

AS

Andragoške
studije

Časopis za proučavanje
obrazovanja i učenja
odraslih

Andragological
Studies

Journal for the Study of
Adult Education and
Learning

Broj II, 2025.

AS

Andragoške
studije

Časopis za proučavanje
obrazovanja i učenja
odraslih

Andragogical
Studies

Journal for the Study of
Adult Education and
Learning

BROJ 2, 2025.

Andragoške studije

Andragoške studije su časopis za proučavanje obrazovanja i učenja odraslih, naučne orijentacije, posvećen teorijsko-koncepcijskim, istorijskim, komparativnim i empirijskim proučavanjima problema obrazovanja odraslih i celoživotnog učenja. Časopis reflektuje i andragošku obrazovnu praksu, obuhvatajući širok spektar sadržaja relevantnih ne samo za Srbiju već i za region jugoistočne Evrope, celu Evropu i međunarodnu zajednicu. Časopis je tematski otvoren za sve nivoje obrazovanja i učenja odraslih, za različite tematske oblasti – od opismenjavanja, preko univerzitetskog obrazovanja, do stručnog usavršavanja, kao i za učenje u formalnom, neformalnom i informalnom kontekstu.

Izdavač

Institut za pedagogiju i andragogiju, Univerzitet u Beogradu, Filozofski fakultet
Poštanska adresa: Čika-Ljubina 18–20, 11000 Beograd,
e-pošta: ipa.as@f.bg.ac.rs, telefon: 00381-11-3282-985.

ISSN: 0354–5415 (Štampana izdanja)

ISSN: 2466–4537 (Onlajn izdanja)

UDK: 37.013.83+374

Urednici

MIOMIR DESPOTOVIĆ, Univerzitet u Beogradu, Filozofski fakultet

KATARINA POPOVIĆ, Univerzitet u Beogradu, Filozofski fakultet

Saradnici urednika

Maja Maksimović, Univerzitet u Beogradu, Filozofski fakultet

Aleksandar Bulajić, Univerzitet u Beogradu, Filozofski fakultet

Asistenti urednika

Nikola Koruga, Univerzitet u Beogradu, Filozofski fakultet

Kristina Robertson, Univerzitet u Beogradu, Filozofski fakultet

Uredništvo

Šefika Alibabić Hodžić, Univerzitet u Beogradu, Filozofski fakultet

Marcie Boucouvalas, Virginia Polytechnic Institute and State University, USA

George A. Koulaouzides, Hellenic Open University, Greece

Sabina Jelenc, Univerzitet u Ljubljani, Slovenija

Snežana Medić, Univerzitet u Beogradu, Filozofski fakultet

Sandra L. Morrison, University of Waikato, New Zealand

Balázs Németh, University of Pécs, Hungary

Ekkehard Nuissl von Rein, University of Kaiserslautern, Germany

Kristinka Ovesni, Univerzitet u Beogradu, Filozofski fakultet

Aleksandra Pejatović, Univerzitet u Beogradu, Filozofski fakultet

Borut Mikulec, Univerzitet u Ljubljani, Slovenija

Cristina Maria Coimbra Vieira, University of Coimbra, Portugal

Tamara Nikolić, Univerzitet u Beogradu, Filozofski fakultet

Niamh O'Reilly, AONTAS (National Adult Learning Organisation), Ireland

Sekretar časopisa

Branka Nikitović, Univerzitet u Beogradu, Filozofski fakultet

Dizajn: Zoran Imširagić

Dizajn korica: Sanja Črnjanski

Tehnička urednica: Irena Đaković

Priprema: Dosije studio, Beograd

Lektura i korektura srpskog jezika: Irena Popović Grigorov

Lektura i korektura engleskog jezika: Irena Ždinarsić-Trbojević

Andragoške studije izlaze od 1994. godine dva puta godišnje. Uredivačku politiku vodi Institut za pedagogiju i andragogiju, Univerzitet u Beogradu, Filozofski fakultet, Čika-Ljubina 18–20, 11000 Beograd. Izdavanje časopisa podržava Ministarstvo prosvete, nauke i tehnološkog razvoja.

Katalogizacija časopisa: Narodna biblioteka Srbije, Beograd

Andragoške studije su časopis otvorenog pristupa koji je odlukom Ministarstva prosvete, nauke i tehnološkog razvoja Republike Srbije kategorizovan kao međunarodni časopis (M23). Andragoške studije su na listi European Reference Index for the Humanities and Social Sciences (ERIH PLUS) ustanovljene kao časopis međunarodnog autorstva.

Indeksiranje časopisa: Narodna biblioteka Srbije (Beograd) i Konzorcijum biblioteka Srbije (kobson.nb.rs); Srpski citatni indeks (<http://scindeks.ceon.rs>); European Reference Index for the Humanities and Social Sciences (ERIH PLUS) (<https://dbh.nsd.uib.no/publiseringskanaler/erihplus/>); Biblioteka nemačkog Instituta za obrazovanje odraslih DIE, Bon.

Sadržaj

ČLANCI

META FURLAN, URŠKA GRUDEN

**Uloga intervjuja u metodi dizajnerskog razmišljanja
u participativnom obrazovanju odraslih** 9

TATJANA JOVANOVIĆ, POLONA ŠPRAJC, OLJA ARSENIJEVIĆ

**Digitalne kompetencije zaposlenih i holistički HRM:
izazovi učenja u organizaciji u Srbiji** 31

PAULA GUIMARÃES, AMINA ISANOVIĆ HADŽIOMEROVIĆ,
MAJDA RICHER, LAZAR VUJIĆ

**Odgovornost države naspram individualne posvećenosti
u politikama obrazovanja odraslih u Bosni i Hercegovini,
Srbiji i Portugaliji** 47

NEDA ČAIROVIĆ PAVLOVIĆ, ZORANA PEŠIĆ

**Uverenja univerzitetskih nastavnika o primeni veštačke
inteligencije u obrazovanju** 85

POLEMIKA, KRITIKA

NIKOLA KORUGA

**Prikaz knjige: Maja Maksimović, *Pejzaži učenja.*
*Relacije mesta, znanja i umetničkih praksi*** 117

Contents

ARTICLES

META FURLAN, URŠKA GRUDEN

- The Role of Interviews in the Design Thinking Method
in Participatory Adult Education** 9

TATJANA JOVANOVIĆ, POLONA ŠPRAJC, OLJA ARSENIJEVIĆ

- Employees' Digital Competences and Holistic HRM 4.0:
Learning Challenges in Organisations in Serbia** 31

PAULA GUIMARÃES, AMINA ISANOVIĆ HADŽIOMEROVIĆ,
MAJDA RICHER, LAZAR VUJIĆ

- State Responsibility vs. Individual Commitment
in Adult Education Policies in Bosnia and Herzegovina,
Serbia and Portugal** 47

NEDA ČAIROVIĆ PAVLOVIĆ, ZORANA PEŠIĆ

- University Faculty's Beliefs about the AI Use in Education** 85

POLEMICS, REVIEW

NIKOLA KORUGA

- Book Review: Maja Maksimović, *Landscapes of Learning:
Relations of Place, Knowledge, and Artistic Practices*** 117

ČLANCI

ARTICLES

Meta Furlan¹, Urška Gruden²

The Role of Interviews in the Design Thinking Method in Participatory Adult Education

Abstract: This paper analyses the use of the design thinking method in the project *Cultural Heritage for Sustainable Tourism: Intergenerational Learning*, which aimed to promote intergenerational cooperation and integrate cultural heritage into sustainable tourism. The project was implemented by the Ajdovščina Adult Education Centre, the Faculty of Arts at the University of Ljubljana, as the applicant and lead partner, the Faculty of Tourism Studies at the University of Primorska and a business entity, which developed a thematic trail accessible to people with disabilities. The paper highlights the use of interviews as a key tool in the design thinking method, enabling the development of the thematic trail through all stages of the process with the active participation of older people, students and residents. The interviews were used to verify accessibility and understand the needs of the local community and vulnerable groups, which was crucial for identifying and developing the stations along the thematic trail. They also served to test the thematic trail, allowing adjustments to the trail and changes to the individual stations. The project results confirm that the design thinking method is an effective tool for involving all generations and vulnerable groups in co-creating solutions that respect cultural heritage and enable sustainable development. Based on this, we conclude that a participatory approach involving various stakeholders encourages the development of solutions that are meaningful to the local environment and visitors.

