dialogue between the “critics of the periphery,” it must be an intercultural South-South dialogue before it can become a South-North dialogue.

Such a move begs for a commitment to recognize the legitimacy of the epistemologies from the South (Santos, 2007), a radical co-habitus (Paraskeva, 2025; 2024; 2023) of different and diverse epistemological avenues, leading to a critical caste curriculum

theory, paving the way for an 'ecology of - curriculum - knowledges.' (Santos, 2014). Such an ecology implies de-linking, which suggests epistemic disobedience rather than an ongoing pursuit of 'newness' within the same eugenically tainted matrix (Dussel, 2025; Mignolo, 2025). Such a theory helps to coin a post-abyssal matrix. A just curriculum field sweats a just curriculum theory, one that is epistemologically 'a-abyssal.' A post-abyssal curriculum theory and development implies a de-abyssal momentum – a de-linking -, not necessarily towards a non-abyssal matrix, but one that paves the way to a 'a-abyssal' curriculum design that accurately mirrors humanity's multiple epistemological impulses, thus bringing untouchability to the curriculum debates.

There is no such thing as a perfect theory (Quantz, 2011). However, our critique will always be catalectic, irrelevant, and out of touch in a field that persistently remains out of joint by ignoring crucial categories – such as caste – that brutalize billions of human beings globally. There can be no socially just curriculum theory without it also reflecting anti-colonial and decolonial thought, and without leading theoretical participation from decolonial and anti-colonial theories, also drawn from the Global South. It is crucial to recognize that "decolonial thinking is differentiated from post-colonial theory or post-colonial studies in that the genealogy of these is located in French post-structuralism more than in the dense history of planetary decolonial thinking." (Mignolo, 2026, p. 127). Mignolo (2026, p. 132) states:

Decolonial thinking has not appeared yet, not even in the most extreme leftist publications. And the reason is that decolonial thinking is not leftist, but rather another thing entirely: it is a de-linking from the modern, political episteme articulated as right, center, and left; it is an opening towards another thing, on the march, searching for itself in the difference.

The theorycide is also a consequence of decades of complicated conversations that have systematically marginalized warnings raised by many critical theorists, that "critical thinking as a mode of reasoning was eclipsing in both the wider society and the sphere of public school education" (Giroux, 1979, p. 281). The theorycide is an X-ray of the field through a non-derivative de-linking, an excavation of the field, 'from other palenques' (Mignolo, 2026, p. 135)

Those who were born and raised in Africa soon heard from their elders that the problems in the world began when the white-striped zebras claimed superiority over the black-striped zebras. In the curriculum, we are all Zebras. There is no point in the 'white striped' ones claiming to be superior. For those who embrace existence within the scope of what Paul Teliard defends - 'we are not here as human beings having a spiritual experience. It is the other way around. We are all infinite spiritual beings having a temporary human experience - the metaphor of the Zebras gains a different echo

This is a battle of the infinite, a struggle for the infinite, and within the infinite, yet not an endless battle. The 'infinite is then the possible' (Pessoa, 2006, p. 56), a present possible 'as the only reality is the eternal present, the undying now' (Pessoa, 2006, p. 47). Critical theories and pedagogies need a new 'post-abyssal' logic for a possible utopia of a just world. We must put 'theory back' at the epicenter of Higher Education and teacher education curriculum debates - this battle must also be won in the Universities where teacher

education programs reside. Another theory, though. A non-derivative, non-abyssal, just one for a decent life, as Santos (2018) advocates.

Itinerant Curriculum Theory (ICT): A Non-Derivative Approach

Sentient of the field's deadlock – and deeply influenced by anti-colonial and de-colonial non-Eurocentric approaches – I have proclaimed the epistemicidal nature of the field (Paraskeva, 2011) and advocated the need for a 'frontal' confrontation with its historical epistemicidal reason. I argued for the need for a deterritorialization *tout court* and to assume an itinerant theoretical curriculum (ICT) perspective. I claimed the curriculum reason as divisive, eugenic in its hegemonic and counter-hegemonic Eurocentric platforms, and argued for a non-derivative non-abyssal approach (Santos, 2014; Paraskeva, 2023; 2022a; 2022b; 2018; 2016; 2011), a deterritorialized one, a decolonial one, an itinerant curriculum theoretical path (Paraskeva, 2023; 2022a; 2022b; 2018; 2016; 2011). The *ICTheoryst* is "the breakshow of the [eugenic] wheel of time" as Friedrich Nietzsche (1990, p. 6) interrupts and destabilizes curriculum as human beings' eugenic temporality, as Huebner proclaimed.

Such confrontation challenges the field's historical sociological absences (Santos, 2014) and questions the institutionalization of the visibility and existence of particular forms of knowledge – fundamentally Eurocentric – pushing curriculum theory and the field's history out of the colonial zone. I called this momentum 'the epistemological turn,' a decolonial momentum. (Paraskeva, 2023; 2022a; 2022b; 2018; 2016; 2011)

ICT has been embraced by scholars within and beyond the U.S., committed to what Enrique Dussel (2013) calls an *analectic* – or *ana-dialectic* approach – breaking the abyssal divide produced by modernist / post-modernist wrangles, which persistently makes the Global South non-existent. ICT places the struggle against the epistemicides and reverse epistemicides as a center of gravity of a new utopian logic, one that is committed to being a performative utterance (Austin, 1962), that is, a 'theory-itinerant-that does something by saying it.' ICT is responsive to the world's epistemological diversity and difference. The *ICTheorist* is an epistemological pariah – a justly committed political take deeply dedicated to social, cognitive, and intergenerational justice. Critical and post-critical theories and pedagogies – the way we have been thinking and doing – need to end, and they need to deterritorialize; they need to radically de-link from its own oppressive epistemological Western Eurocentric matrix without renegading it and commit to the 'radical co-presence of both sides of the line' (Santos, 2007, p. 45). Such radical co-presence needs to be viewed as a radical co-habitus (Paraskeva, 2023). As Zhao (2019, p. 27) states,

ICT is a form of decolonial thinking that recognizes an ecological co-existence of varying epistemological forms of knowledge around the world, paying attention to knowledge and epistemologies largely marginalized and discredited in the current world order.

The *ICTheoryst* is 'an epistemological and cultural physician' as Friedrich Nietzsche (1990, p. 55) would frame it, that crafts ICT as, and through, a new conceptual grammar

(Jupp, 2017) that moves itinerantly within and beyond '(a) the coloniality of power, knowledge, and being; (b) epistemicides, linguicides, abyssality, and the ecology of knowledges; and (c) poststructuralist hermeneutic itinerancy' producing a new non-abyssal alphabet of knowledge (Paraskeva, 2022a; 2022b).

ICT aims toward 'a general epistemology of the impossibility of a general epistemology' (Santos, 2007, p. 67), protecting and fostering 'the immortality of endless pluridiverse intellect which is achieved through education' (see Nietzsche, 1990, p. 4). It is a human rights theory, as Santos (2009) would undoubtedly frame it. ICT implies a different theorist who challenges and is challenged by a theoretical path that is inexact yet rigorous; s/he 'runs away' from any unfortunate canon; it implies a theorist who is committed to moving towards an 'abyssal' epistemological terrain, provoking abstinence of theoretical uniformity and stabilization. The ICTheory(ist) is a volcanic chain that shows a constant lack of equilibrium; the ICTheory(ist) is always a stranger in their language. It is not a sole act, however; it is a populated solitude. ICT challenges any form of *indeginestoude*; that is, it challenges any form of romanticization of indigenous cultures and knowledge, and it is not framed in any dichotic skeleton of West-rest (Paraskeva, 2023; 2022a; 2022b; 2018; 2016). Along with Nietzsche (1990, p. 10) the *ICTheoryst* "seeks to comprehend the internal coherence and necessity of every true culture".

ICT, as Darder (2016) argues, is 'an epistemology of liberation that can persistently challenge structures of authority, hierarchy, and domination in every aspect of life and must be cultivated, nurtured and embodied within the blessed messiness and unwieldy chaos of everyday life within schools and communities' (Darder, p. 12). ICT speaks volumes about the legitimacy of the Caliban's consciencism (Nkrumah, 1964). ICT, as inherently an exfoliation metamorphosis, a 'sill of infinite mourning' (Couto, 2008, p. 105), champions an anti and post 'occidentosis and 'mechanotic' (Al-L-Ahmad, 1984, p. 31) momentum. ICT is 'not merely invocation or evocation; it exemplifies how ideas can be added powerfully to the sources of curriculum studies by substantially including Works' (Schubert, 2017, p. 10) above and beyond the Modern Western Eurocentric epistemological dominant and counter-dominant traditions. Also, *ICTheorists* challenge the absolutist cult of the dominant scientificity of science – fundamentally Eurocentric – subjugated to mercantilistic circuits of cultural production. ICT advocates a curriculum transmodernity that is

multicultural, versatile, hybrid, postcolonial, pluralist, tolerant, and democratic (but beyond the modern liberal democracy of the European state). It will have splendid millenary traditions and be respectful of exteriority and heterogeneous identities. The majority of humanity retains, reorganizes (renovating and including elements of globality), and creatively develops cultures in its everyday, enlightened horizon. The cultures of this majority deepen the valorative 'common sense' of their participants' real and particular existences, countering the exclusionary process of globalization, which precisely because of this process inadvertently "pushes" toward a 'trans'-modernity. It is a return to the consciousness of the significant majorities of humanity, of their excluded historical unconscious! (Dussel, 2002, p. 236)

That is, ICT “attempts to fulfill the twentieth-century unfinished and incomplete project of decolonization towards a world beyond modernity” (Grosfoguel, 2007, p. 179). ICT moves beyond traditional dichotomies; to articulate a critical cosmopolitanism beyond nationalism and colonialism; to produce knowledge beyond third world and Eurocentric fundamentalisms; to produce radical post-capitalist politics beyond identity politics; to overcome the traditional dichotomy between the political economy and cultural studies; and to move beyond economic reductionism and culturalism. (Grosfoguel et al., 2007).

ICT *es uma arrebatada* of des-meaning and re-meaning, a ‘triangulated conscientização *in-action, located, as-it-happened*’ (Garza & Jupp, 2026). ICT’s capacity and commitment to a cohabitus of endless onto-epistemological rivers within and beyond the Global North and South nullifies one of the most aggravated aspects of modernity thinking, its abyssal nature. Such cohabitus of diverse and different epistemic veins implies what Noah De Lissovoy and Celine Norman (2026) call ‘re-connection,’ which counters the eugenic monumentality of modern Western Eurocentric reason.

While the Western project, along with the distorted logic it produces, produces pedagogical approaches that oppose inquiry, dialogue and thinking itself, a pluriversal epistemological reorientation in teaching rejects the framing of the teacher and curriculum as set and immovable, and instead approaches teaching in a fluid, curious and loving manner. A decolonial and analectical curriculum, not contained in the confines of whiteness, works to disrupt the myth of colonial permanence and western universality—a myth that perpetrates the idea that there are no viable options outside of our current reality and the knowledge constituted within it. (De Lissovoy & Norman, 2026, p. 326)

To de-link and decolonize – while honoring the legacy of the critical path, taking it to a different level – is also a decolonial attempt to do critical theory (Kellner, 1989, p. 2). In so doing, an itinerant curriculum theory re-thinks utopianism; it responds to Habermas’s (1981) challenge of modernity as an incomplete project and commits to decolonizing processes. It helps one to understand how it is crucial to question the accurate epistemological colours of our battle for a just education and society. Our task is not to ‘shoot the utopists’ (Santos, 1995) or the utopia that inhabits not just within us but also bubbles out of the debris of modernity. Our task as educational and curriculum scholars is to de-link and decolonize it, a crucial commitment toward a ruthless critique of every existent epistemology as a *sine qua non*-condition for a just curriculum theory. This is undeniably the very best battle we can engage to open up the Western Eurocentric canon of democracy (Santos, 2007) and, in doing so, paves the way for a non-abyssal and just society through a non-derivative curriculum theory. ICT is an onto-epistemological declaration of independence. It is the people’s theory echoing the world’s epistemological differences and diversity. In that sense, ICT will always be an uncertain manifesto for a manifesto of uncertainties. The *ICTheoryst* understands that more than seeking the ‘truth’ it is crucial to grasp non-derivatively the metamorphoses into the human being (Nietzsche, 1990, p. 50).

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Literature Teachers' Views on Ecocritical Pedagogy: A Preliminary Study in Serbia

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Abstract

The paper explores teachers' perspectives on the presence and relevance of ecocritical pedagogy in literature education within Serbian elementary and secondary schools. Despite the growing global recognition of the educational potential of ecocriticism – defined as an interdisciplinary study of the relationship between literature and the environment – its application in Serbian curricula remains limited and underexamined. The study aimed to investigate potential differences across different education levels (lower and upper grades of elementary school and secondary school), teaching experience, and teachers' perceptions of the possibilities and challenges regarding the integration of ecocritical pedagogy. A mixed-methods approach was employed using both quantitative and qualitative survey data from 213 teachers. Findings indicated that teachers generally lack familiarity with ecocriticism and with the average perception of ecocritical pedagogy as a more relevant approach to education than it is currently represented and utilised. Statistically significant differences emerged by education levels: teachers of lower elementary grades scored highest on both presence and relevance subscales. Most teachers, however, valued the development of critical thinking as a central outcome of ecocritical pedagogy and expressed willingness to integrate it into practice. No significant differences were observed by teaching experience. The results highlight the need for structured support to bridge the gap between theoretical potential and classroom implementation, as teachers recognize literature's capacity to contribute to holistic, interdisciplinary environmental education, encouraging critical thinking, empathy and student engagement with contemporary, real-world issues.

Keywords: Ecocritical Pedagogy, Ecocriticism, Environmental Education, Literature Education, Teachers' Perceptions.

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Introduction

While it is increasingly recognized that the humanities must be included in environmental education, because an approach rooted exclusively in subjects traditionally associated with ecological knowledge is no longer sufficient, the focus remains largely on teaching ecology through the natural sciences – and occasionally through philosophy/ethics or citizenship education – leaving the potential of literary and cultural approaches underexplored (Siperstein et al., 2017). Using various means of communicating about climate change, including creative forms, such as the arts, films, or theatre (Holmes, 2020; Martinez, 2024), as well as literature with prominent ecological themes, is what can help socialize young people into becoming responsible and empathetic adults by positioning them as environmentally aware citizens (ecocitizens) committed to sustainable development at both local and global levels – all of which is an endeavor characterized by strategies that are “complex, unstable, and contradictory” (Massey & Bradford, 2011, pp. 109–110). Reading, by itself, certainly cannot “save the world” (Hoydis et al., 2023, p. 1), but it can contribute to an increased awareness of the ecological crisis. Young people are often excluded from serious discussions due to the complexity of the crisis, even though it’s their future which is at stake, but recently there has been an effort to create literary works for children that encourage dialogue on ecological themes (Van der Beek & Lehmann, 2024). Such literature has, for instance, been purposefully integrated into the school curricula in Germany e.g. the reading recommendations for Saxony-Anhalt, where literary texts with interdisciplinary themes such as sustainable development or the digital world are highlighted (Reading Recommendations..., 2022). Similarly, in Norway, beginning in 2020, sustainable development has been one of the three interdisciplinary topics that must be addressed across *all* school subjects (Myren-Svelstad, 2020, p. 2). In Serbia, one of the goals of elementary and secondary education is defined as “developing awareness of the importance of sustainable development, the protection and conservation of nature and the environment, as well as ecological ethics” and in elementary schools, this also includes “the protection and wellbeing of animals” (Regulation on the Curriculum Framework..., 2017; Regulation on the Curriculum Framework..., 2020; Regulation on the Teaching and Learning Program..., 2023), but there is no strict requirement to address this goal across all subjects. Therefore, there is currently no available research on the integration of ecological themes into the elementary and secondary school literature education in Serbia that identifies the possibilities for an ecocritical pedagogical approach or examines teachers’ perceptions, which are a key factor for successful implementation.

Theoretical Framework

Ecocriticism is, according to the most cited definition, “the study of the relationship between literature and the physical environment” (Glotfelty, 1996, p. 18). Greg Garrard (Garrard, 2012; 2010) argues that ecocriticism has engaged with pedagogy since its inception, emphasizing that the inherent educational value of contact with nature is already present in the foundational texts of ecocriticism, particularly in the tradition of nature writing.

While *ecopedagogy* is a term that does not exclusively pertain to literature and adopts a more socially critical approach (Gaard, 2008; Misiaszek, 2015), *ecocritical pedagogy* can be defined as an approach to teaching literature that integrates the principles of ecocriticism into educational practice, emphasizing ecological awareness, critical reflection on human-nature relations, as well as ethical responsibility towards the environment through the interpretation of literary texts. Other related terms, such as *climate change literacy* (Hoydis et al., 2023) and *sustainable literary competence* (Myren-Svelstad, 2020), also share a commitment to integrating ecological themes into literature education.

The starting point is the idea that literature with ecological themes can positively influence readers and contribute to the development of ecological consciousness, although this has yet to be conclusively proven. Currently, there is a theoretical research and few empirical studies on the topic (Malecki & Schneider-Mayerson, 2024; Martinez, 2024; Schneider-Mayerson, 2018). Myren-Svelstad (2020), notes that, from a pedagogical perspective, a common argument is that literature education can help children become ecocitizens, but that a more comprehensive discussion of the relationship between literature, ethics, and sustainable development education is still needed. He highlights a concern with the so-called “altruistic paradigm of ecocritical pedagogy” (Myren-Svelstad, 2020, p. 3), suggesting that altruistic attitudes toward ecological issues alone are insufficient to drive sustainable development, furthermore, even if literature improves knowledge or positive attitudes, it remains uncertain whether these will translate into behavioral change in the future. He elaborates further that indirect experiences with the environment, including the educational context, cannot influence people as much as direct experiences; he also claims that polysemy of literature plays a crucial role because the reactions of readers are unpredictable and that these competences remain undefined, so the question arises of what literature *can* do (Myren-Svelstad, 2020, pp. 3–4). His opinion is that the power of the text is not in readers’ arriving to specific final conclusions, but in being motivated to a constant process of posing questions, thinking and interpreting (Myren-Svelstad, 2020). Bartosch (2019) similarly argues that the readers do not learn *from* literary texts, but rather *through* engaging with them. In the monograph *Climate Change Literacy*, the explanation is that it is neither enough to communicate through facts, nor through emotions, in order to bridge the gap between the mind (what we know) and the behavior (what we practically do), but that the primary role of such an approach is the development of critical thinking through reading different types of literary texts about climate change (Hoydis et al., 2023). Greg Garrard (Garrard, 2017; 2010) also emphasizes that, since sustainability itself is complex and contradictory, the education for sustainability should not prescribe fixed ideas, but instead prioritize critical thinking and that, in the context of literary studies, the focus should not be on students’ gaps in ecological knowledge, but rather on the perceptions, systems of meaning, and discursive positions. When applied to a younger audience, the edited volume *Ecology in Children’s and Young Adult Literature* in German provides similar guidelines, namely, that the goal is not factual precision, but rather the opening up of questions and the creation of perspectives on the protection of nature – since nature is a vital part of children’s and young adult literature, and it influences the formation of ideas about nature regardless of whether explicitly ecological themes are present (Goga et al., 2018; Goga et al., 2023; Mikota & Sippl, 2024: pp. 15–16).

Methodology

Research Goals

The aim of the research was to examine teachers' perceptions of the *presence* and *relevance* of ecocritical pedagogy in literature education within the Serbian school system. More specifically, the study sought to: (1) explore potential differences across education levels (grades 1–4 of elementary school; grades 5–8 of elementary school; and all grades of secondary school); (2) investigate differences based on teachers' years of professional experience; and (3) analyze teachers' views on their experiences with implementation, as well as the perceived possibilities and challenges of applying ecocritical pedagogy through thematic examination of qualitative data. The hypothesis, derived from the objectives, was that while ecocritical pedagogy is not yet significantly represented in Serbian literature education; teachers nonetheless recognize its importance.

Sample

The study included 213 teachers from across all districts of Serbia, with the sample structure presented in Table 1. Seventy-nine teachers (37.1%) were employed in lower grades of elementary school, where one teacher covers all subjects, including literature; 69 teachers (32.4%) taught Serbian language and literature in upper grades of elementary school; and 65 teachers (30.5%) worked as Serbian language and literature teachers in secondary schools (both grammar schools and vocational schools). The chi-square test indicated no significant differences in sample distribution by education level ($\chi^2 = 1.47$; $df = 2$; $p = .48$). In terms of employment length, 101 participants (47.4%) had less than 20 years of teaching experience, while 112 participants (52.6%) had 20 or more years of experience. The chi-square test showed no statistically significant difference ($\chi^2 = .57$; $df = 1$; $p = .45$), indicating a balanced sample with respect to professional experience as well.

Table 1
Sample Size Structure

Education Level		Frequency	Percent
$\chi^2 = 1.47$ $df = 2$ $p = .48$	Elementary School – Lower Grades	79	37.1
	Elementary School – Upper Grades	69	32.4
	Secondary School	65	30.5
	Total	213	100.0
Work Experience			
$\chi^2 = .57$ $df = 1$ $p = .45$	Less than 20 Years of Teaching Experience	101	47.4
	20 or More Years of Teaching Experience	112	52.6
	Total	213	100.0

Note: χ^2 – Chi-Square, p – Statistical Significance.

Methods of Data Collection

In addition to general questions about the district, education level, grade taught, and teaching experience, respondents answered 16 questions of both quantitative and qualitative character. Six were based on a 5-point Likert scale (1 – *not at all*, to 5 – *very*), eight were multiple-choice questions with space for additional comments, and two were open-ended questions.

On the collected sample, the psychometric properties of the instrument were examined. An exploratory factor analysis (EFA) identified two subscales: (1) *Presence* and (2) *Relevance of Ecocritical Pedagogy in the Serbian school system*, which together explained 65.96% of the variance. Confirmatory factor analysis confirmed this structure ($CFI > 0.95$; $TLI > 0.9$; $RMSEA < 0.06$; $SRMR < 0.05$; and $NFI > 0.8$). Test scores were presented as means to illustrate the range of the scale (1–5). Reliability analysis showed satisfactory internal consistency for the *Presence* subscale, and high reliability for both the overall scale and the *Relevance* subscale (overall scale $\alpha = .95$; *Presence* $\alpha = .70$; *Relevance* $\alpha = .97$).

Research Procedure

The research instrument was a survey created specifically for the study conducted during the fall of 2024 and the summer of 2025. Data was collected online using Google Forms and the survey was distributed via email and through professional teacher networks. Ethical standards were maintained by informing respondents that their participation was voluntary and anonymous, as well as that the results would be used solely for scientific purposes – specifically, for preliminary research in support of a project proposal on ecology in literature education, for which ethical committee approvals were obtained regarding the collection, analysis, and storage of data.

The study employed a mixed-methods approach. Quantitative results are presented first, followed by a qualitative analysis conducted using thematic analysis. The program used for quantitative data processing was the *Statistical Package for the Social Sciences*, Version 26.0. Both descriptive and inferential statistical methods were applied. Descriptive statistical methods included minimum, maximum, arithmetic mean, and standard deviation, while inferential analyses employed non-parametric techniques, specifically the Mann–Whitney and Kruskal–Wallis tests. The distribution normality was tested using skewness and kurtosis values, as well as the Kolmogorov–Smirnov test. Scale reliability was assessed with Cronbach's alpha coefficient of internal consistency, while validity was examined through exploratory and confirmatory factor analyses.

Results

The descriptive overview of the quantitative data obtained in the conducted study is presented in Table 2. Based on the values of the empirical arithmetic means, it can be observed that teachers consider concepts related to ecocritical pedagogy to be moderately to highly present and relevant in education ($M = 3.68$; $SD = .84$). The average values

on the subscales show that the mean values are higher on the *Relevance* subscale ($M = 3.89$; $SD = .98$) than on the *Presence* subscale ($M = 2.60$; $SD = .93$). Furthermore, the standard deviations are slightly higher for *Relevance*, which may indicate greater variability in teachers' perceptions of relevance. This observation will be further examined in subsequent analyses considering education level and teaching experience.

The table also includes data on the assessment of the normality of respondents' answers on the examined subscales. Although skewness and kurtosis values fall within an acceptable range for a normal distribution, the significance values of the Kolmogorov-Smirnov test ($p < .01$) indicate that the distributions differ significantly from normal. Therefore, non-parametric tests were chosen to examine the differences.

Table 2
Descriptive Overview of Research Results

	Min	Max	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Ku</i>	<i>p</i> K-S Test
Presence	1.00	4.67	2.60	.93	-.13	-.77	0.00
Relevance	1.00	5.00	3.89	.98	-.62	-.64	0.00

Note: *Min* – Minimum, *Max* – Maximum, *M* – Mean, *SD* – Standard Deviation, *Sk* – Skewness, *Ku* – Kurtosis, *p* K-S – Statistical Significance of Kolmogorov-Smirnov.

Based on the data in Table 3, a statistically significant difference was observed among respondents who taught at different education levels – lower elementary, upper elementary, and secondary school – on the *Presence* variable (27.61, $df = 2$, $p < .01$) and the *Relevance* variable (9.18, $df = 2$, $p < .05$). To determine which educational levels differ from each other, a further analysis was conducted, presented in Table 4.

Table 3
Variation in the Expression of Examined Concepts across Education Levels

	Educational Level	Mean Rank	K-W Test	<i>p</i>
Presence	Elementary School – Lower Grades	133.45	27.61	.00
	Elementary School – Upper Grades	101.96		
	Secondary School	80.20		
Relevance	Elementary School – Lower Grades	120.04	9.18	.01
	Elementary School – Upper Grades	109.03		
	Secondary School	88.99		

Note: K-W – Kruskal-Wallis, *p* – Statistical Significance.

The analysis presented in Table 4 indicates a statistically significant difference on the *Presence* subscale between elementary school teachers of lower grades and teachers of upper elementary grades (31.49, $p < 0.05$), as well as secondary school teachers (53.25, $p < .01$). Lower-grade elementary school teachers report that ecocritical pedagogy content is more present in their teaching than it is reported by upper-grade primary and

secondary school teachers. Additionally, the lower-grade elementary school teachers perceive ecocritical pedagogy content in teaching as more important than secondary school teachers do.

Table 4

Comparison of Subscale Scores (Presence and Relevance) across Education Levels

Education Levels	Test Statistic	<i>p</i>
Subscale 1 – Presence		
Secondary School-Elementary School – Upper Grades	21.76	.12
Secondary School-Elementary School – Lower Grades	53.25	.00
Elementary School – Upper Grades-Elementary School – Lower Grades	31.49	.01
Subscale 2 – Relevance		
Secondary School-Elementary School – Upper Grades	20.04	.18
Secondary School-Elementary School – Lower Grades	31.05	.01
Elementary School – Upper Grades-Elementary School – Lower Grades	11.02	.83

Note: *p* – Statistical Significance.

Teachers' views were also compared across education levels with respect to the perceived relevance of learning outcomes related to ecological topics. Statistically significant differences were observed for the outcomes: *the development of ecological awareness* (9.17, $p < .05$), *the recognition of contemporary ecological challenges* (7.19, $p < .05$), and *the understanding of human impact on the natural world* (6.28, $p < .05$). In all cases, secondary school teachers considered these outcomes less relevant compared to primary school teachers, particularly lower-grade teachers. Special attention was dedicated to the outcome *the development of critical thinking*, where no significant differences were found, indicating that all teachers value this outcome equally. On average, teachers rated its significance highly ($M = 4.05$, $SD = 1.12$).

Based on the significance values from the Mann-Whitney test presented in Table 5, no statistically significant differences were found between teachers with less than 20 years and those with 20 or more years of work experience.

Table 5

Comparison of Examined Concepts in Relation to Teaching Experience

	Teaching Experience	Mean Rank	Mann-Whitney <i>U</i>	<i>p</i>
Presence	Less than 20 Years	102.14	5165.50	.27
	20 or More Years	111.38		
Relevance	Less than 20 Years	100.88	5037.50	.17
	20 or More Years	112.52		

Note: *p* – Statistical Significance.

In the qualitative part of the study, teachers' textual responses were analyzed to provide deeper insight into their views on the presence and relevance of ecocritical pedagogy in the Serbian school system.

Teachers' Experiences and Practices in Ecocritical Pedagogy

Only 5.63% of teachers reported attending professional development related to ecocriticism, and 1.88% engaged in independent research, while the vast majority (92.49%) had no prior training in this area. Few teachers had applied the ecocritical approach in literature teaching, most often through projects (e.g., *Turn Off the Light*), extracurricular activities, or the analysis of texts and characters with ecological awareness (e.g., Astrof in Chekhov's *Uncle Vanya* or Levin in Tolstoy's *Anna Karenina*). Teachers most frequently identified outdoor/environmental teaching (78.9%), multimedia use (61%), and project-based learning (55.9%) as effective methods, while additional suggestions included theater forms, competitions, ecological actions and report writing.

