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Digitalna pismenost i digitalna kompetencija u nastavi engleskog kao stranog jezika: stavovi nastavnika i pedagoška stvarnost

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Apstrakt *Ovaj rad istražuje ulogu digitalne pismenosti i digitalne kompetencije u nastavi i učenju engleskog kao stranog jezika (engl. EFL), sa fokusom na efikasnu primenu digitalnih alata u nastavnoj praksi. Istaknuta su dva međusobno povezana pojma: digitalna pismenost, definisana kao sposobnost pristupa, procene, korišćenja i kreiranja informacija putem digitalnih tehnologija; i digitalna kompetencija, koja podrazumeva skup kognitivnih, tehničkih i socijalnih veština potrebnih za smisleno učestvovanje u digitalnom okruženju. Primenjeno je kvantitativno istraživanje radi ispitivanja kompetencija i stavova EFL nastavnika, kao i sopstvene percepcije o digitalnoj pismenosti. Učestvovalo je 139 EFL nastavnika iz Srbije i Bosne i Hercegovine, a upitnik je sadržao pitanja zatvorenog i otvorenog tipa, uključujući Likertovu skalu i višestruki izbor. Rezultati pokazuju da se digitalna pismenost prepoznaje kao suštinski deo nastave jezika. Ispitanici poseduju visok nivo svesti o pedagoškim prednostima digitalne pismenosti, naročito u podsticanju autonomije i samopouzdanja učenika. Međutim, i dalje se prepoznaju izazovi: neujednačen pristup tehnologiji, rizici u vezi sa digitalnom bezbednošću i ograničene mogućnosti za specijalizovanu obuku nastavnika. Dok rezultati potvrđuju obe hipoteze – samopercepciju nastavnika o digitalnoj pismenosti i prepoznavanje njenog obrazovnog značaja – studija naglašava potrebu za podrškom nastavnicima u primeni digitalnih alata u učionici. Rad skreće pažnju na važnost integracije digitalne pismenosti i kompetencije u nastavu jezika, i ukazuje na potrebu za kontinuiranom podrškom nastavnicima u tehnološki unapređenoj nastavi.*

Ključne reči: *digitalna pismenost, digitalna kompetencija, ESL nastavnici, nastava jezika, digitalni alati.*

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Uvod

Digitalna pismenost postala je jedna od ključnih veština 21. veka, oblikujući načine na koje pojedinci pristupaju informacijama, komuniciraju i učestvuju u celoživotnom učenju (Spires et al., 2018). U nastavi jezika, ona doprinosi unapređenju kompetencija učenika putem digitalnih alata i internet-resursa. Definisana kao sposobnost pronalaženja, organizovanja, procenjivanja, razumevanja i kreiranja informacija korišćenjem digitalnih tehnologija (Reddy et al., 2020a), njena sve veća važnost odražava rastuću zabrinutost u vezi sa dostupnošću podataka, bezbednošću na internetu i sadržajima koje kreiraju sami korisnici (Mandić et al., 2024).

Usko povezan pojam jeste digitalna kompetencija, koja podrazumeva integraciju kognitivnih, tehničkih i socijalnih veština neophodnih za smisleno učešće u digitalnim okruženjima (Reddy et al., 2020a; Reddy et al., 2020b). Dok digitalna pismenost naglašava kritički odnos prema informacijama, digitalna kompetencija stavlja akcenat na njihovu etičku i efikasnu primenu. Džang i Vu (Zhang & Wu, 2025) utvrdili su da nastavnici sa razvijenijim digitalnim veštinama postižu bolje rezultate u planiranju nastave, angažovanju učenika i prilagođavanju različitim nastavnim situacijama. Ipak, integracija digitalnih tehnologija u nastavu i dalje nije ujednačena. Pregled 24 istraživanja iz oblasti nastave engleskog kao stranog jezika (Yalçin & Bozyiğit, 2023) ukazuje na potrebu za ciljanim stručnim usavršavanjem nastavnika. Slične nalaze potvrđuju i regionalna istraživanja: Veljković Mihos i Bošković Marković (Veljković Michos & Bošković Marković, 2020) pokazale su da nastavnici stranih jezika prepoznaju značaj digitalnih alata, ali se suočavaju sa neujednačenom institucionalnom podrškom, dok su Gavranović i Veljković Mihos (Gavranović & Veljković Michos, 2022) utvrdili da hibridna nastava doprinosi razvoju digitalnih kompetencija, budući da od nastavnika zahteva snalaženje kako u fizičkom tako i u virtuelnom okruženju. Institucionalne inicijative, poput platforme Univerziteta u Sarajevu (UNICEF, 2023) i Okvira digitalnih kompetencija Republike Srbije (Ministarstvo prosvete, 2023), predstavljaju strateške napore usmerene ka unapređenju pedagoške i tehnološke osposobljenosti nastavnika, sa ciljem integrisanja digitalnih alata u planiranje nastave, interakciju u učionici i vrednovanje postignuća učenika.

Polazeći od navedenih pedagoških pretpostavki, ovo istraživanje ispituje na koji način se digitalna pismenost i digitalna kompetencija integrišu u nastavu engleskog jezika kao stranog. Posebna pažnja posvećena je upotrebi digitalnih tehnologija od strane nastavnika, kao i njihovoj samoproceni digitalnih veština. U skladu sa ciljevima istraživanja i relevantnom literaturom, formulisane su dve hipoteze: (H1) nastavnici engleskog jezika kao stranog smatraju sebe digitalno pismenim i pokazuju digitalnu kompetentnost kroz upotrebu odabranih digitalnih alata u nastavi; i (H2) nastavnici engleskog jezika kao stranog svesni su značaja digitalne pismenosti u savremenom obrazovanju. Istraživanje se zasniva na kvantitativnoj metodologiji, obuhvatajući ispitivanje stavova i iskustava 139 nastavnika engleskog jezika iz Srbije i Bosne i Hercegovine u vezi sa smislenom integracijom digitalnih alata u nastavni proces. Smeštanjem rezultata u širi globalni i regionalni

kontekst, rad doprinosi boljem razumevanju načina na koji digitalne tehnologije oblikuju jezičko obrazovanje u specifičnom društvenom okruženju. Posebno se razmatraju izazovi kao što su digitalni jaz, nejednak pristup tehnologiji, zaštita privatnosti podataka i nedovoljno ujednačena obuka nastavnika. Analizom aktuelnih praksi i percepcija pokazuje se kako se digitalna pismenost i digitalna kompetencija mogu uspešno integrisati u nastavu engleskog jezika radi podsticanja autonomije učenika i njihovog aktivnijeg uključivanja u proces učenja.

Digitalna pismenost i kritičko vrednovanje sadržaja

UNESCO ističe da digitalna pismenost danas predstavlja jednu od osnovnih životnih veština koja povećava mogućnosti zapošljavanja i ubrzava sticanje drugih kompetencija (Karpati, 2011). Ona obuhvata sposobnost bezbednog i samouverenog snalaženja u digitalnim okruženjima. Furber (Furber, 2012) smatra da bi učenici do završetka obaveznog obrazovanja trebalo da budu digitalno pismeni, odnosno sposobni da kreiraju i uređuju tekstualne, vizuelne, audio i video sadržaje, kritički procenjuju informacije dostupne na internetu, koriste kancelarijske softverske alate i razvijaju pismenost kroz digitalno čitanje i pisanje. Iako se raniji okviri i modeli (Brown et al., 2016; Furber, 2012) danas mogu činiti prevaziđenim, oni i dalje predstavljaju značajne referentne tačke za razumevanje razvoja digitalne pismenosti i kritičkog vrednovanja digitalnih sadržaja.

Tabela 1
Pregled ključnih pojmova (prema Brown et al., 2016)

	Informaciona pismenost	Medijska pismenost	Računarska pismenost	Digitalna pismenost
Definicija	Sposobnost efikasnog pronalaženja, identifikovanja, pristupanja, obrade i korišćenja digitalnih informacija (Karpati, 2011).	Sposobnost pristupanja medijskim sadržajima, njihovog razumevanja, analiziranja i kritičkog vrednovanja, kao i efikasnog kreiranja i prenošenja informacija putem različitih platformi i u različitim kontekstima (European Commission, 2018).	Osnovno razumevanje računarskih sistema i softvera; skup suštinskih kompetencija neophodnih za smisleno učešće u digitalno posredovanom društvu, u kojem su usluge i resursi dostupni i distribuirani putem interneta (Karpati, 2011).	Sposobnost korišćenja, vrednovanja i integrisanja različitih digitalnih resursa u kontekstu celoživotnog učenja, sa naglaskom na kritičko procenjivanje digitalnih sadržaja.