Keywords: design thinking method, participatory adult education, interview

¹ Ajdovščina Adult Education Centre and University of Ljubljana, Slovenia, <https://orcid.org/0000-0002-8969-2917> (meta.furlan@lu-ajdovscina.si; meta.furlan@ff.uni-lj.si)

² University of Ljubljana, Slovenia, <https://orcid.org/0009-0004-7668-0556> (urska.gruden@ff.uni-lj.si)

Uloga intervjuja u metodi dizajnerskog razmišljanja u participativnom obrazovanju odraslih

Apstrakt: U ovom radu se analizira primena metode dizajnerskog razmišljanja u projektu *Kulturno nasleđe za održivi turizam: međugeneracijsko učenje*, čiji je cilj bilo podsticanje međugeneracijske saradnje i integracija kulturnog nasleđa u održivi turizam. Projekat su realizovali Centar za obrazovanje odraslih Ajdovščina, Filozofski fakultet Univerziteta u Ljubljani, kao podnosilac prijave i vodeći partner, Fakultet za turističke studije Univerziteta Primorska, kao i jedan privredni subjekt koji je razvio tematsku stazu pristupačnu osobama sa invaliditetom. U radu se ističe upotreba intervjuja kao ključnog alata metode dizajnerskog razmišljanja, koji je omogućio razvoj tematske staze u svim fazama procesa uz aktivno učešće starijih osoba, studenata i lokalnog stanovništva. Intervjui su korišćeni za proveru pristupačnosti i razumevanje potreba lokalne zajednice i ranjivih grupa, što je bilo od presudnog značaja za utvrđivanje i razvoj pojedinačnih stanica duž tematske staze. Takođe su služili za testiranje same staze, omogućavajući njeno prilagođavanje i izmene na pojedinačnim lokacijama. Rezultati projekta potvrđuju da je metoda dizajnerskog razmišljanja delotvoran alat za uključivanje svih generacija i ranjivih grupa u zajedničko osmišljavanje rešenja koja uvažavaju kulturno nasleđe i omogućavaju održivi razvoj. Na osnovu toga zaključuje se da participativni pristup koji uključuje različite aktere podstiče razvoj rešenja koja su smisljena i relevantna kako za lokalnu sredinu, tako i za posetioce.

Ključne reči: metod dizajnerskog mišljenja, participativno obrazovanje odraslih, intervju

Introduction

In modern adult education, there has been a shift from the transmission model of teaching to participatory, dialogical and experiential forms of learning, which are deeply rooted in the tradition of popular education. This shift is not merely didactic, but also reflects broader epistemological and value changes in the understanding of knowledge, learning and the role of education in the community. Participatory adult education assumes that knowledge is created through interaction, dialogue and joint action, and that participants' life experiences are legitimate and indispensable sources of learning (Freire, 2005; Gruden et al., 2025; Ličen et al., 2024; Tett, 2010). In this conceptualisation, the educational process is characterised not by unidirectional content delivery but by collaborative inquiry, reflexive practice and contextually situated action within specific social and cultural contexts.

In seeking methodological approaches that operationalise this understanding of adult education in practice, the design thinking method has gained increasing prominence over the past decade. This human-centred, iterative and collaborative approach to solving complex problems was developed at the intersection of design, engineering and the social sciences and is now gaining ground in education (Brown, 2008; Razzouk & Shute, 2012). Design thinking is not merely a set of techniques, but a way of thinking and acting that focuses on understanding people, their context and the active involvement of various stakeholders in co-creating solutions. This emphasis on people, dialogue and the joint search for meaning creates opportunities for its meaningful use in participatory forms of adult education.

The conceptual similarity between design thinking and participatory adult education is evident at several levels. Both approaches arise from a critique of linear, hierarchical models of knowledge transfer and emphasise process, reflection and learning through action. Both participatory education and design thinking view problems as open, multi-layered and socially conditioned, requiring the inclusion of diverse perspectives and experiences³ (Evans et al., 2022; Manzini, 2015). In both cases, the participant takes an active role, while the expert or educator acts as a facilitator who creates conditions for dialogue, co-creation and collaborative learning. Thus, design thinking can be understood as a methodological framework that provides participatory principles with a structured yet open form of practice.

Interviews play a special role in this process and are most often situated in the so-called empathy phase in the design thinking literature. However, viewing the interview merely as an initial research technique simplifies its full potential in educational and participatory contexts. In qualitative research, the interview has long been recognised as a method that not only collects data but also enables the co-creation of meaning through interaction between researcher and interviewee (Banjac, 2020; Cohen et al., 2018; Kvale, 1996). Similarly, in design thinking, interviews can be seen as a dialogical and reflective practice that is not confined to the initial phase but permeates all stages, from exploring and defining the problem to developing, testing and reflecting on solutions.

In participatory adult education, the interview takes on an additional dimension. It serves not only as a research tool but also as a learning event in

³ While design thinking serves as a methodological framework for the iterative, human-centred resolution of complex problems, literature suggests it can also be understood as an approach that contributes to social change when applied to promote social innovation, participatory community engagement, and sustainable solutions. In these applications, where empathy, collaboration and iteration align with the goals of social justice and sustainability, design thinking transcends methodology and acts as a tool for social transformation (Chan, 2018; Dombrowski & Lohrmann, 2018; Ertas, 2019).

which participants develop listening skills, the ability to articulate their own experiences, critical thinking and an understanding of others' perspectives. At the same time, the interview legitimises the voices of participants and community members and contributes to the democratisation of the learning and development process (Ličen et al., 2024; Tett, 2010). In this sense, interviews in design thinking not only support the understanding of needs, but also actively co-create the learning and social reality in which solutions are formed.

The purpose of this paper is to analyse the use of the design thinking method as a participatory framework in adult education, with particular focus on interviews as a key research and learning tool in this process. We show that interviews are not limited to the initial empathy phase but extend through all phases of the design thinking method, from exploring and defining the problem to developing, testing and reflecting on solutions. In doing so, we demonstrate how interviews contribute to the co-creation of knowledge and the active involvement of participants, which is crucial for the successful implementation of participatory forms of adult education. Using the example of the student project *Heritage Culture for Sustainable Tourism: Intergenerational Learning*, we illustrate how interviews serve as a tool for collecting data, verifying ideas and testing solutions, while also enabling participants to become active co-creators of the solutions. Our findings show that (1) interviews are not just a tool for collecting data but are a key part of co-creating solutions; (2) interviews enable iterative testing of ideas and adaptation of the thematic trail in a real environment; and (3) the use of the design thinking method in participatory adult education encourages intergenerational cooperation, co-creation of solutions and the development of sustainable approaches.

The design thinking method as a participatory framework in adult education

In recent years, the design thinking method has increasingly featured in discussions on adult education as a response to the need for approaches that enable active participant involvement, link learning to real-life situations and develop solutions based on the needs of individuals and communities. Adult education research and lifelong learning shows that the design thinking method is particularly suitable in environments where target groups are heterogeneous, problems are complex and learning is closely linked to practice and the local context (Bogdanova, 2021; Galeotti, 2020; Vallera & Sadat, 2020). Thus, design thinking is

not only a method of innovation but also a process that can support the fundamental principles of participatory adult education.

Participatory adult education is based on an understanding of learning as a social, situated and dialogical process in which knowledge is created through collaboration, exchange of experiences and joint action (Evans et al., 2022; Furlan, 2020, 2021; Ličen et al., 2024; Tett, 2010). The design thinking method aligns with these principles in both content and process, as it focuses on cooperation among various stakeholders, joint identification of problems and iterative development of solutions. Adult education studies confirm that using the design thinking method encourages the active role of participants, strengthens their sense of shared responsibility for the learning process and enables the transfer of learning to specific life and work situations (Sanusi, 2023; Vallera & Sadat, 2020).

The design thinking method is most often presented in the literature as a process of five interrelated phases: (1) empathy, (2) problem definition, (3) ideation, (4) prototyping, and (5) testing (Razzouk & Shute, 2012; Wippermann, 2023). These phases are often illustrated by the double diamond model, which emphasises the alternation of divergent and convergent thinking and a clear distinction between problem exploration and solution development (Design Council, 2019). Such structuring plays an important role in adult education, especially for older adults, as it enables transparency of the process and the participants' gradual involvement in increasingly demanding forms of collaboration.