Teachers' Selection of Literary Texts for Ecocritical Teaching

Teachers were asked if they could identify curricular texts suitable for ecocritical teaching. Twenty-four teachers could not recall any, with one secondary school teacher noting that Romantic and Modernist texts describe nature, but are not ecological per se. Among the 84 teachers who responded positively, a total of 70 different texts were suggested. Table 6 presents the most frequently mentioned texts. The analysis referenced the official curricula for elementary and secondary schools in Serbia (Regulation on the Curriculum Framework..., 2017; Regulation on the Curriculum Framework..., 2018; Regulation on the Teaching and Learning Program..., 2018; Regulation on the Teaching and Learning Program for the Seventh Grade of Primary Education, 2019; Regulation on the Teaching and Learning Program for the Eighth Grade of Primary Education, 2019; Regulation on the Curriculum Framework, 2020; Regulation on the Teaching and Learning Program..., 2023). In the elementary school curricula, national literature predominates, while works by foreign authors constitute less than one-tenth of the texts, whereas in secondary schools, reading materials are structured chronologically according to literary-historical principles, encompassing canonical texts of both national and world literature (Varnica & Tokin, 2024, pp. 277–278).

Notably, six teachers also mentioned the short story *The Apple Tree by the Road (Jabuka na drumu)* by Veljko Petrović, formerly taught in the seventh grade, but no longer included in the curriculum, which explores the theme of human (in)gratitude toward an apple tree that selflessly provides its fruit.

Table 6

Literary Texts from the Official Curricula Mentioned by Three or More Teachers

Grade	Literary Text(s) (Number of Teachers)	Type	Themes
1 (E)	Tode Nikoletić, <i>The Forest Means Life</i> (<i>Šuma život znači</i>) (18)	Play	The conservation of forests as natural habitats for animals
4 (E)	Desanka Maksimović, <i>The Spider's Work</i> (<i>Paukovo delo</i>) (3)	Poetry	The respect for nature and empathy towards nonhuman beings and their work
5 (E)	Grozdana Olujić, <i>Moonflower</i> (<i>Mesečev cvet</i>) (4)	Literary fairy tale	The magic and mystery of nature and the disconnect of children from nature as they grow up in an urban environment
5 (E)	Desanka Maksimović, <i>Silver Dancers</i> (<i>Srebrne plesačice</i>) and <i>Mowed Meadow</i> (<i>Pokošena livada</i>) (3)	Poetry	The vitality of plants during winter and human impact on nature
6 (E)	Angela Nanetti, <i>My Grandfather was a Cherry Tree</i> (<i>Mio nonno era un ciliegio</i>) (12)	Novel	The connection between nature (trees) and different generations of humans as well as their memories
6 (E)	Stevan Raičković, <i>Thanks to the Sun, the Earth, and the Grass</i> (<i>Hvala suncu, zemlji, travi</i>) (7)	Poetry	Gratitude for nature and the awareness of the natural world as well as our place in it
6 (E)	Italo Calvino, <i>The Forest on the Highway</i> (<i>Il bosco sull'autostrada</i>) (3)	Short Story	The alienation of modern humans from nature in urban settings
7 (E)	Petar Kočić, <i>Through the Blizzard</i> (<i>Kroz mećavu</i>) (5)	Short story	The ruthlessness of nature and the human struggle against its harsh conditions
2 (S)	Leo Nikolayevich Tolstoy, <i>Anna Karenina</i> (<i>Anna Karenina</i>) (3)	Novel	The character Levin's connection to the environment (e.g. agricultural work and farming) as well as tension between rural and urban life
3 (S)	Anton Chekhov, <i>Uncle Vanya</i> (<i>Дядя Ваня</i>) (6)	Play	The protection of nature in which the character of doctor Astrov finds meaning
3 (S)	Ivo Andrić, <i>The Bridge on the Drina</i> (<i>Na Drini ćuprija</i>) (3)	Novel	The interaction between human constructions (the bridge) and natural dynamics (the Drina river), the ruthlessness of natural phenomena (e.g. floods), and the environmental time scales that extend beyond individual human lives

Note: E – Elementary School, S – Secondary School.

Teachers were asked whether they would support the inclusion of more texts with ecological themes and an analysis of their additional comments is presented in Table 7.

Table 7***Classification of Teachers' Comments on Introducing More Literary Texts with Ecological Themes into Curricula***

Themes	Categories	Codes
Positive Views and Support	Clear Support (38)	Yes Of course
	Environmental Education and Awareness (28)	Raising Ecological Awareness Developing a Sense of Responsibility
	Instructional and Curricular Aspects (10)	Modernization of Teaching and Curricula Integration with Other Subjects Connections with Real-Life Experiences
	Student Motivation and Competencies (8)	Encouraging Students' Motivation Monitoring Students' Interests Developing Critical Thinking Prevention of Climate Change Skepticism Encouraging Ecological Activism
Conditional Support	Artistic and Didactic Criteria (2)	New Literary Texts Must Have Literary Value New Literary Texts Must be Age-Appropriate
Negative Attitudes	Curricular Constraints (9)	The Curricula Are Overloaded Students Are Overburdened
Undecided	Insufficient Information (4)	Lack of Familiarity with Ecocritical Pedagogy

Positive Changes Observed in Students

Comments on changes observed in students after discussing ecological aspects in literary works were provided by 87 teachers, as the question was optional. Most teachers highlighted *ecological awareness* (31.03%), *motivation and engagement* (21.84%), *empathy towards nature* (13.79%), *pro-ecological behavior* (13.79), and *critical thinking* (9.20%). Nine teachers reported no significant changes, citing limited prior knowledge (1.15%), lack of practical application (5.75%), or insufficient coverage in the curricula (3.45%). However, these results do not reflect the systematic inclusion of ecocritical pedagogy, but rather teachers' perceptions after sporadic discussions of ecological themes within literature classes.

Challenges in Ecocritically Oriented Literature Teaching

The majority of teachers (61.98%) reported that a primary challenge is their lack of familiarity with ecocritical pedagogy. Other significant challenges included texts being unsuitable for students' age or interests (18.9% and 18.3%, respectively). Additional comments highlighted a lack of such texts in the curricula (5.16%), limited attempts to apply ecocritical approaches (6.57%), difficulty aligning ecological learning outcomes with literary interpretation (0.47%), and the need for an integrative, interdisciplinary approach that requires substantial time (0.47%).

Support Needed for Implementation

Teachers were asked what would help them more effectively apply an ecocritical approach to literature teaching. The most frequently selected support was a wider selection of texts (61%), followed by visits from authors and translators of ecologically themed literature (54.5%), visits from ecology experts (49.8%), opportunities for field trips or outdoor literature lessons (49.8%), professional development (32.9%), and a methodological handbook (29.1%). Three teachers (1.41%) indicated that they were not interested in ecocritical pedagogy and did not see a place for ecology in literature teaching.

Discussion

The descriptive analysis revealed differences in teachers' views on the presence and relevance of the ecocritical approach in the Serbian school system. On average, teachers perceived it to be more relevant than it is currently represented in teaching. Their perspectives pointed to a gap between educational practice and the potential of ecocritical pedagogy, as they were aware of the pedagogical value of an integrative, interdisciplinary approach to ecology, but it has not yet been systematically integrated into literature teaching; therefore, existing research has primarily concentrated on linking environmental education with the natural sciences – biology, geography, chemistry, physics – and mathematics (Niklanović, 2015; Stanišić, 2015). Literature teachers' views were encouraging, portraying them as active and critical interpreters of the curricula. Nonetheless, six teachers cited a text that is no longer in the curriculum, although it would indeed be appropriate for an ecocritical approach, which shows potential for future research – namely, an investigation into teachers' familiarity with the curriculum and their readiness to modify it in order to incorporate contemporary topics such as ecological awareness, following the example of practices in other European countries and cases referenced in the theoretical framework.

In order to gain a more detailed insight into the differences that emerged from the descriptive analysis, teachers' responses were compared according to education levels at which they taught and years of professional experience. The analysis with respect to education levels showed that there was a statistically significant difference in both the presence and relevance of ecocritical pedagogy, which was in line with the first specific research objective and thus confirmed the guiding hypothesis. The results indicated that elementary school teachers in lower grades stood out in their perceptions of both the presence and the relevance of ecocritical pedagogy in literature teaching. This can be linked to the fact that one teacher covers all subjects in lower grades, including those related to environmental protection – *The World around Us* and *Nature and Society*, as well as the elective subject *The Guardians of Nature*, therefore, they constantly establish correlations across the subjects they teach and through extracurricular activities (Minić & Jovanović, 2019). Correspondingly, elementary school teachers in lower grades considered general ecological learning outcomes more important than literature teachers in upper elementary and secondary schools. However, all teachers identified

the development of critical thinking as a significant outcome, as reflected in the high average ratings on the scale, which aligned with theoretical perspectives that position critical thinking as central to ecocritical pedagogy (Garrard, 2017; 2010; Hoydis et al., 2023; Myren-Svelstad, 2020).

The second specific objective concerning professional experience was not confirmed, as no significant differences were observed, which indicated that teaching experience per se was not correlated with teachers' perceptions and did not constitute a limitation.

The analysis of the qualitative data revealed that the main limitation was teachers' insufficient knowledge of the concept, as there were no professional development opportunities or guidelines in the curricula, which aligned with the still existing tendency to interpret the world and the environment in a reductionist manner, divided into separate subjects and isolated phenomena rather than through interconnected, problem- and context-focused learning (Andevski, 2016). Furthermore, it should be noted that teacher education programs did not provide preparation for integrating ecological perspectives into literature teaching either, which actually corresponds to findings from Norway: this research demonstrated that pre-service teachers only began to feel more confident in applying principles of environmental education within literary classes after they participated in a specifically designed project on tailored literature circles (Guanio-Uluru, 2019). However, there were 84 teachers in the preliminary study in Serbia who were able to identify the possibilities for the integration of environmental education into literary education, by using texts from the existing curricula (e.g., *The Forest Means Life* or *My Grandfather was a Cherry Tree*), although this did not necessarily indicate a more thorough understanding of ecocritical pedagogy. The same number of teachers expressed a positive view towards introducing additional ecologically-themed texts, which was in accordance with the responses on necessary support being a broader selection of texts.

Finally, teachers reported observing changes in students after discussing ecological themes in literature classes, which should be interpreted with caution, as they stemmed from sporadic classroom discussions. Reported outcomes were primarily related to heightened ecological awareness, greater interest in environmental topics, expressions of empathy towards nature (often illustrated through references to students' pets) and pro-ecological behaviors, such as recycling, avoiding pollution, and organizing eco-actions. As highlighted in the theoretical framework, most empirical studies on the effects of reading environmental literature have been conducted with adults outside formal schooling. Nevertheless, research on experimental lessons, projects, and teacher education initiatives similarly points to increased student engagement (Lima et al., 2021), pro-ecological behaviors such as tree planting (Carballal Miñán, 2023), and the general potential for encouraging environmental awareness and empathy (Campagnaro & Ferrari, 2024).

Conclusion

Preliminary research on ecocritical pedagogy in Serbian elementary and secondary literature education suggests that teachers have a basic awareness of ecocriticism

and a general willingness to implement it, though more support is needed. While many consider ecological themes in literature relevant, the ecologically conscious approach is rarely central in standard literary interpretations and has mostly been applied in extracurricular contexts, requiring teachers to go beyond their usual workload. Awareness and application were highest among elementary school teachers in lower grades, and lowest among secondary school teachers, highlighting the potential for further exploration in secondary schools, particularly in vocational schools (of agriculture etc.). Future steps could focus on expanding ecocritical pedagogy to a broader teacher base and investigating the long-term effects of engaging students with ecological themes in the literature taught in classes.

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The Pedagogue's Role in Reframing Induction and Mentoring Practice in a Preschool Institution: an Action Research Study

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Abstract

In an effort to conceptualize the role of a preschool pedagogue as the leadership role in initiating and sustaining change, this paper presents the pedagogue's engagement in supporting the professional development of preschool teachers by reconstructing the induction and mentoring practice within the institution. The professional development of preschool teachers, including the induction process, takes place within a community and is shaped by the institutional culture, while simultaneously influencing that culture. This paper presents an action research initiated by a practitioner-pedagogue, conducted in the Preschool Institution "Dr Sima Milošević" in Zemun from September 2022 to May 2025. The research focuses on the induction program and practice as a foundation for building reflective practice within a learning community. The study highlights challenges in implementing a program aimed at fostering reflection and identifies strategies for overcoming them. The findings suggest that shifts in knowledge, skills, and values — both individually and collectively — contribute to improving the quality of the real-life curriculum. Redefining practitioner roles and power dynamics within the Program and the research itself deepened preschool teachers' sense of empowerment, as well as the trust-based relationship between them and professional associates. The reconstruction of the induction and mentoring practice, as an intentionally introduced change, established the basis for developing a reflective culture of learning. The sustainability of the change will depend on continuous support, institutional anchoring of new work models, and broader dissemination through networking with other institutions and practices.

Keywords: *preschool pedagogue, induction and mentoring practice, action research, reflective practice, learning community.*

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Introduction

Viewed through the lens of contemporary curricular conceptions such as the framework underpinning *Years of Ascent* (Godine uzleta, 2019), the role of the professional associate – preschool pedagogue, extends beyond an administrative or evaluative function and can be understood as a leadership role in initiating and sustaining change (Krnjaja et al., 2023). Through their professional engagement, the pedagogue helps shape the educational paradigm, that is, contributes to creating a (non-)coherent system of knowledge and meanings in their preschool practice. Establishing coherence in knowledge and shared understandings requires continuous re-examination of the values that shape everyone's professional action. In this paper, the term "practitioner" refers to both professional associates and preschool teachers, while "preschool teacher" includes nursery nurses in the role of preschool teachers (Godine uzleta, 2019, p. 11).

The educational paradigm encompasses practitioners' personal beliefs and values, which directly guide their conduct and the ways in which they develop practice (Čamber Tambolaš & Vujičić, 2023). These personal beliefs may, or may not, align with the values and assumptions embedded in the program conception. Accordingly, changes in the practice and in the culture of the preschool institution (In what follows, the term "institution" refers to a preschool institution) cannot be sustainable unless the beliefs and educational philosophies held by practitioners are questioned and transformed (Fullan, 2007).

The pedagogue plays a key role in creating conditions for professional learning that enable preschool teachers to gain new insights and knowledge, adapt and shift their ways of working, and, importantly, to reconsider and modify their core values and stances (Čamber Tambolaš & Vujičić, 2019). Such learning cannot be an individual undertaking; it calls for movement at the level of the whole educational community, including leadership, professional associates, parents, and other staff, because everyday relationships and communication constitute the lived culture of the institution (Vujičić & Čamber Tambolaš, 2019).

In this paper, the pedagogue's role is presented through the support of the professional development of practitioners by developing and implementing the Induction Program for novice preschool teachers (hereafter: the Program). Developed in the Preschool Institution "Dr Sima Milošević" in Zemun (hereafter: the Institution), the Program can be viewed as a localized attempt to shift the approach to education, in line with contemporary understandings that define approach as a coherent corpus of professional knowledge, values, and practices collectively established and institutionally transmitted (Krnjaja et al., 2023). The Program does not aim merely to introduce new content or techniques for novices; it is also designed to act across the three dimensions identified by Fullan (2007) as key to substantial change in educational practice: (1) implementation of a new program, (2) use of new strategies and activities within the program, and (3) change in practitioners' assumptions and beliefs. Accordingly, the pedagogue's role in this process is framed as "leadership in the process of change" (Krnjaja et al., 2023).

Developed for over two and a half years (9/2022–5/2025), the Program is not an isolated innovation but a backbone for changing the approach, one that entails collectively taking responsibility for cultivating and maintaining a new professional culture within the institution.

Contextual–Conceptual Framework of the Study

The introduction of *Years of Ascent* (2019) is a key turning point in re-conceptualizing preschool practice in Serbia, and, accordingly, in transforming the roles of preschool teachers and professional associates. Professional roles are formally defined by current regulations (Regulation on Competency Standards for the Profession of Preschool Teacher and Their Professional Development, 2018; Regulation on Competency Standards for the Profession of Professional Associate in Preschool Institutions and Their Professional Development, 2021). Nevertheless, aligning everyday practice with these frameworks remains demanding, despite different forms of support offered to practitioners. The manner in which a program is enacted depends greatly on practitioners' professional readiness and engagement. For that reason, any support for each practitioner's professional development must be designed to foster engagement in a complex, shifting context, grounded in contemporary insights about children and childhood and in the theoretical commitments that accompany the national preschool framework (Slunjski & Lančić, 2022).

The action research begun in September 2022 unfolded in a context significantly shaped by the professional learning program SNOP - *Professional Associates as Agents of Change* (Pavlović Breneselović & Krnjaja, 2021, as cited in Krnjaja et al., 2023), which involved 268 professional associates from preschool institutions during 2021–2022. Focused on empowering professional associates to initiate and lead change in preschool practice, this program prompted re-examination of the pedagogue's role within the institution. The themes explored and the space for reflection it opened supported a step toward rethinking professional development for preschool teachers as a shared process of learning and of cultural change within the institution.

Professional learning (as one dimension of preschool teachers' professional development) is a key pathway to enhancing the quality of educational work and nurturing a professional culture in preschool institutions. At the same time, it is not solely a matter of individual responsibility, but the pedagogue shares responsibility with preschool teachers. Just as preschool teachers are expected to create supportive environments where children learn through relationships, play, and active participation in varied situations, professional associates are called to cultivate a similar atmosphere among preschool teachers, spaces for collective work, exchange, and reflection on practice (Vujičić & Čamber Tambolaš, 2017a).

The induction of novice preschool teachers, i.e., induction and mentoring practice, is legally regulated (Regulation on the Teaching License for Teachers, Preschool Teachers, and Professional Associates, 2022), which defines the roles of novices and mentors as well as formal conditions for the licensing exam that confers independent practice. The director of the institution bears formal responsibility for organizing induction.

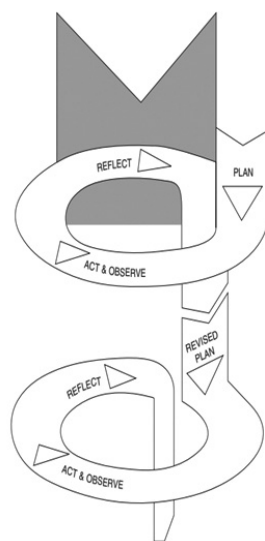
Further guidance appears in the *Guide for Preschool Teachers – Mentoring* (Mentorship..., 2025), which names mentors as a "key resource for novice teachers' learning" (p. 5) and notes that other actors (especially professional associates and directors) should participate and share responsibility. Conceptually, however, this resource-transfer framing does not fully correspond to the values underpinning *Years of Ascent*, which emphasize interdependence, reflexivity, and participation in a learning community.

In spite of that, the 2025 Guide marks a policy step forward compared to previous editions (Mentor and Novice Teacher..., 2009, 2012), which shaped the induction similarly for both preschool and school contexts. It seeks to make induction and mentoring meaningful for the preschool context and the preschool teaching profession, distinct from the school context and the professions of teachers in primary and secondary education. Yet, what is still missing is a clearly defined leadership role and professional responsibility of the pedagogue in preschool teachers’ professional learning through induction and mentoring, as well as a system-level opening for cultivating reflective practice in a learning community through a systemic approach to induction.

Methodology

This study is oriented toward change in the very practice it examines, that is, shifting the approach in the program and practice of inducing novice preschool teachers, which positions it squarely as action research. Action research arises from practice, involves acting with the intention to bring about change, and requires the researcher–practitioner to be a reflective, proactive practitioner who, on the basis of emerging insights, undertakes further action to develop practice (Pešić, 1989; Pavlovski, 1989; Kemmis & McTaggart, 2005; Mukherji & Albon, 2015). For the depiction of phases, we reference a schematic (Figure 1) from Kemmis & McTaggart (2005).

Scheme 1:
Overview of the Action Research Phases



Phase	Period	Action
Phase 1 – Reflection	9.2022 - 12.2022.	Analysis of existing practice and identification of entry issues for action research
Phase 2 – Planning	12.2022 - 1.2023.	Conception of a new Induction Program for novice preschool teachers
Phase 3 – Action and Observation	2.2023 - 2.2024. 3.2024 - 6.2024.	Program implementation, Year 1 (first cycle)
Phase 4 – Re-planning	6.2024 - 9.2024.	Program review and partial reconception based on insights.
Phase 5 – Reflection	10.2024 - 5.2024.	Second year of implementation (second cycle) with ongoing reflection
Phase 6 – Action and Observation	5.2024 - 6.2024.	Writing up the study

Action research entails not only changes in practice but also shifts in the meaning, both at subjective and collective levels (Pešić, 1989). Although initiated by the pedagogue as professional associate, the work engaged other professional associates and preschool teachers.

In Year 1 (first cycle), 26 novices participated (30 at the start; 4 withdrew), and in Year 2, 35 novices (40 at the start; 5 withdrew). The implementation team comprised four pedagogues and two psychologists in the first cycle, with an additional pedagogue joining the research in the second cycle. At the time of writing, implementation of the second cycle was still in progress for the cohort of 35 novices and their mentors. The author left the position of pedagogue in June 2025; the paper reports insights gathered up to that point.

Data collection involved systematic documentation of the process (institutional planning and reporting documents, reports from meetings, professional learning sessions, and focus groups, practitioners' notes, and the researcher's field notes). In line with the nature of action research, these materials are treated not as "findings," but as systematically gathered resources that inform the next turn in the action-reflection cycle.

Overview of the Action Research Phases

Entering the Action Research

At the beginning of the 2022/2023 working year, the Institution comprised 252 preschool groups across 33 facilities, with a total of eight professional associates of various profiles (according to the *Annual Work Plan of the Preschool Institution "Dr Sima Milošević" for 2021/2022*). Considering the legally prescribed staffing requirements (Regulation on Detailed Conditions for the Establishment, Commencement of Work, and Performance of Activities of Preschool Institutions, 2019, 2022, 2023), the Institution was operating with eight instead of ten professional associates. As a result, each associate was, on average, burdened with 30% more work than the prescribed standard.

Under these circumstances, each professional associate took the initiative and a leading role in a specific area of work, while all tasks and activities were carried out as a team effort —demonstrating responsibility and reflecting a culture of effective and supportive leadership that encourages joint action, exchange, and collaboration. The responsibility for designing the *Induction and Mentoring Program for Preschool Teachers* and developing the induction-mentoring practice was assumed by the preschool pedagogue, which served as the basis for initiating the action research. Since the work of a pedagogue is inherently also research-oriented, the author of this paper took on the role of researcher.

The idea to reconceptualize the induction practice, compared to previous approaches, emerged from continuous collaboration and shared insights among professional associates, taking into account: the need to provide support to preschool teachers in the roles of novice teachers and mentors; the need to enhance institutional culture through strengthening the learning community, and the professional role and responsibility of the preschool pedagogue.

To analyze the previous induction practice, the *Annual Report (Annual Report and Implementation of the Annual Work Plan of the Preschool Institution "Dr Sima Milošević" for 2021/2022)* was used, along with insights gained from practice during the 2021/2022 working year. The conclusions drawn indicate that the previously implemented Program in the Institution was based on understandings of practitioner roles and induction-mentoring practice that were only partially grounded in existing legislative and programmatic frameworks, some of which were not fully aligned.

The programmatic framework and insights from the implementation of *Years of Ascent* (2019) in practice established the imperative of developing reflective practice within a learning community. Moreover, the professional role of the preschool pedagogue had already been defined by the *Rulebook on Standards of Competence* (Regulation on Competency Standards..., 2021), in which the development of reflective practice and the nurturing of a culture of cooperation and community, foundations for developing a learning community, are identified as professional responsibilities of the pedagogue. However, in the Institution's 2022 Annual Report, the pedagogue's work on developing the induction program for novice preschool teachers was not recognized as being aimed at fostering a learning community.

The previously developed program in the Institution was grounded in the understanding of induction-mentoring practice as a dyadic model, in which the key roles are those of the novice preschool teacher and the mentor as partners in the process (Mentor and Novice Teacher..., 2009, 2012). This model defined the roles of preschool teachers as novices and mentors, but left the role of the professional associate undefined, reducing it to organizational aspects of program development in practice (aligning the formal program plan with the institution's core documents, forming novice-mentor groups, mediating communication, and delegating tasks).

The pedagogue's role in program development was that of a "lecturer", who, through several meetings, conveyed insights and provided guidelines to novices and mentors for designing their own induction practice. Novices received and carried out tasks, while mentors acted as observers and evaluators. Not only did the report fail to mention the development of a learning community but it referred to the active role of novices as participants in "horizontal exchanges."

In this approach, professional development meetings (Professional Council) took the form of PowerPoint presentations illustrating examples of good practice in program development aligned with the Years of Ascent framework and offering guidelines and tasks for improving individual practice.

Novices, together with their mentors, gradually mastered strategies for developing themes/projects, shaping examples of their own practice into presentations, which were then shared with professional associates and the coordinator of the Professional Council.

Mentors continuously monitored the novices' work throughout the year, providing observations on their performance during planned learning situations. Most

documented novices actively participated in introducing changes to educational practice in accordance with the new framework, through participation in horizontal exchanges at the level of individual nurseries and preschools.

(Excerpts from the 2021/2022 Annual Report)

Designing the New Induction and Mentoring Program for Preschool Teachers

The new Program is aligned both with official documents that define educational policy in the field of preschool education and with the institution's internal documents. The *Rulebook on Continuous Professional Development*, applicable to both preschool teachers and professional associates, stipulates that professional development of employees in preschool institutions (including induction and mentoring practice) should be "planned in accordance with the needs and priorities of education" (Regulation on Continuous Professional Development and Advancement into Professional Titles for Teachers, Preschool Teachers, and Professional Associates, 2021, Act 3). Developing reflective practice within a learning community was recognized as both a need and a priority, which paved the way for designing the new Program.

The induction and mentoring program is grounded in contemporary theoretical perspectives that define the preschool teaching profession as an ethical and reflective practice founded on values, dialogue, and multiperspectivity (Pavlović Breneselović, 2014). It is situated within the discourse of competence, which does not view a competence as a fixed set of pre-given knowledge and skills, but rather as a dynamic process built through practice. The Program is largely based on the *Rulebook on Standards of Competence for the Preschool Teacher Profession and Its Professional Development* (2018), which defines a competence through specific knowledge, skills, and values that shape the profession (Regulation on Competency Standards..., 2018).

The design draws on a systemic model of professional development, where learning occurs within a professional community through collaborative relationships and joint action of all participants in the preschool institution (Pavlović Breneselović & Krnjaja, 2012; Vujičić & Čamber Tambolaš, 2017a, 2017b). Special emphasis is placed on the learning community, which develops through shared responsibility and the co-construction of practitioners' professional knowledge, thus contributing not only to the transformation of individual practice but also to the transformation of educational practice itself (Rogoff, 1994, as cited in Pavlović Breneselović & Krnjaja, 2018).

Accordingly, the Program was conceived as an effort to shape the context in ways that enable learning through action and (shared) reflection, thereby building the professional identity of novice preschool teachers in real-life settings, while simultaneously transforming the role of the pedagogue and the institutional culture. This aims toward a sustainable change in educational practice, understanding professional development as a collective process focused on improving the shared reality, that is the real-life curriculum (Malović, 2023).

Program Implementation (First Cycle)

For the purposes of implementing the Program, three different materials were developed, printed, and distributed to all novice preschool teachers and mentors at the first meeting (February 2023): *The Induction and Mentoring Program*, *Novice Teacher's Journal*, and *Mentor's Journal*. The initial group consisted of 30 novice preschool teachers (several of whom withdrew during the year, mostly for health or family reasons). The pedagogue (also the author of the Program and materials) introduced the entire team of professional associates, as well as all novices and mentors, to the new program concept and invited them to be active participants in the learning process, remaining open to suggestions aimed at improving the process.

The timeline was partly determined by the institutional work calendar and the already established Annual Work Plan.

In order to establish a sustainable timeline that takes into account the planned obligations and workload of all practitioners in the institution, the Program included two thematic professional meetings (the term *aktiv* – meeting – Professional Council – used internally in the institution to denote planned situations of (collective) practitioner learning through lectures or workshop-based work) as defined by the Annual Plan (*Annual Work Plan of the Preschool Institution "Dr Sima Milošević" for 2022/2023*). This overlap, where the same thematic meetings were foreseen both in the Induction Program for interns and mentors and in the plan for all practitioners through the work plan of the Professional Development Team, was, in addition to the aforementioned purpose, also intended to create conditions for exchanges between the interns and the practitioners who are not in that role, and to strengthen the idea of shared exchanges, i.e., the establishment of shared meanings.

The Program (...) lasting one year envisages the organization of nine meetings attended by interns, mentors, and professional associates. Seven meetings were organized as intern-and-mentor meetings intended for participants in the Program (...), while two were thematic professional meetings, implemented in the institution in line with the Annual Plan (...). (Excerpt from the Program)

Professional meetings as a format were retained from the old program, but the approach to their organization was changed, and participant roles were redefined. In the new concept, these meetings were designed as workshops that opened new topics to be followed by additional tasks after the meeting, and that initiated exchanges among all participants.