Vajsberg i saradnici (Weisberg et al., 2023) ističu da kritičko mišljenje ima centralnu ulogu u načinu na koji učenici pretražuju, tumače i procenjuju informacije. U kontekstu nastave engleskog jezika kao stranog, Silvijani i saradnici (Silvhiany et al., 2021) utvrdili su da se učenici često oslanjaju na površne karakteristike izvora informacija umesto da analiziraju autorstvo, nameru autora ili dokaze na kojima se informacije zasnivaju. Ovi nalazi ukazuju na potrebu da se učenici osposobe za kritičko promišljanje kako bi postali samostalni i odgovorni digitalni građani. U Tabeli 1 prikazane su kategorije digitalne pismenosti, preuzete i prilagođene prema istraživanju Brauna i saradnika (Brown et al., 2016), koje i dalje predstavljaju značajno polazište za savremena istraživanja u ovoj oblasti.

Pored osnovnih oblika pismenosti – informacione, medijske, računarske i digitalne – savremeni pristupi uvode i petu kategoriju: pismenost u oblasti veštačke inteligencije (engl. AI literacy), koja se definiše kao sposobnost razumevanja, vrednovanja i etičkog korišćenja tehnologija zasnovanih na veštačkoj inteligenciji (Ng et al., 2021; Su et al., 2023; UNESCO, 2024).

Savremene perspektive digitalne i AI pismenosti i kompetencija

Savremena istraživanja digitalne pismenosti (Nguyen & Habók, 2024; Sánchez-Cruzado et al., 2021) i digitalnih kompetencija (Basilotta-Gomez-Pablos et al., 2022; Guillén-Gámez et al., 2021) bave se modelima njihovog sticanja i procene, ukazujući na potrebu za kontinuiranim unapređivanjem pedagoških znanja i veština nastavnika stranih jezika.

Basilota-Gomez-Pablos i saradnici (Basilotta-Gomez-Pablos et al., 2022) definišu digitalnu kompetenciju kao skup znanja, veština i stavova neophodnih za efikasnu upotrebu tehnologije u nastavi. Njihov pregled 56 istraživanja pokazuje da nastavnici često procenjuju sopstveni nivo digitalnih kompetencija kao nizak ili umereno nizak, posebno u oblasti vrednovanja i ocenjivanja. Takođe su uočene razlike između nivoa kompetencija i stvarne upotrebe veb-alata, pri čemu uzrast i pol utiču na razvijenost digitalnih veština (Guillén-Gámez et al., 2021). Sančez-Kruzado i saradnici (Sánchez-Cruzado et al., 2021), na osnovu istraživanja sprovedenog među 4.883 nastavnika u Španiji, došli su do sličnih rezultata u pogledu niske samoprocene digitalnih kompetencija i predložili program stručnog usavršavanja zasnovan na Zajedničkom okviru Naionalnog instituta za obrazovne tehnologije i obuku nastavnika (Instituto Nacional de Tecnologías Educativas y Formación del Profesorado – INTEF), uz primenu alata ACDC. Ngujen i Habok (Nguyen & Habók, 2024), analizirajući istraživanja objavljena u periodu od 2011. do 2022. godine, ukazuju na značaj obrazovnih tehnologija za nastavu, učenje, profesionalni razvoj nastavnika i podršku učenicima. Savremeni okviri sve više obuhvataju i oblast veštačke inteligencije, poput UNESCO-vog Okvira kompetencija za veštačku inteligenciju (UNESCO, 2024), koji definiše znanja, veštine i vrednosti neophodne nastavnicima za odgovornu primenu veštačke inteligencije.

Pismenost u oblasti veštačke inteligencije postala je značajna dimenzija digitalne pismenosti (Nguyen & Habók, 2024; Su et al., 2023). Njena integracija omogućava personalizovano učenje kroz nastavne materijale prilagođene sposobnostima i interesovanjima učenika, dok povratne informacije podržane veštačkom inteligencijom doprinose većem angažovanju i motivaciji učenika. Istovremeno, sve veća zastupljenost veštačke inteligencije i robotike u obrazovanju otvara brojna pedagoška i etička pitanja i izazove (Mandić et al., 2024).

Inicijative za uvođenje veštačke inteligencije u predškolsko obrazovanje privlače sve veću pažnju uprkos raspravama o njihovoj prikladnosti i opravdanosti (Su et al., 2023). Rano upoznavanje dece sa pismenošću u oblasti veštačke inteligencije doprinosi razvoju teorije uma, emocionalne svesti, kreativnog istraživanja i saradničkog učenja (Su & Yang, 2022). Kada se digitalna pismenost razvija od najranijeg uzrasta, učenici su bolje pripremljeni za korišćenje alata zasnovanih na veštačkoj inteligenciji u svrhu personalizovanog učenja, automatizovanog pružanja povratnih informacija, kao i podrške u pisanju kroz sintezu informacija i generisanje ideja. Nastavnici takođe imaju koristi od primene veštačke inteligencije u administrativnim poslovima, kao što su ocenjivanje, izrada nastavnih programa, kreiranje nastavnih sadržaja, ispravljanje učeničkih radova i predviđanje potencijalnih rizika u procesu učenja (Galindo-Domínguez et al., 2024).

Globalna digitalizacija i regionalne perspektive

Globalna digitalizacija tokom pandemije COVID-19 ubrzala je integraciju digitalnih alata u obrazovanju. U Srbiji se nastava stranih jezika prilagodila novim okolnostima uz minimalne poteškoće zahvaljujući platformama kao što su *Google Meet*, *Microsoft Teams*, *Zoom* i *Skype*, koje su omogućile virtuelna iskustva slična tradicionalnoj nastavi u učionici (Ilić & Bošković Marković, 2020; Veljković Michos & Bošković Marković, 2020). Efikasnost primene ovih tehnologija zavisi od pedagoške procene nastavnika, pri čemu digitalno kompetentni nastavnici osmišljavaju nastavne aktivnosti i ishode učenja nezavisno od nivoa tehnološke osposobljenosti učenika (Veljković Michos & Bošković Marković, 2020).

Takvi nastavnici istovremeno moraju da obavljaju i osnovne nastavne zadatke – pregledanje domaćih zadataka, ispravljanje pismenih radova i kreiranje onlajn aktivnosti – dok se istovremeno snalaze u različitim digitalnim okruženjima i platformama. Ipak, mnogi od njih nemaju formalno obrazovanje ili obuku za osmišljavanje i upravljanje digitalnim okruženjima za učenje (Ristić, 2019). Istraživanje sprovedeno na uzorku od 200 ispitanika (100 studenata i 100 nastavnika) potvrdilo je da su pedagoške i digitalne kompetencije nastavnika od suštinskog značaja za održavanje angažovanosti učenika i obezbeđivanje dinamičnog i smislenog predstavljanja nastavnih sadržaja (Veljković Michos et al., 2024).

Više zvaničnih dokumenata u Srbiji definiše okvire digitalnih kompetencija nastavnika. Ministarstvo prosvete usvojilo je Okvir digitalnih kompetencija – Nastavnik za digi-

talno doba 2017. godine, koji je revidiran 2019. godine, sa ciljem unapređenja kvaliteta nastave i efikasne primene digitalnih tehnologija u obrazovanju. Nadovezujući se na ovaj dokument, Zavod za vrednovanje kvaliteta obrazovanja i vaspitanja uveo je 2022. godine Instrument za samoprocenu digitalnih kompetencija nastavnika. Godine 2023. objavljena je revidirana verzija dokumenta Okvir digitalnih kompetencija – Nastavnik za digitalno doba, koja obuhvata kompetencije kao što su upravljanje digitalnim informacijama, kreiranje digitalnih sadržaja, podsticanje onlajn saradnje, sprovođenje digitalnog vrednovanja i obezbeđivanje etičke upotrebe tehnologija.

U skladu sa međunarodnim trendovima, Srbija je pokazala stratešku posvećenost integraciji digitalnih tehnologija u nastavnu praksu. Sa ciljem standardizacije njihove primene, Jokić i saradnici (Jokić et al., 2025) potvrdili su pouzdanost i strukturu revidiranog instrumenta za procenu digitalnih kompetencija nastavnika, pokazavši da se ove kompetencije mogu organizovati u jasno definisane oblasti digitalne prakse. Ove inicijative doprinose operacionalizaciji digitalnih standarda u obrazovnom sistemu Srbije i dodatno potvrđuju relevantnost i primenljivost postojećeg okvira digitalnih kompetencija.

Slično tome, Univerzitet u Sarajevu pokrenuo je platformu DigiEdu sa ciljem unapređenja digitalnih i pedagoških kompetencija nastavnika u Bosni i Hercegovini. Platforma nudi akreditovane onlajn kurseve, interaktivne radionice i sveobuhvatnu bazu obrazovnih resursa koja se kontinuirano proširuje, uz podršku organizacija UNICEF, USAID i Erasmus+ (UNICEF, 2023). U istom kontekstu, Seferović (Seferović, 2023) istraživao je digitalnu pismenost nastavnika engleskog jezika kao stranog u Bosni i Hercegovini i Srbiji, ističući ulogu digitalnih alata kao pokretača kritičkog promišljanja, aktivnog angažovanja učenika i razvoja autonomnog učenja.