The empathy phase in participatory adult education goes beyond the initial collection of information about the users. Research on service design in adult education emphasises that, within the design thinking method, empathy functions as a process of recognising and legitimising participants' experiences, as well as their local and experiential knowledge (Bogdanova, 2021; Sanusi, 2023). This phase is particularly important for older adults, as it allows their life experiences and views to be treated as a source of knowledge rather than an obstacle to learning. In this sense, empathy acts as a mechanism of empowerment and inclusion. In the problem definition phase, the participatory potential of design thinking is further strengthened. In the design thinking method, a problem is not understood as a predefined category but as the result of a joint interpretative process. Adult education research indicates that the very possibility of co-creating the problem is key to developing a sense of control over the learning process (Galeotti, 2020; Vallera & Sadat, 2020). In participatory education for older adults, this phase allows participants to articulate what they understand as a challenge in their environment and thus actively influence the direction of further learning and action. Ideation, as the phase of idea generation, is often misunderstood in participatory adult education as a spontaneous creative activity. Studies show

that ideation has the greatest learning potential when it is designed as a structured collective process that enables the exchange of different types of knowledge and experience (Tavares et al., 2018; Terzaroli, 2018). For older adults, ideation also serves as a space for breaking down stereotypes about passivity and lack of creativity, as research confirms that older adults can make an important contribution to the development of innovative yet realistic solutions in such processes (Galeotti, 2020; Victorino et al., 2023). Prototyping and testing enable learning through action and direct experience. Bogdanova (2021) concludes that experiential learning, supported by elements of service and design thinking, strengthens reflection, collaboration and the transfer of learning into practice. In the context of older adult education, prototypes often serve as a tool for gradually introducing change and reducing fear of failure. Thus, testing is not a final phase but a continuation of the learning process that facilitates reflection, adaptation and joint evaluation of solutions (Wippermann, 2023).

The double diamond model further highlights the importance of alternating between the broadening and the narrowing focus within the learning and co-creation process. Adult education research indicates that this model supports participatory processes, as it first enables a wide expression of experiences and perspectives, which is followed by gradual joint coordination and decision-making (Beligatamulla et al., 2019). For older adults, this structure is also important for psychological safety, as it facilitates their gradual inclusion and clear orientation throughout the process.

Power relations remain a central issue in the use of the design thinking method in participatory adult education. Participatory approaches require a shift of power from the expert to the participants, meaning that participants are not only involved in implementing activities but also have real influence over content and process decisions (Evans et al., 2022; Tett, 2010). The design thinking method has the potential to support such a shift, as it is based on co-creation and collective decision-making. However, empirical studies caution that the design thinking method is often applied in educational settings in a technicist manner, where participants are only superficially involved (Beligatamulla et al., 2019). The risk of so-called “false participation” is particularly pronounced in environments where the target groups are older adults. If the process is too directive or if the key decisions are made outside the group, the participatory potential of the method is quickly lost. Research warns that such use of the design thinking method can lead to the participants’ frustration and reinforce feelings of exclusion (Galeotti, 2020; Vallera & Sadat, 2020). Therefore, when using design thinking in adult education, it is essential to reflect on the facilitator’s role and consciously create conditions for equal participation. The instrumentalisation of

the design thinking method as a universal solution to complex social problems poses an additional risk. Authors point out that the design thinking method cannot address structural inequalities or systemic constraints on its own and may even obscure them if used without critical judgement (Aithal et al., 2024; Taimur et al., 2022). In participatory adult education, this means that working within the design thinking framework only makes sense as part of a broader andragogical and social context that considers the power dynamics and responsibilities of all actors involved.

Despite these limitations, researchers confirm that the design thinking method, when used reflectively and participatorily, can contribute significantly to the development of quality learning practices in adult education. It enables the integration of learning with community action, strengthens the participants' social and cognitive abilities and supports the co-creation of solutions that are meaningful and sustainable (Bogdanova, 2021; Vallera & Sadat, 2020; Victorino et al., 2023). It is in this process-oriented, dialogical and critical dimension that the design thinking method is establishing itself as a relevant participatory framework for contemporary adult education.

Interviewing as a research and learning practice in the phases of design thinking

In adult education, particularly in participatory contexts, an interview should not be regarded merely as a research technique for data collection, but as a relational and epistemological practice in which knowledge is co-created through dialogue. This perspective is well established in the tradition of qualitative and participatory research, where the interview is understood as a process of jointly exploring meanings, experiences and interpretations (Banjac, 2020; Cohen et al., 2018; Kvale, 1996). Here, knowledge is not something the researcher or educator "extracts" from the interlocutor, but something that emerges through interaction, negotiation and reflection.

Participatory research, as conceptualised by contemporary theories of adult education (Cornish et al., 2023; Evans et al., 2022; Kastner & Motschilnig, 2022; Santos et al., 2025) assumes that participants possess legitimate knowledge about their own life circumstances and communities. Tett (2010) highlights that dialogue is central to participatory learning, as it enables the recognition and valuing of experiential knowledge and contributes to redistributing power within the learning process. Evans et al. (2022) further note that participatory research approaches in community education aim not only to understand reality, but also

to transform it collaboratively. In this context, the interview becomes a space where research, learning and action are intertwined.

The design thinking method aligns conceptually with this understanding of the interview, as it presupposes the participation of users or participants as co-creators of solutions. In practice, however, interviews in the design thinking method are often limited to the empathy phase, where their main purpose is to gather information about user needs. Research in the field of design thinking in adult education indicates that such instrumental use of interviews limits the participatory potential of the method (Bogdanova, 2021; Vallera & Sadat, 2020). If the interview is viewed solely as an initial research activity, participants remain informants rather than active co-creators of knowledge. In a participatory context, however, the interview assumes a different role. It becomes a process in which the participants, together with the practitioners, explore their environment, experiences and challenges and develop a shared understanding of reality through dialogue. Such an interview serves as both a research method and a learning event. By participating in interviews, individuals learn to observe, ask questions, listen and reflect, which fosters the development of critical thinking and research skills. In this sense, interviews in the design thinking method are not only a means of data collection, but also a tool for empowering participants and enhancing their active role in the learning and co-creation process.

An analysis of the use of interviews in the design thinking method shows that their value is not confined to a specific phase but lies in their multi-layered and iterative application throughout the entire process. Interviews in the design thinking method facilitate exploration, reflection and validation at various stages, thereby supporting the participatory nature of adult education.

In the initial stages, interviews allow for the exploration of the participants' experiences and perceptions, as well as the local environment in which the education occurs. Through interviews, participants investigate their community, its spaces, stories and needs. This exploration goes beyond the individual and becomes a collective process of understanding the environment. Research on service design within adult education confirms that interviews exploring the local context foster greater community engagement and deepen the participants' understanding of the complexity of social issues (Bogdanova, 2021; Sanusi, 2023). As the process progresses, interviews support the joint formulation of the problem. Rather than defining the problem externally, dialogue is used to develop an understanding of what is truly important and worth addressing for the participants. In this context, interviews function as a tool for negotiating meanings, where different perspectives are confronted, complemented and transformed. This process is crucial for participatory adult education, as it allows participants to share

responsibility for the direction and goals of the educational process (Evans et al., 2022; Tett, 2010).

In the creative phases, interviews do not lose their role but are transformed. They serve as reflective prompts, enabling in-depth consideration of possible solutions, their consequences and their suitability within a specific context. Research of adult education and entrepreneurial learning indicates that such reflective use of interviews prevents superficial idea generation and encourages the development of thoughtful, contextually grounded solutions (Galeotti, 2020; Victorino et al., 2023). At this stage, interviews allow creativity to be combined with critical judgement. In the later stages of the design thinking process, interviews facilitate ongoing verification and validation of developing solutions. Through interviews, participants reflect on prototypes, assess their usefulness and consider possible improvements. This use of interviews reinforces the iterative nature of the design thinking method and supports learning through action. In these phases, interviews should extend beyond evaluating outcomes to include reflection on the learning process, collaboration, and changes in the participants' understanding. (Bogdanova, 2021; Taimur et al., 2022).

The design thinking method most often employs various forms of qualitative interviews that support the phases of empathy, problem definition, idea generation and solution testing, with particular emphasis on empathy interviews, reflective interviews, stakeholder interviews and contextual interviews. Literature understands these forms as a spectrum of interview practices rather than as strictly distinct "types", as they often overlap and combine depending on the phase of the process.