... Interns kept an Intern's Journal with 12 tasks, which would be jointly analyzed at dedicated meetings — four focus groups organized by the professional associate with a smaller group of interns and mentors. The journals also included guidelines for preparing three tasks for the meetings. In addition, five online tasks were planned, whose evaluation would involve all interns. (Excerpt from the Program)

The tasks were designed to support transformative learning (*double-loop learning*) (Argyris & Schön, 1978) and exchanges among practitioners. The aim was to move beyond the form of professional learning known as *single-loop learning*, which involves identifying and correcting errors. When problems or deviations occur, practitioners are most often likely to initially attempt to find a new strategy to resolve the situation within existing goals, rules, and values, without questioning the underlying assumptions, in an effort to act more efficiently within the existing framework. On the contrary, transformative learning involves questioning those very values, goals, norms, and rules on which strategies for action are based. Such learning leads to deeper changes in thinking and acting because it does not remain at the level of correcting behavior, but instead, it includes transforming the very foundations of professional practice (Argyris & Schön, 1978).

In the context of a preschool institution, *single-loop learning* can be recognized, for example, when a pedagogue notices that the room space is not adequately structured and suggests that the preschool teacher make changes, or the pedagogue alone makes changes, by rearranging shelves, moving materials, etc., after which the teacher continues working without deeper reflection on the meaning of these changes. In this case, the "error" is corrected within existing professional norms, without questioning them. By contrast, transformative learning occurs when the pedagogue does not act solely as a corrective authority, but as an initiator and facilitator of collective learning. They encourage teachers to critically examine, , joint practice analysis, or professional dialogues, the values and beliefs underlying their work through collective reflective activities such as professional workshops. Such practice strengthens the learning community, where teachers not only refine strategies but also shape and redefine their professional identities. Transformative learning involves deeper reflective practice and questioning *why* something is done a certain way, not just *how* it is done. This forms the foundation for long-term improvements in the quality of the real-life curriculum.

To enable richer exchanges among all participants in the process, focus groups were designed so that each of the six professional associates involved in the process would hold one thematically focused reflective session gathering 8–10 participants (interns and mentors), dedicated to jointly reviewing the previous period and tasks. To ensure focus groups contributed to building a coherent system of meaning in the institution, each was pre-designed through a flexible focus group protocol and accompanied by a reporting form for professional associates and a notes form for interns and mentors, in which conclusions and insights reached during the discussion were to be summarized.

Finally, we will schematically present (Scheme 2) the levels of exchange supported through the Program's implementation, aiming to shift from the concept of "horizontal exchange" in intern learning to the concept of developing a learning community.

Scheme 2:

Overview of the Dynamics of the Program Designed to Develop a Learning Community



Designing the New Cycle of the Program

In parallel to the implementation of the first cycle of the Program, reflection on the process of developing the induction and mentoring practice was also taking place. The insights that emerged from the joint review of the Program's implementation process, based on the documentation of the work of meetings and focus groups; continuous dialogue within the community; analysis of the interns' and mentors' journals; monitoring practitioners' participation in online tasks and tasks from the meetings; and insights gathered through a questionnaire designed to better understand the perspectives of interns and mentors, served as the foundation for identifying several thematic areas that, in what follows, shed light on the complexity of the experiences of all participants in the process: the support network, the acceptance of the introduced changes, and the role of the mentor.

Support Network

Challenges arising from the complex organizational structure of the institution, lacking clearly defined procedures and leadership systems, led to various difficulties in the first cycle of the Program's implementation. One such challenge was illustrated in a trainee's response to the questionnaire:

...often a trainee (as a new employee) is sent to assist in other facilities and is unable to complete all tasks as required, for example, they cannot follow through on a project they were responsible for from start to finish... (T10, A1)

Overcoming these and similar challenges required the development of a support network for all Program participants. The entire team of professional associates was involved in the Program's implementation, which entailed numerous meetings aimed at

aligning understandings and assuming the role of active participants in the process. It also required that each professional associate have a clear understanding, in practice, of the tasks being carried out by trainees and mentors, tasks which often involved engaging the wider staff collective and taking steps toward changing the preschool's culture, aligning the real-life curriculum more closely with the *Years of Ascent* (2019).

In addition, preschool and nursery principals, as well as other practitioners that were not in trainee roles, were included in the process. This involved both written and verbal communication (via official emails and practitioner meetings where certain Program elements were discussed) with clear explanations of the tasks assigned to trainees and mentors, and the importance of involving the wider collective in their implementation to enhance the quality of the real-life curriculum. For example, trainees were encouraged to act as the initiators of change in their teams through active participation in developing the real-life curriculum. The goal was to make the Program's concept transparent and clear to all, while also making it easier for trainees and mentors to position themselves within the community and overcome challenges along their learning path.

Acceptance of Introduced Changes

The first cycle of the Program's implementation was accompanied by the challenge of how practitioners (primarily preschool teachers) would respond to changes in established practice initiated by the pedagogue, based on her insights and those of other professional associates in the institution. To better understand how these changes were perceived by trainees and mentors, we will present some of their responses to the questionnaire item: "Briefly describe your experience with the induction practice (what would you highlight as the strengths and weaknesses of the Program, the organization of the induction practice, and the engagement of all actors in the process...).

We received 24 responses in total (12 from trainees and 12 from mentors). The majority of trainee responses indicated that they felt supported in the Program, felt a sense of belonging to the learning community, felt accepted, were satisfied with how the practice was organized, and believed that participation helped them better understand the *Years of Ascent* (2019) framework.

During my induction period, I received a great deal of support from my mentor and professional associate, my classroom colleague, and other colleagues, including fellow trainees, through the exchange of experiences and ideas, help with completing tasks, as well as better understanding of research work. I strived to ensure that children, through support for their well-being, had equal opportunities for learning and development, to connect as much as possible with parents and colleagues from other facilities, to constantly learn and work on myself, expand my experiences and knowledge, observe and listen to the children and their needs. (T27, A1)

Mentors generally expressed satisfaction with the way the practice was organized and with the support they themselves received in the Program.

The Program is designed to strengthen competencies in different areas tasks are concrete and clear all actors are engaged. (M13, A1)

Particularly valuable insights came from mentors who had prior experience with the induction and mentoring practice in previous cycles (seven of them responded to the question: "When you reflect on your own mentoring experience in the old and new programs, can you identify the most significant changes in the induction program?"). Here are some of their responses that clearly illustrate the shift in approach introduced through the new Program.

In a very concise way, it reflects the work of trainees and mentors. The materials and guidelines from the meetings clearly define the path to take, what to base it on, and what the goal is... i.e., what needs to be achieved. (M18, A21)

The diaries help a lot and organize the induction process. The tasks are more concrete and understandable. (M9, A21)

Greater involvement of the professional associate in providing us as mentors with support in working with the trainee. The existence of diaries for trainees and mentors has made our work easier. (M6, A21)

The new program is interpreted more through practice and is more closely related to the real-life curriculum. The old program required the preparation of lesson plans that were not used in everyday work. We are practitioners, so I found it easier in this mentoring program to convey and explain what is written in the Program Foundations. (M3, A21)

These insights show that the reconceptualization of the induction and mentoring practice led both trainees and mentors to feel supported and empowered, which guided our decision to again center the next Program cycle around the idea of developing a learning community.

The Role of the Mentor

The start of the first cycle's implementation was accompanied by challenges in understanding the mentors' role. To facilitate mentors' reflection on their role, a Mentor's Diary was introduced.

Mentors keep a Mentor's Diary, which documents the fulfillment of their role in the Program and serves as: a record of the types of support provided to the trainee in developing the basic knowledge, skills, and values necessary for quality direct work with children, collaboration in the learning community, and the development of professional practice; the mentor's observations of the trainee's work during the Program; and an assessment of the trainee's development of the basic knowledge and skills necessary for quality direct work with children, collaboration in the learning community, and the development of professional practice. (excerpt from the Program)

The systemically defined role of the mentor, as outlined in the then-existing Guide (Mentor and Novice Teacher..., 2009, 2012), the established licensing exam system that followed the induction program, and mentors' experiences from previous cycles of induction practice, created a mismatch between mentors' expectations and the vision of mentorship underpinning the new Program. The Program positioned the mentors as participants in a learning community, supported by a network accessible to both trainees and mentors. The previously defined role of the mentor as a formal evaluator (whose evaluation in previous cycles was largely a formality) hindered mentors from embracing the role envisioned in the new Program.

Addressing this challenge in the first cycle's implementation required organizing a dedicated meeting between the pedagogue-author and the full team of mentors. The meeting focused on re-examining the mentor's role, from understanding their responsibilities to clarifying the support system created for the mentors within the Program.

Implementation of the Program (Second Cycle)

The second cycle of the Program's implementation began in September 2024 with a meeting between the pedagogue-author and the group of mentors. The topic was the mentor's role in the Program, during which the material *Guidelines for Preparing the Mentor's Report* was jointly interpreted. This material was developed based on insights from the previous cycle regarding mentors' difficulties in understanding and accepting their role. At the first joint meeting (workshop) of all trainees and mentors with the professional associates, focused on introducing the Program, printed materials (*Trainee and Mentor Diaries* and the *Guidelines for Preparing the Mentor's Report*) were distributed to all preschool teachers participating in the Program.

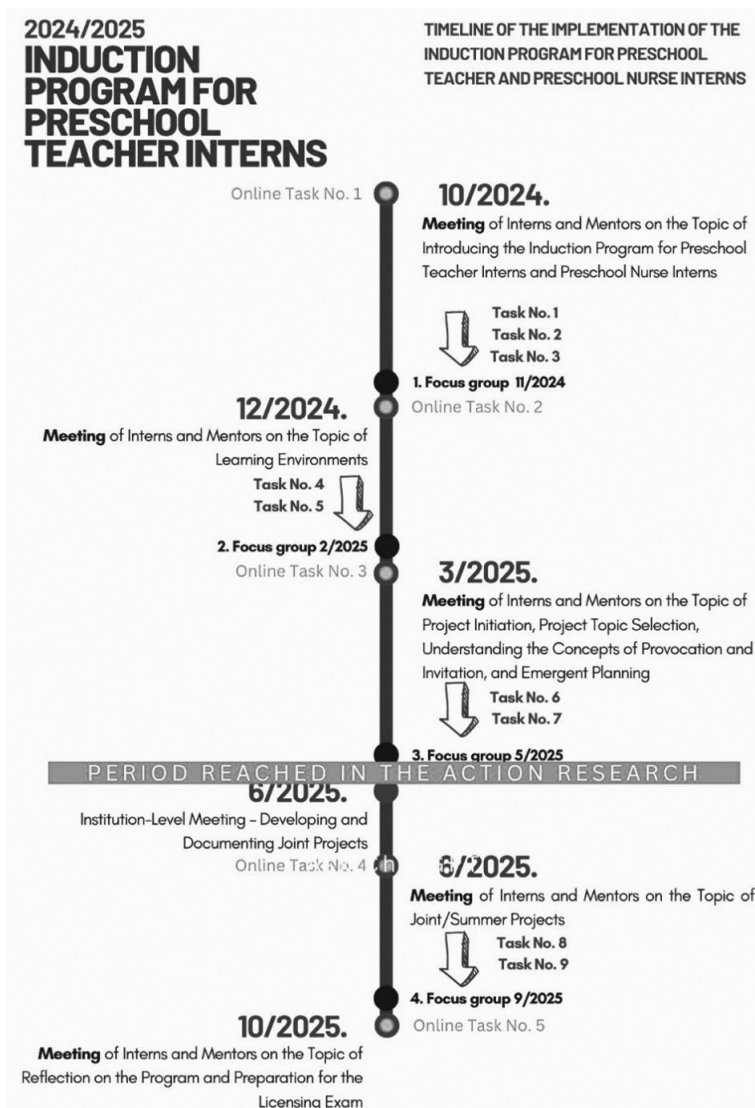
To address the challenge of perceived power relations between professional associates and preschool teachers in the Program (which will be discussed in more detail when elaborating on the pedagogue's role), and to make these power relations more balanced, the new cycle of implementation included the following organizational adjustments:

1. The workshops (for all trainees and mentors) were organized in two separate groups (in the first cycle, all trainees and mentors attended the same session at the same location), giving all participants the opportunity to choose the time and location that suited them best;
2. The focus groups were scheduled across multiple sessions (between 8 and 10 sessions, at two different locations), again allowing trainees and mentors to select the time and location most convenient for them..

The timeline, planned topics, and flow of the Program's implementation in the second cycle are presented schematically (Scheme 3) below.

Scheme 3:

Timeline of the Second Cycle of Program Implementation



The responsibility for designing and implementing all meetings and focus groups in the second cycle was assumed by the preschool pedagogue, the program's author. Unlike the first cycle, in which one of the planned meetings was not held and the organization of focus groups lacked consistency and coordination, in the second cycle all planned activities were carried out according to the timeline. This change does not indicate the superiority of individual over shared responsibility but, above all, the importance of a clear distribution of roles and agreed-upon coordination within shared leadership processes. Experience from the first cycle showed that shared leadership does not imply the absence of structure or equal involvement

in all segments: in fact, that time is needed to establish mutual trust, communication channels, and precise task distribution. The preschool pedagogue's assumption of a leading role in the organizational aspect during the second cycle did not diminish the contribution of other professional associates: in fact, it ensured that joint decisions were more consistently implemented in practice, thereby supporting continuity in the process of developing a culture of collaboration.

Insights into the challenges interns and mentors faced in the previous cycle regarding tasks were used to improve the *Intern and Mentor Journal* (as the main material) as well as all accompanying resources.

For example, in the previous cycle, it was expected that after each focus group interns would record their insights (as a reflection on the learning process), but the journal itself lacked additional clarification about what to focus on. As a result, interns often provided only technical information about the meeting (e.g., where it was held and who attended) without including any meaningful personal insight on the topic, thus losing the intended function of the notes. Therefore, in this cycle, the journal explicitly stated the focus for note-taking after each focus group (e.g., after the first group, the task was to compile a list of knowledge and shared understandings about the *Years of Ascent* framework; after the second, to create a list of guidelines for arranging preschool spaces that the intern could follow in practice).

To establish shared meanings and avoid the "noise" that occurred in the first cycle (for example, due to poorly timed and uncoordinated focus group implementation), greater care was taken in jointly agreeing on tasks, providing instructions, and giving feedback at every step.

For instance, after the first series of focus groups that followed the first meeting and the completion of the first few tasks (theme: understanding the *Years of Ascent* framework), which was implemented in November, all interns' notes were analyzed. It was observed that the notes contained indicators of misunderstanding key concepts.

The following actions were taken: a detailed report on the focus group notes was emailed to all interns, without naming individuals, outlining the quality of the notes in relation to the criteria agreed upon at the start of each focus group and reiterated in the follow-up email; additional materials were created: 1) a record of ambiguities and misunderstandings with clarifications; 2) a shared list of "input" knowledge and understandings derived from the analysis of all notes; 3) a "propeller" - a graphic representation of the *Years of Ascent* content with marked topics and page numbers in the program to make navigation easier.

Using these materials and the clarifications given at the next meeting, interns analyzed their own notes, identified which "zone" they fell into (red – notes indicating misunderstandings; yellow – unfocused notes; green – good notes), and supplemented or corrected their records accordingly.

The Leadership Role of Pedagogue in the Process of Introducing and Sustaining Change

Professional responsibility, as defined by the *Rulebook on Standards of Competences* (Regulation on Competency Standards..., 2021), served as a value-based guide for repositioning the role of the preschool pedagogue within the Program and the induction practice.

This Program was publicly presented three times in 2023, each time with a different focus in the presentations and accompanying papers (Malović, 2023, 2023a, 2023b). These presentations can be understood as the pedagogue's professional action in the field of their own practice and development, aimed at acquainting the broader professional community with an alternative approach to organizing induction and mentoring practice in the institution: one more closely aligned with the program concept and one that reaffirms the professional role of the pedagogue through the lens of the competence framework..

The way the Program was designed, starting from the defined competence of the professional associate for strategic (developmental) planning, is illustrated in paper (Malović, 2023), where the focus is on the pedagogue's role as a professional associate, whose competence in strategic planning and practice evaluating contributes to the design, implementation, and improvement of the Program, supports the professional development of preschool teachers, and fosters a culture of reflective practice within the learning community. The other two papers focused on highlighting competences in the areas of establishing cooperation and collaboration, developing reflective practice, and improving the quality of the real-life curriculum (Malović, 2023a, 2023b).

The significance of the professional associate's role as an organizer and supporter of all actors in the induction and mentoring practice was also recognized in the responses of the interns and the mentors to the questionnaire.

We received materials from the professional associate, which, along with the interns' and mentors' meetings, made the Induction Program easier to follow. Also, the tasks were designed so that collaboration between interns and mentors was greater. (M6, O1)

I believe that the strengths of the Program are the meetings, focus groups, the development of a learning community, and the support we receive from professional associates and mentors, as well as the tasks that encourage the intern to collaborate with all actors in the preschool. (P15, O1)

However, activating the leadership role in the process of introducing and sustaining change came with numerous challenges. A continuous challenge during the first cycle of Program implementation was the timely and coordinated execution of focus groups, since the Program was designed to require synchronized work of the team of professional associates on this task. In practice, this led to "noise" in the process, visible, for example, in the analysis of focus group notes from the interns' journals. For this reason, in the new Program cycle, the organization and execution of focus groups was redesigned with a more precisely defined focus for all participants (professional associate, intern, and mentor).

The importance of the professional associate's role in organizing and leading focused discussions was also recognized by the interns themselves.

The good part was the meetings where we exchanged experiences and opinions and solved problem situations... but there could have been a few more practical examples. I liked the focus groups and think it would be good and important for interns to have more of them, because that's where, with the professional associate, we could most easily get answers to all our questions. (P14, O1)

Re-examining the power dynamics between preschool teachers and professional associates was yet another challenge. Insights from preschool teachers regarding the established power relations required reconsideration of how both focused discussions and meetings were organized.

The good parts are the frequent meetings, experience exchange, and cooperation with colleagues... the bad part is that meetings (and focus groups) are organized in preschools closer to the associates rather than to the interns, and sometimes we have difficulties with organizing work, transportation, etc. (M7, O1)

Summary of Conclusions

When it comes to action research conducted in schools, Ševkušić (2011) points out that an action research has the potential to improve the “traditionally poor relationship between teachers and researchers” (Ševkušić, 2011, p. 198). Based on the research conducted, we can conclude that the relationship of trust and support between the professional associate-researcher and the preschool teachers in the institution was strengthened through the research process. In addition, it can be said that the spirit of community was visibly reinforced, with the culture of exchange and joint learning extending beyond the limits of Induction Program. Interns and mentors testify to their personal sense of empowerment and support, while professional associates and heads of kindergartens and nursery groups note that entire teams have been strengthened as a result of various actions initiated within the Program.

The presented action research can be understood as a form of intervention in institutional practice aimed at initiating and supporting change toward joint learning, professional reflection, and the transformation of practitioners’ roles. If, as Pavlović Breneselović (2008) states, intervention is understood as the planned introduction of change into educational practice, then the question of the sustainability of that change emerges as key and constitutive to the intervention itself.

The change initiated through this research is aimed at developing the practice and professional capacities of employees, which could lead to achieving the first dimension of sustainability – maintaining quality provided that the achieved trajectory of change in the induction practice continues to develop on the established foundations. A challenge remains in the institutional culture, which is built by the entire educational community, as the leadership of the institution has so far shown no interest in contributing to the development of reflective practice within the learning community. This lack of interest can be seen, among other things, in the unwillingness to employ a sufficient number of professional associates and to recognize the work of pedagogues as significant for the development of the entire institution.

For the initiated changes to be long-term and have systemic significance, it would be necessary to address the remaining two dimensions of sustainability: systemic embedding through the institutionalization of new work patterns and expansion within the system through dissemination and networking with other institutions and practices. This approach requires building and utilizing social capital through networked relationships

among actors within and outside the institution, as well as continuously building employees' capacities for reflective and meaningful action in their own practice (Pavlović Breneselović, 2008).

Systemic embedding does not seem likely under the current educational policy, which shows a tendency to shift the burden of designing and implementing induction and mentoring practice to mentors, while assigning the professional associate a secondary role in this process. On the other hand, despite the support provided to professional associates in preschools through "SNOP" trainings and other forms of assistance, a meaningful action in one's own practice remains difficult due to established cultures in preschools where the work of pedagogues is undervalued and their role is not recognized as significant. Furthermore, the narrative of developing a learning community cannot be sustainably built in a context where systemic frameworks and support through training remain misaligned with the value-based and theoretical principles that the community seeks to establish, since such inconsistency undermines the possibility of establishing shared meanings as the foundation for collective learning and development.

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Analysis of Seventh-Grade Students' Performance in National Mathematics Competitions by Topic and Task Type: A Comparison of Specialized and Regular Classes¹

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Abstract

Mathematics competitions are increasingly attracting the researchers' attention in the field of mathematics education, as they offer numerous benefits to students — from deepening and broadening their knowledge to developing problem-solving skills. Given that seventh-grade students in the Republic of Serbia have had, the opportunity to attend specialized classes for mathematically gifted students (SM classes) for many years, the question arises as to whether grouping these students in homogeneous classes affects their performance in national mathematics competitions. The aim of this paper is to make a detailed comparison of the performances of students from SM and from regular classes in the national competitions and to analyze the tasks which the two groups solved with statistically significant differences. The analysis of students' performance in 50 competition tasks showed that SM students achieved statistically significantly better results in 23 tasks, while the students from the regular classes only performed better in one task. Greatest differences in favor of SM students were observed in number theory, followed by geometry and combinatorics, with the smallest differences in algebra tasks. SM students were significantly more successful in solving proof-based tasks than their peers from regular classes. A detailed analysis of tasks content suggests that the performance differences may stem from the broader and deeper mathematical education of SM classes, as well as their superior ability to synthesize various mathematical concepts and statements in the problem-solving process. The results of this study can serve as a guide for both teachers and students in preparing for mathematics competitions.

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Introduction

Mathematics competitions for primary school students have a long-standing tradition in the Republic of Serbia. Since the first competitions in the 1960s and the first competition at national level in 1967 (Mičić i Kadelburg, 2022), they have been the most popular type of school competitions in the country. Each year, between 60,000 and 70,000 students from grades 4 to 8 take part in the first phase of the competition cycle (Vulović i sar., 2023).

The national mathematics competition is the fourth and final stage in which students in grades 6 to 8 participate. Although few studies have been conducted specifically on student performance in these competitions, the available research suggests that students who are taught in specialized mathematics (SM) classes for mathematically gifted students achieve statistically significantly better results than those in regular classes achieve. Vulović et al. (Vulović i sar., 2024) have empirically confirmed that the students from SM classes have performed better than their peers in regular classes, with statistically significant differences in 11 of the last 18 years.

This paper aims to investigate the performance of 7th grade students in national mathematics competitions from the years 2015 to 2024, focusing on mathematical domains and task types, depending on whether the students attend regular or SM classes. The study is based on the observation that the tasks in the curricula of the competitions are increasingly detached from the regular curriculum as they move from school to the international level of mathematics competitions. By analyzing the tasks that were predominantly solved by the highest-achieving students in the observed period, we aim to contribute to the identification of key factors that influence students' performance in national mathematics competitions.

Theoretical background

One of the functions of mathematics competitions is to spark students' interest in engaging more deeply with mathematics and to foster a sense of competitiveness among them. Competitions provide support for students, as solving challenging tasks allows them to demonstrate their high mathematical abilities i.e., the abilities that are developed through the preparation process for such events (Keldibekova, 2020). Kenderov (2022) notes that solving complex mathematical problems not only leads to deeper mathematical understanding but also enhances students' skills in overcoming real-world problem situations.

Liljedahl (2019) distinguishes between "thinking classrooms" and "non-thinking classrooms"—that is, the learning environments which encourage students to learn through active thinking and those learning environments in which students mere-

ly imitate thinking. Mathematics competitions, in this sense, create an environment where student thinking is affirmed as a valuable experience for engaging with mathematics at a higher level. When discussing the competencies required for engaging with advanced mathematics, Falk de Losada & Taylor (2022) emphasize that solving competition problems helps develop students' problem-solving abilities and improves their understanding and use of mathematical terminology. While school mathematics typically follows a traditional structure of content delivery, mathematics competitions integrate content with modes of thinking and strategies for solving new and challenging problems. In doing so, they broaden students' perspectives and expose them to the reasoning methods used by professional mathematicians (Nieto-Said & Sanchez-Lamonedá, 2022).

The tasks in mathematics competitions typically fall within the domains of algebra, geometry, number theory, and combinatorics, although they often involve two or more domains simultaneously. The key to solving such tasks lies in ingenuity, creativity, and problem-solving skills. Research shows that the competition participants achieve varying levels of success depending on the predominant domain of the task. Students are often more successful in solving problems from algebra, combinatorics, and number theory compared to those from geometry (Facciaroni et al., 2023; Keldibekova, 2020; Špijunović i Maričić, 2013; Vulović i sar., 2024).

Facciaroni et al. (2023) examined differences in student performance across task domains using a sample of 29,592 ninth-grade students who participated in the regional level of mathematics competitions in Italy between 2018 and 2020. The study focused particularly on geometry and the difficulties which students encounter when solving geometric tasks and constructing formal proofs. Out of the seventeen tasks given in the competition each year, the first fourteen tasks did not require formal proof construction, although they did necessitate knowledge of theorems and procedures. The final three problems — one each from number theory, combinatorics, and geometry — did require formal proofs. These three tasks accounted for 40% of the total score, meaning that correctly solving them was decisive for qualifying for the national stage. The study found performance differences across mathematical domains, with a significant proportion of students not even attempting the proof-based geometry problem. In all three years covered by the study, the average score on the geometry proof task was significantly lower than the average scores on the other two proof tasks. In the same study, the authors also conducted a survey in 2020 involving 486 participants from the regional competition in the Rome district. On average, the students reported feeling equally comfortable when solving problems from each mathematical domain. Although not statistically significant, the differences in mean values indicated that students still perceived geometry as the most difficult domain, while number theory was seen as the easiest. The authors explain the small differences in students' attitudes by pointing out that nearly one-third of the students responded that the competition problems in geometry were similar in complexity, content, or structure to those which they had encountered during regular classes. In contrast, only about one in five students on average gave the same response

for the other three domains. This supports the finding that, even though students — especially the high-achieving ones — are familiar with the basic geometric rules taught in regular classes, they still encounter difficulties when solving competition-level geometry problems (Sal'kov et al., 2017).

Although solvable using elementary methods, problems in mathematics competitions can be very challenging. Unlike conventional school mathematics problems, which typically require reproducing known procedures, competition problems are inclusive, since they consider various situations, conjectures, examination of assumptions, and posing of new questions (Leikin, 2007). A solution is considered complete if and only if the student provides a full proof of their claim. Falk de Losada & Taylor (2022) note that students in competitions, similarly to professional mathematicians, most often begin the proving process by stating what is to be proven (proposing an argument), and then proceed with the construction of the proof. In doing so, students employ one of four types of proofs (Balacheff, 1988, as cited in Laamena et al., 2018): naive empiricism, where the truth of the argument is confirmed after verifying special cases; key experiment, which is used to choose between two previously formulated hypotheses; generic example, which explains why the argument holds true by citing specific properties and structures; thought experiment, which generalizes the argument and distinguishes it from particular cases.

The impact of student grouping on academic achievement has been widely discussed in the literature; however, the influence of homogeneous grouping on student performance in mathematics competitions has been less extensively studied. The primary goal of this type of grouping is to meet the interests and specific educational needs of mathematically gifted students, who most frequently participate in mathematics competitions. Karp (2009) states that instruction in schools where mathematically gifted students are grouped together is characterized by problem posing, problem solving, seeking original methods of solving problems, and finding connections between new and old problems. Kulik & Kulik (1987) conducted a meta-analysis including 90 studies, 25 out of whom focused specifically on examining the effects of instruction in classes composed of gifted students. In 19 of these studies, results showed that gifted students achieved better outcomes when grouped homogeneously, and in 11 of these studies, the differences were statistically significant. The same authors also note that grouping gifted students in homogeneous classes does not yield the desired effects if an appropriate curriculum transformation to meet their educational needs is lacking. These findings are supported by the results of a study by Steenbergen-Hu et al. (2016), which covered one hundred years of research on the effects of student grouping on academic achievement.

A positive impact of transferring students from regular classes to gymnasiums that offer instruction for primary school students gifted in mathematics was also observed in the study by Asmat (2021). Since students can enroll in such classes after completing either the fifth or eighth grade, one of Asmat's research objectives was to determine the extent to which school choice and class type influence student achievement

in competitions. It was found that students attending gymnasiums achieve on average 6% higher results than those from heterogeneous classes. This finding confirms the advantages of the instructional approach applied in homogeneous classes, where the focus is placed on an enriched mathematics curriculum (Kim, 2016; Rochayati & Rochayani, 2024).

Sriraman (2003) notes that complex mathematical problems provide an excellent opportunity for students to develop higher-order mathematical processes, primarily representation, abstraction, and generalization. In his study, Sriraman assigned the task of solving five non-routine combinatorial problems to a group of nine ninth-grade students, in such manner that the generalization required for solving these problems was presented in the form of the Pigeonhole principle. Four students, previously identified as mathematically gifted, successfully discovered and formulated the generalization needed to solve the five problems, while the other five students, who did not possess special mathematical abilities, failed to recognize the generalization hidden in the problems (Sriraman, 2003).