Metodologija istraživanja

U skladu sa međunarodnim standardima, obe zemlje Balkana podstiču razvoj digitalnih kompetencija nastavnika kroz nacionalne i institucionalne inicijative. Ovo istraživanje zasniva se na kvantitativnom pristupu sa ciljem ispitivanja uloge digitalne pismenosti i digitalne kompetencije u nastavi engleskog jezika kao stranog, kao i integracije digitalnih alata u nastavni proces. Ciljevi istraživanja obuhvataju ispitivanje stavova, percepcija i iskustava nastavnika u vezi sa digitalnim tehnologijama, procenu njihovih kompetencija i analizu svesti o značaju razvoja digitalne pismenosti u jezičkom obrazovanju. Istraživanje je vođeno dvema hipotezama: prva polazi od pretpostavke da nastavnici engleskog jezika kao stranog poseduju adekvatan nivo digitalne pismenosti za efikasnu integraciju digitalnih alata u nastavu, dok druga pretpostavlja da oni prepoznaju značaj digitalne pismenosti i digitalnih kompetencija u savremenom društvu.

Instrument za prikupljanje podataka

Upitnik je prvobitno razvijen 2023. godine u okviru master rada, uz akademsko mentorstvo i stručne konsultacije autorki. Osmišljen je sa ciljem ispitivanja digitalne pismenosti i samoprocenjene digitalne kompetentnosti nastavnika engleskog jezika u Srbiji i Bosni i Hercegovini u nastavnom, komunikacijskom i refleksivnom domenu. U ovom istraživanju ponovo je primenjen, uz manje izmene radi omogućavanja šireg komparativnog uvida.

Onlajn anketa realizovana putem platforme *Google Forms*, pod nazivom „Digitalna pismenost i digitalne kompetencije nastavnika engleskog jezika kao stranog", sastojala se iz tri celine: demografski podaci (5 pitanja), konceptualno znanje i samoprocena (10 pitanja u formi Likertove skale i pitanja sa višestrukim izborom), kao i pedagoška praksa (7 pitanja koja su obuhvatala višestruki izbor, otvorena pitanja i Likertovu skalu).

Pilot-istraživanje, sprovedeno na uzorku od 30 ispitanika ($N = 30$), potvrdilo je pouzdanost instrumenta. Stavke zasnovane na Likertovoj skali pokazale su visok stepen unutrašnje konzistentnosti u merenju samoprocenjene digitalne kompetentnosti i svesti o značaju digitalne pismenosti.

Ukupno 22 pitanja uključena su u konačnu verziju upitnika. Instrument je razvijen na osnovu relevantnih teorijskih okvira, pri čemu su posebno integrisane dimenzije evropskog okvira DigCompEdu (European Framework for the Digital Competence of Educators) i nacionalnog dokumenta Okvir digitalnih kompetencija – Nastavnik za digitalno doba (Ministarstvo prosvete, nauke i tehnološkog razvoja, 2023). Osmišljen je anonimni onlajn upitnik, koji je distribuiran među 139 nastavnika engleskog jezika kao stranog.

Konačni uzorak čini 86.3% ispitanica ($N = 120$) i 13.7% ispitanika ($N = 19$), pri čemu je većina učesnika starosti između 31 i 50 godina. Ispitanici dolaze iz različitih obrazovnih institucija: 46.8% radi u osnovnim školama, 23% u srednjim školama, 5.8% na univerzitetima, dok je 25.2% zaposleno u privatnim obrazovnim ustanovama. Ostali ispitanici rade onlajn ili kao samostalni saradnici. U pogledu radnog iskustva, 43.9% nastavnika ima više od 13 godina radnog staža.

Prikupljeni podaci analizirani su sa ciljem identifikovanja obrazaca u upotrebi digitalnih alata, u samoprocenjenim digitalnim kompetencijama i u svesti o značaju digitalne pismenosti. Metodologija istraživanja osmišljena je tako da pruži uvid u iskustva aktivnih nastavnika koji u svoj rad integrišu digitalne prakse, ali i da ukaže na prednosti i ograničenja primene digitalnih alata u nastavi. Ovakav pristup omogućio je ispitivanje izazova kao što su digitalni jaz, nejednak pristup tehnologiji, pitanja digitalne bezbednosti i potreba za redovnim i ciljano usmerenim stručnim usavršavanjem nastavnika, radi sigurnije i inovativnije primene digitalnih tehnologija u nastavi engleskog jezika kao stranog.

Upitnik je obuhvatio različite tipove pitanja. Na primer, konceptualno znanje ispitivano je pitanjem sa višestrukim izborom: „Koja od navedenih definicija najbolje opisuje digitalnu kompetenciju?" Samoprocenjena kompetentnost merena je pomoću petostepene Likertove skale (1 = u potpunosti se ne slažem; 5 = u potpunosti se slažem) za tvrdnje poput: „Siguran/sigurna sam u svoju sposobnost da kreiram sopstvene digitalne nastavne

sadržaje za nastavu engleskog jezika kao stranog." Segment koji se odnosio na pedagošku praksu obuhvatao je i pitanje sa višestrukim izborom (Tabela 3), u kojem su ispitanici označavali digitalne alate koje najčešće koriste u nastavi.

Ovo istraživanje zasniva se na dva međusobno povezana i komplementarna pojma: digitalnoj pismenosti, koja podrazumeva sposobnost pristupanja informacijama, njihovog vrednovanja, korišćenja i kreiranja uz pomoć digitalnih tehnologija, i digitalnoj kompetenciji, koja obuhvata tehničke, kognitivne i socijalne veštine neophodne za aktivno učešće u digitalnim okruženjima. Oba pojma smatraju se ključnim za profesionalni razvoj nastavnika.

Rezultati istraživanja: interpretacija i komparativni uvidi

Prvi deo upitnika odnosio se na demografske podatke ispitanika. Drugi deo bio je usmeren na ispitivanje njihovog teorijskog znanja i poznavanja ključnih pojmova. Na pitanje kojim se definiše digitalna pismenost, 97.1% ispitanika (N = 135) odabralo je odgovor „sposobnost pretraživanja, analiziranja, čitanja, pisanja i interakcije u digitalnom okruženju", što je u skladu sa opšteprihvaćenim shvatanjima ovog pojma. Među ostalim ponuđenim odgovorima našli su se „igranje onlajn igara", „pristupanje informacijama na internetu" i „kreiranje digitalnih sadržaja". Ovi odgovori ukazuju na potrebu za ciljanim stručnim usavršavanjem nastavnika kako bi se jasnije razumela uloga digitalne pismenosti u planiranju nastave i podsticanju angažovanja učenika.

Definicije digitalne kompetencije pokazale su veću raznovrsnost. Najveći broj ispitanika, 62.6% (N = 87), opredelio se za definiciju koja digitalnu kompetenciju opisuje kao „slobodno i kritičko korišćenje digitalnih alata u poslovne, rekreativne i komunikacione svrhe", dok je 24.5% ispitanika (N = 34) odabralo odgovor „sposobnost čitanja, pisanja i korišćenja digitalnih sadržaja". Ostali odgovori odražavali su uže razumevanje ovog pojma, povezujući ga prvenstveno sa igranjem igara, pristupom informacijama ili kreiranjem sadržaja. Ovi rezultati ukazuju na to da nastavnici delimično prepoznaju da digitalna kompetencija prevazilazi okvir tehničkih veština i podrazumeva samostalnu, odgovornu i pedagoški svrsishodnu upotrebu digitalnih tehnologija (Reddy et al., 2020b; Zhang & Wu, 2025).

Dobijeni nalazi takođe ukazuju na značajno preklapanje pojmova digitalne pismenosti i digitalne kompetencije, budući da oba podrazumevaju smislenu interakciju u digitalnim okruženjima. Ipak, digitalna kompetencija obuhvata širi spektar kognitivnih, socijalnih i etičkih veština, što ukazuje na potrebu za jasnijim razgraničenjem ovih dvaju koncepata, kako u teoriji tako i u praksi. Većina nastavnika izjasnila se da sebe smatra digitalno pismenim, dok je samo jedan ispitanik izrazio neslaganje sa takvom procenom, što ukazuje na visok nivo samopouzdanja među nastavnicima engleskog jezika kao stranog. Međutim, samoprocena ne mora nužno odražavati stvarnu pedagošku efikasnost. U tom kontekstu, institucionalne inicijative (Ministarstvo prosvete, 2023; UNICEF, 2023) imaju ključnu ulogu u prevazilaženju ovog jaza, dok izveštaj „DC4LT" (Fominykh et al., 2019) na-

glašava potrebu usklađivanja kompetencija nastavnika sa zahtevima poslodavaca i obrazovnim politikama u oblasti nastave jezika.