We will first describe the semi-structured interview in more detail. It differs most from the unstructured⁴ interview in that the researcher prepares a few key open-ended questions in advance and asks the interviewee additional questions during the interview based on their responses. It combines elements of both structured and unstructured approaches to data collection. This method

⁴ The most common way to classify interviews is by their degree of standardisation, as this indicates how much the interview is standardised in terms of questions, procedure, circumstances, quality and execution. Based on this, we distinguish between non-standardised (unstructured) and standardised (structured) interviews. Unstructured interviews are more free-flowing and do not have predetermined questions. This approach facilitates the discovery of unexpected topics and in-depth exploration, but it requires a highly skilled interviewer (Choosing an Interview Type for Qualitative Research, n.d.). There are several types, such as non-directive, focused, semi-structured, in-depth and group interviews. Structured interviews have predetermined questions that are asked in a specific order. This approach enables a high degree of comparability between the responses of different participants, but it is less flexible. "This type of interview is characterised by the fact that the process of obtaining data (information) is standardised for all respondents, which means that everyone answers the same questions, the instructions or explanations regarding the questions and answering them are the same for everyone, and the procedure for recording answers is also the same for all interviews" (Vogrinc, 2008, p. 105).

allows researchers to obtain in-depth information on the topic under study while maintaining a degree of flexibility and adaptability during the interview (Banjac, 2020). Generally, the interviewee has much more space to tell their story in their own way and to express their opinion and perspective on the topic, but the specific structure of the interview allows for a degree of standardisation⁵, enabling some comparison between individual interviews (Edwards & Holland, 2013). The key questions are the same for all interviewees, but the additional questions vary depending on each interviewee's opinion, perspective, role in a given situation and level of talkativeness, allowing questions to be adapted to individual interviewees. This is a major advantage of this type of interview: obtaining answers to the same questions – which facilitates comparison, and to different questions – which enables in-depth exploration of the topic, yielding rich and detailed data and flexibility in exploring new topics that arise during the interview. However, the use of semi-structured interviews also entails several limitations, including increased analytical demands arising from response variability, the potential omission of relevant topics due to their flexible structure, and diminished comparability across interviewees (Banjac, 2020).

There are also contextual, reflective, stakeholder and empathic interviews, which, alongside unstructured interviews, represent complementary research approaches in participatory adult education. Each has its own specific role: the first reveals actual practices and the learning environment, the second deepens personal reflection, the third connects the broader environment into an ecosystem and the fourth connects, understands and explores.

A contextual interview is a qualitative technique in which the researcher accompanies the interviewee in their natural environment, such as their workplace or learning setting, while they carry out their actual work or daily activities. It is an interview “in context” that focuses on what people do, how they do it and why, rather than simply asking for abstract descriptions or opinions (Mortensen, 2020; Stange et al., 2024). It is recognised as one of the key generative research approaches because it provides deep insight into the goals, needs, constraints and informal practices of users, which are often overlooked in traditional interviews. What makes it distinctive is that the researcher does not wait for a retrospective explanation but includes ongoing clarification of decisions and problems as they arise during actual work (*User Experience Methods Catalogue*, n.d.). It is particularly suitable in an andragogical context because it provides insight into the actual

⁵ Interviews are classified according to various criteria. There are several types of research interviews, which differ in their degree of structure or standardisation, method of data collection and number of respondents (Vogrinc, 2008).

learning processes, habits and adaptations that adults incorporate into their daily work and learning (*Design Thinking*, n.d.).

Reflective interviewing involves an active partnership between the interviewer and the interviewee, with the latter becoming a co-author in understanding their own experiences. In adult education, reflective interviews encourage critical thinking and self-reflection, both of which are essential for transformative learning (Pessoa et al., 2019). The interviewer and interviewee jointly clarify the meaning of events in conversation, with reflection reducing the researcher's subjective interpretations (Trundle et al., 2025). A key feature of reflective interviews is their focus on experience and perception: questions guide the interviewee to describe specific situations, their thoughts and feelings and how they understand them in retrospect (Jordan, 2023; Kordeš & Smrdu, 2015). The interview is not just a collection of data, but also a space where the participant learns about themselves, their practice and their decisions, as self-reflection is built into the process as a central element (Jordan, 2023; Kordeš & Smrdu, 2015). Reflexivity is expected not only from the interviewee but also from the interviewer, who constantly checks their own assumptions, position of power and influence on the course of the interview (Jordan, 2023).

Stakeholder interviews involve various actors, such as participants, lecturers, financiers and the community, with the interviewer exploring their needs, expectations and concerns (*Stakeholder Engagement Methods*, 2025). The focus is on understanding the goals, expectations, concerns and limitations of stakeholders, rather than the user experience itself. Another important aim is to build alliances and support for the project, as interviews help stakeholders feel included and heard at an early stage of the process (Gibbons, 2022; *Internal Stakeholder Interviews for User Research*, 2025).

An empathy interview is an in-depth, open-ended interview used in the empathy phase of design thinking, where the main aim is to understand people's experiences, emotions, motives and hidden needs, rather than to test pre-designed solutions. The emphasis is on listening to the participants' stories and contexts and exploring their experiences, not merely collecting facts or opinions (Lucas, 2024). This type of interview attempts to "see the world through the eyes" of the interviewee, so the researcher asks about specific situations, examples and emotions that accompany experiences (e.g., learning a new technology, visiting the doctor, looking for a job). The interviewer should temporarily suspend their own assumptions and focus on the interviewee's perspective, a core principle of the empathy phase in the design thinking process (Mortensen, 2020). In adult education, these interviews contribute to the inclusive design of programmes because

they consider different perspectives, improve the sense of inclusion and highlight important interests, which strengthens motivation and, consequently, the success of education (*Stakeholder Engagement Methods*, 2025). They also enable the alignment of educational programme objectives with stakeholder interests and the elimination of risks early in the process.

The comprehensive use of interviews in the design thinking process enables participants to be not only sources of information but also active researchers of their own environment and co-creators of solutions. The interview becomes a means of connecting participants with the local environment, as it encourages them to explore, engage in dialogue with other community members and reflect on social relationships. In this way, the interview contributes to achieving the fundamental goals of participatory adult education.

Student project *Cultural Heritage for Sustainable Tourism: Intergenerational Learning*

The project *Cultural Heritage for Sustainable Tourism: Intergenerational Learning*⁶ was an interdisciplinary initiative aimed at developing an inclusive thematic trail focused on cultural heritage, sustainable tourism and intergenerational learning. It took place during the 2024/2025 academic year. The project brought together various educational institutions and economic entities. Ten students from various fields participated: three students of andragogy, three of ethnology and cultural anthropology, one of geography and three of tourism. The pedagogical mentors were from the Faculty of Arts at the University of Ljubljana and the Faculty of Tourism Studies at the University of Primorska. The work mentors came from the Ajdovščina Adult Education Centre and the business sector – specifically, the Deci s.p. winery. In addition to the students, older participants from the Ajdovščina Adult Education Centre and retired experts also contributed to the development of the thematic trail: one expert in tourism, one in education and one in working with people with disabilities. Students and older participants participated in all project phases, from field research to testing the final solutions for the thematic trail.

The main objective was to develop the *Discover Vipava through Time, Culture and Nature* thematic trail, which connects the cultural heritage of the Vipava Valley, sustainable tourism and the inclusion of different generations.

⁶ The project was co-financed by the European Union from the European Social Fund Plus and by the Ministry of Higher Education, Science and Innovation of Slovenia.

The trail was designed as an inclusive digital trail, accessible to all generations, especially people with disabilities and older people. It included six thematic stations related to local cultural heritage, winemaking, musical heritage and natural attractions of the Upper Vipava Valley⁷. The thematic trail is available in the ActionBound app in Slovenian. The app allows dynamic adaptation of the activities without altering the physical space, enabling repeated updates and enhancements to the content of the stations based on findings from interviews and field analysis.