The essence of grouping mathematically gifted students is not to isolate them from average-ability peers, but to unite them with those who share similar interests. When grouped together, students are stimulated by peers of comparable ability and can process any more complex content more quickly and effectively (Neihart, 2007; Swiatek & Lupkowski-Shoplik, 2003). Mathematics instruction in such classes is characterized by strategies of acceleration, enrichment, and deepening.

In their research, Vulović et al. (2024) analyzed the participation frequency and achievements at national mathematics competitions in Serbia over an eighteen-year period of seventh- and eighth-grade students attending specialized mathematics (SM) classes in gymnasiums and of students from heterogeneous classes. The authors emphasize that in both seventh and eighth grades, the average scores achieved by students in SM classes were higher each year compared to those from regular classes. On average, seventh-grade students in SM classes scored 39% higher than their counterparts in regular classes, while the achievement of eight-grade students was 32% higher.

Research Methodology

The law in the Republic of Serbia recognizes the possibility of grouping mathematically gifted students into special classes. After completing the sixth grade of primary school, students have the option to transfer to gymnasiums that offer instruction tailored for students gifted in mathematics (Guidelines on the Curriculum for Seventh and Eighth Grade Students of Primary Education Gifted in Mathematics, 2019). Upon enrollment, students take a special qualifying exam that evaluates their performance on a mathematics ability test, overall grades from fifth and sixth grades, mathematics grades in those years, and participation in the national mathematics competition in the sixth grade.

The national-level mathematics competition takes place every year in May, and approximately one hundred students from each of the sixth, seventh, and eighth grades of primary school, who achieve the highest results at the preceding district-level competitions during that school year, are eligible to participate.

The aim of this research is to analyze the performance of seventh-grade students from specialized mathematics (SM) and regular classes in national mathematics competitions with respect to the mathematical domains to which the competition tasks belong as well as to the types of given tasks. In line with this aim, differences in the performance of students from regular and SM classes in solving these tasks were examined, along with an analysis of the content of the given tasks. The research objectives derived from this aim are to determine:

1. The ratio of the number of tasks in which SM students achieved better results than students from regular classes, the number of tasks in which there were no differences in performance between the two observed groups, and the number of tasks in which students from regular classes achieved better results than SM students;
2. The ratio of the number of tasks in the context of the performance of SM and regular class students depending on the mathematical domain to which the tasks belong;
3. The ratio of the number of tasks in the context of the performance of SM and regular class students depending on whether the tasks are computational or proof-based.

The paper presents a secondary analysis of the performance of seventh-grade students in national mathematics competitions from the year 2015 to 2024. At the competitions, students solved five tasks prepared by the State Commission for Primary School Competitions, with a time limit of 180 minutes for completion. All tasks are publicly available on the official website of the Serbian Mathematical Society. The national competition is held live each year, as are all preceding levels, in school settings. The content of the tasks is defined by the Competition Program issued by the Serbian Mathematical Society at the beginning of the competition cycle, based on the Competition Rulebook. Both the Rulebook and the Competition Program are publicly accessible. Task evaluation is conducted according to a precisely defined scoring scale and grading instructions (partial credit is awarded). Each task is scored with a maximum of 20 points.

The results obtained from the national competitions each year are consolidated into a unified database, which was used for this study. The research sample consists of all seventh-grade students who participated in the national mathematics competitions from 2015 to 2024, totalling 1,014 students. The population structure, with respect to the type of class attended by the students, is presented in Table 1.

Table 1
Structure of the research population

Year	Regular class		SM class	
	<i>F</i>	%	<i>F</i>	%
2015.	64	66,67%	32	33,33%
2016.	50	50,00%	50	50,00%
2017.	57	58,16%	41	41,84%
2018.	53	52,48%	48	47,52%
2019.	60	62,50%	36	37,50%
2020.	60	61,22%	38	38,78%
2021.	50	50,00%	50	50,00%
2022.	61	54,46%	51	45,54%
2023.	64	61,54%	40	38,46%
2024.	67	61,47%	42	38,53%
Total	586	57,79%	428	42,21%

The collected data were processed using the SPSS 20 software package. The statistical measures and procedures used included frequencies, percentages, arithmetic mean, the Shapiro-Wilk test for assessing the normality of numerical data distribution, the Student's t-test for independent samples, and the Mann-Whitney test for comparing data distributions between two groups.

Results and Discussion

In line with the research objective, we analyzed whether statistically significant differences exist in the performance of students attending specialized mathematics (SM) and regular classes in solving seventh-grade tasks at national mathematics competitions, examining each individual task over the past ten years (a total of 50 tasks). For each task, it was tested whether the scores that were achieved by students in both groups followed a normal distribution. In cases when both groups exhibited normal distribution, the arithmetic means of the scores were compared using the independent samples Student's t-test; otherwise, the distributions of scores achieved by students in the two groups were compared using the Mann-Whitney test. The results are presented in Table 2. For each task, the arithmetic means of the scores achieved by students from both groups are given, while the results of the Mann-Whitney test are reported in cases where statistically significant differences were found. No statistically significant differences in student performance were found in any task where the Student's t-test was applied.

Table 2

Performance of seventh-grade students by class type, per task, in the period from 2015 to 2024

Year	Task Number									
	1.		2.		3.		4.		5.	
	Regular	SM	Regular	SM	Regular	SM	Regular	SM	Regular	SM
2015.	5,72	8,97	2,73	5,56	2,39	4,09	6,42	9,13	1,31	3,50
			U=798.0 Z=-3.100 p=.002							
2016.	7,90	8,38	9,86	12,72	3,44	8,78	12,00	15,98	3,64	4,56
					U=914.0 Z=-2.414 p=.016		U=1009.5 Z=-1.994 p=.046			
2017.	7,00	11,56	4,30	9,85	4,65	9,90	3,21	8,02	7,18	11,32
	U=798.0 Z=-2.766 p=.006		U=644.5 Z=-3.946 p=.000		U=782.5 Z=-2.833 p=.005		U=861.5 Z=-2.349 p=.019		U=849.0 Z=-2.371 p=.018	
2018.	17,08	16,96	8,58	12,54	2,17	2,35	3,02	4,73	6,57	13,42
			U=990.0 Z=-2.071 p=.038						U=742.0 Z=-3.800 p=.000	
2019.	10,32	13,39	6,75	12,17	10,00	12,06	6,90	8,06	7,03	3,72
			U=664.5 Z=-3.178 p=.001						U=862.0 Z=-1.962 p=.050	
2020.	9,62	13,08	8,55	13,95	10,50	18,71	2,67	6,58	4,40	9,76
			U=745.0 Z=-3.056 p=.002		U=591.0 Z=-4.545 p=.000		U=829.5 Z=-2.394 p=.017		U=690.0 Z=-3.491 p=.000	
2021.	6,00	7,60	11,06	12,18	11,10	15,62	14,22	15,54	2,00	1,20
					U=865.0 Z=-2.987 p=.003					
2022.	9,18	12,65	2,26	7,94	4,25	4,90	8,08	12,84	0,84	5,35
	U=1193.5 Z=-2.306 p=.021		U=866.5 Z=-4.523 p=.000				U=1063.5 Z=-2.960 p=.003		U=1146.5 Z=-3.147 p=.002	
2023.	6,53	8,75	4,48	7,03	10,08	12,15	4,84	5,50	1,39	3,57
2024.	18,33	17,83	10,21	15,14	9,76	11,57	2,96	7,07	11,30	14,38
			U=931.0 Z=-3.064 p=.002				U=1011.5 Z=-2.781 p=.005		U=1080.0 Z=-2.095 p=.036	

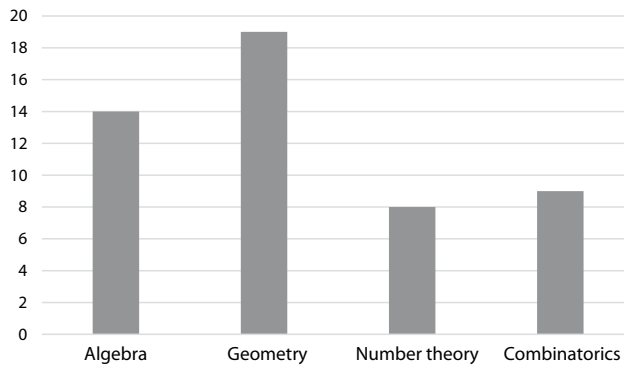
Out of 50 observed tasks, students from specialized mathematics (SM) classes achieved statistically significantly better results in 23 tasks, the differences in 26 tasks were not statistically significant, while students from regular classes performed statistically better in 1 task.

Student performance depending on the mathematical domains of the tasks

It has already been mentioned that the tasks belong to the domains of algebra, geometry, number theory, and combinatorics, and that solving certain tasks requires knowledge and skills from two or three of these domains. Each task was categorized into the domain that is dominant in its solution, based on content and procedures. According to Figure 1, during the observed period, the largest number of tasks at the national competitions belonged to geometry, followed by algebra, then combinatorics, with the fewest tasks coming from number theory.

Figure 1

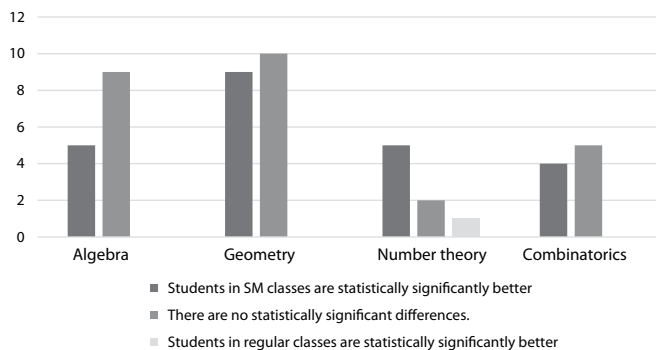
Number of tasks at national competitions for 7th-grade students from 2015 to 2024, by mathematical domain



If we compare the task performance of students from specialized mathematics (SM) and regular classes according to the mathematical domain to which the tasks belong, we obtain the results shown in Figure 2.

Figure 2

Performance of seventh-grade students from specialized mathematics (SM) and regular classes in national competitions from 2015 to 2024, by mathematical domain



We observe that the difference in performance favoring students from specialized mathematics (SM) classes is the greatest on the tasks from number theory. Out of 8 tasks in this domain, SM students achieved statistically significantly better results on five. Analyzing the content of these tasks, we notice that of them all include parts which can be solved using knowledge from regular instruction, such as prime factorization, divisibility, and remainders in division by natural numbers. However, a successful completion of the entire solution usually requires good knowledge of additional instruction content, for example, decoding numbers in decimal notation according to given conditions or applying Pigeonhole's (combinatorial) principle (to divisibility by a natural number). For instance, the use of congruences to determine the remainder in division and specifically to find the last digit of a multi-digit number (a special case of division by 10) is something the average primary school student does not encounter unless the teacher dedicates special attention to it during additional lessons. On the other hand, seventh-grade students in SM classes are more likely to have the opportunity to learn the properties of congruences, as these topics appear in their curriculum. Furthermore, Pigeonhole's principle is also covered exclusively in additional mathematics lessons (and emphasized in the competition program). It is worth noting that the tasks applying Pigeonhole's principle are classified under combinatorics, but one specific task (from 2018) was classified under number theory because the focus of the solution was on applying divisibility properties.

In geometry tasks, students from specialized mathematics (SM) classes achieved statistically significantly better results on 9 tasks, while no significant difference was found in ten tasks. The content represented in these tasks was mostly learned before seventh grade (properties of squares and rectangles, triangle angles, triangle congruence, areas of triangles and quadrilaterals, axial symmetry, segment bisector, angle bisector, inscribed and circumscribed circles in triangles, etc.). Content from the seventh-grade curriculum included the Pythagorean theorem with applications to triangles, quadrilaterals, and polygons, circles, inscribed and central angles. It is especially important to emphasize that all tasks required knowledge of multiple definitions, theorems, and properties from various topics, and the ability to synthesize all of it into a complete solution. Some tasks required connecting knowledge from two topics (e.g., triangle congruence and triangle angles; sum of angles in a triangle and inscribed angle), three topics (e.g., triangle, quadrilateral, Pythagorean theorem; triangle height, congruence, polygon), and even four topics (e.g., properties of right triangles, inscribed circle in a triangle, triangle perimeter, triangle area; angle bisector, inscribed circle, triangle angles, congruence). Analyzing the demands of these tasks, we note that the much of the required content which students need to know is largely covered in regular instruction. However, the challenge lies in the need to connect content from multiple areas and create different solving strategies. Besides the ability to recognize strategies and knowledge of necessary content, students also require a certain level of practice and experience in solving complex problems, which is gained through repeated exercises. This experience is further developed through collaboration with peers who share similar experiences, as well as with the support of teachers who guide students through the solving process, at least during their first encounters with such tasks.

In combinatorics tasks, students from specialized mathematics (SM) classes achieved statistically significantly better results on 4 tasks, with nearly all tasks belonging to topics covered in supplementary lessons: creating winning strategies for mathematical games, applying combinatorics to solve coloring problems, counting palindromes, counting the ways elements of a set can be partitioned into subsets (not necessarily disjoint) with given properties, and so on. It is particularly noteworthy is the application of the Pigeonhole Principle in geometry, which required knowledge of geometric content taught in regular classes, but in solving these tasks the focus was on counting geometric objects and proving that, for a chosen number of such objects, it is possible to select a subset that satisfies a given condition.

The smallest differences in student performance were observed in the domain of algebra, where differences occur in 5 out of 14 tasks. Algebra tasks were focused on applying algebraic transformations, proving algebraic equalities, determining the values of algebraic expressions, applying exponents and factoring natural numbers, all of which are covered in regular classes. Topics from supplementary lessons include solving linear and nonlinear Diophantine equations, algebraic fractions, and more complex problems involving exponents and exponent operations. Students from specialized mathematics (SM) classes performed statistically significantly better on the tasks requiring the application of exponent properties and algebraic transformations, determining values of expressions containing algebraic fractions, factoring polynomials, and finding solution sets of nonlinear equation systems. While the content in these tasks generally aligns with regular instruction, the level of difficulty is quite advanced for this age group and again suggests the importance of prior experience in solving similar problems, by applying appropriate solution strategies.

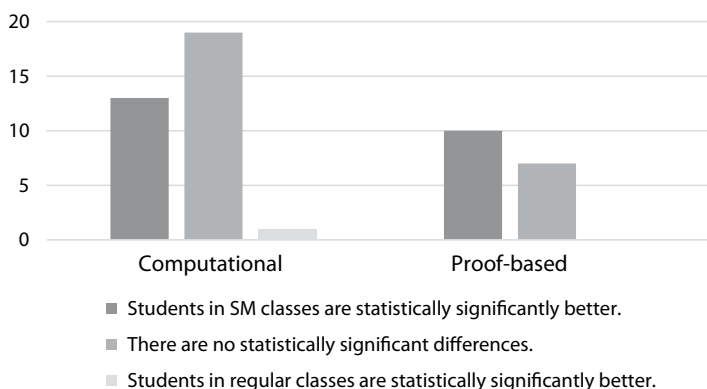
Student performance depending on task type

In addition to the mathematical domains to which the tasks belong, we aimed to analyze the performance of students from specialized mathematics (SM) and regular classes with respect to the type of task. Accordingly, we divided the tasks into computational and proof tasks. The first type includes all tasks where students had to determine: the value of a numerical expression, the measure of a geometric object (length of a segment, area and/or perimeter of a figure, measure of an angle), remainder upon division, unknown value, etc. The second type includes tasks requiring the construction of some form of a proof: equality of measures of geometric objects, divisibility of an algebraic expression by a natural number, validity of algebraic equalities, existence of subsets whose elements satisfy certain properties, and so on. Proof tasks are generally more demanding than computational ones, which is also confirmed by the scoring system in certain competitions where proof tasks are awarded significantly more points (Facciaroni et al., 2023). In these tasks, students typically approach the solution by first stating the claim to be proven, and then gradually constructing the proof (Falk de Losada & Taylor, 2022). The students' performances based on this classification are shown in Figure 3.

Of the 33 computational-type tasks, students from the specialized mathematics (SM) classes achieved statistically significantly better results in 39.39% of the tasks, there was no statistically significant difference in 57.58% of the tasks, while only one task (3.03%) was completed statistically significantly better by students from regular classes. Among the remaining 17 proof-type tasks, students from SM classes achieved statistically significantly better results in 10 tasks (58.82%), while in the remaining tasks the differences were not statistically significant.

Figure 3

Performance of seventh-grade students from specialized mathematics (SM) and regular classes in national competitions from 2015 to 2024, by task type



Students attending specialized mathematics (SM) classes, on one hand, are characterized by strong predispositions for engaging with mathematics at a high level, as they often achieved good results in competitions in the sixth grade, where proof-based tasks already appear. By passing the qualifying exam for admission to SM classes, they demonstrated their ability to solve demanding mathematical problems. On the other hand, through regular and supplementary instruction, SM students — supported by their teachers — had more opportunity to solve a greater number of proof-based tasks (compared to students from regular classes), thereby strengthening their argumentative skills. They were also more extensively exposed to learning how to use appropriate counterexamples in order to prove that a task has no solution or that no mathematical object satisfies the required properties. Additionally, during algebra and geometry lessons, they proved known mathematical theorems to a greater extent.

If we consider the specific content of the proof-based tasks on which SM students outperformed their peers, the application of the Pigeonhole principle in geometry stands out. Among the three tasks involving the Pigeonhole principle (one in number theory and two in geometry), the differences were statistically significant in all three tasks in favor of the SM students (task 5 from 2018; task 5 from 2020; task 4 from 2022). The difficulty for students from regular classes was the generalization of mathematical objects' certain characteristics. The ability to generalize, as a cognitive process, combined with the Pigeonhole principle as a specific mathematical concept, represents a challenge in which mathematically gifted students typically perform better (Sriraman, 2003).

Conclusion

Results from previous studies show that seventh-grade students grouped in homogeneous classes, where intensification and enrichment of the curriculum is assumed in their instruction, achieve statistically significantly better results in national competitions than their peers from heterogeneous classes (Neihart, 2007; Swiatek & Lupkowski-Shoplik, 2003; Vulović et al., 2024). Our analysis yielded similar results. The findings indicate that students in SM classes achieved statistically significantly better results in 46% of the tasks at national competitions over the past ten years. The greatest number of statistically significant differences in favor of SM students occurred in tasks from the field of number theory, followed by geometry and combinatorics, with the lowest percentage in algebra.

Solving problems in certain domains, such as number theory and combinatorics, requires prior knowledge of specific procedures, theorems and properties of mathematical concepts, many of which students mostly encounter outside of regular mathematics classes. However, mere exposure to this content is not sufficient for mastery; rather, students also need the ability to argue, to generalize and to abstract. On the other hand, besides the ability to recognize strategies and knowledge of content from other domains, like geometry and algebra, practice and experience are required. At the initial stages, the teacher plays a key role, by introducing students to the relevant procedures and guiding them through the problem-solving process. Regarding the type of the tasks, students in SM classes achieved statistically significantly better results in just under 40% of computational tasks, while for proof-based tasks that percentage was nearly 60%. Solving proof-based tasks required a thorough knowledge of content from multiple instructional topics, as well as the ability to maintain and synthesize the flow of thought into a coherent and logically sound proof which is supported by appropriate argumentation. Thus, it was confirmed that knowledge of school mathematics alone is not sufficient for a successful solution of competition tasks that are based on constructing proofs and appropriate reasoning during the process (Sal'kov et al., 2017).

We can conclude that the combination of students' mathematical giftedness, together with a more detailed (enriched and intensified) curriculum and a more formal engagement with specific content, has led to students in SM classes significantly outperforming their peers in regular classes. Future research could take the form of qualitative studies aimed at clarifying which one of these two effects is more dominant for a larger number of students and to what extent.

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A Route to Understanding Symbols in Algebra: from Real-life Situations to Symbolic Language

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Abstract

In this paper, the authors present a learning framework for introducing letters as symbols for the unknown and variable in mathematics, a framework that is based on real-life situations, their modeling and translation into algebraic language. In the empirical part of the paper, we conducted a research with the aim of investigating the effects of such an approach on the development of algebraic symbolic thinking ability of the students in the early elementary school grades. The research was conducted on a sample of 257 fourth-grade students of primary school in the Republic of Serbia, by using an experimental method with parallel groups. The research results show positive effects of the implemented approach on a better understanding of symbolic notation and a greater degree of algebraic generalization. These results confirm the hypothesis that the introduction of algebraic symbols through real-life problems and context-related activities can significantly improve students' ability to use algebraic notation and interpret it correctly. In this paper, the authors present a learning framework for introducing letters as symbols for the unknown and variable in mathematics, a framework that is based on real-life situations, their modeling and translation into algebraic language. In the empirical part of the paper, we conducted a research with the aim of investigating the effects of such an approach on the development of algebraic symbolic thinking ability of the students in the early elementary school grades. The research was conducted on a sample of 257 fourth-grade students of primary school in the Republic of Serbia, by using an experimental method with parallel groups. The research results show positive effects of the implemented approach on a better understanding of symbolic notation and a greater degree of algebraic generalization. These results confirm the hypothesis that the introduction of algebraic symbols through real-life problems and context-related activities can significantly improve students' ability to use algebraic notation and

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interpret it correctly. In this paper, the authors present a learning framework for introducing letters as symbols for the unknown and variable in mathematics, a framework that is based on real-life situations, their modeling and translation into algebraic language. In the empirical part of the paper, we conducted a research with the aim of investigating the effects of such an approach on the development of algebraic symbolic thinking ability of the students in the early elementary school grades. The research was conducted on a sample of 257 fourth-grade students of primary school in the Republic of Serbia, by using an experimental method with parallel groups. The research results show positive effects of the implemented approach on a better understanding of symbolic notation and a greater degree of algebraic generalization. These results confirm the hypothesis that the introduction of algebraic symbols through real-life problems and context-related activities can significantly improve students' ability to use algebraic notation and interpret it correctly.

Keywords: algebra, contextual approach, mathematics, unknown, variable.

Introduction

Students' first encounter with symbols and the language of mathematics occurs in the early stages of mathematics education and arithmetic learning. By forming the concept of natural number and its symbolic representation, children begin to learn about mathematical symbols, translate real-life situations into mathematical notations and solve problems. At this age, introducing algebraic symbolic notation and entering into the field of algebra represent a particular challenge for students. It is exactly this first encounter with algebra that is considered a "critical moment for most people who decide that they do not have a knack for mathematics and that they do not understand such mathematical ideas" (Milinković & Maričić, 2022, p. 245). In arithmetic, children operate with numbers, while in algebra they demonstrate their ability to manipulate numerical and symbolic representations, that is, to use and understand the role of letters in mathematical notations. Introducing symbolic algebraic notation represents a great challenge not only for practitioners, but also for theoreticians and researchers of mathematics education who are curious as to how and when mathematical symbols should be introduced (Brizuela et al. 2015; Carraher et al., 2008; Dabić Boričić, 2019; Milinković & Maričić, 2022, Radford, 2011).

From Arithmetic to Algebra in the Development of Symbolic Language

The research by Christou et al. (2005) shows that the students' experience of letter signifiers in algebra is strongly influenced by their experience with numbers in arithmetic learning. In fact, a successful transition to algebra, which is based on solid arithmetic foundations, may also be useful in the problem-solving process (Akkan et al., 2011). Similar results were obtained by Sun et al. (2023), whose research shows that it is necessary to identify the elementary arithmetic content in the curricula on the basis of which algebraic symbolism is to be introduced. The development of students' early algebraic thinking follows a route from "arithmetic thinking" over "generalized algebraic thinking"

to “symbolic algebraic thinking”. Therefore, it can be said that “while [...] mathematical algebraic symbolization is a generalization of arithmetic, cognitively it is more accurate to say [that] algebra symbolization is the articulation of arithmetic” (Heffernan & Koedinger, 2022, p. 484).

However, it must be noted that one of the reasons for misinterpreting the concepts of unknown and variable, as well as symbols used to represent them, lies in the fact that letters are also used in arithmetic, although in a completely different manner. Letter signifiers in arithmetic are mostly abbreviations of the names of objects, directly referring to the concepts themselves, while the role of letters in algebra is entirely different. Such understanding and such use of letters on the students’ part can lead to errors and a deeper misunderstanding of symbols as signs for variables. When it comes to solving algebraic problems and developing algebraic thinking, two important stages can be identified: 1) the transition from verbal to symbolic notation, 2) the transition from arithmetic to algebra. Each one of them is conditioned by specific relations that exist among the students’ thinking, the teaching process and the characteristics of algebra (Milinković i Maričić, 2022).

When the meaning of a symbol is taken into consideration, Kieran (1981) believes that the process is directly related to the formation of the concept of equation. That way, starting from arithmetic and Bruner’s modes of representation (enactive, iconic and symbolic), students can intuitively understand the meaning of equivalence and then gradually transform it into the understanding of a proper form of equation. This way, students’ understanding of algebra would become anchored in arithmetic. This process would start from arithmetic equivalence where the first step would involve using a finger to hide one of the numbers and then replacing the finger with one of the placeholders, so that the whole process would end in introducing a symbol as a sign for the unknown. This way, the letter hiding the number becomes the unknown – the term which closely corresponds to the idea of the hidden number which can be determined.

If the teaching of algebra is taken into consideration in addition to all of the above, the following question can be asked: *Which method should be used in introducing letters and algebraic notation in early mathematics education and how to make sure that the process follows a natural route?* To answer this question, one must take the complex and abstract nature of algebraic concepts into account, as well as the fact that students in the earlier grades of elementary school have difficulty in understanding the concepts of unknown and variable (Akgün & Özdemir, 2006; Carraher et al., 2008; Stephens et al., 2015) and also in using symbols to represent them (Booth, 1988; MacGregor & Stacey, 1997; McNeil et al., 2010; Specht, 2005).

The problem students at this age are asked to solve should be related to the development of the concept of symbol in algebraic notation in the form of:

- the unknown (the hidden number, the number whose value is to be recovered, as an unknown, but fixed value – equations);
- the variable (a set of numbers which meet specific requirements for functional dependency – inequalities, functions, sequences);

- “the free variable (the symbol representing any number in a given set of numbers – generalization)” (Milinković i Maričić, 2022, p. 251).

Real-world Context as a Starting Point for Introducing Algebraic Symbolism

The process of forming the concepts of variable and unknown, as well as symbols used to represent them, lies in the unity of meaning and sign, i.e. the unity of the concept and the symbol that stands for the concept. In that process, the context as a carrier of the concept meaning plays a decisive role. This context, expressed by means of ordinary language, helps make sense of generalization, thus clarifying such an abstract concept to the students. For this reason, the basis for the development of the concept of symbol and its meaning through the role of the unknown and variable must be set in real-life contexts as well as problems related to what students experience on a daily basis. Therefore, the importance of understanding letters in an algebraic expression is directly related to the context of the problem. Rystedt et al. (2016) believe that using diverse contexts and conversations about them can facilitate the transition from primitive to more advanced interpretations of symbols, where the context plays an important role in expressing the relations among quantities. On the other hand, according to Radford (2002), verbal language allows people to create texts which correspond to the described actions and are equipped with a range of possibilities for clarifying and adequately representing the meanings, which is not the case with algebraic notation. Constructing a symbolic notation for a textual problem requires a different approach, since the problem situation develops in the way it is being read, i.e., from left to right, while the starting point in a symbolic notation does not have a fixed position. In a symbolic notation, the order of writing an expression is completely different and depends on the very nature of the relations among quantities. For that reason, Ferrari (2006) believes that, in the problem-solving process, students should use context-specific abbreviations first, while these same abbreviations are later generalized, thus expressing the character of the unknown used in any problem. According to the same author, in that case, it depends both on the language competences of the students and their full engagement in achieving the activity goals.

According to Van Reeuwijk (2001), in many curricula, algebra topics are introduced very quickly, so that the students barely have time to develop an understanding of algebraic concepts. There is often no connection made with the existing non-formal knowledge of the students. For students, it is a meaningless representation and use of symbols. For these reasons, teaching of algebra should be based on the situations which are closely related to the students' personal experience and their non-formal education. These situations should be woven into arithmetic and into the context that is experientially close to the students and meaningful learning situations. On the other hand, students should be advised to use a variety of forms of visual and schematic representations in solving real-context problems, so as to be able to understand the relations and succeed in representing them (Milinković et al., 2022).

A real context is viewed as a situation that is experientially close to the students, thus being the starting point for the students in rediscovering mathematical truths. Accordingly, the goal of using real contexts is to create appropriate situations, which will enable the construction of the students' formal mathematical knowledge, that is, the use of symbols as signs for the unknown and variable. The basis for using such an approach in teaching lies in the fact that learning mathematics should have the characteristics of learners' cognitive growth. That is, it should not be viewed solely as a process of putting pieces of mathematical knowledge together. This way, the learning process is based on constructing mathematical knowledge and models on the basis of students' real-life experiences.