Tabela 2
Samoprocena digitalne pismenosti nastavnika engleskog jezika kao stranog

Kategorija odgovora	Br. ispitanika	Procenat
Uopšte se ne smatram digitalno pismenom osobom	1	.7%
Ne smatram se dovoljno digitalno pismenom osobom	0	0%
Ne mogu da procenim	37	26.6%
Smatram da sam digitalno pismena osoba	61	43.9%
Smatram da sam u potpunosti digitalno pismena osoba	40	28.8%

Treći deo istraživanja bio je usmeren na ispitivanje načina na koji nastavnici engleskog jezika kao stranog primenjuju digitalne alate i kompetencije u nastavnoj praksi. Ispitanici su mogli da izaberu više ponuđenih odgovora, uključujući platforme, aplikacije, veb-sajtove, igre i kvizove. Kao što je prikazano u Tabeli 3, najčešće korišćeni digitalni alati su veb-sajtovi (68.3%), platforme (66.9%), kvizovi (66.2%) i aplikacije (54.7%), što je u skladu sa širim trendovima koji ukazuju na sklonost ka korišćenju jednostavnih i pristupačnih digitalnih resursa (Hatlevik & Christophersen, 2013; Petko et al., 2018).

Tabela 3
Koje digitalne alate najčešće koristite u nastavi? (moguće je odabrati više odgovora)

Kategorija	Broj odgovora	Procenat
Platforme	93	66.9%
Aplikacije	76	54.7%
Veb-sajtovi	95	68.3%
Igre	52	37.4%
Kvizovi	92	66.2%
Sve navedeno	2	1.4%
Bamboozle, *Kahoot*, digitalni alati	1	.7%
Video-snimci se najčešće koriste	1	.7%
Sve	1	.7%

S druge strane, platforme zasnovane na igrovnim aktivnostima, kao što su *Bamboozle* i *Kahoot*, koristile su se znatno ređe, što može ukazivati na ograničenu dostupnost ovih alata ili na sklonost nastavnika ka tradicionalnijim nastavnim sredstvima. Samo dva ispitanika navela su da koriste sve ponuđene alate, što upućuje na selektivnu i fragmentarnu integraciju digitalnih tehnologija u nastavni proces.

Ovi rezultati ukazuju na potrebu za stručnim usavršavanjem koje bi nastavnicima omogućilo upoznavanje sa širim spektrom digitalnih alata, ali istovremeno i naglasilo njihov pedagoški značaj u razvoju autonomije učenika i formativnom vrednovanju postig-

nuća. Prihvatanje i primena digitalnih tehnologija u velikoj meri zavise od samopouzdanja nastavnika i institucionalne podrške. Sličan jaz između dostupnosti digitalnih alata i njihove efikasne upotrebe (van der Vlies, 2020), kao i između poznavanja alata i njihove strateške integracije u nastavu (Zhang & Wu, 2025), dodatno naglašava značaj ciljano osmišljenih programa stručnog usavršavanja.

Istraživanje je obuhvatilo i učešće nastavnika u programima obuke iz oblasti digitalne pismenosti. Od ukupno 139 ispitanika, 35.3% ($N = 49$) navelo je da je pohađalo takve programe, dok 64.7% ($N = 90$) nije imalo takvo iskustvo. Ispitanici koji su učestvovali u obukama naveli su različite oblike stručnog usavršavanja (Tabela 4), uključujući „Erasmus" programe, institucionalne seminare, vebinare i univerzitetske kurseve. Ovi podaci potvrđuju da mogućnosti za usavršavanje postoje, ali da na učešće mogu uticati faktori poput informisanosti nastavnika, vremenskih ograničenja, institucionalne podrške ili lične motivacije. Prethodna istraživanja pokazuju da sama dostupnost programa nije dovoljna, već da su njihova promocija, relevantnost i podrška institucija od presudnog značaja (Howard et al., 2020; Hennessy et al., 2021).

Iako mnogi nastavnici iskazuju visok stepen samopouzdanja u korišćenju digitalnih alata, relativno nizak procenat formalne obuke postavlja pitanje na koji su način ove kompetencije razvijane. Verovatno je da značajnu ulogu imaju neformalno učenje, saradnja sa kolegama i samostalno usavršavanje, naročito kada su praćeni ličnim angažovanjem i refleksijom o sopstvenoj praksi (Yan et al., 2025). Rezultati pokazuju da je samo 35.3% nastavnika učestvovalo u organizovanim oblicima obuke, dok 64.7% nije učestvovalo. To ukazuje na ograničen obim formalnog profesionalnog razvoja, ali ne nužno i na nedostatak pristupa resursima i mogućnostima za učenje.

Odgovori koji se odnose na obuke iz oblasti digitalne kompetencije i digitalne pismenosti pokazuju raznovrsnost dostupnih programa: nacionalne seminare (Ministarstvo prosvete, 2023; 2019; 2017), univerzitetske kurseve (Ristić, 2019), kao i međunarodne programe poput „Erasmus" projekata i „Cambridge" radionica. Ova raznovrsnost odražava dinamičan razvoj digitalnih kompetencija nastavnika u evropskom obrazovnom prostoru (INTEF, 2017; European Commission, 2018). Ipak, jaz između pohađanja obuka i njihove stvarne primene u nastavnoj praksi potvrđuje nalaze međunarodnih istraživanja. Ngujen i Habok (Nguyen & Habók, 2024) ukazuju da samoprocenjena digitalna pismenost često proizilazi iz neformalnog učenja, dok Hatlevik i Kristofersen (Hatlevik & Christophersen, 2013), kao i Sančez-Krusado i saradnici (Sánchez-Cruzado et al., 2021) naglašavaju da održiv razvoj digitalnih kompetencija zahteva njihovu sistematičnu pedagošku integraciju.

Dobijeni rezultati ukazuju na to da, iako nastavnici pokazuju poverenje u sopstvenu digitalnu pismenost, postoji potreba za čvršćim povezivanjem obrazovnih politika, nastavne prakse i stručnog usavršavanja. Celovit pristup, zasnovan na Okviru digitalnih kompetencija – Nastavnik za digitalno doba (2023) i potkrepljen rezultatima relevantnih istraživanja (Ilić & Bošković Marković, 2020; Seferović, 2023; Veljković Michos et al., 2024), može doprineti prelasku sa jednostavne upotrebe digitalnih alata ka njihovoj pedagoški utemeljenoj i kritički promišljenoj integraciji u nastavu.

Nastavnici su takođe upitani kojoj oblasti digitalnih kompetencija bi trebalo posvetiti veću pažnju kao zasebnom nastavnom predmetu. Ukupno 35.3% ispitanika opredelilo se za sve ponuđene opcije – kreiranje digitalnih sadržaja, strategije za efikasno prenošenje informacija i digitalnu pismenost. Ove oblasti obuhvataju veštine kao što su kreiranje digitalnih materijala, vrednovanje informacija dostupnih na internetu, etičko učešće u digitalnoj komunikaciji i integracija multimodalnih resursa, što je neposredno povezano sa nastavom jezika. Odgovori ispitanika ukazuju na to da nastavnici digitalne kompetencije posmatraju kao međusobno povezane i suštinski važne elemente savremene pedagogije.

Tabela 4

Kada biste mogli da birate, koju od navedenih oblasti biste želeli da vidite kao nastavni predmet u vašoj obrazovnoj ustanovi?

Oblast kompetencije	Procenat
Kreiranje digitalnih sadržaja	23.0%
Strategije za efikasno prenošenje informacija	26.6%
Digitalna pismenost	(manji procenat)
Sve navedene oblasti su važne i trebalo bi da budu uključene u nastavni program ili realizovane kroz dodatne oblike nastave	35.3%

Nastavnici su identifikovali oblasti u okviru digitalnih kompetencija u kojima smatraju da nisu dovoljno osposobljeni. Kao što je prikazano u Tabeli 5, najveći broj ispitanika naveo je digitalnu bezbednost i zaštitu (44.6%) kao oblast u kojoj im je potrebno dodatno usavršavanje, dok je digitalnu pismenost izdvojilo 10.8% ispitanika. Istovremeno, 35.3% nastavnika smatralo je da poseduje adekvatan nivo obučenosti u svim navedenim oblastima. Ovi nalazi u skladu su sa Okvirom digitalnih kompetencija – Nastavnik za digitalno doba (2023), koji obuhvata domene poput informacione pismenosti, komunikacije, kreiranja sadržaja, rešavanja problema i digitalne bezbednosti.

Iako mnogi nastavnici iskazuju poverenje u sopstvene digitalne kompetencije, pitanja bezbednosti i zaštite ostaju jedna od najslabije razvijenih oblasti, što je u skladu sa širim izazovima, koji se odnose na bezbedno i etički odgovorno učešće u digitalnom okruženju (Brown et al., 2016; Nguyen & Habók, 2024; Spires et al., 2018). Dobijeni rezultati ukazuju na potrebu za ciljano usmerenim programima stručnog usavršavanja u oblastima digitalne bezbednosti, digitalne etike i odgovorne upotrebe tehnologija. Pored toga, samoprocenjeni nivo kompetentnosti ne podrazumeva nužno i pedagošku spremnost za primenu digitalnih tehnologija u nastavi, posebno u oblastima koje zahtevaju visok stepen ličnog angažovanja, institucionalnu podršku i kontinuiranu refleksiju o sopstvenoj nastavnoj praksi (Yan et al., 2025).