The digital thematic trail is 2 km long and includes the following stations: (1) Lanthieri Park, (2) Main Square, (3) Podfarovž, (4) Lanthieri Mansion, (5) Tabor and (6) By the River. Each station contains a description of the place, landmark or natural phenomenon, along with activities for visitors. The activities vary by location. In Lanthieri Park, visitors participate in a mindfulness exercise, listening to a guided session on the app, which they perform in the park. On the main square, they learn about the architect Jože Plečnik and the Slovenian national anthem *Zdravljica*. There are two activities: first, the visitors reflect on monuments and their significance and, second, they fill in the missing words of the Slovenian national anthem. At Podfarovž, they learn about the sources of the Vipava River and upload a photo to the app. At Lanthieri Mansion, they learn about the Lanthieri family and the story of the Gloglo glass, followed by a quiz. At the fifth station, they learn about the Neuhaus family coat of arms, answer related questions and design their own coat of arms. The final station focuses on the Vipava River and song. Visitors listen to the Slovenian folk song *Kje so tiste rožce moje* (Where are my roses) and use the river as a source of relaxation and meditation.

All content was developed by students and older participants on the basis of field analysis, interviews, and discussions with local residents and stakeholders, as well as learning about cultural heritage and local history, and conducting a needs analysis from both tourism and accessibility perspectives. After developing the trail, they also jointly designed a promotional plan, trail logo, brochure and promotional materials. The following section outlines the development of the thematic trail *Discover Vipava through Time, Culture and Nature*, with particular attention to the application of the design thinking method and interview techniques.

In the project, we used the design thinking method, described in detail in the first part of the paper. Interviews were the key technique for collecting data, testing ideas, developing solutions and evaluating the trail in all the stages. They enabled the participants to be active co-creators of the thematic trail, since

⁷ The Upper Vipava Valley, located in Slovenia's Littoral region, extends from the village of Podnanos in the east to the town of Ajdovščina in the west, with Vipava as its central town.

they were involved in designing the stations along the trail, collecting stories and checking the accessibility of the trail. Before conducting the interviews, we held a training session on interviewing techniques, where students and older people who participated in data collection acquired the necessary skills and knowledge to conduct high-quality interviews. The training covered preparing questionnaires, methods for asking open-ended questions and ethical principles for conducting interviews with different aims, such as exploring the local environment, collecting stories, identifying user needs and testing ideas and solutions.

The first phase involved conducting interviews with the residents and the experts. These interviews focused on understanding the needs, expectations and perspectives of various stakeholders, including people with disabilities and older participants. The aim was to explore how to ensure that the thematic trail is accessible, inclusive and connected to the local cultural heritage.

Table 1. Interviewees and interview objectives in the first phase

Interviewees	Interview objectives	Number of interviews
Residents	To learn about opinions on cultural heritage, which local characteristics residents would include in the thematic trail and their views on the thematic trail	4
Musical artist	To learn about the characteristics of the musical cultural heritage of the Upper Vipava Valley and prepare a selection of songs to be included in the thematic trail	1
Music teacher	To learn about the use of musical heritage in teaching (transfer in public spaces), with an emphasis on groups with disabilities	1
Expert at a retirement home (social worker)	To learn about the needs of older people in order to adapt the thematic trail to them.	1
Expert at a retirement home (occupational therapist)	To identify obstacles, especially mobility obstacles	1
Elderly citizens	We spoke to random passers-by and asked for their opinion on the thematic trail.	2
Tourism expert (TRG Vipava Tourism Institute)	To learn about the characteristics of tourism and opinions on the characteristics and impacts of thematic trails	1
Wine expert	To learn which elements of cultural heritage can be connected to winemaking and how a thematic trail can be linked to winemaking.	1
Person with a disability (Multiple Sclerosis Society of Slovenia)	To learn how people with disabilities experience accessible tourism, inclusion and barriers	1
Total		13

Based on the interviews and their analysis, we identified key cultural characteristics and the needs of vulnerable groups, such as trail accessibility and the inclusion of significant historical sites. We relied on these findings when we began developing a concept for a thematic trail that would address the needs identified in the interviews and be accessible to various target groups, particularly older people and people with disabilities.

In the second phase, we began developing solutions. Through further interviews, we verified whether our proposed stations along the trail were meaningful, accessible and suitable for fulfilling various objectives, such as accessibility for vulnerable groups, the educational goals of the trail, involvement of the local community and the promotion of sustainable tourism. At this stage, the interviews allowed us to gather feedback on how the visitors and participants perceived our design and which adjustments we had to make.

Table 2. Interviewees and interview objectives in the second phase

Interviewees	Interview objectives	Number of interviews
Residents	To evaluate the suitability of the sequence of the stations (1) and the use of smartphones (2); and to conduct the first trail testing (3)	3
Social worker at a retirement home	To evaluate the suitability of the thematic trail for wheelchair users and group use (questions, photos, activities)	1
Multiple Sclerosis Association of Slovenia, Goriška branch	To evaluate the suitability of the trail for adults with disabilities.	1
Hiking group	To evaluate the suitability of the stations and activities (1); perform the second test (2)	25
Expert in non-formal education	To check the suitability of the activities on the thematic trail.	1
Total		31

Based on the interviews and findings, we adjusted the sequence of the stations and activities to make them accessible to all users. We also improved the interactive activities, facilitating the inclusion of different groups, such as older people and people with disabilities.

After completing the testing of the thematic trail, we conducted the first and second trail tests and interviewed the users to further explore the accessibility of the developed thematic trail. The aim of the research was to obtain feedback on the accessibility of the trail and users' experiences.

Table 3. Interviewees and interview objectives after testing the thematic trail

Interviewees	Interview objectives	Number of interviews
Trail users	To evaluate user experience and trail accessibility, and to formulate recommendations for improvement	5
Tourism accessibility expert	The assess trail accessibility for people with disabilities	1
Project team members	To collect feedback on prior testing and adjustments	5
Hikers	To undertake further testing of individual trail stations and activities	25
Total		36

The post-testing interviews provided us with feedback on the most visited stations, what the visitors appreciated most and which activities were too difficult or not interesting enough. The interviews informed the adaptation of the activities and content to enhance inclusivity and accessibility across generations, while safeguarding the cultural value of the trail. They also provided a realistic appraisal of the trail's accessibility and guided subsequent modifications aimed at its improvement.

The texts created within the project – terrain analysis, characteristics of the Upper Vipava Valley, learning in public open spaces, intergenerational learning, sustainable, accessible and regenerative tourism, and experiences and findings from the use of the design thinking method and the development of a digital thematic trail – were compiled in the professional monograph *Thematic Trail as a Strategy for Lifelong Learning*⁸, published by the Ajdovščina Adult Education Centre.

Conclusion

The analysis and application of the design thinking method in the student project *Heritage Culture for Sustainable Tourism: Intergenerational Learning* suggest that interviews play a crucial role in the effective implementation of design thinking in participatory adult education. In this context, interviews function not only as a tool for data collection, but also as a means of co-creating meaning and actively

⁸ Building on our experience in the student project *Culture of Heritage for Sustainable Tourism: Intergenerational Learning*, we further developed thematic trails within the project *BEroots – Between Rivers and Lagoons: Artistic Routes*. As part of this work, we published the professional monograph Furlan (2024) (Ed.), *Thematic Trail as a Strategy for Lifelong Learning*, produced within the BEroots project. The project is co-funded by the European Union under the Interreg VI-A Italy–Slovenia Programme. Further information is available at: <https://www.ita-slo.eu/en/news-and-events/news/professional-monograph-thematic-route-strategy-lifelong-learning>

involving participants in the development of solutions. Through this process, a thematic trail was developed that responds to local needs and experiences, while fostering intergenerational cooperation and the inclusion of vulnerable groups. Interviews also supported reflection and collaboration among stakeholders, which proved important for developing sustainable solutions that are meaningful and useful for diverse user groups. The findings further suggest that the design thinking method is well suited to participatory educational contexts, enabling both older and younger participants to engage actively, co-create solutions and work within their local environment. By encouraging active participation, all actors – from experts to local residents – became co-authors of the thematic trail. This process resulted in an inclusive thematic trail that is not only a tourist offering, but also a learning process through which participants explore, share and contribute to the preservation of cultural heritage.

However, the use of the design thinking method is not without limitations. One challenge lies in the time and organisational complexity associated with involving multiple stakeholders, which can prolong decision-making processes and undermine project efficiency. In addition, measuring the impact of participatory approaches can be difficult, as outcomes often rely on the participants' subjective perspectives, thereby limiting the generalisability of the findings. Despite these constraints, the design thinking method offers significant potential for the development of participatory education, as it fosters active co-creation and reflection, contributing to sustainable learning and innovation.