The problem expressed in the form of a real context may be an important motivating factor not only in developing the concept of variable, but also in introducing a symbol that represents it. Consider, for instance, the example given by Arcavi (1994), in which the students were presented with a problem in the form of a photograph showing a vehicle entering a tunnel with number "2.90" written on top of the entrance. The students were asked to interpret the meaning of the number. Some of the guesses were that the number refers to the weight of a passing vehicle, its width and height. Additionally, relevant measurement units were also discussed. The students eventually agreed that the sign could only refer to the "maximum height allowed for a vehicle to pass", listing allowable vehicle heights in addition. In the end, the students were asked to write that all down in a mathematical way. Introducing symbols in that way was related to one's understanding of a concrete situation, but on a deeper level it was also related to the meaning of the variable, which is one of the most important goals of this activity, since the signifier cannot exist without its' meaning nor can a meaning exist without a signifier (Radford, 2004).

This opinion is shared by Carraher et al. (2008) who believe that algebra classes in the early grades of primary school should be built on background contexts of the mathematical problems, gradually introducing formal notation and bringing all types of mathematical content closer together. For example, the authors placed two identical boxes of candies in front of the children. The students were told that the boxes contain the same number of candies. There were additional three candies placed on top of one of the boxes. The students were then assigned a task where they had to express the number of candies using symbols. A large number of the students tried to solve the problem by assigning a particular value to the unknown quantity, whereas the others tried to solve the problem by making use of drawings in order to mitigate the abstractness of the problem. From the perspective of algebra, there is only one correct solution to the problem, although, from a logical perspective, each solution expressing the relation where one of the boxes contains 3 candies more than the other box is correct. The results suggest that the students might be able to shift the focus from individual elements to sets of the elements and their interrelations. This way, a real context serves as the background for describing the relations among different physical quantities, which eventually leads to making generalizations in the form of formal representations, so that "the mathematical object is no longer the single case or value but more likely the relation, i.e. the functional relationship between two variables" (Carraher et al., 2008, p. 247).

Ordinary language makes it possible to make sense of generalization, convey information and supplement the context that is missing in algebraic notation. This is why the students' natural language and the problems expressed through real-life situations, which represent a good basis for understanding algebraic concepts and developing algebraic abilities, are the starting point for introducing the unknown and variable.

Modeling Realistic Situations as a Pathway to the Conceptual Development of Algebraic Symbolism

The first step in introducing and developing algebraic symbolization is the creation of a real-world context in which students can identify the problem, think about its solution and build a foundation for the gradual cognitive transition from concrete instances to an abstract, symbolic level. Realistic situations function as an initial stimulus that allows the abstract idea of a variable or an unknown to emerge from a student's experience. Consequently, this method ensures gradual mathematization (Freudenthal, 1991), in which a bridge is built through multiple levels of representation between everyday experience and the formal algebraic language. The framework for such learning can be represented through the following stages:

- (1) a real-life situation expressing an algebraic problem;
- (2) modeling of a real-life situation by using different ways of representing a problem;
- (3) translating a concept into the concrete field of referential algebraic language by using algebraic symbols and operations (Milinković & Maričić, 2022).

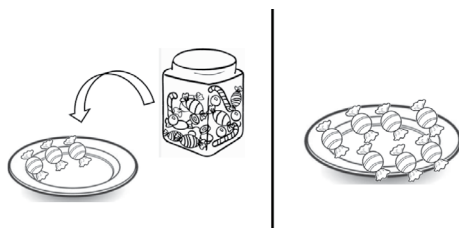
To illustrate the above mentioned learning stages, we will give a few examples of real-context problems, which may serve as a basis for introducing symbols as signs for the unknown and variable to the students in the early grades of elementary school.

Example 1

Picture 1

Example of a real-context problem

How many candies have been added to the plate?



Based on a problem expressed in the form of a real-life situation (Picture 1), the students can draw conclusions about the relations and amounts of candies in the problem. The main problem is related to being aware of the existence of an unknown number, so that the students are now in a position where they can make gradual transition to the field of formal algebraic notation by relying on an obvious example. Since the number of candies on the plate before and after adding candies on top of the box is obvious, it can be concluded that the number of candies added is not known. The formation of the concept of unknown number begins without using any symbols, so that it can also be mathematically represented as an equivalent to a “placeholder”, which in this sense represents an unknown addend:

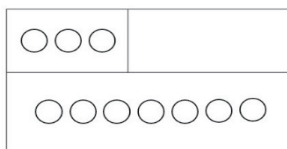
$$3 + \quad = 7$$

This way, the problem is reduced to the mathematical form which can be expressed through the following question: Which number should be added to 3 in order to obtain 7? Thus, a real-context problem serves as a basis for the transition to the language of formal algebra, while the process of solving the problem can be reduced to the students’ former experience in summing numbers to 10. The mentioned way of representation ($3 + \quad = 7$) enables students to perceive the structure of the expression and the concept of the unknown before the abstract symbol (x) is introduced, as particularly emphasized by Radford (2000) and Kieran (1981), who point out that these tasks facilitate the transition from arithmetic to algebraic thinking. According to them, *placeholder* tasks enable students to develop a sense of the unknown quantity within a concrete context, before formally adopting the symbolic language of algebra. Such tasks represent a step towards gradual symbolization, since, through the use of placeholders, students first understand the idea of an unknown value, then learn how to represent it using a letter symbol, and later to perform an operation with it. This way, placeholders function as a bridge between arithmetic and algebra, thus introducing students to a new way of thinking that involves abstraction and generalization.

The next step in the formation of the concept of unknown, as well as of the symbol used to represent it, can be based on pictures and ideographs, which depict somewhat more abstract forms (Picture 2).

Picture 2

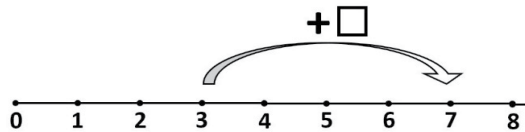
Modeling of a problem through an ideograph



Further distancing from the concrete situation marks the transition to the modeling of the situation on a number line (Picture 3).

Picture 3

Modeling of a problem on a number line



Using these models can largely mitigate the abstractness of algebraic notation, thus creating a basis for introducing the concept of an unknown number "x", as the number whose value can be determined. The problem expressed in the form of real-life situations and graphic representations, such as the one above, may serve as a basis for writing an equation in an exclusively algebraic form:

$$3 + h = 7$$

The solution to the new problem is following:

$$h = 4$$

Finally, the students conclude that the number of the candies added is 4. When it comes to verifying if the solution to the equation is correct, the task is to investigate whether the expression on the left-hand side is equal to the number on the right-hand side of the equation, that is:

$$3 + 4 = 7$$

$7 = 7$, which means that the solution is correct.

Example 2

Milica, the librarian, organizes a certain number of books on the shelves within a month. Milica organizes 120 books less than the librarian Petar. Write an expression which shows the number of books Petar organizes within a month.

Again, the problem-solving process starts with the analysis of a context-based problem and then enters into the field of abstract mathematics. The students, thinking about the relations that exist in the problem, can conclude that: if the librarian Milica organizes 120 books less than the librarian Petar within a month, it also means that the librarian Petar organizes 120 books more than the librarian Milica within a month. Based on this, as well as the fact that the number of books Milica organizes within a month is represented by an x , it can be concluded that the number of books Petar organizes within a month is $h + 120$. In thinking about mathematical relations, the students' thoughts are completely within the domain of abstract mathematics, separated from the real-world problem. This way, the relation between the meaning and the symbol used to represent it is established.

Example 3

Miloš scored a certain number of points in the test and passed it. On the second test, he scored 12 points more than in the first one. Does it necessarily mean that he also passed the second test? Why? How would you write the number of points Miloš scored in the second test in a mathematical way?

Given the data in this mathematical problem, we can say that there is a variable, that is, a value which is not precisely determined. In this case, it is the number of points Miloš scored in the first test. By analyzing the relations among the data given in the problem, the students can conclude that there is an unknown number of points in the first test and also that Miloš scored 12 points more than that in the second test. In addition, to be able to answer the question whether Miloš passed the second test, when thinking about relations, the students must also take into consideration the other unknown quantity, that being the number of points necessary to pass the test, so that it is impossible to give the correct answer to this question. When it comes to thinking about relations, the final step in the mathematization process is symbolization in which the relations between the unknown number of points in the first and second tests are expressed using symbols (in this case, the number of points Miloš scored in the first test: x ; the number of points Miloš scored in the second test: $x + 12$).

Through these concrete examples we wanted to present a method in which letter symbols can be introduced using real-context problems. By relying on real-life problems and the modeling processes, we tried to overcome the problem of understanding symbols which are inseparable from their meanings. This way, it is ensured that symbols and their meanings exist as a unity in the real context, thus supporting the construction of a new mathematical reality.

On the basis of these ideas, we wanted to investigate whether the above mentioned approach to introducing letters in algebra teaching contributes to the development of the ability of the correct understanding of symbols as signifiers for the unknown or variable in algebra content in the lower grades of primary school.

Methodological Framework

Research Sample

The research sample ($N = 257$) was drawn from the population of students in the fourth grade of primary school in the Republic of Serbia. In the research, we used an experimental method with parallel groups. The experimental group comprised the students from five classes of one primary school ($N = 130$), while the control group consisted of the students from five classes of two other schools ($N = 127$). The groups were homogenized in terms of the students' school achievement, social status, sex, and the homogeneity of groups was controlled by using an analysis of covariance.

Research Instruments

The technique used in the research was testing, and the research instrument was a test. For the purposes of our research, and according to the adopted research method, two equivalent test forms were designed: an initial test – to investigate the initial level of understanding of symbols as signs for the unknown and variable – and a final test – to determine the effects of the experimental program. The problems in the test expressed real situations or everyday life problems in which using symbols was important for understanding algebra content.

Test reliability was assessed by means of Cronbach's alpha as an indicator of the reliability of our tests (the initial and final tests). It attempts to measure the internal consistency of the scale, that is, of its constituent items (Table 1).

Table 1

Values of Cronbach's alpha coefficient for the tests

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Initial test	.795	.885	10
Final test	.813	.926	10

Note. N – number of items; Cronbach's Alpha – internal consistency reliability coefficient; values above 0.7 indicate acceptable reliability.

The values of Cronbach's alpha coefficient (Table 1) for the initial and final tests were found to be greater than 0.7, which is considered an acceptable and desirable level of reliability by Pallant (2017).

At the beginning of the experiment, we performed initial testing to determine the level of understanding of symbols as signifiers for unknowns and variables in both groups. Following the initial testing, and in accordance with the contextual approach, we introduced the experimental program into the work of the experimental group. Both tests contained the problems aimed to test the level of understanding of symbols as signs for the unknown and variable.

Procedure

Mathematics lessons in all groups were conducted in accordance with the regular curriculum prescribed by the Ministry of Education of the Republic of Serbia. The experimental program was implemented during regular mathematics classes over a period of three months and it consisted of 27 classes. The content covered by the research included: equations with addition, subtraction, multiplication and division; inequalities with addition and subtraction; and the functional dependence between the results and the elements of the arithmetic operations of addition, subtraction, multiplication and division. This method includes all types of content in which a symbol represents an unknown, a variable, or a free variable.

The experimental group followed the program containing specially designed lessons in which, by modeling real contexts, the students were taught algebra content referring to the correct understanding of symbols as signs for unknowns and variables.. The lesson began by situating the problem in a real-life context, where the students were encouraged to identify the unknown quantities and practice representing those quantities by means of algebraic notation. The students then tried to solve a few such problems with the help of the teacher, using the same methodology. After working on the problem together, the students tried to solve the problems from the textbook on their own, by using the adopted terminology and algebraic notation for solving the problem, eventually verifying the correctness of the results.

The program was directly focused on: (a) using real-world contexts for developing algebraic concepts; (b) understanding the relationship between verbal representations and algebraic expressions; (c) structural understanding of letter expressions as mathematical objects; and (d) modeling real-life situations through the use of various representations (verbal, didactic tools, diagrams or pictures, symbolic). The teachers, who were responsible for implementing the program in the experimental group, completed a five-hour training program before the experimental phase started. The training program was organized by the research team and included methodological instructions necessary for the implementation and use of the prepared materials. During the implementation, the teaching content was delivered in close collaboration with the researchers, which enabled greater consistency of procedures and also increased the reliability of the obtained results.

The control group followed the mathematics curriculum that is based on teacher-centered instruction, which was not based on real-life situations and modeling, but instead, on the frameworks provided in the textbook. Both the experimental and control groups used the same mathematics textbooks. A typical lesson involved working on examples through explanations, solving problems on the blackboard and individual student problem-solving. The emphasis was on the procedure of problem-solving and correct symbolic manipulation, rather than on the procedure of modeling or using multiple representations in the learning and problem-solving process. The use of the didactic materials, diagrams and tasks, which require translating real-world contexts into algebraic expressions, was either limited or absent. The work in the control group primarily focused on problem-solving procedures (e.g., correctly solving equations) rather than on conceptual understanding and knowledge transfer. The teachers in the control group did not receive any additional training apart from their regular professional development in school.

Data Analysis and Processing

The obtained results were analyzed both quantitatively and qualitatively. In the quantitative analysis of the collected data, we used an analysis of variance and analysis of covariance in order to determine possible statistically significant differences between the achievements of each group. In the qualitative analysis, the solutions from the final

test were analyzed, with particular attention given to the analysis of the procedures and methods used to solve the problems. The study is focused especially on the way the students approached problem-solving and the errors they made during the process. The qualitative analysis included the solutions of all students, regardless of the group they belonged to.

Results and Discussion

The Effects of a Contextual Approach on the Understanding of Algebraic Symbolism

The results of the initial testing (Table 2) show that the experimental group ($M = 4.62$; $SD = 3.07$) has scored almost the same number of points as the control group ($M = 4.56$; $SD = 2.94$). The analysis of variance ($F(1, 255) = .023$, $p = .881$) of the results in the initial testing shows that there are no statistically significant differences between the experimental and control groups in the correct understanding of symbols in early algebra (Table 3). The values of the Levene's test for the initial testing ($F(1, 255) = .074$; $p = .786$) (Table 3) show that the assumption of the equality of variances is not violated. Therefore, the analysis of these results' variance can be considered reliable.

Table 2

Achievements of the students from the experimental and control groups regarding the ability to correctly understand the use of symbols in algebra in the initial and final testing

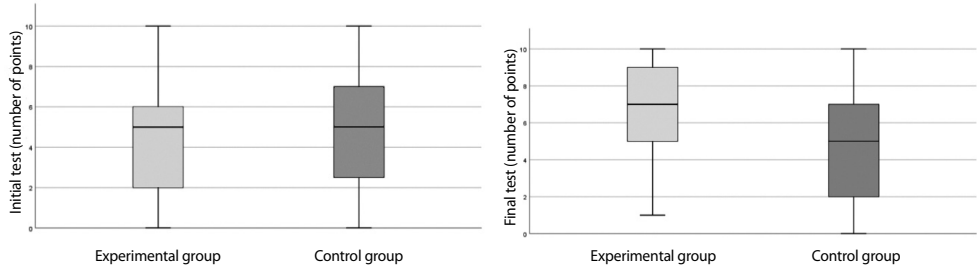
		<i>N</i>	<i>M</i>	<i>SD</i>
Initial test	Experimental group	130	4.62	3.07
	Control group	127	4.56	2.94
Final test	Experimental group	130	6.89	2.41
	Control group	127	4.60	2.83

Note. *N* – number of participants; *M* – arithmetic mean; *SD* – standard deviation.

The results of the final testing show that the experimental group has achieved better results ($M = 6.89$; $SD = 2.41$) than the control group ($M = 4.60$; $SD = 2.83$), on average, with regard to the measured ability (Table 1). In contrast to the experimental group, the control group has scored almost the same average number of points as in the initial testing (Figure 1).

Figure 1

Achievements of the students from the experimental and control groups in the understanding of symbols in algebra



To determine the differences in the development of the ability to correctly understand symbols in algebra, we performed an analysis of variance. The values of Levene's test for the final testing ($F(1, 255) = 4.796$; $p = .209$) show that the assumption of the equality of variances is not violated either. Therefore, the analysis of these results' variance can be considered reliable.

Table 3

Analysis of variance in the initial and final testing of the ability to correctly understand symbols in algebra

		Levene Statistic	df1	df2	Sig.
Initial test		.074	1	255	.786
Final test		4.796	1	255	.209

		Sum of Squares	df	Mean Square	F	Sig.
Initial test	Between Groups	.204	1	.204	.023	.881
	Within Groups	2306.076	255	9.043		
	Total	2306.280	256			
Final test	Between Groups	338.031	1	338.031	48.837	.000
	Within Groups	1765.012	255	6.922		
	Total	2103.043	256			

Note. Levene Statistic – value of Levene's test for equality of variances; df – degrees of freedom; Sig. – significance level; F – Fisher's test value; Between/Within Groups – variance sources in ANOVA model.

The results of the analysis of variance in the final testing ($F(1, 255) = 48.837$; $p = .000$) show that there is a statistically significant difference between the control group's and the experimental group's achievements. The obtained results demonstrate that, statistically, under the influence of the experimental program, the students from the experimental group have significantly better results compared to those from the control group, considering the level of the ability of understanding the use of symbols in algebra correctly.

To make sure that the obtained results are reliable and not influenced by the possible non-homogeneity between the groups, we performed an analysis of covariance. This way, we wanted to investigate the effect of the experimental program, which is based on the principles of the contextual approach in teaching algebra, on the students' ability to understand the concept of symbol in algebra correctly. The value of the Levene's test ($F(1, 255) = 1.059$; $p = .305$) shows that the assumption of the equality of variances is not violated. Consequently, we can perform an analysis of covariance to determine the differences (Table 3).

Table 4

Levene's test of analysis of variance

Dependent Variable: Final measurement			
<i>F</i>	<i>df1</i>	<i>df2</i>	<i>Sig.</i>
1.059	1	255	.305

Note. *F* – value of the Fisher's test; *df₁* – degrees of freedom for the factor (between groups); *df₂* – degrees of freedom for the error; *Sig.* – level of statistical significance (p-value).

By analyzing covariance in the process of eliminating covariates (the results of the initial testing), we found statistically significant differences between the experimental and control groups in the final testing of the students' ability to understand symbols in algebra ($F(1, 254) = 117.010$; $p = .000$) (Table 4). This result indicates significant differences between the experimental and control groups in testing this ability. Partial eta squared value is .315, which indicates a large effect. This further implies that 31.5% of the variance in the final testing (of the ability to understand symbols) can be accounted for by the independent variable (i.e., the group – the implemented teaching method). If the effect of the covariates on the final testing is considered (the results of the final testing of the ability to understand symbols) and after the effect of the independent variable (i.e., the group) is eliminated, it can be concluded that there are also statistically significant differences ($F(1, 254) = 377.835$; $p = .000$). This implies that a contextual approach to learning contributed significantly to the development of the ability to understand symbols, irrespective of the student's prior knowledge. On the other hand, when controlling the effect of the independent variable (group), the results of the initial measurement – as a covariate – account for as much as 59.8% of the variance in the final achievement ($F(1, 254) = 377.835$; $p = .000$). This suggests that the initial level of knowledge is the strongest individual predictor of subsequent understanding of symbols in algebra. Therefore, although prior knowledge plays a dominant role in predicting success, a mode of instruction (contextual approach) also has a significant effect on the development of the ability to understand algebraic symbols.

Table 5

Analysis of covariance in the initial and final testing of the ability to correctly understand symbols in algebra

Dependent Variable: Final measurement						
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1393,502 ^a	2	696,751	249,421	0,000	0,663
Intercept	536,250	1	536,250	191,966	0,000	0,430
Initial measurement	1055,471	1	1055,471	377,835	0,000	0,598
Group	326,864	1	326,864	117,010	0,000	0,315
Error	709,541	254	2,793			
Total	10626,000	257				
Corrected Total	2103,043	256				

Note. Type III Sum of Squares – measure of variance; F – ratio of mean squares; Sig. – significance level; Partial Eta Squared – measure of effect size; R^2 – coefficient of determination.

Based on the analysis of the obtained results, we can conclude that teaching algebra in accordance with the principles of the contextual approach and real-life situations can positively influence the development of the students' ability to correctly understand symbols as signs for the unknown or variable. The results show that there are statistically significant differences between the two groups after the experiment is conducted, hence, it can be concluded that the contextual approach positively influences the correct understanding of symbols in algebra. A symbol represents an important concept in algebra and for that reason it is extremely important that this concept is correctly understood from the earliest age. Letter sign (symbol) is an important concept in early algebra which, in some way, as a sign, refers to algebra as a special branch of mathematics. A symbol has the power to reduce a signification and express complex and different laws in a simple way, thus facilitating communication. Through the present research, we showed that the teaching based on real-life contexts can have a positive effect on the students' correct understanding of the concept of symbols in algebra. In teaching algebra in the early grades of primary school, the concept of symbol (the letter used for representing the unknown and variable) is essentially related to other concepts such as equations, inequalities, sequences, formulae, etc. Regarding the teaching of mathematics, students often use symbols as signs in which the letter signifies the object it refers to, which may hinder the correct interpretation of letters used as symbols in early mathematics education (McNeil et al., 2010).

Contrary to these results, the analysis of the students' solutions in the present research shows that a certain number of the students used letters to represent objects or persons, but that such use of symbols did not hinder algebraic manipulations and that the students always managed to produce the correct solution to the problem. Contrary

to the results of the aforementioned studies in our research, the students used various interpretations as symbols for the unknown or variable, but they also manipulated them as standard algebraic symbols.

The obtained results are compatible with the findings of Stephens et al. (2015) who showed that the concepts of unknown and variable, as well as the symbols used to represent them, can be developed through an adequate approach and practice of algebraic skills using real-context problems. Therefore, the authors suggest that algebra education in the lower grades of primary school can alleviate the difficulties the students encounter in learning algebra in the higher grades of primary school. Based on the obtained data, we can conclude that the problem expressed in the form of a real-life context can facilitate the interpretation and understanding of the key concept and role of a symbol in mathematical equivalence or non-equivalence, equations or inequalities. In favor of these findings, the study of Blanton et al. (2017) even indicated some examples of the possibility for students in the first grade of primary school to be able to understand letters as symbols for the unknown and variable. The authors believe that even at such an early age, children can be taught to think in a more sophisticated way about variable quantities and to represent them using symbols. A key role in understanding the concept of variable and a symbol used to represent it should be played by different types of non-standard forms of representations, including the natural language. Our research resulted in similar findings, and we agree with these authors that long-term experience in using symbolic notation can also help develop the concept of variable, thus preventing possible problems related to the understanding of this concept. The study conducted by Rystedt et al. (2016) showed that 12-year-old students were capable of using a wealth of different contextual resources. The students managed to use a wide range of letter interpretations as symbols for the unknown or variable, but they were also somewhat uncertain in their choice. The research also showed that the dialogue among children was most helpful in the transition from a primitive to a more advanced interpretation of symbols, which confirms the significance of real-life situations, as well as the power of everyday life words and speech.

Our results are similar to those obtained by Radford (2022) in his research where, instead of using problems involving open arithmetic equivalence or equations, story-problems were used through visual interpretations, to form the concepts of equation, equal sign and variable. The stories were framed in narratives, allowing the teacher and the students to create equations using contextual meanings. The research indicated better results in the relational understanding of the equated parts, as well as a deeper understanding of mathematical operations, which play a key role in simplifying equations.

Our research has confirmed the results of other studies, such as the one by Van Reeuwijk (2001) where the results indicated the students' need for using various skills and manipulating tools in the process of solving equations. The learning process begins with the real-context problem in solving of which the students feel the need to independently develop strategies that will help them master formal algebraic notation and consequently the correct use of symbols in algebra.

Typical Student Errors in Understanding Algebraic Symbolism

Through the analysis of the students' works, we aimed to consider and identify the typical errors the students made in solving the problems on the test and to gain deeper insight into the essence of children's understanding of a letter as a signifier for the unknown and the variable in an algebraic expression. If the way in which the student understands the relationships between variables is taken into consideration, the analysis of the students' works showed that the majority of the errors were related to using a letter as a sign for the variable in an algebraic expression, which will be illustrated through the analysis of Example 1 below.

Example 1 *Maja has x dinars, which is 3000 dinars less than Svetlana. Circle the expression that correctly expresses the amount of money Svetlana has.*

a) $x : 3000$

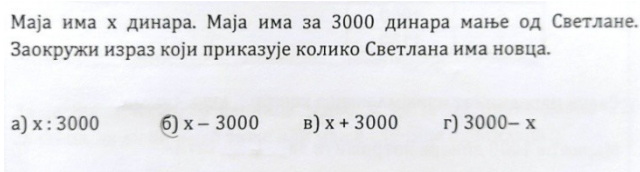
b) $x - 3000$

c) $x + 3000$

d) $3000 - x$

Figure 1.

Solution to the problem with Maja and Svetlana



A certain number of the students chose the solution under b) (Figure 1). The reason for this may be the students' misunderstanding of the relation between the amounts of money Maja and Svetlana have. Namely, it concerns the so-called "reversal error", where the meaning of a symbol used as a variable in the problem is literally reversed. Similar results are obtained by Weinberg et al. (2016), who showed that the *reversal error* is caused by the incomplete understanding of symbols and the lack of understanding of the concepts of variable or unknown and the equal sign.

This type of error occurs due to an incomplete understanding of symbols, the unknown quantity or the equals sign. When the problems are presented in a real-world context which is closer to students' experience, it is more likely that they will develop a meaningful understanding of symbols and avoid making these typical errors. Thus, examination of the "reversal error" serves as an indicator of how an introduction of real-life situations can actually help to mitigate or overcome difficulties in symbolic reasoning.

Ferrari (2006), who believes that students' language competences should enable them to become aware of the transition to algebraic notation in their communication with other students, identified some of the requirements the students should meet in the early grades of primary school and in the transition to algebraic notation. It is

important that students fully and actively participate in non-mathematical activities as well, while the role of the teacher is of key importance in setting the students' goals and activities in the teaching process organized in such a way. The results obtained by Van Amerom (2002) showed that symbolization is difficult to develop in the learning and teaching of algebra in the early grades of primary school. Specifically, her results showed that, although some of the students, influenced by problems based on real life, were capable of reasoning about the unknowns, their notation remained at the level of arithmetic. The same study showed that even mathematically gifted students who are very successful in algebraic reasoning have a poorly developed ability of symbolization. On the other hand, studies also show that the students in the higher grades of primary school (the ninth grade) are able to understand and use algebraic visual representations when asked to do so, but that in explaining equations and inequalities they rely on the standard algorithms, which is associated with advanced algebraic reasoning (Ünal et al., 2023).

The analysis of students' errors in using symbols as representations of the unknown or the variable aligns with the aim of the study, since such errors offer valuable insight into the level of understanding and in the ways in which students interpret algebraic symbols. Errors are not perceived merely as mistakes, but they serve as important indicators of the thinking process and the typical difficulties students encounter in early algebra. In this sense, the analysis of these errors provides a clearer view of the differences between the control and experimental groups, as well as of the effects of the applied approach on the development of symbolic competence.

We will also analyze some examples of errors characteristic of the use of symbols as signs for the unknown or variable that were recorded in the solutions produced by some of the students from the control group in the final testing. In Example 2 below, we show a few most common errors in the students' solutions to the problems which asked them to use symbols for the unknown or variable. The students were given the following problem to solve (Example 2).

Example 2. *Bojana and Marko have the same amount of money, each in their own piggy bank. Bojana has another 200 dinars in her hand.*

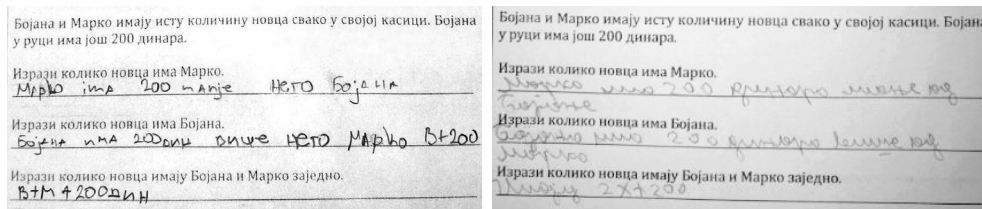
Write an expression showing how much money Marko has. _____

Write an expression showing how much money Bojana has. _____

Write an expression showing how much money Bojana and Marko have. _____

Figure 2 shows some of the typical errors made by the students in solving the problem.

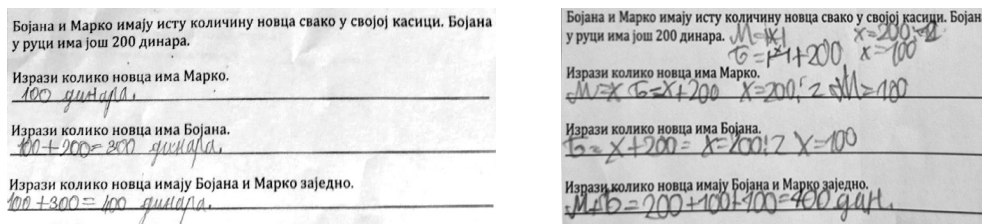
Figure 2.