Tabela 5
U kojim oblastima digitalnih kompetencija smatrate da vam je potrebno dodatno usavršavanje?

Oblast	Procenat
Digitalna pismenost	10.8%
Digitalna bezbednost i zaštita	44.6%
Nijedna od navedenih oblasti	35.3%

Poslednji deo istraživanja bio je posvećen ispitivanju upoznatosti nastavnika sa digitalnim pripovedanjem (digital storytelling), metodom koja kombinuje narativne i multimedijalne elemente sa ciljem unapređivanja fonoloških, gramatičkih i leksičkih kompetencija učenika koji uče engleski jezik kao strani, kroz zajedničko kreiranje priča (Al-Amri, 2020; Seferović, 2023). Više od polovine ispitanika (N = 79) izjavilo je da nije upoznato sa ovim pojmom i da ga ne primenjuje u nastavnoj praksi. Osim toga, većina nastavnika nije poznavala ni alate namenjene digitalnom pripovedanju, što ukazuje na nedovoljnu zastupljenost ove teme u programima stručnog usavršavanja. Ovi nalazi ukazuju na potrebu za ciljano osmišljenim obukama koje bi podržale kreativne pristupe nastavi usmerene na učenika.

Kao multimodalna nastavna strategija, digitalno pripovedanje može da poveže digitalne kompetencije sa inovativnim nastavnim pristupima, čineći nastavu inkluzivnijom, dinamičnijom i podsticajnijom za učenike. Dobijeni rezultati potvrđuju obe postavljene hipoteze istraživanja. Prva hipoteza potvrđuje da nastavnici engleskog jezika kao stranog sebe doživljavaju kao digitalno pismene i kompetentne za upotrebu odabranih digitalnih alata u nastavi, dok druga ukazuje na to da prepoznaju značaj digitalne pismenosti u savremenom obrazovanju. Ipak, rezultati su istovremeno ukazali na postojanje određenih nedostataka u oblasti stručnog usavršavanja i poznavanja savremenih pedagoških strategija.

Rezultati svih segmenata istraživanja naglašavaju potrebu za kontinuiranim i ciljano usmerenim stručnim usavršavanjem nastavnika, posebno u oblasti specijalizovanih digitalnih alata i pristupa, koja obuhvata i digitalno pripovedanje. Takvi programi mogu doprineti transformaciji osnovnih digitalnih veština u inovativne nastavne prakse usmerene na učenika. Razvijene digitalne kompetencije omogućavaju veći stepen angažovanosti učenika, podstiču njihovu autonomiju i doprinose inkluzivnijem pristupu nastavi engleskog jezika kao stranog.

Sledeći rezultati potvrđuju naše dve osnovne hipoteze, koje su zasnovane na visokom stepenu saglasnosti ispitanika u okviru analize frekvencija odgovora.

Tabela 6
Deskriptivna statistika i testiranje hipoteza

Konstrukt (varijabla)	*N*	Aritmetička sredina (*M*)	Standardna devijacija (*SD*)	Tumačenje
Samoprocena (Hipoteza 1)	139	4.00	.789	Potvrđena: aritmetička sredina iznosi tačno 4,00, što na petostepenoj Likertovoj skali odgovara stepenu slaganja.
Svest o značaju digitalne pismenosti (Hipoteza 2)	139	4.331	1.066	Potvrđena: aritmetička sredina je znatno iznad vrednosti 4,00, što ukazuje na visok stepen saglasnosti ispitanika o potrebi za razvojem digitalne pismenosti i kompetencija.

Ukupna prosečna vrednost samoprocene digitalne pismenosti nastavnika iznosila je $M = 4.00$ ($SD = .789$) na petostepenoj skali, što odgovara nivou slaganja sa ponuđenom tvrdnjom. Ovaj rezultat pruža podršku prvoj hipotezi istraživanja i ukazuje na to da nastavnici engleskog jezika kao stranog uglavnom sebe doživljavaju kao digitalno pismene. Visok stepen saglasnosti zabeležen je i kod tvrdnje koja se odnosi na potrebu za daljim razvojem digitalne pismenosti i digitalnih kompetencija kod učenika svih uzrasnih grupa ($M = 4.331$; $SD = 1.066$). Ovaj nalaz pruža snažnu podršku drugoj hipotezi i ukazuje na široko rasprostranjenu svest nastavnika o sve većem značaju digitalnih veština u savremenoj pedagoškoj praksi.

Pored toga, primenjen je t-test za nezavisne uzorke kako bi se ispitale razlike u samoproceni digitalne pismenosti između nastavnika muškog pola ($M = 4.263$; $SD = .810$) i nastavnica ($M = 3.958$; $SD = .786$). Dobijena razlika nije bila statistički značajna ($t(137) = 1.572$; $p = .118$). Iako su nastavnici muškog pola iskazali nešto višu prosečnu vrednost samoprocene, rezultati pokazuju da pol nije značajan prediktor samoprocenjene digitalne pismenosti u ovom uzorku.

Takođe je primenjena jednofaktorska analiza varijanse (*ANOVA*), radi ispitivanja povezanosti između dužine radnog staža i samoprocene digitalne pismenosti nastavnika. Ispitanici su svrstani u četiri kategorije prema godinama radnog iskustva (Tabela 7). Rezultati ukazuju na postojanje granično značajne razlike između posmatranih grupa ($F(3.135) = 2.574$; $p = .057$). Iako dobijena vrednost ne dostiže konvencionalni nivo statističke značajnosti ($p < .05$), rezultati pokazuju jasan trend: nastavnici sa najkraćim radnim stažom (od jedne do tri godine) iskazali su najviši nivo samoprocene digitalne pismenosti ($M = 4.286$), dok su nastavnici sa četiri do sedam godina radnog iskustva zabeležili najnižu prosečnu vrednost ($M = 3.727$). Ovaj nalaz može ukazivati na to da period rane profesionalne karijere (od četiri do sedam godina rada) predstavlja fazu preispitivanja, pritom i realnije procene sopstvenih digitalnih kompetencija u poređenju sa nastavnicima koji tek započinju profesionalni rad.

Tabela 7
Samoprocena digitalne pismenosti nastavnika u zavisnosti od dužine radnog staža

Grupa prema dužini radnog staža	*N*	Aritmetička sredina (*M*)	Standardna devijacija (*SD*)
1 - 3 godine	28	4.286	.810
4 - 7 godina	22	3.727	.827
8 - 12 godina	28	4.107	.786
Više od 13 godina	61	3.918	.737
ANOVA rezultati		F (3, 135) = 2.574, p = .057	

Zaključak

Rezultati ovog istraživanja pokazuju da nastavnici engleskog jezika kao stranog u Srbiji i Bosni i Hercegovini uglavnom sebe doživljavaju kao digitalno pismene i kompetentne za upotrebu odabranih digitalnih alata u nastavi. Ovako procenjen nivo kompetentnosti povezan je sa većom samostalnošću i sigurnošću nastavnika u realizaciji nastavnog procesa. Ipak, integracija digitalnih tehnologija u nastavu nije ujednačena. Dok se platforme i kvizovi široko koriste, alati zasnovani na principima gejmifikacije, kao što su *Bamboozle* i *Kahoot*, ostaju nedovoljno zastupljeni, a poznavanje i primena digitalnog pripovedanja su ograničeni. Najznačajniji uočeni nedostatak odnosi se na oblast digitalne bezbednosti i zaštite, pri čemu je gotovo polovina ispitanika izjavila da nije dovoljno obučena u ovoj oblasti.

Dobijeni rezultati pružaju podršku obema postavljenim hipotezama istraživanja: nastavnici sebe doživljavaju kao digitalno kompetentne i prepoznaju značaj digitalne pismenosti u obrazovanju. Međutim, nalazi istovremeno ukazuju na potrebu za ciljano usmerenim profesionalnim razvojem, posebno u oblastima koje prevazilaze osnovnu upotrebu digitalnih alata i obuhvataju etičku, bezbednu i pedagoški svrsishodnu primenu digitalnih tehnologija. Važno je naglasiti da se nedostatak formalne obuke ne može izjednačiti sa nedostatkom pristupa digitalnim resursima; naprotiv, istraživanje ukazuje na potrebu za stručnim usavršavanjem koje je vidljivo, relevantno i usklađeno sa konkretnim obrazovnim kontekstom. Kao što je definisano u dokumentu Okvir digitalnih kompetencija – Nastavnik za digitalno doba (Ministarstvo prosvete, 2023), digitalnu pismenost treba razumeti kao međupredmetnu kompetenciju, koja obuhvata upravljanje informacijama, kreiranje sadržaja, komunikaciju, saradnju i digitalnu bezbednost – oblasti od posebnog značaja za nastavu engleskog jezika kao stranog. Prednosti ovog istraživanja ogledaju se u raznovrsnosti uzorka i sistematičnom istraživačkom pristupu, ali je neophodno ukazati i na određena ograničenja, poput oslanjanja na samoprocenu ispitanika i izostanka neposrednog posmatranja nastavne prakse.