The application of design thinking principles facilitates innovative participatory learning methods in adult education, particularly in the fields of sustainable tourism and cultural heritage conservation. Global sustainable tourism trends increasingly include local communities and cultural heritage as key factors in developing tourism that enriches rather than degrades the environment. In this context, the design thinking method enables the creation of solutions based on the needs of the local community and visitors, promoting the development of sustainable tourism practices. Integration of cultural heritage into tourist trails is not only a matter of preserving history, but also of promoting the communities' identity and social cohesion. The design thinking method facilitates the development of solutions ensuring long-term sustainability and innovative approaches to preserving cultural heritage. Moreover, its application enables the active involvement of diverse actors—from students to older participants—in co-creation processes, thereby fostering intergenerational cooperation and knowledge exchange. Participatory education and intergenerational collaboration are key components in the development of sustainable communities, as they engage both younger and

older participants in the joint creation of solutions. This approach aligns with the objectives of European education policies and the broader global agenda for sustainable development. In this way, the design thinking method enables not only the development of innovative solutions for sustainable tourism, but also the co-creation of knowledge through the active involvement of all participants in a process that fosters reflection, learning and innovation. The student project *Heritage Culture for Sustainable Tourism: Intergenerational Learning* illustrates how the use of the design thinking method in adult education can achieve sustainable solutions for local communities and visitors, while generating educational content that is relevant, inclusive and supportive of cultural heritage preservation and sustainable development.

References

- AITHAL, R. S., KUMAR, S., & VIJAYALAKSHMI, M. (2024). Sustainable education: A design thinking approach for quality education. *Proceedings of the IEEE CSITSS*. <https://doi.org/10.1109/CSITSS64042.2024.10816897>
- BANJAC, M. (2020). *Kvalitativno raziskovanje v družboslovju*. Znanstvena založba Filozofske fakultete Univerze v Ljubljani.
- BELIGATAMULLA, G., RIEGER, J., FRANZ, J. M., & STEFANIAK, J. (2019). Making pedagogic sense of design thinking in the higher education context. *Education Sciences*, 9(2), Article 102. <https://doi.org/10.1515/edu-2019-0006>
- BOGDANOVA, E. (2021). Service design experimental learning in adult education. In *INTED2021 Proceedings* (pp. 1025–1033). IATED Academy. <https://library.iated.org/view/BOGDANOVA2021SER>
- BROWN, T. (2008). Design thinking. *Harvard Business Review*, 86(6), 84–92.
- CHAN, Z. C. (2018). Design thinking for transformative education. *Educational Research for Policy and Practice*, 17(3), 211–228. <https://doi.org/https://doi.org/10.1007/s10671-017-9233-2>
- CHOOSING AN INTERVIEW TYPE FOR QUALITATIVE RESEARCH. (n.d.). Intellectus Consulting. <https://www.statisticssolutions.com/choosing-an-interview-type-for-qualitative-research/>
- COHEN, L., MANION, L., & MORRISON, K. (2018). *Research methods in education* (8th ed.). Routledge.
- CORNISH, F., BRETON, N., & MORENO-TABAREZ, U. (2023). Participatory action research. *Nature Reviews Methods Primers*, 3(34). <https://doi.org/10.1038/s43586-023-00214-1>
- DESIGN COUNCIL. (2019). *The double diamond: A universally accepted depiction of the design process*. <https://www.designcouncil.org.uk/our-work/skills-learning/tools-frameworks/the-double-diamond/>

- DESIGN THINKING. (n.d.). Interaction Design Foundation. <https://www.interaction-design.org/literature/topics/design-thinking?srsId=AfmBOoo-cEILONvEkG9n-SqBxy9uyQji0M90gWwQxVOOoGbYziry5Aas3>
- DOMBROWSKI, U., & LOHRMANN, C. (2018). Design thinking for social innovation: A conceptual framework for participatory design in public services. *International Journal of Public Sector Management*, 31(1), 32–47. <https://doi.org/10.1108/IJPSM-01-2017-0013>
- EDWARDS, R., & HOLLAND, J. (2013). *What is qualitative interviewing?* Bloomsbury.
- ERTAS, Y. N. (2019). Design thinking for social innovation: A systematic literature review. *Journal of Social Entrepreneurship*, 10(4), 448–471. <https://www.tandfonline.com/doi/abs/10.1080/19420676.2019.1680635>
- EVANS, R., KURANTOWICZ, E., & LUCIO-VILLEGAS, E. (Eds.). (2022). *Remaking communities and adult learning*. Brill.
- FREIRE, P. (2005). *Pedagogy of the Oppressed*. Continuum.
- FURLAN, M. (2020). Older People's Transformative Learning in a Project Group. *Andragoške Studije*, 2, 111–126. <https://doi.org/10.5937/AndStud2002111F>
- FURLAN, M. (2021). The Importance of Public Pedagogy for Learning in Public Open Spaces in the Time of Covid-19. *Andragoške Studije*, 2, 9–24. <https://doi.org/10.5937/AndStud2102009F>
- FURLAN, M. (Ed.). (2024). *Tematska pot kot strategija vseživljenjskega učenja*. Ljudska univerza Ajdovščina.
- GALEOTTI, G. (2020). *Educazione ed innovazione sociale: L'apprendimento trasformativo nella formazione continua*. Firenze University Press. <https://doi.org/10.36253/978-88-5518-092-4>
- GIBBONS, S. (2022). *Stakeholder interviews 101*. Nielsen Norman Group <https://www.nngroup.com/articles/stakeholder-interviews/>
- GRUDEN, U., GOVEKAR OKOLIŠ, M., & LIČEN, N. (2025). Izobraževanje starejših na Univerzi v Ljubljani. *Šolska kronika*, 2–3, 453–478. <https://solskimuzej.si/wp-content/uploads/2025/12/solska-kronika-2025-2-3-Gruden-Okolis-Licen-Izobrazevanje-starejsih.pdf>
- INTERNAL STAKEHOLDER INTERVIEWS FOR USER RESEARCH. (2025). *UserInterviews*. <https://www.userinterviews.com/ux-research-field-guide-chapter/internal-stakeholder-interviews>
- JORDAN, H. (2023). *Ali se lahko učitelji učimo drug od drugega?* Zavod Republike Slovenije za šolstvo.
- KASTNER, M., & MOTSCHILNIG, R. (2022). Interconnectedness of Adult Basic Education, Community-Based Participatory Research and Transformative Learning. *Adult Education Quarterly*, 72(3), 223–241.
- KORDEŠ, U., & SMRDU, M. (2015). *Osnove kvalitativnega raziskovanja*. Založba Univerze na Primorskem.
- KVALE, S. (1996). *InterViews: An introduction to qualitative research interviewing*. Sage.

- LIČEN, N., GRUDEN, U., & FURLAN, M. (Eds.). (2024). *Skupnostno izobraževanje: Izbrane strategije za začetnike*. Znanstvena založba Filozofske fakultete Univerze v Ljubljani
- LUCAS, F. (2024). *Techniques for empathy interviews in design thinking*. <https://webdesign.tutsplus.com/techniques-of-empathy-interviews-in-design-thinking--cms-31219a>
- MANZINI, E. (2015). *Design, when everybody designs: An introduction to design for social innovation*. MIT Press.
- MORTENSEN, D. (2020, July 10). *Stage 1 in the Design Thinking Process: Empathise with Your Users*. IxDF – Interaction Design Foundation. <https://www.interaction-design.org/literature/article/stage-1-in-the-design-thinking-process-empathise-with-your-users>
- PESSOA, A. S. G., HARPER, E., SANTOS, I. S., & GRACINO, M. C. DA S. (2019). Using Reflexive Interviewing to Foster Deep Understanding of Research Participants' Perspectives. *International Journal of Qualitative Methods*, 18. <https://doi.org/10.1177/1609406918825026>
- RAZZOUK, R., & SHUTE, V. (2012). What is design thinking and why is it important? *Review of Educational Research*, 82(3), 330–348. <https://doi.org/10.3102/0034654312457429>
- SANTOS, K., SLÁDKOVÁ, J., GAIAS, L., & TIGERT, J. (2025). “We Expressed What We Needed and the Center Made Changes ... I Think They Listened”: Exploring Complexities of Participatory Action Research in an Adult ESOL Program. *Journal of Participatory Research Methods*, 6(2), 43–66. <https://doi.org/10.35844/001c.133824>
- SANUSI, O. A. (2023). *Service design for education: co-creation of effective learning practices with adult students*. *Action research from adult literacy and foreign language education field* [Master's thesis]. Oulu University of Applied Sciences.
- STAKEHOLDER ENGAGEMENT METHODS. (2025). *Participatory Tools*. <https://participatory.tools>
- STANGE, V., BEHRENS, L., KUHLMANN, K., SCHRÄDER, T., BRETTIN, L. J., & MAURER, M. (2024). Parents' perspectives on transporting their children in autonomous vehicles – A contextual interview study with parents in Germany. *Transportation Research Part F: Traffic Psychology and Behaviour*, 107, 436–463. <https://doi.org/10.1016/j.trf.2024.08.030>
- TAIMUR, S., ONUKI, M., & MURSALEEN, H. (2022). Exploring the transformative potential of design thinking pedagogy in a hybrid setting: A case study of a field exercise course in Japan. *Asia-Pacific Education Review*, 23, 515–528. <https://doi.org/10.1007/s12564-022-09776-3>
- TAVARES, P. V., FADEL, L. M., ROSUMEK, G. B., & TEIXEIRA, F. G. (2018). Design thinking para educadores: Uma aplicação em videoaulas. *Proceedings of the 8th Information Design International Conference (CIDI 2017)*. <https://doi.org/10.5151/CIDI2017-056>