Solution to the problem with Bojana and Marko

In the above mentioned solutions to Pictures 2, it can be observed that the student is not able to use a symbol as a sign for Marko's and Bojana's unknown amounts of money. In these examples, the students used words to express the amount of money each child has. Therefore, the students were in a situation where they either ignored or discarded variables. Instead, they used words by means of which they tried to determine and express the relations existing in the problem. The need for expressing generalizations and mathematical truths through words, prior to the introduction of algebraic notation, was also highlighted by Russell et al. (2011). The students used symbols as signs for the unknown amount of money only in the example referring to the amount of money Bojana and Marko have together. Similar errors in the students' solutions were also reported in the study by Stephens et al. (2015), which was similar in character to our research.

In addition, a certain number of the students felt the need to completely avoid using the unknown in the process of solving the problem, and, instead of using symbols, assigned particular values to the unknowns (Figure 3).

Figure 3.

Solution to the problem with Bojana and Marko

Being unable to understand the concept of unknown, the students avoided using algebraic notation in writing expressions. Contrary to that, some students thought it was better to provide an arbitrary, but known value in order to meet the problem's requirements. Generally speaking, the problem solved in this way results in the solution that is empirically correct, but is expressed by means of concrete numbers, without any generalizations. Similarly, in the study by Carraher et al. (2008), a number of the students avoided

using variables in the solution, by instead assigning an arbitrary value to the unknown amount. Some research studies, such as the one by Stacey & MacGregor (1999), show that even students in the higher grades tend to solve the problem in an arithmetic way, rather than by using symbols (algebraic notation – equation). Similar results were also obtained by Zeljić (2014), who reports that the students tend to assign a numerical value to the variable, to ignore the variable, to treat a letter as a physical object, or to misunderstand the mathematical structure of the problem to which the variable refers to. In a similar manner, Özgeldi (2013) concluded that some of the students were not able to represent generalizations until they learned how to use the variable. Various conceptions of the variables can contribute to the understanding of generalizations. They include an empty space in the notation, a drawing or a scheme representing the variable or unknown in the students' first encounter with the concept of unknown or variable. Through representations, the students can improve their mathematical thinking by translating abstract concepts such as algebraic concepts into concrete ideas, using logical thinking (Goldin, 2020).

In his research, Radford (2018) concludes that the natural language, with its wide range of possibilities, can offer the quality semiotic material for producing contextual generalizations, but that it also has to recede into the background to allow a new cognitive form – symbolization – to take up its space. These contextual generalizations may be understood as an exemplary form of signifying which transforms into pure algebraic symbolization over time. The results of this research study have confirmed the aforementioned, since the students often used different types of iconic representations in the form of schemes or pictures in the transition to symbolic notation in order to simplify the observed relations and bring the problem situation closer to their own thinking.

Conclusion

On the basis of the results obtained herein, it can be concluded that the implemented contextual approach, which is based on real-life situations, can positively influence the students' ability to correctly understand symbols as signs for the variable or unknown. This fact is especially important if we consider the fact that symbol is one of the most significant concepts in algebra and also its significance for the acquisition of more abstract algebraic content later on. The value of one such approach, characterized by a high degree of obviousness, through the processes of the transition from lower to higher level of abstract thinking by modeling the situations, is primarily reflected in its efficiency. It is especially important to stress that adopting such an approach in mathematics education can lead to the development of more complex mathematical concepts, where symbolic notation becomes the basis for producing generalizations as well as for other branches of mathematics. In the Republic of Serbia, the curriculum for mathematics is designed in such a way as to support the integration of the algebraic content from the first grade of primary school by building on arithmetic foundations. Taking this fact into account, as well as the fact that the initial measurement indicated certain deficiencies in fourth-grade students' understanding of algebraic content, we can conclude that the learning model based on real-life situations and the mathematization process can be applied and should be applied.

For the development of algebraic thinking, it is of crucial importance that students understand and use letters as symbols for the unknown or variable, and the route to understanding their meanings can be through carefully selected content modeled in real-life contexts. Sfard and Linchevski (1994) therefore believe that the students, in their encounter with equations and inequalities, must be able to move between an operational approach, in which they focus on processes (represented by algebraic expressions) and a structural approach, in which they focus on abstract objects behind the symbols (Sfard & Linchevski, 1994). It is exactly this relation that reflects the significance of the contextual approach which allows the students' thoughts to travel between algebraic notation and real-life contexts at all times, in the process of which they can benefit from the model they build on their own during the learning process.

The data gathered from TIMSS assessments in the study by Jupri et al. (2014) indicated considerable difficulties in the students' algebra learning in many countries across the world. Major difficulties included the understanding of basic algebraic forms, and especially the function of the unknown and variable in algebraic expressions. In view of this fact, the results obtained in our research are all the more significant.

Based on the obtained results, it can be concluded that a significant advantage of the contextual approach lies in the fact that the contextual approach incorporates all modeling phases into the teaching process – understanding the real-life situation, transforming the situational model into a mathematical model, as well as gradually transitioning to formal algebraic notation. It is exactly the absence of these phases in the work with the students from the control group that explains the weaker results they achieved in proper understanding of the symbols. Unlike them, the students from the experimental group had the opportunity to approach the problem through a real-world context, to model it using various representations, and then to translate it into a symbolic form. This gradual transition from the real to the symbolic has contributed to a deeper understanding of the role of symbols in algebra.

A limitation of the present research refers to the fact that different teachers delivered instruction in the experimental and control groups, which might have influenced the outcomes regardless of the instructional approach applied. The research design would be methodologically stronger if multiple classes, functioning as experimental and control groups, were included in each school, thus reducing the influence of individual teaching styles. Future research could consider how to ensure that all student groups are treated more equally, that is, how to ensure that the control group enjoys the same benefits provided to the experimental group.

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Cross-Linguistic Influences in the Simultaneous Learning of French and English Among Algerian Primary School Third Graders

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Abstract *Multilingual reforms increasingly place young learners in classrooms where two new languages are taught concurrently. Yet little is known about how such contexts shape cross-linguistic influence (CLI) at the very start of formal instruction. This study examines Algerian Grade 3 pupils' simultaneous acquisition of French and English following the 2022 reform, which introduced English alongside French in primary schools. A mixed-methods design combined diagnostic tests with 372 pupils, questionnaires with 48 teachers and interviews with 60 parents to capture both transfer patterns and the conditions in which they arise. The findings show that CLI is systematic more often than random. Pupils consistently defaulted to French, producing predictable lexical (32%), phonological (28%), and orthographic (22%) transfers. These patterns reflected structural overlap between the languages but were also reinforced by the entrenched dominance of French language in Algerian education. Teachers frequently relied on French to formulate the instruction, while parents, lacking English competence, provided support mainly in French. The study advances theory by showing that CLI is not only cognitive but also socially conditioned. Pedagogically, it highlights the need for teacher training in multilingual methods and contrastive pedagogy, and on the policy level, it emphasizes that a symbolic promotion of English requires sustained investment in resources and teacher development.*

Keywords: *Cross-linguistic influence, early multilingual acquisition, French and English learning, Algerian primary education.*

Introduction

Multilingualism is becoming the norm in education, but research has hitherto largely centered on bilingual acquisition rather than the simultaneous learning of two foreign languages. Little is known about how young learners manage L2 and L3 acquisition in parallel, despite its distinct cognitive and pedagogical demands. This gap is especially critical

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in Algeria, where the 2022 reform introduced English alongside French in Grade 3, creating a novel and unprecedented context for early multilingual education in North Africa.

Existing theories of L2 and L3 acquisition converge on the expectation that CLI is inevitable when multiple languages are acquired together. While some models emphasize the role of comprehensible input and affective factors (Krashen, 1982), other theories, such as *Complex Dynamic Systems Theory* (De Bot et al., 2007; Larsen-Freeman, 2017), stress the interdependence of developing linguistic subsystems. Despite their differences, these approaches all predict that the transfer will emerge systematically across domains.

Empirical research has produced mixed findings. Some studies document facilitative transfer and cognitive reinforcement as a result (Cenoz, 2003; Maluch, 2017), but on the other hand, others point to certain interference or slower development due to existing competition for resources (Antunez Aguilar, 2022; Lara & Pillot-Loiseau, 2022; Vujović, 2022). Yet most of this work comes from European and Asian contexts (Kutsuki, 2016; Little & Kirwan, 2021; Zehetgruber, 2023), often involving bilingual children acquiring a third language. Therefore, empirical evidence from North Africa, and especially Algeria, remains extremely limited (Bouabdallah, 2022; Maraf & Osam, 2022; Meghaghi, 2011).

Algeria presents a distinctive sociolinguistic ecology. French maintains a long-standing role as the language of education and administration (Kerma, 2018), while English is positioned as the global language of science and opportunity (Maraf & Osam, 2022). For children, the exposure to both of the languages occurs against the backdrop where Arabic dialects, Modern Standard Arabic and Berber also circulate. The manner in which these intersecting hierarchies condition early learning has not yet been systematically investigated.

This study addresses that gap by examining how Algerian third-grade pupils acquire French and English simultaneously, with a particular focus on the patterns and mechanisms of CLI. Specifically, it seeks to identify the types of transfer errors which are most frequent, as well as how they vary across phonological, lexical, and orthographic domains, and how teachers and parents perceive them and respond to them. In doing so, the study contributes to ongoing debates about the following: the cognitive and linguistic mechanisms underlying early multilingual acquisition, the pedagogical challenges of implementing simultaneous L2/L3 instruction in resource-limited contexts, and the policy implications of Algeria's recent reform.

Accordingly, the research is guided by three central questions:

- (1) What are the most frequent patterns of cross-linguistic influence among Algerian third graders simultaneously learning French and English?
- (2) How do these patterns vary across the phonological, lexical, and orthographic domains?
- (3) How do teachers and parents perceive and respond to pupils' cross-linguistic influence in the classroom and at home?

Literature Review

The simultaneous acquisition of multiple languages in childhood has long intrigued scholars, particularly regarding the phenomenon of CLI. While bilingual development

often parallels monolingual trajectories (De Houwer, 2009), research consistently shows that managing two linguistic systems in parallel can produce distinctive deviations in phonology, morphology, syntax, and semantics (Paradis & Genesee, 1996; Serratrice, 2013). In Algeria, where French and English were introduced simultaneously in Grade 3 for the first time in 2022, these issues require special urgency.

A central theoretical framework is the structural overlap hypothesis, which predicts that CLI arises when two languages share partially overlapping structures at vulnerable grammatical interfaces (Hulk & Müller, 2000). Subsequent research, however, has emphasized that CLI is not limited to such overlap, but can also result from co-activation processes in bilingual speech (Kopečková et al., 2022; Nicoladis, 2006). These findings suggest that Algerian children are unlikely to compartmentalize French and English completely; there is a stronger likelihood that their productions are shaped by competing activations across codes.

Empirical studies of French–English bilingualism illustrate the complexity of CLI. In a longitudinal study of children aged 2-4 to 3-7, Hervé and Serratrice (2018) documented bidirectional CLI in determiner development: the use of determiner in English accelerated, but the one in French showed delays in plural and generic contexts. Similarly, Kopečková et al. (2022) demonstrated that CLI extends beyond morphosyntax into conceptual domains, such as motion event construal, where bilinguals adopt hybrid encoding strategies. At the phonological level, bilinguals show measurable cross-language influence in segmental timing and voicing. Studies of voice onset time confirm that phonetic categories in English–French bilinguals shift depending on language context, reflecting deep co-activation during speech planning (Caramazza et al., 1973; Flege 1987; Sundara et al., 2006).

Orthography and literacy also condition CLI. Research on biliteracy shows that while children can differentiate orthographic patterns in each language, cross-script interference remains common, highlighting the need for explicit teaching of cross-linguistic literacy (Schwartz et al., 2014). In classroom writing, lexical CLI manifests in creative loanwords and calques that reflect sociolinguistic hierarchies, with language prestige shaping the visibility of transfer (Ballinger, 2013).

Beyond bilingual contexts, studies of simultaneous L2 and L3 acquisition highlight how transfer trajectories depend on prior language experience, typological proximity and instructional quality. Early bilinguals often leverage representational resources from their existing languages when learning an additional one, but the outcomes of such learning hinge on input and pedagogical design (Flynn et al., 2004; Westergaard et al., 2017). These findings are especially relevant to Algeria, where English was introduced rapidly alongside French, without sustained teacher training or coherent cross-linguistic structuring (Saoudi, 2022).

Viewed as a whole, the literature presents an ambivalent picture. On one hand, CLI can be facilitative, enhancing metalinguistic awareness and encouraging flexible language use (Ballinger, 2015; Cook, 2003). On the other, when simultaneous instruction is introduced without adequate planning or resources, the transfer often appears as interference rather than facilitation. What remains underexplored - and what the present study addresses - is how these processes unfold in Algeria's Grade 3 classrooms, where the entrenched institutional status of French intersects with the rising global prestige of

English language. By examining both quantitative patterns of phonological, lexical, and orthographic transfers, as well as qualitative insights from teachers and parents, this study situates Algerian pupils' experiences within wider debates on whether CLI should be understood as a developmental obstacle or a resource for multilingual learning.

Methodology

Research Design

This study adopted a convergent parallel mixed-methods design, combining quantitative and qualitative approaches collected within the same school term. The quantitative strand consisted of diagnostic tests in French and English, designed to identify instances of CLI in pupils' speech and writing. The qualitative strand consisted of teacher questionnaires and parent interviews, which contextualized pupils' error patterns within broader pedagogical and familial environments. Collecting and analyzing both data types concurrently allowed for a triangulation, thereby strengthening the interpretive power of the study (Creswell & Plano Clark, 2018). Given the absence of prior large-scale research on simultaneous French–English learning in Algeria, the design was conceived as an exploratory first large-scale study in this national context, providing baseline evidence for future comparative and longitudinal research.

Research Site and Participants

Data were collected in twelve public primary schools in Batna city center between April 1 and May 8, 2025. This period was deliberately chosen because it fell outside trimester examination schedules, minimizing pressure on the pupils and the staff. By this point, Grade 3 pupils had received approximately eight months of formal instruction in both French and English, which provided a sufficient period of time for meaningful CLI patterns to emerge.

The pupil sample comprised two intact Grade 3 classes from each school, with class sizes ranging from 30 to 36 pupils. In total, 372 pupils aged eight to nine years participated. Children with diagnosed language or hearing disorders were excluded, not because their multilingual experiences were irrelevant, but because the study lacked the specialized equipment required to ensure equitable participation in the diagnostic tasks.

The teacher sample included all French and English teachers responsible for the participating classes ($N = 48$; 24 French, 24 English). They varied in age, training, and professional experience, thereby representing the diversity of primary school teachers in Batna.

The parent sample consisted of 60 participants, with five parents interviewed per school. To capture a range of perspectives, parents were purposively selected to represent children with high, medium, and low levels of CLI as measured in the diagnostic tests. The interviews were designed to provide complementary insights into home practices and parental attitudes rather than to function as primary data sources.

Data Collection Instruments

The diagnostic tests included two tasks per language: a pronunciation task and a vocabulary/orthography task. Each test comprised 20 items, yielding a total of 40 per pupil, distributed across phonological, lexical, and orthographic categories. The relatively short length was deliberate: it balanced sufficient coverage of core domains with the need for tasks to remain age-appropriate and feasible for Grade 3 pupils with limited attention spans.

The teacher questionnaire had three sections: (1) demographic and professional information, (2) Likert-scale items probing CLI perceptions CLI, observed patterns, and classroom strategies of the respondent and (3) open-ended questions inviting teachers to describe specific instances of interference and reflect on the adequacy of curricular materials.

The parent interviews were semi-structured and lasted approximately 30 minutes each. The interview guide included questions on (1) home language use, (2) attitudes toward French and English, (3) children's exposure outside school, and (4) parental involvement in homework and learning support.

Data analysis

Quantitative analysis was performed in SPSS. Descriptive statistics summarized mean error frequencies and distributions across phonological, lexical, and orthographic categories. Each identifiable transfer error counted as one point, ensuring consistency and transparency. An overall CLI index was calculated for each pupil by dividing total errors by total test items (40), producing a proportional score between 0 and 1. The subscores of the analysis were also calculated separately for phonological, lexical, and orthographic domains.

To examine predictors of CLI, multilevel modeling was conducted to account for the nested structure of the data (pupils within classes, classes within schools). This approach enabled analysis at both individual and school levels, identifying patterns beyond raw error frequencies.

Qualitative analysis followed Braun and Clarke's (2006) six-phase thematic framework. Teacher questionnaire responses and parent interview transcripts were coded inductively and then grouped into broader themes, such as "phonological confusion", "lexical dependence on French", and "parental prioritization of French". Thematic analysis allowed for nuanced interpretation of how CLI was perceived and managed by teachers and families.

Integration of findings occurred through joint display matrices that aligned quantitative results with qualitative insights. For example, pupils with high phonological CLI scores were compared with parental reports of limited English exposure at home and then, teacher accounts of lexical substitution were matched with corresponding diagnostic data. This integration provided a richer interpretive lens than either dataset could offer alone.

Validity and Reliability

Several measures ensured the rigor. Content validity of the diagnostic tests and interview protocols was established through expert review, by two applied linguistics specialists. A pilot administration with 20 pupils from a non-participating school confirmed the clarity and age-appropriateness of tasks.

Reliability of scoring was assured through double-coding. Twenty percent of test scripts were independently scored by two trained EFL doctoral candidates, yielding Cohen’s kappa values above 0.80 for all categories - indicating strong inter-rater reliability. The use of proportional CLI indicates standardized results across pupils, while the inclusion of domain-specific subscores enhanced the diagnostic precision.

Triangulation across data sources-tests, teacher questionnaires and parent interviews-further strengthened the credibility of findings. The research team maintained reflexive field notes, which documented potential biases and informed interpretive decisions.

Ethical Considerations

Ethical approval was obtained from the institutional research ethics committee, alongside authorization from the Batna Directorate of Education and the school principals. Written informed consent was secured from parents, and verbal assent was sought from pupils in age-appropriate language. Participation was voluntary, and pupils could withdraw at any stage. Confidentiality was preserved through anonymized identifiers. Pupils with diagnosed language or hearing disorders were excluded solely for methodological reasons, as the study lacked specialized support tools to ensure fairness under testing conditions.

Analysis

Overall CLI Index

The overall CLI index is 0.27, meaning that more than one in four responses showed transfer on average.

Table 1
Overall CLI Scores by Domain

Domain	Mean Errors (out of 40)	CLI Index (Proportion)	Percentage of Responses Affected
Phonological	3.2	0.28	28%
Lexical	4.1	0.32	32%
Orthographic	3.3	0.22	22%
Overall	10.6	0.27	27%

Lexical transfer was the most frequent (32%), followed by phonological (28%) and orthographic (22%) transfers. This confirms that children rely heavily on vocabulary similarities or substitutions when learning both French and English, while orthographic and phonological interference reflect partial mastery of sound–symbol correspondences.

Phonological Transfer

Pupils' pronunciation showed systematic transfer across the two languages. Table 2 illustrates some instances.

Table 2
Phonological Transfer Errors

Target Word	Expected Pronunciation	Common Error	Influence Source
chocolat (Fr)	/ʃɔkɔla/	"choklat" (/tʃ/)	English initial /tʃ/
school (En)	/sku:l/	"esku:l"	French syllable epenthesis
orange (Fr)	/ɔʁɑ̃ʒ/	/ɔ:rændʒ/	English pronunciation
three (En)	/θri:/	"trée" (/tʁi:/)	French substitution for /θ/
teacher (En)	/ˈti:tʃə/	"tishair"	French orthographic transfer
merci (Fr)	/mɛʁsi/	"mersi"	English /ɹ/
papa (Fr)	/papa/	"phapa"	English aspiration

Phonological CLI reflects both structural gaps (absence of /θ/ in French leading to "trée" for three) and perceptual habits (English aspirated /p/ influencing French papa). Errors such as teacher → "tishair" also reveal grapheme-to-sound transfer, where pupils project French spelling conventions onto English pronunciation.

Lexical Transfer

Lexical errors dominated across tasks. Table 3 illustrates some instances.

Table 3
Lexical Transfer Errors

Target Item	Correct Response	Common Error	Izvor uticaja
dog (En)	dog	chien	French substitution
house (En)	house	maison	French substitution
apple (En)	apple	pomme	French substitution
mother (En)	mother	maman	French substitution
livre (Fr)	book	library	English false cognate
stylo (Fr)	stylo	pen	English substitution
lundi (Fr)	lundi	Monday (misused in French context)	English borrowing

Lexical transfer often reflects strategic borrowing: pupils use whichever lexicon feels more accessible. The reliance on French for English words (pomme for apple, maman for mother) highlights French’s dominant status in the school environment. False cognates such as livre/library demonstrate that even slightly more advanced items create systematic confusion.

Orthographic Transfer

Orthographic errors revealed children’s reliance on visual cues and phonetic approximations.

Table 4
Orthographic Transfer Errors

Target Word	Correct Form	Common Error	Influence Source
blue (En)	Blue	bleu	French spelling
école (Fr)	École	ecole	English omission of accents
school (En)	School	schol / école	French influence
garçon (Fr)	Garçon	garson	English phonetic spelling
friend (En)	Friend	frend	French phoneme-grapheme
maître (Fr)	Maître	maitre	English simplification
red (En)	Red	rède	French orthography

Orthographic transfer illustrates that children project rules from the familiar code. For instance, garçon → “garson” shows the elimination of the cedilla through English phonetic approximation, while friend → “frend” reflects spelling simplification influenced by French phonology. These errors confirm parents’ reports that pupils often copy words visually or spell them “as they sound,” rather than internalizing orthographic rules.

Quantitative Findings from Teacher Questionnaires

Table 5
Teachers’ Perceptions of CLI

	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
Pupils frequently confuse French and English sounds.	45	38	10	5	2
Lexical interference is the most serious difficulty.	52	35	8	5	0

	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
Pupils' home environment influences their CLI.	48	40	7	5	0
Simultaneous teaching of French and English is too demanding for Grade 3.	41	37	12	8	2
Teachers are adequately trained to handle CLI.	5	15	18	40	22

The quantitative questionnaire results demonstrate that teachers strongly perceive lexical interference as the most serious challenge (85% agreement), followed by phonological confusion. However, their open responses add rich detail that contextualizes these numbers, showing exactly how CLI surfaces in their classrooms.

Qualitative Insights from Teacher Questionnaires

Table 6

Themes from Teachers' Questionnaires

Theme	Frequency	Example Quotes
Phonological Confusion	34 teachers	"They always say 'choklat' for chocolat and 'trée' for three. They don't know the sound /θ/, so they replace it with /tʁ/." (French teacher, 12 yrs exp.) "In English class, many pronounce chair as 'shair' with the French /ʃ/. Even when corrected, the confusion returns." (English teacher, 7 yrs exp.)
Lexical Dependence on French	31 teachers	"When they don't know the word in English, they automatically switch to French. For example, they say 'pomme' instead of apple or 'maman' instead of mother." (English teacher, 4 yrs exp.) "It happens also in French class: pupils write 'blue' in place of bleu. They are mixing without even noticing." (French teacher, 15 yrs exp.)
Lack of Training	29 teachers	"We were not trained to anticipate such systematic interference. We improvise, but when they write 'garson' instead of garçon or 'frend' instead of friend, I am not sure how to correct it effectively." (French teacher, 9 yrs exp.)
Curriculum Pressure	26 teachers	"It is too heavy for Grade 3. They are still mastering reading in Arabic and suddenly they have to handle French and English together. That is why we see mistakes like 'Monday' used in a French sentence, or 'house' replaced with maison." (English teacher, 11 yrs exp.)

Teachers' testimonies vividly confirm the patterns observed in the diagnostic tests. Their references to specific examples (pomme/apple, maman/mother, garson/garçon) reinforce the claim that lexical and orthographic interference is not occasional but sys-

tematic. Teachers also consistently noted that their own training was inadequate for dealing with the demands of early multilingual instruction, which exacerbates the persistence of CLI.

Parent Interviews

Table 7
Themes from Parents' Interviews

Theme	Frequency	Example Quotes
Priority of French	41 parents	"I help him with French homework every day, but with English I cannot. So when he has to say 'apple,' he says 'pomme.'" (Mother, secondary school graduate). "For exams we focus on French. He mixes English words, but it is French that matters more." (Father, clerk).
Limited English Exposure	38 parents	"At home there is no English. He watches cartoons, but mostly in French or Arabic. That is why he says 'maman' instead of mother." (Mother, homemaker).
Positive Attitudes to English	46 parents	"I tell my daughter that English is important for her future. But when she writes 'frend' instead of friend, I cannot correct her because I don't know the rules." (Father, university teacher).
Visual/Copying Strategies	29 parents	"He copies exactly from the book, but he does not notice accents. For 'école' he always writes 'ecole.'" (Mother, primary school graduate). "She spelled 'garçon' as 'garson' and said, 'But teacher wrote it like this!' She just copied without thinking." (Father, factory worker).

Parents' accounts reinforce the sociolinguistic imbalance between French and English in the home environment. French is prioritized because it is exam-relevant, while English is aspirational but unsupported. The examples they provide (apple/pomme, maman/mother, friend/frend, garçon/garson) closely mirror the diagnostic results, suggesting strong convergence between the two strands of data. Parents' acknowledgment of copying strategies also validates teachers' concerns that pupils learn visually rather than through rule-based mastery.

Discussion

The aim of this study was to investigate how CLI manifests in Algerian Grade 3 pupils learning French and English simultaneously, and to interpret the findings within broader debates in multilingual education. By combining diagnostic testing, teacher questionnaires and parent interviews, the study demonstrated that CLI is both systematic and contextually embedded.

Systematicity and Predictability of CLI

The results revealed that CLI is not random, or occasional but a systematic and predictable strategy employed by learners as they navigate unfamiliar linguistic terrain. Pupils consistently substituted French words for English equivalents (pomme/apple; maman/mother; chien/dog), mispronounced English sounds absent in French (three → “trée”) and transferred orthographic conventions across languages (garçon → “garson”). Such patterns echo Hulk and Müller’s (2000) claim that the transfer is triggered at structural overlaps or at points of vulnerability. Yet, the evidence here goes further: the transfer also functions as a coping mechanism in situations of communicative uncertainty, showing that young learners actively mobilize the resources of their stronger language to bridge gaps in the weaker one.

This systematicity underscores the need to reconsider CLI not as random “confusion” but as a developmental strategy of multilingual meaning-making. The predictability of these errors further highlights their diagnostic potential: by anticipating likely transfer points, teachers can choose designing targeted instruction rather than treating each error as an isolated incident.

Lexical Transfer as a Dominant Strategy

Lexical transfer emerged as the most prevalent domain of CLI (32%). Pupils systematically relied on French vocabulary when English forms were inaccessible, while teachers reported occasionally reinforcing this reliance by using French constructing, and parents admitted focusing almost exclusively on French homework. These findings align with Ballinger’s (2013; 2015) observation that a vocabulary is the most vulnerable domain in bilingual contexts. What is novel here is that such patterns were observed after only eight months of instruction, suggesting that lexical transfer is not a later developmental accident but a core feature of early simultaneous bilingual acquisition, particularly when one language holds institutional and social dominance.

Seen through Cook’s (2003) lens of “multicompetence,” lexical CLI may not be viewed solely as an error but as evidence of pupils’ flexible mobilization of available resources. The challenge for pedagogy is therefore not to suppress transfer altogether but to raise awareness and to harness it for contrastive learning, thus guiding learners to recognize similarities and differences explicitly.

Phonological Interference and Input Deficits

Phonological transfer (28%) reflected both structural gaps and environmental limitations. The substitution of /tʁ/ for English /θ/ in three exemplifies how learners replace unfamiliar sounds with the nearest available phoneme, confirming the findings of Sundara et al. (2006). However, these substitutions were not merely developmental: they were amplified by scarcity of authentic English input outside school and teachers’ limited phonetic training. Parents reported that English language was absent from daily home

life, and teachers acknowledged struggling to correct persistent pronunciation errors effectively. These results resonate with Saoudi (2022) critique of Algeria's language policy, which introduced English into the primary curriculum without sufficient attention to teacher preparation or exposure resources.

Thus, phonological CLI here is best understood as the product of both linguistic structure and sociolinguistic ecology. Without increased access to authentic input and systematic phonological instruction, such errors are more likely to fossilize than fade.

Orthographic Transfer and Surface-Level Learning

Orthographic transfer (22%) revealed pupils' reliance on surface-level strategies, such as visual copying and phonetic approximation. Errors like blue → bleu, garçon → "garson," and friend → "frend" illustrate how children map words across languages using superficial similarity. Teachers complained that pupils "copy without thinking," while parents noticed the omission of diacritics (école → ecole) and Frenchification of English (red → "rède") during their observation. These findings confirm Ballinger's (2015) observation that multilingual children often prioritize visual forms over rule-based spelling.

In Algeria, this tendency is compounded by the fact that children are simultaneously acquiring literacy in Arabic. Managing three writing systems — Arabic, French, and English — imposes heavy cognitive demands on learners, increasing their reliance on short-term copying strategies. Orthographic CLI, therefore, reflects not only cross-language interference but also the pressures of early multiliteracy acquisition.