U celini posmatrano, istraživanje potvrđuje sve veći značaj digitalnih kompetencija u savremenom jezičkom obrazovanju, zatim i ističe stratešku ulogu nacionalnih inicijativa u jačanju spremnosti nastavnika za primenu digitalnih tehnologija. Povezivanjem institucionalnih napora, pedagoških istraživanja i međunarodnih standarda, ova studija doprinosi jasnijem razumevanju načina na koji se digitalna pismenost doživljava i primenjuje u nastavnoj praksi, kao i prepoznavanju pravaca u kojima bi buduće aktivnosti u oblasti obrazovne politike i stručnog usavršavanja trebalo da se razvijaju.

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Digital Literacy and Digital Competence in EFL Teaching: Teachers' Perceptions and Pedagogical Realities

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Abstract *This study explores the role of digital literacy and digital competence in the teaching and learning of English as a Foreign Language (EFL), focusing on the effective integration of digital tools into pedagogical practices. It highlights two interrelated concepts: digital literacy, defined as the ability to access, evaluate, use, and create information via digital technologies; and digital competence, understood as a combination of cognitive, technical, and social skills necessary for meaningful participation in digital environments. Using a quantitative research design, the study investigates EFL teachers' self-perceived competencies, awareness, and attitudes toward digital literacy. An online questionnaire was administered to 139 EFL teachers from Serbia and Bosnia and Herzegovina, comprising Likert-scale, multiple-choice, and open-ended questions. The findings indicate that digital literacy and competence are recognized as a core component of language education. Participants reported high awareness of their pedagogical benefits, particularly in fostering learner autonomy and confidence. However, challenges persist, the most notable of which are unequal access to technology, digital safety concerns, and limited opportunities for specialized teacher training. While the results support both hypotheses, affirming educators' self-perceived digital literacy and competence and their educational relevance, the study underscores the need for targeted support to help language teachers apply digital tools effectively within the EFL classroom. The study offers insights into the successful integration of digital literacy and competence in language education, and urges sustained support in technology-enhanced teaching practices.*

Keywords: *digital literacy, digital competence, EFL teachers, language education, digital tools.*

Introduction

Digital literacy has become a key twenty-first-century skill, shaping the manners in which individuals access information, interact, and pursue lifelong learning (Spires et al.,

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2018). In language teaching, it enhances learners' skills through digital tools and web resources. Defined as the ability to locate, organize, evaluate, understand, and create information using digital technologies (Reddy et al., 2020a), its growing relevance reflects concerns over data accessibility, online safety, and user-generated content (Mandić et al., 2024).

A concept which is closely linked is digital competence, which can be defined as the integration of cognitive, technical, and social skills for meaningful participation in digital environments (Reddy et al., 2020a; Reddy et al., 2020b). While digital literacy emphasizes critical engagement with information, digital competence highlights ethical and effective application. Zhang and Wu (Zhang & Wu, 2025) found that teachers with stronger digital skills improved lesson planning, engagement, and adaptability. Yet pedagogical integration of digital technologies remains uneven: a review of 24 EFL studies (Yalçin & Bozyiğit, 2023) stresses the need for targeted training. Regional studies echo this finding: Veljković Michos & Bošković Marković (Veljković Michos & Bošković Marković, 2020) reported that foreign language teachers value digital tools but face uneven support, while Gavranović & Veljković Michos (Gavranović & Veljković Michos, 2022) showed hybrid teaching fosters competence by requiring navigation of both physical and virtual contexts. Institutional initiatives, such as the University of Sarajevo platform (UNICEF, 2023) and Serbia's Digital Competence Framework (Ministry of Education, 2023), exemplify strategic efforts to strengthen teachers' pedagogical and technological preparation, aiming to embed digital tools into lesson planning, classroom interaction, and student achievement assessment.

Building on these pedagogical considerations, this study examines how digital literacy and competence are integrated into EFL teaching. It specifically explores teachers' use of digital technologies and their self-perceptions of digital skills. Guided by the research goals and prior literature, the study was framed by two hypotheses: (H1) EFL teachers perceive themselves as digitally literate and demonstrate digital competence using selected digital tools in their classrooms**;** and (H2) EFL teachers are aware of the relevance of digital literacy in contemporary education. The study employs a quantitative methodology to investigate the attitudes and experiences of 139 EFL teachers from Serbia and Bosnia and Herzegovina regarding the meaningful integration of digital tools in the classroom. By having its' findings situated within global and regional frameworks, this study deepens the understanding of the ways in which digital technologies shape language education in a specific context. It addresses challenges such as the digital divide, unequal access, data privacy, and inconsistent teacher training. By analyzing current practices and perceptions, the study shows how digital literacy and competence can be integrated into EFL teaching to foster learner autonomy and engagement.

Digital literacy and critical content evaluation

According to UNESCO, digital literacy is now an essential life skill which enhances employability and accelerates the acquisition of other competencies (Karpati, 2011). It comprises the ability to navigate digital environments safely and confidently. Furber (Furber, 2012) argued that students should be digitally literate by the end of compulsory education – that is to say, students should be able to create and edit text, images, audio,

and video; critically assess online information; use office software; and develop literacy through digital reading and writing. Although earlier frameworks (Brown et al., 2016; Furber, 2012) may seem dated, they remain valuable references to understanding the evolution of digital literacy and critical content evaluation.

Weisberg et al. (Weisberg et al., 2023) highlight critical thinking as central to how learners search, interpret, and assess information. In EFL contexts, Silvhiany et al. (Silvhiany et al., 2021) found that students often rely on superficial features of information sources rather than examining the authorship, intent, or evidence which the information is based upon. This underscores the need to equip learners with critical skills in order for them to become autonomous digital citizens. Table 1 presents the categories of digital literacy adapted from Brown et al. (Brown et al., 2016), which continue to present a significant information source for current research in this field.

Table 1
Key Concepts Summary (adapted from Brown et al., 2016)

	Information Literacy	Media Literacy	Computer Literacy	Digital Literacy
Definition	Ability to effectively locate, identify, retrieve, process, and utilize digital information (Karpati, 2011).	Ability to access, understand, analyze, and critically evaluate media content, and to create and communicate effectively across diverse platforms and contexts (EU Commission, 2018).	Basic understanding of computer systems and software; a set of essential competencies to engage meaningfully in a digitally mediated society, where services and resources are accessed and distributed online (Karpati, 2011).	Ability to use, evaluate, and integrate diverse digital resources within the context of lifelong learning, emphasizing critical assessment of digital content (Furber, 2012).

In addition to the foundational literacies, information, media, computer, and digital, recent perspectives introduce a fifth: AI literacy, defined as the ability to understand, evaluate, and ethically engage with artificial intelligence technologies (Ng et al., 2021; Su et al., 2023; UNESCO, 2024).

Recent perspectives on digital and AI literacy and competence

Recent studies on digital literacy (Nguyen & Habók, 2024; Sánchez-Cruzado et al., 2021) and digital competence (Basilotta-Gómez-Pablos et al., 2022; Guillén-Gámez et al., 2021) examine models for acquisition and assessment, underscoring the need for pedagogical updating among language teachers.

Basilotta-Gómez-Pablos et al. (Basilotta-Gómez-Pablos et al., 2022) define digital competence as the knowledge, skills, and attitudes needed for effective technology use in teaching. Their review of 56 studies shows that teachers often report low or medium-low competence, especially in student knowledge assessment. Gaps also exist between competence level and actual use of web tools, with age and gender influencing the level of digital skills (Guillén-Gámez, 2021). Sánchez-Cruzado et al. (Sánchez-Cruzado et al., 2021),

surveying 4,883 Spanish teachers, found similarly low self-perceptions and proposed a training plan based on the INTEF Joint Framework, using the ACDC tool. Nguyen and Habók (Nguyen & Habók, 2024), reviewing studies from 2011–2022, highlight research on educational technology's impact on teaching, learning, professional development of teachers, and student support. Current frameworks extend to AI, such as UNESCO's (2024) AI Competency Framework, which defines the knowledge, skills, and values teachers need for responsible use of artificial intelligence.

AI literacy has become a prominent dimension of digital literacy (Ng et al., 2021; Su et al., 2023). Its integration enables personalized learning through materials tailored to students' abilities and interests, while AI-supported feedback enhances engagement and motivation. At the same time, the growing presence of AI and robotics in education raises numerous pedagogical and ethical challenges (Mandić et al., 2024).

AI initiatives in preschool education are gaining increasing attention despite causing debates about their appropriateness (Su et al., 2022). Early exposure of children to AI literacy supports theory of mind, emotional awareness, creative inquiry, and collaboration (Černý, 2022). When digital literacy is fostered from childhood, learners are better prepared to use AI tools for personalized learning, automated feedback, and writing assistance through synthesis and idea generation (Mandić et al., 2024). Teachers also benefit from AI in administrative tasks such as grading, syllabus design, content creation, student work correction, and potential risk prediction (Galindo-Domínguez et al., 2024).