- TERZAROLI, C. (2018). Developing entrepreneurship through Design Thinking: a new frontier for adult education. *EPALE JOURNAL*, 3, 20–27. <https://hdl.handle.net/2158/1145801>
- TETT, L. (2010). *Community education, learning and development*. Liverpool University Press.
- TRUNDLE, C., ARAÚJO, N., KHAN, S., & PHILLIPS, T. (2025). Beyond the Mirror: Challenging the Common Assumptions of Reflexivity in Qualitative Research. *International Journal of Qualitative Methods*, 24. <https://doi.org/10.1177/16094069251369311>
- USER EXPERIENCE METHODS CATALOGUE. (n.d.). *User Experience Methods Catalogue*. <https://user-experience-methods.com/>
- VALLERA, F. L., & SADAT, B. (2020). Using design thinking practices to create technology-driven adult professional development programs. In J. Keengwe & G. Onchwari (Eds.), *Handbook of research on adult learning in higher education* (pp. 67–87). IGI Global. <https://doi.org/10.4018/978-1-7998-1461-0.CH004>
- VICTORINO, G., COELHO, P. S., & HENRIQUES, R. (2023). The value of design thinking for PhD students: A retrospective longitudinal study. *Emerging Science Journal*, Special Issue ED2. <https://doi.org/10.28991/esj-2023-sied2-02>
- VOGRINC, J. (2008). *Kvalitativno raziskovanje na pedagoškem področju*. Pedagoška fakulteta, Univerza v Ljubljani.
- WIPPERMANN, S. (2023). Innovation in education by design thinking. In *Proceedings of HEAD'23*. <https://doi.org/10.4995/HEAD23.2023.16097>

Tatjana Jovanović¹, Polona Šprajc², Olja Arsenijević³

Employees' Digital Competences and Holistic HRM 4.0: Learning Challenges in Organisations in Serbia

Abstract: Digital transformation is reshaping how work and learning take place within organisations, making the development of employees' digital competences a central challenge for contemporary HRM. This study examines the prevalence of holistic HRM elements in Serbian organisations from the perspective of HR professionals. Using the author-developed HHRM 4.0 instrument and a sample of 104 respondents, the analysis shows that the overall prevalence index is 55%, indicating only partial implementation. The highest scores were documented in the fields of work flexibility and interdepartmental collaboration and the lowest with respect to employee engagement technologies, digital analytics and KPIs and the strategic development of digital skills. The findings highlight the need for integrated andragogically grounded approaches to workplace learning.

Keywords: digital competences, holistic HRM, adult learning, digital transformation, learning in organisations

Digitalne kompetencije zaposlenih i holistički HRM: izazovi učenja u organizaciji u Srbiji

Apstrakt: Digitalna transformacija menja načine na koje se rad i učenje odvijaju u organizacijama, čineći razvoj digitalnih kompetencija zaposlenih centralnim izazovom savremenog upravljanja ljudskim resursima. U ovom istraživanju se ispituje rasprostranjenost elemenata holističkog HRM-a u organizacijama u Srbiji iz perspektive HR profesionalaca. Rezultati primene instrumenta HHRM 4.0 koji je razvila autorka na uzorku od 104

¹ Faculty for Engineering Management, Serbia, <https://orcid.org/0000-0002-3400-3467> (tatjana.jovanovic1@yahoo.com)

² University of Maribor, Slovenia, <https://orcid.org/0000-0003-1356-3438> (polona.sprajc@um.si)

³ Institut of Serbian Culture, Serbia, <https://orcid.org/0000-0002-0465-0508> (arsenijevicolja@gmail.com)

ispitanika pokazuju da je ukupni indeks rasprostranjenosti 55%, što ukazuje na samo delimičnu implementaciju. Najviše vrednosti zabeležene su u oblastima fleksibilnosti rada i međufunkcionalne saradnje, dok se najniže ocene odnose na primenu tehnologija za angažovanje zaposlenih, digitalnu analitiku i ključne pokazatelje uspešnosti (KPI), kao i na strateški razvoj digitalnih veština. Nalazi ukazuju na potrebu za integrisanim andragoški utemeljenim pristupima učenju na radnom mestu.

Ključne reči: digitalne kompetencije, holistički HRM, učenje odraslih, digitalna transformacija, učenje u organizaciji

Introduction

The Fourth Industrial Revolution has brought accelerated digitalisation of organisational processes, business models and work environments. Technologies such as artificial intelligence, advanced analytics, automation and digital platforms are reshaping competence requirements and redefining the role of the human resource (HR) function (Schwab, 2017). In this context, traditional oriented HR models are no longer sufficient to support learning in organisational contexts, flexibility and the adaptability of adults in the workplace (Kalvakolanu & Prasad, 2023; Strohmeier, 2020).

HR management 4.0 (HRM) concepts therefore emphasise the need for the HR function to operate in a strategic, integrated and proactive way, using digital tools for decision-making, competence development and support to business transformation (Meijerink et al., 2021; Strohmeier, 2020). A holistic approach to human resource management entails viewing HR practices as a system that integrates digital technologies, competence development, a culture of innovation, sustainable business and high-quality communication between management and employees (Meijerink et al., 2021).

In the field of adult education and andragogy, these processes are of direct relevance. The workplace represents the key context for adult learning, while the way in which an organisation designs its HR policies directly affects access to training, the development of digital skills, motivation to learn and the engagement of employees in innovation processes (Poór et al., 2020; Ravichandran, 2018; Vuorikari et al., 2022). Participation in continuous learning is strongly influenced by both individual factors and organisational support mechanisms, which shape employees' motivation, learning behaviour and the transfer of new skills into work practice (Feldman & Ng, 2021). Without adequate support for learning, digital transformation may deepen the gap between required and existing competences, whereas a holistic HRM (HHRM) approach has the potential

to reduce this gap through coordinated processes of competence development, innovation and workplace learning. Recent studies also show that upskilling and reskilling initiatives play a central role in building a learning-oriented organisational climate and enabling employees to adapt to rapid technological change (Hasan et al., 2024).

Although digital transformation has been widely discussed in recent years, empirical studies that examine multiple HRM domains in an integrated way remain limited, especially in developing countries and post-socialist economies (Poór et al., 2020). Scholars tend to analyse isolated aspects such as digital skills, organisational culture or flexible work arrangements, while research that connects these elements into a comprehensive or holistic HRM framework is considerably less common (Meijerink et al., 2021; Strohmeier, 2020). There are even fewer studies that approach this question from the perspective of HR professionals – the actors who are crucial for designing training programmes, developing competences and implementing digital initiatives.

Hence the clear need for empirical studies that analyse HR professionals' perceptions of the extent to which holistic HRM practices are implemented in various organisational contexts (public, private, domestic and foreign organisations). This paper seeks to address this gap. The study examines the degree of prevalence of holistic human resource management elements under Industry 4.0 conditions in organisations in the Republic of Serbia, observed from the perspective of HR professionals. Particular attention is paid to dimensions that are directly linked to adult learning and the development of digital competences – training provision, support for skills development, a culture of innovation, work flexibility and organisational communication about digital transformation.