CLI as a Product of the Algerian Educational Ecology

Perhaps the most significant contribution of this study is its demonstration that CLI must be situated within the educational ecology of the Algerian classroom. French enjoys a privileged position as the established foreign language, reinforced by exam requirements, curricular history, as well as parental competence. English language, while symbolically powerful, remains weakly supported: parents lack competence to provide assistance, teachers lack specialized preparation and authentic resources are scarce.

This imbalance explains why pupils consistently default to French when uncertain. In other words, CLI here is not only psycholinguistically predictable but also sociolinguistically conditioned. Pupils' systematic recourse to French illustrates how transfer patterns are shaped as much by language hierarchies as by structural overlap. This finding not only extends Saoudi's (2022) critique of Algerian multilingual reforms but also nuances Hulk and Müller's (2000) structuralist model by showing that CLI is mediated by contextual asymmetries of power and support.

Implications for Theory and Practice

The findings carry important implications for both theory and practice. Theoretically, they suggest that models of CLI must move beyond merely structural explanations and

account for contextual triggers, including language hierarchies, exposure asymmetries and teaching practices. In this sense, CLI emerges as a phenomenon which is simultaneously cognitive, social, and pedagogical. Practically, the results highlight the urgent need for teacher preparation programs that explicitly address phonological awareness, multilingual pedagogy as well as contrastive approaches to French and English. Curricular design should create structured opportunities for learners to reflect on similarities and differences across the two languages, converting the transfer into a conscious learning tool rather than an unconscious crutch. Even with limited English competence, parents should be supported through accessible resources that enable them to reinforce basic exposure at home, while policymakers must recognize that symbolic promotion of English will remain ineffective unless it is matched with sustained investment in teacher development and authentic input.

Limitations and Suggestions for Future Research

Despite its contributions, the study has limitations that must be acknowledged. The sample, although sizeable, was restricted to twelve schools in Batna city center. Rural areas, where exposure to French and English may differ significantly, were not represented, limiting the generalizability of findings. Furthermore, while the diagnostic instruments were carefully designed, they captured only phonological, lexical, and orthographic domains, leaving morphosyntactic and pragmatic transfer unexplored. These dimensions may reveal different patterns of CLI, particularly given the structural contrasts between Arabic, French, and English.

The study also relied on relatively short parent interviews, which provided valuable but limited snapshots of home language practices. Richer ethnographic or longitudinal designs could illuminate how parental attitudes and support strategies evolve over time, and how these, in turn, shape the trajectory of CLI. Similarly, while teacher questionnaires revealed significant concerns about training and preparedness, classroom observations could provide more direct evidence of how pedagogical practices interact with transfer in real time.

Future research should therefore adopt longitudinal and multi-site designs that follow pupils across urban and rural contexts, incorporate classroom observation, and extend the analysis to morphosyntax and pragmatics. Comparative work across North Africa could further clarify whether the patterns observed here are specific to Algeria's French-dominant ecology or part of a broader regional trend. Finally, intervention studies testing specific pedagogical strategies — such as phonological training, contrastive instruction, or parental involvement initiatives — would provide practical evidence for reducing unproductive transfer while leveraging its pedagogical potential.

Conclusion

This study demonstrates that cross-linguistic influence is an intrinsic and systematic feature of Algerian pupils' simultaneous acquisition of French and English languages.

Crucially, it shows that transfer is not simply the result of structural overlap but is also decisively shaped by the sociolinguistic ecology in which learning occurs. Pupils' reliance on French across lexical, phonological, and orthographic domains reflects both cognitive strategies and the entrenched dominance of French language within Algeria's educational system.

The present study further demonstrates that CLI in Algeria is both cognitively inevitable and socially conditioned. This insight advances international debates on multilingual acquisition by demonstrating that the models of transfer must integrate language hierarchies and exposure asymmetries alongside psycholinguistic mechanisms. For practice and policy, the findings underline that Algeria's language reforms will only succeed if the transfer is modified from a liability into a resource. This requires equipping teachers with multilingual pedagogical strategies, supplying authentic input in both French and English languages, and supporting parents in reinforcing English at home. In short, the success of Algeria's educational reforms depends not on eliminating transfer but on harnessing it. When CLI is recognized as a predictable and adaptive strategy, it can be guided to deepen pupils' multilingual competence rather than reinforce existing linguistic inequalities.

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Appendices

Appendix A: Diagnostic Test Instruments

A.1 Pronunciation Task (Sample Items)

Pupils were asked to read aloud the following words. Items were selected to reflect common cross-linguistic interference (CLI) points.

French: chocolat, merci, papa, orange, école

English: school, three, teacher, friend, red

Each list contained 20 items per language (40 in total).

A.2 Vocabulary/Orthography Task (Sample Items)

Pupils were asked to write the following words after listening to the teacher's pronunciation.

French: livre, stylo, lundi, garçon, maître

English: dog, house, apple, mother, blue

Each test included 20 items per language (40 in total).

Appendix B : Teachers' Questionnaire

Section 1 : Demographic Information

- Age :
- Years of teaching experience :

- Language(s) taught :
- Professional training background :

Section 2: Perceptions of CLI

(1 = Strongly Disagree ... 5 = Strongly Agree)

1. Pupils frequently confuse French and English sounds.
2. Lexical interference is the most serious difficulty.
3. Pupils' home environment strongly influences their CLI.
4. Simultaneous teaching of French and English is too demanding for Grade 3 pupils.
5. Teachers are adequately trained to manage CLI in the classroom.

Section 3 : Open-Ended Questions

1. Please describe common instances of cross-linguistic interference in your classroom.
2. What strategies do you use to address these instances?
3. How adequate are current curricular materials for managing CLI?

Appendix C. Parents' Interview Guide

Parents were interviewed using the following questions:

1. What language(s) do you use at home with your child?
2. How often does your child use French and English outside of school?
3. How do you support your child's learning of French and English?
4. What difficulties have you observed in your child's language use (e.g., mixing, substitutions)?
5. What is your opinion on the introduction of English in Grade 3?

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Reading Literacy of Elementary School Students as the Republican Literature Competition – *Literary Olympiad 2024*

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Abstract

Recent international assessments, PIRLS (2021) and PISA (2022), reveal that primary school students in Serbia perform significantly below the international average in advanced reading literacy skills. This emphasizes the need to investigate underlying difficulties in text comprehension, especially among high-achieving students in literature from grades seven and eight. To this end, a study was conducted involving 410 students who participated in the 2024 National Literature Competition, Literature Olympiad. The research aimed to analyze the content elements and task types on national tests, and to assess students' success in solving these tasks, thereby identifying those that the majority of students struggled with. Additionally, the study examined these tasks from the perspective of subject outcomes and educational standards, which underpin reading comprehension. Descriptive statistical measures were employed to evaluate student success, while content analysis was utilized for task evaluation. Findings indicated that the tests predominantly featured closed-type questions designed to assess understanding of specific literary texts. Five tasks were identified where less than 75% of students successfully solved them. Analysis of these tasks suggests potential problems related to understanding non-literary texts, interpreting the meanings of specific terms, vocabulary of foreign origin, and recognizing structural elements that demonstrate conceptual understanding. The pedagogical implications point to the importance of promoting diverse reading strategies, developing academic language, engaging in lexical exercises, and fostering motivation to read. Implementing these approaches may enhance reading comprehension and overall literacy competencies among students, addressing gaps highlighted by both national and international assessments.

Keywords: *methodology of teaching Serbian language and literature, motivation for reading, text comprehension, national literature competition for primary school students, reading literacy.*

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Introduction

Recognizing problems in the classroom allows us to resolve them. One such problem relates to students' reading competence, which the Program for International Student Assessment (PISA) defines as "the ability to understand, use, evaluate, and reflect on texts to achieve one's goals, develop knowledge, and participate in society" (Čaprić & Videnović, 2024, p. 14). Poor comprehension of materials impairs students' overall achievement. Research conducted in Slovakia reveals a "correlation between failure and low grades of university students in testing and reading literacy" (Delgadova, 2015; p. 50), underscoring "the importance of reading for active societal participation" (Pavlović Babić & Baucal, 2010: 241). Acquiring the skills to understand texts is crucial during education (Huang, 2024); specifically, this involves developing reading literacy defined as "being able to comprehend the contents properly, find both explicit and implicit meanings, analyse the content and the information obtained; and being able to interpret the content properly and pass it on" (Delgadova, 2015, p. 50). It emphasizes not only "students' capacity to locate and analyze information within the text," but also their ability to "formulate conclusions, communicate or implement solutions or knowledge derived, and apply the acquired knowledge and skills to real-life situations" (Popović, 2013, p. 113).

The international study on reading competence development, PIRLS (Progress in International Reading Literacy Study), was conducted in 2021 across "57 education systems globally and in eight distinct educational centers for benchmarking of participants" (Randelović et al., 2023, p.30). The research conducted in Serbia (PIRLS) "involved 4,037 pupils from 169 schools, forming a nationally representative sample" (Randelović et al., 2023, p. 30). These were fourth-grade students, with findings indicating that the average achievement in our region exceeded the predefined reference points, totaling "514 points, which was above the average for the PIRLS scale," which amounted to 500 points (Randelović et al., 2023, p. 37). Additionally, 33% of students reached a high international level (550 points), "which is slightly below the international average (34%)", and those who achieved this level "are relatively competent readers, capable of interpreting, connecting, and evaluating various textual and visual elements in medium difficult and more complex texts" (Randelović et al., 2023, p. 55). Differences compared to the international level are observed at the advanced level (625 points), because "out of the total number of tested fourth-grade pupils, 5% of them succeed in solving tasks that require advanced reading competence, which is less than the international average of 7%" (Randelović et al., 2023, p. 55). At the advanced level, students are asked to interpret and connect different elements of literary text structures and evaluate their effects on the reader. For informational texts, students are required to "draw conclusions on complex information from different parts of the text or across web pages by identifying relevant information and supporting their ideas with arguments based on context; [...], to recognize the author's viewpoint and other opinions within the context and expound upon them" (Randelović et al., 2023, p. 52).

The 2022 PISA testing results in Serbia, involving 6,413 15-year-olds, showed that the average score on the literary competence scale is "440 points", which is "36 points lower"

than the average for OECD countries, and the average results in mathematics and science literacy are lower than the international average, leading to the conclusion that “students from our country should spend a year and a half in the education system of an OECD country for the difference to vanish” (Čaprić & Videnović, 2024, p. 18). Additionally, the comparative analysis of our students’ reading competency results on PISA tests indicates that, post-2009, the number of students failing to attain functional reading competence remains generally consistent, “totaling approximately 36%” (Čaprić & Videnović, 2024, p. 24). Hence, over one-third of all students fail to achieve the fundamental level of reading competence. Gordana Čaprić and Marina Videnović assert that 25% of students exhibit a textual comprehension level classified as *1a*, which is nearly at the elementary stage, as they can identify information explicitly presented in the text, considering that “such information is often prominent in the text, while parallel information is minimal or absent” (Čaprić & Videnović, 2024, p. 22). Conversely, students who attain the highest results (*level 5 or 6*) “are capable of comprehending lengthy texts, contemplating abstract concepts, and distinguishing between facts and opinions, based on implicit indicators related to the content or the source of information” (Čaprić & Videnović, 2024, p. 21). In Serbia, the proportion of pupils attaining this level is notably low at 2%, which is below the OECD average of 7%, with even weaker outcomes observed in Montenegro and North Macedonia (cf. Čaprić & Videnović, 2024, pp. 21-22).

Based on the test outcomes (PIRLS 2021 and PISA 2022), it can be argued that students in Serbia are behind their international counterparts regarding advanced reading competence. Furthermore, a comparison of the results from these assessments reveals that as students age, their reading competence diminishes rather than improves. A systemic response is evidently needed, and one initiative to tackle the issue was the public discussion conducted from November 22 to December 6, 2024. The event was conducted by the Institute for Education Quality and Evaluation following the proposal of the *National Program for the Development and Evaluation of Reading Competence* (see: <https://ceo.edu.rs/javna-rasprava/>). The proposed document addresses the period “from preschool to high school education with the goal of systematically and continually improving the reading skills of children and students.” It includes the Action Plan for the Development and Evaluation of Reading Competence, which has broad application but is mainly targeted at “childcare workers, primary school teachers, Serbian language teachers, and school librarians” (see *National Program for the Development and Assessment of Reading Competence*, 2024, p. 3).

Considering its purpose and focus on Serbian language and literature teachers, the significance of this school subject for cultivating reading abilities in students is evident. The primary objective of this subject in the final year of primary school is for students “to develop reading competence by reading and interpreting works of literature [...]; to, through various reading methods, acquire the ability to orally analyze a work, revealing its multiple layers and meanings through interpretation” (*Rulebook on the Curriculum and Teaching Program for the Eighth Grade of Primary Education*, 2019, p. 63). Reading literary works helps develop reading habits. These behaviors influence reading competence (Stevanović et al., 2020, p. 137), prompting contemporary re-

search to emphasize numerous studies in the field of reading competence, showing that the volume and diversity of reading favorably influence student performance. However, it also reveals that young people are reading less (De Smedt et al., 2020; Winberg et al., 2022) and often see reading as a chore (Bozan, 2024). The research conducted in Serbia also shows that, for the majority of high schoolers, “reading is not a preferred activity” (Krnjajić et al., 2011, p. 277), as evidenced by the fact that out of 2,426 high schoolers, “the smallest is the group of passionate readers who are almost always reading a book (around 7%)” (Krnjajić et al., 2011, p. 272). The findings also show that high school students dislike compulsory reading (Božić & Novaković, 2020; Stevanović et al., 2020). Research encompassing 1,378 students shows that “only 46.9% students read all the books established by the curriculum. Some books from the compulsory reading program are read by 41.2% students, around 7% hardly ever read, while 4.9% students do not read the compulsory material at all”, the researchers also cite sources from international studies indicating that “the reading preferences of adolescents are often not directed at the compulsory reading material” (Stevanović et al., 2020, pp. 143-144). Furthermore, the research results encompassing a sample of 1,177 high schoolers in Serbia show that only 8.3% of the questioned students read the compulsory material “with pleasure,” while “69.2% of the respondents mention they read the compulsory material mostly or exclusively because of the grade” (Božić & Novaković, 2020, p. 21). Some of these findings can be linked to reading competence because research shows that grammar school students, compared to students from vocational middle schools, “read compulsory materials more often,” which researchers connect to the better results of grammar school students on PISA reading competence tests compared to students in vocational middle schools. They recommend “that the teaching and learning programs in vocational middle schools focus a lot more on outcomes directly related to enhancing the reading interests and habits of middle schoolers” (Stevanović et al., 2020, p. 145). Alongside supporting these recommendations, we believe that such outcomes should be prioritized in primary schools, especially in the upper grades, since research shows that younger students love reading (Purić & Stojanović, 2019) and enjoy reading (Ivković, 2016), while motivation to read tends to decline as students advance through school. This was observed in lower primary school grades, with research indicating that third-grade students have greater reading interests compared to fourth graders (cf. Purić & Stojanović, 2019, p. 287). A decline in motivation for reading and writing is seen in upper elementary and lower middle school grades, especially regarding students’ autonomous personal motivations, as they are “they are less driven by their inherent love for reading and writing or by their awareness of its importance” (De Smedt et al., 2020, p. 13). Additionally, authors mention a positive correlation between motivation for reading and reading competence, noting that motivated students paid more attention to the text and displayed greater interest (cf. Liu et al., 2022). The subject Serbian Language and Literature plays a vital role in overcoming the stated problem that affects reading competence, related to both the motivation for reading and the reading habits of students.

Theoretical Foundations

Importance of Literature in Developing Reading Competence

Reading competence is cultivated through the thematic subjects of Literature, Language, and Linguistic Culture encompassed in the curriculum of Serbian Language and Literature. This forms a key part of literary knowledge that supports a person's overall culture. Literature is essential for students to cultivate reading competence, as literary works are analyzed through several instructional procedures, the most significant being "the art of reading, accompanied by comprehension of the material" (Mrkalj & Pejić, 2021, pp. 153-154). "Reading literacy achievement is a measure of text-based reading comprehension" (Araujo, 2014, p. 5004). Additionally, comprehending a text involves understanding its context and engaging in interaction and a dialogue on the part of the reader that encourages reevaluation of one's values and personality. After all, "literacy is strategic and disciplinary," encompassing "complex, multimodal transactions between readers, texts, activities, and sociocultural contexts" and constituting a "constructive, integrative, and critical process situated in social practices" (Frankel et al., 2016, p. 14). At the same time, the complex meanings of literary texts allow for recognizing the influence of sociocultural factors, as emphasized in recent literature that highlights the importance of context (social, political, historical) for acquiring literacy (Jackson et al., 2024). Additionally, literary texts are suitable for activating background knowledge, because their structural elements are connected by different semantic relationships, forming an integrated whole, which helps create coherent mental representations as something that is considered an essential part of understanding in the literature) (Van den Broek & Espin, 2012, p. 316). A literary work requires students to read and interpret it with an open and creative mind, applying problem-solving skills, creative thinking, and their living, linguistic, and literary experiences. In teaching literature, it is shown that students in Serbia, in the PISA test, "read, experience, and interpret literary-artistic texts more effectively than with texts of other types" (Mrkalj, 2016, p. 165). These are texts that are not narrative but instead present information in other formats, such as maps, graphs, or formulas, which Ivana Stojkov believes makes it difficult for students to "navigate the text" (Stojkov, 2024: p. 98). In literary texts, better outcomes are achieved by "activating the inner sensuality of readers and recognizing the aesthetic qualities of the literary-artistic work that promote the development of reading experiences" (Mrkalj, 2016, p. 165). As a result, teaching requirements emphasize "integrating artistic impressions, comparing, and analyzing them based on textual evidence" (Nikolić, 2012, p. 293).

It is important to note that different types of readers have already been developed in primary schools. This encompasses individuals who are *functionally pragmatic*, "seeking valuable information in the text," as well as those who are *rationaly intellectual*, "engaging in active intellectual endeavor by disputing with the book, dissecting its contents, and questioning the conclusions presented" (Mrkalj, 2016, p. 165). Teachers, especially Serbian language and literature teachers, actively influence the development of these types

by planning the textual analysis based on the kind of text studied. The analysis includes research tasks before reading, which promote different reading strategies. These tasks, aligned with the general goals of interpretation, may involve focusing on relevant information and its location within the text to help students integrate, compare, and analyze the material. Significantly, understanding the text “depends not only on characteristics of the reader, such as prior knowledge and working memory, but also on language processes” (Moore, 2014, p. 1). In this context, *decoding*, *vocabulary*, and *text structure sensitivity* are crucial (Moore, 2014: 1). *Automation of the identification or the decoding of words* is considered vital, because “if attention is drained by decoding words, little or no capacity is available for the attention demanding process of comprehending” (Pikulski & Chard, 2005, p. 511), and therefore, developing decoding skills helps reduce the influence of context on word identification (Artelt et al., 2001). Young-Suk Grace Kim cites studies that show that textual comprehension is influenced by *listening comprehension*, the *phonological*, *morphological*, and *orthological awareness*, as well as other factors, such as *text-reading fluency*, *working memory*, *attention*, *vocabulary*, *syntactic awareness*, *conclusion*, and *monitoring comprehension*. For these reasons, she advocates for an integrative theoretical model of reading (*Direct and Indirect Effects Model of Reading*), which relies “on numerous linguistic and cognitive skills”, includes *background knowledge* (regarding *content knowledge* and *discourse knowledge*), as well as socioemotions, etc.. It is a model that integrates the existing “hierarchical, interactive, and dynamic relations” between various factors that influence textual comprehension; for example, in accordance with this model, it was observed that developed vocabulary and grammar knowledge are necessary for higher cognitive abilities (such as drawing conclusions and taking perspectives) (Kim, 2020, pp. 667-669).

From everything said so far, it is clear that many factors, such as prior knowledge, the type of reading, personal characteristics, as well as linguistic tendencies and student abilities, influence students’ preferences for certain types of texts and reading comprehension. The fact that our students fall behind the international average in reading skills and textual understanding at an advanced level (Čaprić & Videnović, 2024; Randelović et al., 2023) has led us to identify specific issues in textual comprehension among primary school students who perform the best in literature. This was determined by analyzing the performance of the student group at the 2023/2024 National Literature Competition and, focusing on tasks with the lowest success rates, identifying elements directly related to textual comprehension.

Top Elementary School Students in Literature in the Republic of Serbia for the 2023/2024 Academic Year

The criteria used to identify the top primary school students in Serbia for literature knowledge were their results at the National Literature Competition – *Literary Olympics*. This is a national-level competition officially held in Serbia from 2012/2013, with its timeline and annual analysis detailed in our literature (Mrkalj & Stakić, 2024). In the 2023/2024 competition, besides high school students, 410 final-year primary school students also participated, including 258 eighth graders and 152 seventh graders (Mrkalj & Stakić,

2024, pp. 311-312). According to open access data from the Unified Information System of Education (UISE) of the Serbian Ministry of Education, during the 2023/2024 academic year, 63,750 students were in eighth grade, with 60,248 attending classes in Serbian, and 63,989 students were in seventh grade, with 60,425 attending classes in Serbian (cf. *Primary Education – Students*, 2023/2024). Comparing students attending classes in Serbian to those participating in the National Competition shows that approximately 0.43% of eighth-graders and 0.25% of seventh-graders took part. These students were among the top performers, earning their spot in the National Literature Competition through outstanding results at the school, municipal, and regional levels. For example, “in the most recent National Competition (2024), there were 410 primary school students, while at the municipal level, there were 1,333, indicating that 30.76% of competitors participated in the National Competition” (Mrkalj & Stakić, 2024, p. 312). As this is a prestigious literary competition for the best students, we will examine the key elements necessary for textual comprehension, focusing on tasks that most competitors could not complete and thus identifying possible issues.

Research Method

The research examines the performance of seventh- and eighth-grade primary school students during the National Literary Competition, *Literary Olympics*, held on April 20, 2024, in Sremski Karlovci. It aims to identify potential issues in textual comprehension among top literature students in Serbia, specifically focusing on tasks most often left unsolved by most competitors, in order to identify the core elements fundamental to reading comprehension. The research encompassed the following two tasks: 1. Analyzing the content elements and the type of tasks in national-level literary tests for primary school students and assessing students’ success in solving them to identify the tasks most students struggled with; 2. Analyzing the selected tasks with a focus on the learning outcome and the standard underlying comprehension.

The study involved a sample of 410 final-year students from the second cycle of primary education in Serbia who took part in the National Literary Competition, *Literary Olympics*, in 2024. Specifically, it included 152 seventh-grade students and 258 eighth-grade students.

The analysis focused on the tests used to assess literary knowledge in the national competition (cf. *National Primary School Student Competition, Literary Olympics, seventh grade* [test], 2023/2024; *National Primary School Student Competition, Literary Olympics, eighth grade* [test], 2023/2024). These are official tests available to the public on the website of the Society for the Serbian Language and Literature of Serbia (www.drustvosj@fil.bg.ac.rs). The tests at the national competition for seventh- and eighth-grade primary students each contained 20 questions, with each correct answer earning one point. As a result, participants could score up to 20 points (cf. *National Winter Seminar 2024*, 2024, p. 55). These tests, as measuring tools, rely on mandatory reading material and reading comprehension skills, as outlined in the Society for Serbian Language and Literature of Serbia’s information booklet (*National Winter Seminar 2024*, 2024). The booklet clearly states that,

based on the definitions of “student achievements,” a participant in the Literary Olympics will be able to read literary-artistic and other types of texts with comprehension while using various reading strategies (*National Winter Seminar 2024, 2024*, p. 67). As a reading strategy, the booklet emphasizes “informative, experiential, and research reading,” and textual comprehension is demonstrated through descriptions of student performance in the competition. Among other points, it highlights that the competitor should be able to “connect the information and ideas presented in the text, identify clearly expressed relations, and draw conclusions based on the text” (*National Winter Seminar 2024, 2024*, pp. 67–68).

During the research, we employed the descriptive approach and content analysis methods. In the part of the study examining student achievement in task completion at the National Literary Competition, we used descriptive methods and analyzed the data with IBM SPSS Statistics 25, utilizing frequencies (f) and percentages (%) as descriptive statistics. For presenting tasks on national tests, we used content analysis with the following units: 1. Content elements found in each task; and 2. Type of task. In the part of the research concerning the tasks that most participants failed to solve, the analysis units include the specified subject-specific learning outcomes and educational standards that support reading comprehension and form the basis for the tasks.

Results and Discussion

National Literary Competition Task and Student Success in Solving Them

Based on the content elements of the tasks at the National Literary Competition, one may observe that tasks pertaining to literary knowledge predominate (see Table 1).

Table 1
Content elements of the tasks at the National Literary Competition

Elements	Grade	
	VII	VIII
	Task number	Task number
Identifying the author based on a short biography	one	one
Identifying the author and work based on an excerpt		six, eight
Determining the title of the work and the author based on a description	twenty	twenty
Determining the title of the work based on a series of associations		two
Selecting the title of the dramatic work from the given options		three
Identifying the writer, literary genre, and type of work	thirteen	
Identifying the work that is not a literary-theoretical text		eleven
Differentiating titles of authored literature from those of folk literature	six	
Identifying characters based on quotes from the works	four	

Elements	Grade	
	VII	VIII
	Task number	Task number
Determining the characteristics of the folk epic character	fourteen	
Identifying the motif in the literary work	twelve	
Connecting the international motif with the work studied at school		seventeen
Interpreting the literary-artistic text		twelve
Determining the historical background of the literary-artistic text	fifteen	
Synthesizing knowledge, recognizing the introduction of the plot in different excerpts from folk epic poems	seventeen	
Marking the words that rhyme in the excerpt	ten	
Determining the type of rhyme		twelve
Determining the structure of the verse (lyrical decasyllabic poem)	two	
Identifying the specified form of speech in the example	three	seven
Identifying sentences in a text that illustrate retrospective narration	eight	
Identifying the narrative voice (in a lyrical text)		thirteen
Precisely identifying stage direction in an excerpt		fourteen
Finding the required figure of speech and marking it precisely	nine	four
Identifying the figure of speech based on a comparative approach		nine
Determining an unknown word based on the context	seven	sixteen
Identifying toponyms in the text	eighteen	eighteen
Linking the names of literary-theoretical concepts to the titles of works in which they are prevalent		ten
Naming a literary term based on the description (of a literary character)	five	
Identifying the term based on the description	eleven	
Finding the odd one out among a number of literary concepts	sixteen	
Interpreting expressions (phraseology)		five
Determining true or false statements in various examples	nineteen	fifteen

As shown, the author's name or the work's title is verified based on biographical details, content elements, or the work's classification within a specific literary genre or type: five tasks in the seventh-grade test and six tasks in the eighth-grade test. Additionally, literary knowledge is linked to specific works studied or observed in terms of definitions, such as figures of speech or literary terminology. Vocabulary knowledge was assessed through five tasks: two in the seventh-grade test and three in the eighth-grade test. A particular set of tasks included multiple requirements, necessitating knowledge across various areas; for example, familiarity with folk literature and literary theory (including

terminology and versification) is necessary for task nineteen in the seventh-grade assessment; literary terminology and history are needed for task fifteen in the eighth-grade test; and understanding different program areas related to language and literature is relevant for task fifteen in the seventh-grade assessment. Different categories of knowledge are examined through various types of tasks (see Table 2).

Table 2

Task types at the National Competition

Task type		Grade	
		VII	VIII
		Task number	Task number
Open-ended type	short response	one, four, five, eleven, fourteen, fifteen, twenty	one, two, six, eight, nine, twenty
	classification (filling in tables)	thirteen	
Closed-ended type	two options	nineteen	fifteen
	several options	two, three, six, seven, eight, nine, ten, twelve, sixteen, seventeen, eighteen	three, four, seven, eleven, twelve, thirteen, fourteen, sixteen, seventeen, eighteen, nineteen, twenty
	Pairing		five, ten

Note. Task types are named according to types found in tests of the Institute for Education Quality and Evaluation. For more on this, see the doctoral dissertation by Željko Tešić (2023).

It can be observed that the national tests are mostly composed of closed-ended tasks with multiple choices (eleven tasks in the seventh-grade test and eleven in the eighth-grade test). Open-ended tasks include fill-in questions, which are short answers that mostly (but not always) do not require reproductive knowledge. Therefore, it is understandable that there are fewer of these compared to multiple-choice closed-ended tasks. Among the multiple-choice tasks, we want to highlight “find the odd one out” tasks (task sixteen on the seventh-grade test and task eleven on the eighth-grade test) and group alternation tasks (tasks six and twelve on the seventh-grade test and task eighteen on the eighth-grade test), which require comparing data to draw conclusions related to textual comprehension. Also notable are two tasks (task nineteen on the seventh-grade test and task fifteen on the eighth-grade test), which have multiple requirements (three in total), each including two options. To succeed in a task of this type, students need to carefully read each requirement, identify key information, and then connect this information with their prior knowledge. Additionally, it requires familiarity with terms known as academic jargon. In the literature, there is a clear stance that students gradually “learn the academic language” because the potential success or failure “in comprehending school texts may, therefore, emerge from the reader’s familiarity (or lack thereof) with the academic language of the text” (Galloway et al., 2020, p. S332). We also want to highlight task twelve on the eighth-grade test, which

is a multiple-choice question that depends on literary text comprehension and the ability to identify cause and effect. In literature, there is an opinion that such tasks require “a higher level of knowledge from students, which implies more complex cognitive processes like analysis, synthesis, and evaluation” (Tešić, 2023, p. 127).