Global digitalization and regional perspectives

Global digitalization during COVID-19 accelerated the integration of digital tools across education. In Serbia, foreign language teaching adapted with minimal disruption, as platforms such as Google Meet, Microsoft Teams, Zoom, and Skype offered virtual experiences resembling traditional classrooms (Ilić & Bošković Marković, 2020; Veljković Michos & Bošković Marković, 2020). Effective use of these technologies depends on teachers' pedagogical evaluation, with digitally competent educators designing practices and outcomes regardless of students' technological proficiency (Veljković Michos & Bošković Marković, 2020).

Such teachers must also manage core tasks – reviewing homework, correcting papers, and creating online activities – while navigating digital platforms. Yet many lack formal training in designing and managing digital learning environments (Ristić, 2019). A study of 200 participants (100 students, 100 professors) confirmed that teachers' pedagogical and digital competencies are essential for sustaining student engagement and ensuring dynamic, meaningful content presentation (Veljković Michos et al., 2024).

Several official documents in Serbia define frameworks for teachers' digital competencies. The Ministry of Education adopted the Digital Competence Framework in 2017, revised in 2019, in order to guide effective teaching. Building on this, in 2022, the Institute for the Evaluation of Education Quality introduced the Instrument for Teachers' Digital Competence Self-Assessment. In 2023, Serbia launched the revised Digital Competence Framework – Teacher for the Digital Age, which covered skills such as managing digital

information, creating content, facilitating online collaboration, conducting digital assessments, and ensuring ethical use of technologies.

Aligning with international trends, Serbia has shown strategic commitment to integrating digital technologies into pedagogy. To standardize the implementation of digital technologies, Jokić et al. (Jokić et al., 2025) validated the reliability and structure of a revised assessment tool, confirming that teachers' digital competencies can be organized into distinct domains of digital practice. These efforts operationalize digital standards across Serbia's education system, reinforcing the relevance and applicability of the existing digital competence framework.

Similarly, the University of Sarajevo launched the DigiEdu platform with the aim to strengthen teachers' digital and pedagogical competencies in Bosnia and Herzegovina. It provides certified online courses, interactive workshops, and a growing resource repository, supported by UNICEF, USAID, and Erasmus+ (UNICEF, 2023). In the same context, Seferović (Seferović, 2023) examined digital literacy among EFL teachers in Bosnia and Serbia, emphasizing the role of digital tools as the impetus of critical thinking, active learner engagement and autonomous learning.

Research methodology

Following international standards, both Balkan countries foster teachers' digital competencies through national and institutional initiatives. This study adopts a quantitative approach with the aim to examine the role of digital literacy and competence in EFL teaching and the integration of digital tools into teaching process. Its objectives are to explore teachers' perceptions, attitudes, and experiences with digital technologies, assess their competencies, and evaluate their awareness of promoting digital literacy in language education. Two hypotheses guided the research: first, that EFL teachers possess adequate digital literacy to integrate digital tools effectively; and second, that they recognize the importance of digital literacy and competence in contemporary society.

Data Collection Instrument

The questionnaire was originally developed in 2023 as part of a master's thesis, with academic supervision and expert input from the authors. It was designed to examine digital literacy and self-assessed digital competence across instructional, communicative, and reflective domains among English teachers in Serbia and Bosnia and Herzegovina. The questionnaire was reused in this research, with minor adaptations for a broader comparative scope. The online Google survey, titled "EFL Teachers' Digital Literacy and Competence", included three sections: demographics (5 items), conceptual knowledge and self-assessment (10 items, Likert and multiple-choice), and pedagogical practices (7 items, multiple-choice, open-ended, and Likert).

A pilot study (*N*=30) confirmed the questionnaire reliability, with Likert-scale items showing strong internal consistency for measuring self-assessed digital competence and the awareness of digital literacy significance.

A total of 22 items were included in the final survey. The questionnaire was developed based on key theoretical frameworks, specifically integrating dimensions from the DigCompEdu (European Framework for the Digital Competence of Educators) and the local Digital Competence Framework – Teacher for the Digital Age (Ministry of Education, Science and Technological Development, 2023). An online anonymous questionnaire was designed and shared to 139 EFL teachers. The final sample included 86.3% female (*N*=120) and 13.7% male (*N*=19) respondents, with the majority aged between 31 and 50 years. Participants represented diverse institutional affiliations: 46.8% worked in primary education, 23% in secondary schools, 5.8% at universities, and 25.2% in private institutions; others worked online or freelance. Regarding teaching experience, 43.9% of the participants had over 13 years of service.

The collected data were analyzed to identify patterns in digital tool usage, self-perceived digital competence, and awareness of digital literacy's relevance. The methodology was designed to capture insights from active teachers with experience integrating digital practices into their instruction, while also highlighting perceived benefits and limitations of digital tools in teaching. This approach allowed the study to examine challenges such as the digital divide, unequal access to technology, digital safety concerns, and the need for regular, targeted teacher training to support more confident and innovative use of digital technologies in EFL contexts.

The questions included various formats. For instance, conceptual knowledge was assessed by a multiple-choice item asking, *'Which of the following best defines digital competence?';* self-perceived competence was measured using a 5-point Likert scale (1=I strongly disagree to 5=I strongly agree) for statements such as: *'I am confident in creating my own digital content for EFL lessons*'. Pedagogical practices included a multiple-choice item (Table 3) asking respondents to select the digital tools they use most frequently. This study employs two complementary concepts: digital literacy – the ability to access, evaluate, use, and create information through digital technologies – and digital competence – the technical, cognitive, and social skills needed for active participation in digital environments. Both concepts are considered essential for teachers' professional development.

Research results: interpretation and comparative insights

The first survey section covered demographics. The second assessed respondents' theoretical knowledge and familiarity with key terms. When asked to define digital literacy, 97.1% (*N*=135) chose "the ability to search, analyze, read, write, or interact in a digital environment," aligning with widely accepted views. Other answers included "playing online games," "accessing online information," and "creating digital content." These alternatives highlight the need for targeted professional development to clarify the role of digital literacy in instructional design and learner engagement.

Definitions of digital competence were more diverse. The most frequent choice, 62.6% (*N*=87), was "free and critical use of digital tools for business, leisure, and communication," followed by "ability to read, write, and use digital content" (24.5%, *N*=34).

Other responses reflected narrower understanding of the concept, such as gaming, access to information, or content creation. These results suggest that teachers partly recognize the extending of digital competence beyond technical skills to independent, responsible, and pedagogically supportive use of digital technologies (Reddy et al., 2020b; Zhang & Wu, 2025).

The findings also show overlap between digital literacy and competence, since both involve meaningful interaction in digital environments. Yet digital competence encompasses broader cognitive, social, and ethical skills, underscoring the need for clearer distinction of the two concepts in theory and practice. Most teachers self-identified as digitally literate, with only one respondent disagreeing, which indicated high confidence among EFL educators. However, self-perception may not align with pedagogical effectiveness. Institutional initiatives (UNICEF, 2023; Ministry of Education, 2023) are crucial to bridge this gap, while the DC4LT report (Fominykh et al., 2019) highlights aligning teacher competencies with employer expectations and policy frameworks in language education.

Table 2
EFL Teachers' Perceptions of Their Own Digital Literacy

Response Option	Count	Percentage
I am not at all digitally literate	1	.7%
I am not quite digitally literate	0	0%
I'm not sure	37	26.6%
I believe I am digitally literate	61	43.9%
I am completely digitally literate	40	28.8%

The third section examined how EFL teachers apply digital tools and competencies in practice. Respondents could select multiple options, including platforms, applications, websites, games, and quizzes. As shown in Table 3, the most frequently used tools were websites (68.3%), platforms (66.9%), quizzes (66.2%), and applications (54.7%), in accordance with broader trends favouring user-friendly resources (Hatlevik & Christophersen, 2013; Petko et al., 2018). However, game-based platforms such as *Bamboozle* and *Kahoot* were rarely used, which could suggest limited accessibility or teachers' preference for more traditional tools. Only two respondents reported using all listed tools, indicating selective and fragmented integration of digital technologies into teacher process. These findings highlight the need for professional development that expands digital tool variety and emphasizes pedagogical relevance for learner autonomy and formative assessment. The adoption and use of digital technologies are shaped by teacher confidence and institutional support. Similar gaps between digital tool availability and effective use (van der Vlies, 2020), and between tool familiarity and strategic integration into teaching (Zhang & Wu, 2025), further underscore the importance of targeted training.

Table 3
Which digital tools do you use most frequently in teaching (multiple answers possible)?