From this, it is clear that these tasks assess textual comprehension and knowledge related to the discipline, meaning Literature, which are the main objectives of such tests. For students to successfully solve these tasks, metacognition and prior knowledge are crucial (the literary texts are studied in school). The findings confirmed that metacognitive knowledge was also highly predictive when the effects of specific prior knowledge and thematic interest on memory-based text comprehension were estimated simultaneously (Artelt et al., 2001). In solving the tasks, it was essential to recall relevant information from previously studied literary sources and relate it to the requirements in order to come to a correct solution. The students' entrance into this prestigious competition reflects the caliber of their past knowledge and explains their commendable results: the success rate was $\geq 75\%$ for 17 tasks in eighth grade and 18 tasks in seventh grade (refer to Table 3).

Table 3

Results of the seventh- and eighth-grade students at the National Competition

Task	Number of Points	Grade			
		VII		VIII	
		f	%	f	%
One	1	134	88,2	252	97,7
	0	18	11,8	6	2,3
Two	1	116	76,3	217	84,1
	0	36	23,7	41	15,9
Three	1	131	86,2	256	99,2
	0	21	13,8	2	0,8
Four	1	138	90,8	215	83,3
	0	14	9,2	43	16,7
Five	1	140	92,1	242	93,8
	0	12	7,9	16	6,2
Six	1	151	99,3	257	99,6
	0	1	0,7	1	0,4
Seven	1	134	88,2	253	98,1
	0	18	11,8	5	1,9
Eight	1	137	90,1	236	91,5
	0	15	9,9	22	8,5
Nine	1	140	92,1	217	84,1
	0	12	7,9	41	15,9
Ten	1	143	94,1	256	99,2
	0	9	5,9	2	0,8

Task	Number of Points	Grade			
		VII		VIII	
		f	%	f	%
Eleven	1	112	73,7	251	97,3
	0	40	26,3	7	2,7
Twelve	1	147	96,7	247	95,7
	0	5	3,3	11	4,3
Thirteen	1	146	96,1	181	70,2
	0	6	3,9	77	29,8
Fourteen	1	140	92,1	251	97,3
	0	12	7,9	7	2,7
Fifteen	1	117	77,0	122	47,3
	0	35	23,0	136	52,7
Sixteen	1	143	94,1	144	55,8
	0	9	5,9	114	44,2
Seventeen	1	126	82,9	254	98,4
	0	26	17,1	4	1,6
Eighteen	1	112	73,7	247	95,7
	0	40	26,3	11	4,3
Nineteen	1	118	77,6	254	98,4
	0	34	22,4	4	1,6
Twenty	1	139	91,4	206	79,8
	0	13	8,6	52	20,2
TOTAL		152	100	258	100

Note. f – frequency, % – percentage.

In seventh grade, over 90% of students successfully completed 10 tasks (99.3% - task six; 96.7% – task twelve; 96.1% – task thirteen; 94.1% – tasks ten and sixteen; 92.1% – tasks five, nine, and fourteen; 90.8% – task four; 90.1% – task eight). In eighth grade, more than 90% of all students successfully completed 13 tasks (99.6% – task six; 99.2% – tasks three and ten; 98.4% – tasks seventeen and nineteen; 98.1% – task seven; 97.7% – task one; 97.3% – tasks eleven and fourteen; 95.7% – tasks twelve and eighteen; 93.8% – task five; 91.5% – task eight).

In seventh grade, these included tasks such as identifying titles that do not belong to a given genre (task six); identifying key motifs in a literary work (task twelve); and dis-

playing knowledge of the author's name, the title of their literary work, and its classification within a specific literary genre and type (task thirteen); identifying words that rhyme (task ten); demonstrating knowledge of a literary term based on description (task five); recognizing dramatic literary concepts (task sixteen); identifying the figure of speech – personification (task nine); demonstrating knowledge of literary character names (task four); demonstrating understanding of the characteristics (titles) of literary characters and spelling skills; identifying the retrospective elements in a literary work (task eight). Tasks successfully completed by 90% of eighth-grade students include identifying the literary work and author based on excerpts (tasks six and eight); identifying works (not) belonging to a particular literary kind or genre (tasks three and eleven); connecting literary theoretical concepts with literary works (task ten); recognizing a literary work based on a central motif (task seventeen); identifying elements (toponyms) present in a text (task eighteen); recognizing the rhyming scheme (task nineteen); identifying the author from biographical information (task one); identifying the specified types of speech in the text – inner monologue (task seven) and stage directions (task fourteen); demonstrating comprehension of the text and the actions of the literary character (task twelve); and understanding the meaning of a term (task five). This short analysis shows that in both seventh and eighth grades, the tasks most successfully completed (by over 90% of students) were of a similar nature, predominantly related to literary knowledge, including the identification of the author's name, the title of the work, character names, and understanding of key motifs and literary-theoretical concepts. Among the tasks that collectively assess text comprehension, we would like to highlight task twelve from the eighth-grade test, which was successfully completed by 95.7% of pupils. This task required students to respond to a question necessitating comprehension of the story "Children" by Ivo Andrić. Successfully completing it involved evaluating the character's actions by identifying the cause and effect related to personal experience. The challenge of this assignment lay in identifying the response most aligned with the question, as, generally speaking, all provided options could be considered correct.

A notable completion rate of 80-90% is seen for four tasks from the seventh-grade National Competition test (88.2% for tasks one and seven, 86.2% for task three, and 82.9% for task seventeen) and three tasks from the eighth-grade test (84.1% for tasks two and nine, and 83.3% for task four). An examination of these tasks revealed that for the seventh grade, they assess knowledge of foreign vocabulary (task seven) and require identifying the author based on biographical details (task one), isolating the narrative (task three), and integrating text comprehension with knowledge of epic poem composition (task seventeen). The eighth-grade tasks included identifying literary works based on essential concepts (task two) and demonstrating the ability to identify and understand figures of speech (tasks four and nine). Specific previously described tasks, such as task seven on the seventh-grade test, are related to the correlate that affects comprehension performance in textual analysis. In this multiple-choice task, students were instructed to determine the meaning of the lesser-known or unfamiliar Greek word (the word *ćivot*) based on contextual clues. The responses given were distractors that, when viewed together, resembled one another, making this exercise challenging. Furthermore, the requirement

in task seventeen of the test, which involved encircling the letters of two excerpts that introduce the plot in epic poems, relied on textual comprehension, specifically linking events from epic poems to draw conclusions not on the plot itself, but rather the events that precede it. In addition to the inherent complexity of the task prompt, this task is additionally complicated by the student's lack of access to the original poem texts from which the provided excerpts are derived. The student must rely on their prior knowledge to identify the songs from which the examples originate, recall their compositions, and determine which of the cited verses conveys the plot.

Tasks completed by 75-80% of students should also be included among those successfully performed. In seventh grade, this level of completion applies to three tasks: nineteen (77,6%), fifteen (77%), and two (76,3%). In task nineteen, informative statements are used to verify knowledge about the literary character, literary type, and verse; task fifteen assesses understanding of the historical context that led to the emergence of the literary work; and task two involves identifying the lyrical decasyllabic poem. In eighth grade, only one task meets this percentage – task twenty (79,8%), where students are expected to identify the author and title based on the description in the informative text.

The worst-performed tasks at the National Competition were those successfully solved by less than 75% of students. In seventh grade, these are tasks eleven and eighteen (73,7%), and in eighth grade, tasks thirteen (70,2%), sixteen (55,8%), and fifteen (47,3%).

Analysis of Tasks Left Unsolved by Most Participants in the National Literary Competition for Primary School Students

The seventh-grade tasks with the lowest completion rates involved understanding the meanings and names of concepts (task eleven) and identifying them within the text (task eighteen). For eighth graders, the lowest-performing tasks focus on interpreting poetic expression to determine the referent of words in the verses (task thirteen), understanding the meaning of foreign-origin terms in the context of the literary text (task sixteen), and interpreting expert statements that require familiarity with literary-theoretical concepts (task fifteen). These tasks, like all other tasks at national competitions, correspond to subject-related outcomes (cf. *Rulebook on the Curriculum and Teaching Program for the Eighth Grade of Primary Education*, 2019; *Rulebook on the Curriculum and Teaching Program for the Seventh Grade of Primary Education*, 2019) and are defined according to educational standards in effect at the time of their development (*Learning Standards for the Subject of Serbian Language at the End of Compulsory Education*, 2010: 17–24). Further revision (December 25, 2024) led to the publication of new standards for educational achievement (cf. *Rulebook on the Standards of Educational Achievement for the End of the First Cycle of Primary Education and for the End of Primary Education*, 2024), but at the time of the National Competition, the new standards still were not in effect.

Table 4

Outcomes and standards used to define the worst-performed tasks at the National Competition

Task number	Grade	Outcomes (<i>Rulebook on the Curriculum and Teaching Program for the Eighth Grade of Primary Education</i> , 2019: 63; <i>Rulebook on the Curriculum and Teaching Program for the Seventh Grade of Primary Education</i> , 2019: 62–63)	Standards (<i>Learning Standards for the Subject of Serbian Language at the End of Compulsory Education</i> , 2010: 17–24)
Eleven	VII	<i>comprehends various types of text;</i>	SL.1.3.14. <i>knows the meaning of words [...] often found in school texts (textbooks, compulsory reading materials, and similar;</i> SL.3.1.2. <i>identifies keywords and summarizes the text</i>
Thirteen	VIII	<i>understands literary-artistic and other types of texts using different reading strategies; differentiates forms of speech (forms of narration);</i>	SL.3.1.2. <i>identifies keywords and summarizes the text</i> SL.3.4.6. <i>interprets different elements of the literary-artistic work with reference to the work itself;</i> SL.1.4.7. <i>identifies key elements in a literary-artistic text [...]</i>
Fifteen	VIII	<i>interprets meaning, linguistic, aesthetic, and structural features of artistic texts using literary terms and concepts; connects literary works with a historical or other relevant context;</i>	SL.3.1.1. <i>isolates from the text an argument that supports a thesis (opinion), or opposes it;</i> SL.1.1.6. <i>differentiates what is relevant in the text, and what is more or less important;</i>
Sixteen	VIII	<i>comprehends literary-artistic and other types of texts using different reading strategies; understands obsolete terms;</i>	SL.3.3.7 <i>able to understand the meaning of unfamiliar words and expressions based on content, context, or their origin;</i>
Eighteen	VII	<i>comprehends different types of text; identifies linguistic-stylistic devices and understands their function;</i>	CJ.1.4.7. <i>identifies key elements in a literary-artistic text [...]</i>

Task eleven on the seventh-grade test focuses on understanding different types of texts. The students read and interpret an informational text. In addition to recognizing the literary term (aphorism), they must also compare the terms proverb and aphorism and relate them to the material taught in seventh grade, specifically the selected aphorisms of Duško Radović. Since there is no concrete example of an aphorism in this task but only a description of the concept, identifying the correct answer in this open-ended task (where the solution must be written) presents a challenge. Additionally, providing a description of the term involves its indirect definition through dual comparison (based on similarities and differences) with other concepts, while familiarity with concepts and

their meanings necessitates a developed academic language, whose form is “much more precise in referring than spoken language” (Durbaba & Vučo, 2016, p. 952). Considering that seventh-grade students are at an age (12-14 years) where their ability to understand semantic content is marked by “an ability to summarize definitions provided in the dictionary” (Stevanović & Lazarević, 2014, p. 302), the correct answer to this task required summarizing the described definition and isolating essential elements related to defining the sought concept.

In task eighteen, seventh-grade students are asked to recognize toponyms appearing in an excerpt from a lyrical song. The low performance on this task (<75%) compared to other tasks cannot be due to a lack of understanding of the term *toponym*, for the very task provides its definition. The assumption is that knowledge of the text is lacking, that is, that the students failed to identify the relevant element (standard SL.1.4.7), which is why they understood the toponyms *Savina stopala*, *Savin kuk*, and *Savin lakat* as possessive adjectives (Sava’s feet, Sava’s hip, Sava’s elbow).

Comprehension of specific literary concepts is influenced by the frequency of illustrative examples, suggesting that the understanding of these concepts correlates with the grade level at which they are introduced. This implies that students require time to assimilate a concept and to familiarize themselves with it through literary analysis when it is presented as a structural element of the work. Consequently, in teaching studies, we find suggestions to incorporate specific literary terminology and concepts in the early grades – for instance, particular figures of speech that current curricula reserve for higher grades (see Stakić, 2021). For these reasons, it is not surprising that the thirteenth task on the eighth-grade test, which asks students to identify the narrative voice of the verses, falls among the less well-performed tasks (solved by 70.2% of students). It is also important to note that the correct answer to this question was second person, which is less common in literary work than the first or third person. However, a weaker result in solving this task may also suggest problems in understanding the lyrical text used as an example to test literary knowledge, because in the verses by Ivan V. Lalić, students were expected to notice the pronoun *you*, which indicates that the lyrical speaker was addressing another person (a boy). This can be directly linked to the standards related to text comprehension and involves identifying keywords (SL.3.1.2) and key elements in the text (SL.1.4.7).

One of the most poorly performed tasks at the National Competition for eighth graders was task sixteen (solved by 55.8% of students), where students had to determine the meaning of a foreign-origin word, the verb *palošine*, based on the context (excerpt from the story “*Kanjoš Macedonović*” by Stjepan Mitrov Ljubiša). This result raises questions about students’ understanding of context and its clarity. Although students studied an excerpt from this story in school, including analyzing unfamiliar or less common words, the story’s depiction of Kanjoš’s bravery and skill led students to guess answers like *heroic shield* (junački štit) or *pork belly* (svinjska mešina), which sounded most similar to *palošina*. However, the correct answer was *double-edged sword*. A low level of foreign-origin vocabulary knowledge is also reflected in surveys of sixth-grade students, which aimed to assess their understanding of the most common foreign-origin verb in fifth-grade textbooks. Rajna Dragičević described these findings as “devastating” (Dragičević, 2006, p. 30).

Research also shows that semantic development among lower-grade students was not “at a satisfying level,” especially in relation to metonymy, “one of the chief mechanisms for enriching the vocabulary” (Stevanović and Lazarević, 2014, p. 314). The situation is similarly concerning regarding lexical metaphors, which are equally crucial for vocabulary expansion and can act as an “indicator of higher levels of knowledge, or understanding, in students” (Lazarević and Stevanović, 2013, p. 213). This unsatisfactory state, in the opinion of the researchers, “calls into question the comprehensiveness of the active and passive vocabulary of our students” (Lazarević & Stevanović, 2013, p. 212). This is also significant because vocabulary influences textual understanding (Braze et al., 2007; Duff, 2019; Moore, 2014; Oakhill & Cain, 2012; Richter et al., 2013; Vučković, 2017). Furthermore, through reading, students expand their vocabulary by encountering words that are not frequently found in their own lexicon (Duff et al., 2015). This is a mutually dependent process, as the connection between vocabulary and textual understanding is reciprocal: an extensive vocabulary aids comprehension, and understanding also supports vocabulary growth (Wagner & Meros, 2010).

The poorest result at the National Competition for eighth-grade students was displayed for task fifteen, which was left incomplete by more than half of the students, specifically 52.7%. The task had three parts, and each needed to be successfully completed for the overall task to be considered correct. It was a closed-ended question with two options. Students were asked to read and understand three different expert statements, written in a style adapted to their age, in order to demonstrate understanding of a literary-theoretical concept (comedy) and prior knowledge from folk literature history, by judging each statement as true or false. Although correctly solving the first and second tasks required knowledge of the types of comedy, which in turn required understanding of terminology and their definitions, to judge whether the statement was true, from a textual comprehension perspective, students had to determine what was important in the statement (standard SL.1.1.6.), as well as identify the element that differentiates between comedy of humor and comedy of manners, i.e., “argument favoring one thesis (opinion) or opposing it” (standard SL.3.1.1).

Pedagogical Implications for Overcoming the Identified Problems in Textual Comprehension

Analyzing the performance of seventh- and eighth-grade students in the National Literary Competition highlights a potential problem in understanding texts. Still, we must emphasize that we cannot generalize the results due to the small sample of tasks analyzed, and our findings are limited to the National Literary Competition held in 2024. A limitation also arises from the fact that the tasks on national tests were not primarily designed to assess textual understanding and the specific content of individual tasks. They included various requirements, some related to comprehension, while others relied on explicit knowledge, and students had to address all these aspects for the task to be deemed correct (such as task fifteen on the eighth-grade national test).

In the least successfully performed tasks, students were asked to integrate knowledge and demonstrate an understanding of texts that are not literary-artistic, with students displaying difficulties in understanding literary terms and foreign-origin terms.

An interest in the subject and experience are positively linked to understanding (Unsworth & McMillan, 2013), which explains why students who participate in literary competitions show better comprehension of literary texts than texts from other areas. This is because interest is “related to attention, deeper processing, the use of effortful strategies, feelings of enjoyment, and learning” (Wade, 2001, p. 243). The engaging nature of the text also helps generate interest in reading, with our results indicating that students perform worse when reading informational texts loaded with terminology. In practice, “teachers are often required to use a particular text regardless of its appeal,” so student interest could be further enhanced (Schraw & Dennison, 1994, p. 14), especially considering that more recent research shows that the presence of interesting but unimportant and seductive details in scientific texts does not positively influence understanding and memorization of key content (Mensink, 2021). A solution to this issue could be increasing children’s exposure to informational texts from an early age (Massey, 2014), since such exposure “serves to assist children in their conceptual development and encourages them to engage in higher order thinking” (Massey, 2014, p. 399). To comprehend texts written in academic language, activities promoted in the literature include simplifying complex information by aiming to understand intricate syntactic structures (such as inserted sentences), analyzing connected words to relate ideas logically – like *first... second* [or, as in task eleven on the seventh-grade test, the antonym pair *similar* and *differs*] – and other related activities (Galloway et al., 2020, p. S334). Recommendations suggest that linguistic resources should be developed to assist in navigating texts with abstract concepts and unfamiliar content. Additionally, greater emphasis must be placed on the characteristics of sentences typically found in school texts, which would help develop syntactic awareness and familiarity with both specialized and general vocabulary (cf. Galloway et al., 2020, p. S333).

Additionally, a better understanding of literary texts compared to expert texts confirms the teaching stance that experiential or research reading, accompanied by adequate tasks, “allows for gaining insight into the quality of reading competence” (Mrkalj & Pejić, 2021, p. 154). This is why it is crucial to teach primary school students various strategies and types of reading, especially research reading, which involves clear instructions guiding students to identify key information in the text, compare it, connect ideas, and perform other similar tasks. These instructive steps can also be effective when the text requires isolating elements that demonstrate literary knowledge, which was a potential challenge in understanding literary texts at the National Competition, where students had to identify toponyms and recognize the narrative voice of the verses. Research shows that effective reading strategies positively impact reading proficiency and comprehension skills (Chunjin, 2020; Gilakjani & Sabouri, 2016a). Additionally, examining their influence on understanding could enhance reading instruction (Habok et al., 2024, p. 2). Good comprehension instruction must include “explicit instruction in specific comprehension strategies” (Duke & Pearson, 2009, p. 107), and several strategies contribute to understanding

text, such as *using prior knowledge, asking critical questions, making predictions, summarizing, and visualizing in the case of narrative texts*, etc. (Ezell et al., 1997; Gilakjani & Sabouri, 2016b; Moore, 2014; Ness, 2011; Spörer et al., 2009). Various methods have been developed to improve students' comprehension skills, including combining multiple reading strategies (Spörer et al., 2009). Additionally, our recent literature describes a system of pedagogical interventions that help improve students' reading skills. These interventions involve several factors: "modification of the text used for reading/learning; support to developing students' cognitive skills related to reading; support to developing the affective aspects of student personalities related to textual understanding, efficient reading with comprehension activities in school and educational setting, teaching/learning methods," which "act in a dynamic interaction" (Antić & Stevanović, 2024, p. 349).

The results indicating difficulties with understanding foreign-origin vocabulary in literary texts highlight the importance of vocabulary exercises. This point was emphasized by Rajna Dragičević, who suggested that it would be "useful during almost every class work with students on five-minute vocabulary exercises, which would encourage them to think about words and their meaning" (Dragičević, 2006, p. 31). We believe it would be beneficial to start incorporating vocabulary exercises as a regular part of nearly every class from the first year of primary school to expand students' vocabulary continuously. Teachers also stressed the importance of "adopting and developing vocabulary" as a key element for improving reading proficiency (Vučković, 2017, p. 68).

Conclusion

Experts warn that we must first "identify weaknesses in specific cognitive skills," and then "have procedures for enhancing those specific skills rather than general interventions that target a limited number of skills without regard for identified strengths and weaknesses" (Moore, 2014, p. 2). For these reasons, considering the results showing that primary school students in Serbia perform below the international average in the advanced reading competence category (Čaprić & Videnović, 2024; Ranđelović et al., 2023), we conducted research to identify potential problems in textual comprehension among students who achieve the best results in literature – specifically, seventh- and eighth-grade students who reached the national level of the *Literary Olympics*. To achieve the stated goal, we analyzed the content elements and task types on national tests and evaluated students' effectiveness in completing the tasks. The analysis revealed that the tests were primarily composed of multiple-choice, closed-ended questions, and that textual comprehension depended on prior knowledge and was aligned with the established subject outcomes for Serbian Language and Literature, as well as the educational standards in effect at the time. The analysis shows that national competition tasks were not designed according to PISA (OECD, 2019) and PIRLS (Mullis & Martin, 2021) research, but rather with the aim of assessing knowledge at a high-level competition. However, we can identify elements related to the type of reading skills tested in international exams, such as *paying attention to explicit information in the text, drawing conclusions based on implicitly stated information, and interpreting and connecting information* (Mullis & Martin, 2021, pp. 12-14).

Comprehending texts in the tasks relies on literary knowledge, and sometimes, that knowledge is connected to literary texts not directly presented in the task because they were studied in school. This does not lessen the importance of the task, as it shows an understanding of literary texts that are taught in school and serve as the main starting point for gaining theoretical knowledge of literary science.

Analyzing the success of students in solving tasks from the National Competition, we identified tasks (two tasks for seventh grade and three tasks for eighth grade) that were left unsolved by one-third of the students. The analysis suggests potential problems in text comprehension, which are hard to generalize due to a highly selective sample – specifically, that top literary students struggle with understanding texts written using academic language, as well as terminology. Regarding literary texts, students may encounter difficulties in identifying structural elements that demonstrate conceptual knowledge and in understanding words of foreign origin.

All of this points to the need for specific intervention measures, which include continuous vocabulary exercises and activities designed to improve comprehension of academic language, boost reading motivation, and introduce various reading strategies to students. These should not be limited to the subject of Serbian Language and Literature but should also concern other subjects studied in primary school. Further research in this area is necessary, along with additional training for school staff to effectively implement reading and textual comprehension strategies in teaching.

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Submitted papers must be written in accordance with the ethical standards applicable to scientific research papers, respecting the principles of well-being and dignity of research participants, as well as the protection of their privacy (for additional information, consult the latest version of APA Publication Manual).

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After the receipt of the papers the current editor-in-chief will review them and decide which will enter the reviewing process. If a paper does not fit the concept of the journal, does not meet Ethical norms, or the text does not follow the instructions given in the Contributors' notes and other requirements, the authors will be informed of the rejection of the paper.

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Your paper must be a Microsoft Word text processor document, page A4 format, font Times New Roman, font size 12, line spacing of 1.5 lines.

Papers should be submitted in the Serbian language (Cyrillic alphabet) or English. The abstract of the paper is submitted in both Serbian and English, regardless of the language of the paper.

The length

Papers should not normally exceed 30000 characters with spaces in length. However, review papers and papers that present theoretical analysis can be up to 50000 characters long. The Abstract and Reference List, which should be at the end of the paper, are not included in the length. The editors-in-chief reserve the right to publish papers which exceed the maximum number of characters should the subject matter and/ or focus of the research require it, and in the case of scientific papers of particularly high quality.

Elements and structure of a manuscript

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If a paper is reporting about work on a scientific-research project, the essential information about the project should be given in a footnote following the title.

The title. The title should be concise, precisely formulated in the form of a sentence, bolded, centred, and in font size 14.

If the paper is a result of work on scientific research projects, the basic information about the project is provided in a footnote under the paper's title.

Abstract. The abstract should contain from 150 to 250 words. If a paper is about performed research the abstract should contain the following elements: the importance of the researched problem, the aims of the research, the research methodology, key results, conclusions and pedagogic implications. In the case of review papers and papers dealing with theoretical analyses, the abstract should contain: the problem that is discussed in the paper, a description of the structure of the paper, the key propositions that are given in the paper and conclusions. The abstract should be written in one paragraph, without referring to references, in font size 11, justified.

Keywords. The author(s) should provide up to five keywords in the language of the paper which follow the abstract. The keyword should be relevant to the subject of the paper and searchable. We recommend using for example ERIC: <https://eric.ed.gov/?ti=all> thesaurus.

The structure of a paper. The paper should be structured in a logical and proscribed way. Papers describing performed research should contain: an introduction, an initial research hypothesis, the research methodology, results, discussion (including the pedagogical implications of the conducted research) and conclusions. Review papers and works that represent theoretical analysis, in addition to having an introduction and conclusions, should be structured in accordance with the basic topic of the work.

The headings and sub-headings. The headings and sub-headings should not be numerically denoted. The heading of the sections should be formulated precisely and according to the instructions given in Table 1.

Table 1

Format for five levels of heading

Levels	Format
1	Centered, bold, font 12
2	Flush left, bold, font 12
3	Flush left, bold italic, font 12
4	Sentence case, indented, bold, font 12, ending with a period.
5	Sentence case, indented, bold italic, font 12, ending with a period.

Note. Format examples are provided for section headings and sub-headings only and do not refer to the title of the paper.

Tables and graphs. Each table and/or graph should be numerically denoted. The precisely formulated title of the table or graph should be given in a new line, in italics. The name of a table or a graph should be positioned above the table or graph (see Table 1 of this note). All abbreviations in the tables and graphs must be explained. The explanations (legend) should be given under the table or graph, the word note should be written in italic, ending with a period. Tables should not contain vertical lines, while horizontal lines should only be used between the table heading and data (see Table 1 of this note) and at the bottom of the table. If horizontal lines contribute to the clarity of the table, they can be used in the heading of the table.

Tables and charts should be given in Microsoft Word format (which implies that the graphs are illustrated in Word), created and delivered in a program that allows for their additional editing. The information on the graphs should not be highlighted by colours but by pattern fill. If the text contains tables and charts downloaded from the Internet, they should be provided in no less than the resolution of 300 dpi, grayscale colour mode. These parameters apply to any photos that are attached as part of the text.

Statistical tests and measures. All symbols of statistical tests and measures should be written in italics throughout the text, including tables (*M*, *SD*, *F*, *t*, *p*).

Footnotes and abbreviations. Abbreviations and footnotes should be avoided.

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In the list of references at the end of the paper, as well as in brackets within the text, all references, including those in Serbian, are written in Latin script. The surnames of foreign authors in papers written in Serbian are transcribed phonetically. The original surname is also provided in brackets, for example: Skot (Scott, 2004).

References within the text should contain: the author's surname, the year of publication of the source and the number of the page if a citation is made. If a number of authors are to be cited in brackets within the text, they must be cited in alphabetical order, not chronologically. If there are only two authors, both should be written in brackets. When there are more than two authors, the surname of the first author is given and the abbreviation "et al." or „i sar" (depending on the language of the paper).

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Colić, V. (2012). Roditelji i vaspitači o pripremi dece za polazak u školu. *Pedagogija*, 67(2), 252-260.

Emmer, E. T., & Stough, L. M. (2001). Classroom management: A critical part of educational psychology, with implications for teacher education. *Educational Psychology*, 36(2), 103-112. https://doi.org/10.1207/S15326985EP3602_5

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Maksić, S. i Pavlović, J. (2013). Nastava koja podržava kreativnost. U R. Nikolić (ur.), *Nastava i učenje, Kvalitet vaspitno-obrazovnog procesa* (str. 53-64). Učiteljski fakultet u Užicu Univerziteta u Kragujevcu.

Cruse, D. A. (2002). Hyponymy and its varieties. In R. Green, C. A. Bean, & S. H. Myaeng (Eds.), *The semantics of relationships: An interdisciplinary perspective* (pp. 3-22). Kluwer Academic Publishers.

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Spasenović, V., Vujišić Zivković, N., & Skubic Ermenc, K. (2012). The role of comparative pedagogy in the training of pedagogues in Serbia and Slovenia. In N. Popov, C. Wolhuter, B. Leutwyler, G. Hilton, J. Ogunleye, & P. Almeida (Eds.), *International perspectives on education, BCES Conference* (pp. 36-42). Bulgarian Comparative Education Society.

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