Category	Response Count	Percentage
Platforms	93	66.9%
Applications	76	54.7%
Websites	95	68.3%
Games	52	37.4%
Quizzes	92	66.2%
Multiple or all of the above	2	1.4%
Bamboozle, *Kahoot*, digital tools	1	.7%
Most frequently use video recordings	1	.7%
All	1	.7%

The survey examined teachers' participation in digital literacy training. Of 139 respondents, 35.3% (*N*=49) reported attending such programs, while 64.7% (*N*=90) had not. Those who participated listed diverse formats (Table 4), including Erasmus programs, institutional seminars, webinars, and university courses. These examples confirm that the opportunities exist, but participation may be limited by teacher awareness, scheduling limitations, institutional support, or personal motivation. Prior research shows that program availability alone is insufficient – promotion, relevance, and institutional encouragement are of crucial importance (Howard et al., 2020; Hennessy et al., 2021).

Despite many educators feeling confident with digital tools, the relatively low rate of formal training raises questions about how competencies were developed. Informal learning, peer collaboration, and self-directed engagement likely play a relevant role, especially when supported by psychological engagement and a reflection on one's own practice of gained competencies (Yan et al., 2025). Findings reveal that only 35.3% of teachers have engaged in structured training, while 64.7% have not. This suggests limited formal development but not necessarily lack of access to resources and learning opportunities.

Responses on training in digital competence and literacy revealed diverse formats of available programs: national seminars (Ministry of Education, 2017; 2019; 2023), university courses (Ristić, 2019), and international programs such as Erasmus and Cambridge workshops. This diversity reflects Europe's evolving landscape of teacher digital competence (European Commission, 2018; INTEF, 2017). Yet, the gap between training and classroom application echoes international findings: Nguyen & Habók (Nguyen & Habók, 2024) note that self-assessed literacy often stems from informal learning, while Hatlevik & Christophersen (Hatlevik & Christophersen, 2013) and Sánchez-Cruzado et al. (Sánchez-Cruza-

do et al., 2021) stress that sustained engagement of digital competencies requires pedagogical integration.

The results imply that, while teachers express confidence in own digital literacy, there is still a need for stronger alignment between educational policy, teacher practice, and professional development. A cohesive approach – grounded in Serbia's Digital Competence Framework (2023) and supported by empirical insights (Ilić & Bošković Marković, 2020; Seferović, 2023; Veljković Michos et al., 2024) – can help educators move from a simple use of digital tools to pedagogically based, critically assessed integration.

Teachers were also asked which digital competence should be emphasized as a separate formal subject. Of all respondents, 35.3% selected all listed options – creating digital content, strategies for effective information delivery, and digital literacy. These include skills such as content creation, online information evaluation, ethical participation in digital communication, and integration of multimodal resources, all closely tied to language teaching. Responses suggest that teachers view digital competencies as interconnected and essential to modern pedagogy.

Table 4
If you could choose, which listed option would you prefer to be a subject in your educational institution?

Competency	Percentage
Creating digital content	23.0%
Strategies for delivering effective information	26.6%
Digital literacy	(small segment)
All the above items are important and should be included in school or realized as additional classes	35.3%

Teachers identified areas of insufficient education within digital competence. As shown in Table 5, the most common response was digital security and protection (44.6%), followed by digital literacy (10.8%), while 35.3% felt adequately trained in all areas. These findings align with the Digital Competence Framework: Teacher for the Digital Age (2023), which includes domains such as information literacy, communication, content creation, problem-solving, and digital safety.

Although many teachers express confidence in general competence, security remains a weak point, echoing broader challenges in safe and ethically responsible digital engagement (Brown et al., 2016; Spires et al., 2018; Nguyen & Habók, 2024). Results suggest that targeted professional development in digital safety, digital ethics, and responsible use of technologies is essential. Besides, self-perceived competence does not always equal pedagogical readiness to apply digital technologies in teaching, especially in areas requiring a high level of psychological engagement, as well as institutional support and reflective practice (Yan et al., 2025).

Table 5
In which fields do you consider yourself insufficiently trained?

Field	Percentage
Digital Literacy	10.8%
Digital Security and Protection	44.6%
None of the Above	35.3%

The final section explored teachers' familiarity with digital storytelling, a method combining narrative and multimedia aiming to enhance EFL learners' phonology, grammar, and vocabulary through collaborative story creation (Al-Amri, 2020; Seferović, 2023). Over half of respondents (*N*=79) were unfamiliar with the term and do not use it in practice. Most of the teachers also lacked knowledge of tools designed for digital storytelling, indicating its' underrepresentation in professional development. These findings highlight the need for targeted training to support creative, learner-centered approaches.

Digital storytelling, as a multimodal strategy, can connect digital competence with innovative teaching, making instruction more inclusive and engaging. These findings confirm both of the study's hypotheses: first, that EFL teachers perceive themselves as digitally literate and competent in using selected tools; second, that they recognize the relevance of digital literacy in education. Yet certain gaps remain in training and familiarity with pedagogical strategies. Results across research sections emphasize the need for continuous, targeted teacher training – especially in specialized tools and strategies such as digital storytelling – to transform foundational skills into innovative, learner-centered practices. Such competencies enhance learner engagement, autonomy, and inclusivity in EFL instruction.

The following results confirm our two main hypotheses, which were based on high respondent agreement in the original frequency counts.

Table 6
Descriptive statistics and hypothesis testing

Construct (Variable)	*N*	Mean (*M*)	Standard Deviation (*SD*)	Interpretation
Self-Perception (Hypothesis 1)	139	4.00	.789	Confirmed: Mean is exactly 4.00 (agree) on the 5-point Likert scale.
Awareness of Relevance (Hypothesis 2)	139	4.331	1.066	Strongly Confirmed: Mean is well above 4.00 (agree), indicating high consensus on the need for development.

The overall mean score for teachers' self-assessment of their digital literacy was *M* = 4.00 (*SD* = 0.789) on a 5-point scale, aligning precisely with 'agree.' This result supports hypothesis 1, indicating that English language teachers generally perceive themselves as

digitally literate. There was very strong agreement regarding the statement on the necessity for further development of digital literacy and competencies across all student age groups ($M = 4.331$, $SD = 1.066$). This finding strongly supports hypothesis 2, highlighting a widespread recognition among educators of the growing importance of digital skills in modern pedagogical practice.

Additionally, an independent sample t-test was conducted to compare the self-perception of digital literacy between male ($M = 4.263$, $SD = .810$) and female ($M = 3.958$, $SD = .786$) teachers. The difference between the two groups was not statistically significant ($t(137) = 1.572$, $p = .118$). Although male teachers reported a slightly higher mean score, these results suggest that gender does not significantly predict self-perceived digital literacy in this sample.

We have also used one-way ANOVA to analyze teaching experience and self-perception among teachers, dividing them into four different categories (Table 7). According to these results, there is a marginally significant difference between the groups ($F(3.135) = 2.574$, $p = .057$). While not reaching the conventional threshold of statistical relevance ($p < .05$), the findings show a clear trend: the newest teachers (1 – 3 years) reported the highest self-perception ($M = 4.286$), and teachers in the 4–7 year bracket reported the lowest ($M = 3.727$). This suggests that the early career stage (4 – 7 years) may represent a period of re-evaluation or a more realistic assessment regarding own digital skills compared to the most inexperienced group.

Table 7
Self-perception across four different teacher categories

Experience Group	*N*	Mean (*M*)	Standard Deviation (*SD*)
1 - 3 years	28	4.286	.810
4 - 7 years	22	3.727	.827
8 - 12 years	28	4.107	.786
More than 13 years	61	3.918	.737
ANOVA Results		$F(3, 135) = 2.574$, $p = .057$	

Conclusion

This study reveals that EFL teachers in Serbia and Bosnia and Herzegovina generally perceive themselves as digitally literate and competent in using selected digital tools. This self-assessed competence is linked to increased autonomy and assurance in their teaching process. However, digital integration into teaching remains uneven: while platforms and quizzes are widely adopted, gamified tools like *Bamboozle* and *Kahoot* are underutilized, and the awareness of digital storytelling is limited. The most significant gap that's been reported relates to digital security and protection, with nearly half of the respondents feeling insufficiently trained.

These findings confirm the study's two hypotheses: teachers perceive themselves as digitally competent and recognize the relevance of digital literacy in education. Yet, the data also highlight a need for targeted professional development – particularly in areas that go beyond basic tool use and address ethical, safe, and pedagogically meaningful digital practices. Importantly, the study does not equate lack of training with lack of access; rather, it emphasizes the need for professional development that is visible, relevant, and contextually aligned. As outlined in the Digital Competence Framework: Teacher for the Digital Age (Ministry of Education, 2023), digital literacy should be understood as a cross-curricular competency encompassing information management, content creation, communication, collaboration, and digital safety – all highly relevant to EFL instruction. The study's strengths include its diverse sample and mixed-methods design, though limitations such as reliance on self-reported data and absence of classroom observation must be acknowledged.

Overall, the research affirms the growing importance of digital competence in modern language education and underscores the strategic role of national initiatives in supporting teacher readiness. By aligning institutional efforts with pedagogical research and international standards, this study contributes to a clearer understanding of how digital literacy is perceived and practiced – and where future professional development and educational policy efforts should be directed.

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