The empirical basis of this study relies on the application of the Holistic HRM in Industry 4.0 instrument (HHRM 4.0), developed by the authors on the basis of an eclectic, interdisciplinary theoretical framework that integrates key concepts relevant to holistic HRM, including digital transformation (Westerman et al., 2011) and the diffusion of the innovations theory (Rogers, 2003). Data were collected from 104 HR professionals employed in organisations varying in ownership structure, sector and size. In addition to assessing the overall prevalence of HHRM practices, the study examines differences across gender, position, ownership structure, sector and age, using appropriate non-parametric statistical techniques.

The central research question is:

Is holistic HRM in organisations in Serbia sufficiently widespread to support adult learning and the development of employees' digital competences under Industry 4.0 conditions?

The paper further addresses the following sub-questions:

1. Which elements of holistic HRM are most prevalent and which are the least developed?
2. Are there differences in the perceived implementation of holistic HRM depending on the respondents' gender, professional role and organisational characteristics?
3. What implications do the findings have for competence development and employee learning programmes?

Theoretical Background

Digital transformation, as a key feature of the Fourth Industrial Revolution, strongly influences how organisations function, how work is carried out and how employees learn, acquire competences and adapt to change. The introduction of technologies, such as artificial intelligence, advanced analytics, the Internet of Things, automation and digital platforms, leads to deep changes in organisational dynamics and requires a redefinition of the role of the HR function (Schwab, 2017). In such a context, traditional, administratively-oriented HR models become insufficient and literature increasingly emphasises the need for a strategic, integrated and transformative approach to HRM (Hinings et al., 2018; Kane et al., 2015; Strohmeier, 2020).

A holistic approach to HRM represents precisely such a paradigm. It entails viewing HR practices as a mutually connected system that encompasses core HR processes, including competence development, as well as organisational culture, digital infrastructure, innovativeness, sustainability and the quality of communication. The essence of holistic HRM lies in positioning HR as an actor that connects business strategy, workplace learning and employees' professional development, thereby creating conditions for successful functioning in a digitally transformed work environment (Meijerink et al., 2021). Contemporary studies confirm that organisations opting for integrated HR approaches adapt faster to technological change and more successfully develop a competent, flexible and innovative workforce (Poór et al., 2020).

Industry 4.0 acts as a powerful catalyst of these changes. Digital technologies affect not only work processes, but also the competences of employees, modes of learning and the shaping of professional identities. Literature stresses that digital transformation cannot be reduced to a technological issue; it is primarily an organisational and cultural change that requires continuous learning,

the development of new skills and shifts in mindsets (Hinings et al., 2018; Kane et al., 2015). Within this context, the HRM 4.0 concept emerges, integrating digital tools and analytics into HR practices, enabling personalised training and data-driven decision-making. Recent literature also shows that AI-enabled HR solutions can significantly enhance the efficiency and accuracy of HR processes, while simultaneously introducing new capability requirements, infrastructure demands and cultural expectations for HR professionals and employees (Agustono et al., 2023).

Digital HR analytics or people analytics is a particularly important component of HRM 4.0; it enables more precise training planning, the identification of competence gaps and the optimisation of selection and development processes. Technological progress also significantly shapes the nature of learning in organisations. According to contemporary andragogical theories, the workplace has become a key context of adult learning, in which informal and non-formal learning, experimentation and collaboration dominate. Digital transformation reinforces these processes, offering employees more opportunities to develop digital skills through everyday work, while the HR function is tasked with creating an environment that supports such forms of continuous learning. In addition, organisations play a central role in enabling the employees' participation in continuous learning and in supporting the transfer of newly acquired knowledge into work behaviour, which directly influences skill development and performance (Feldman & Ng, 2021).

Organisational culture plays a critical role in the adoption of digital innovations. Research shows that employees' readiness to adopt new technologies depends on clear management communication, perceived usefulness, opportunities for experimentation and visibility of results – dimensions derived from Rogers' diffusion of innovations theory (Rogers, 2003). Contemporary studies confirm the applicability of this framework to the digital transformation of HR functions: employees more easily adopt technologies when they perceive their relative advantage, view them as compatible with their work and have the opportunity to try them out in a safe environment (Kane et al., 2015; Ravichandran, 2018).

Digital transformation also introduces new requirements in terms of work flexibility, remote work and access to learning. These changes have led to growing emphasis on the need to design adaptive, personalised and technology-supported development programmes for employees (Allen et al., 2015; Vuorikari et al., 2022). At the same time, research shows that different age groups of employees display distinct learning preferences and approaches to acquiring new skills, making generational differences an important factor in planning HR and educational interventions (At Thariq, 2023).

Taken together, these aspects demonstrate that holistic HRM under Industry 4.0 conditions is crucial for building learning organisations. The integration of digital tools, training support, an innovation-oriented culture, sustainable business and high-quality communication creates conditions for rapid adaptation, competence development and employee engagement (Meijerink et al., 2021; Poór et al., 2020). Empirical examination of the prevalence of such practices – particularly from the perspective of HR professionals – is therefore important both for HRM theory and for andragogical practice and the development of employees' competences in the digital era.

From an andragogical perspective, it is important to distinguish between the concepts of organisational learning and learning in organisations. In literature, organisational learning is commonly understood as a collective and systemic process through which organisations develop shared knowledge, routines and practices embedded in organisational structures (Elkjær, 2004). In contrast, andragogical perspectives emphasise learning in organisations, which refers to individual and group learning processes that take place within organisational contexts and are shaped by work-related conditions and HR practices (Illeris, 2018). This study adopts the latter perspective, as its analytical focus is on how HR practices shape opportunities for adult learning, skill development and competence acquisition among employees. While elements of organisational learning may emerge as outcomes of these processes, they are not examined as an autonomous theoretical construct. This clarification is essential in order to avoid conceptual ambiguity and to ensure alignment with andragogical theory. Accordingly, this study is conceptually grounded in the perspective of learning in organisations, rather than organisational learning as a collective-level construct.

Methodology

This study employed a quantitative research design and a structured questionnaire to examine the extent to which elements of holistic human resource management under Industry 4.0 conditions are implemented in organisations in Serbia. Data collection was conducted in February and March 2025 among HR professionals working in organisations varying in ownership structure, size and sector.

Of the 315 HR professionals invited to participate, 119 completed the questionnaire. After excluding invalid responses through an attention-check item, the final sample consisted of 104 respondents. A convenience sampling strategy was used, which is common in HRM research due to the sensitivity of HR data and limited access to organisational populations. The sample included

organisations of various sizes, sectors and ownership structures, providing a reasonable level of external validity.

The HHRM 4.0 instrument, developed specifically for this research, is based on contemporary HRM theory and an interdisciplinary framework drawing on digital transformation, innovation studies, learning in organisational contexts, diffusion of innovations theory and adult education. The instrument was intentionally designed to capture a broad range of interrelated HR practices relevant to HRM 4.0, including the use of digital technologies in HR processes, strategic positioning of the HR function, cross-departmental collaboration, communication about digital transformation and support for employee competence development. Rather than focusing exclusively on learning activities, the instrument reflects a holistic understanding of HRM as an organisational system in which digital tools, structures, communication and managerial practices jointly create conditions that may enable or constrain adults' opportunities for learning, experimentation and skill development at work. Following an expert review for content validity, the final scale consisted of 20 statements covering HR domains theoretically relevant to holistic HRM in the digital era, including recruitment and selection, performance appraisal, digital skills and training, digital HR processes, innovation culture, managerial communication, organisational alignment and support for continuous learning. For instance, the item "*Employees have opportunities to apply new technologies in their work*" reflects Rogers' concepts of trialability and observability, which highlight that innovation adoption is more likely when employees can practically test the new tools and observe their benefits.

All items were rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Reliability of the scale was confirmed by high Cronbach's alpha coefficients in both the pilot study ($\alpha = .921$) and the main study ($\alpha = .928$), indicating strong internal consistency (DeVellis, 2017). The high Cronbach's alpha values reflect the systemic and integrative nature of the HHRM 4.0 construct. High internal consistency should therefore be interpreted as conceptual coherence of the instrument, rather than as an indicator of widespread implementation of the measured practices.

The questionnaire was distributed electronically via Google Forms and, in several cases, in hard-copy format, ensuring participant anonymity. Respondents were informed of the purpose of the study and assured that results would be reported only in aggregate form.

Given the ordinal nature of the Likert scale and the non-normal distribution of variables, appropriate non-parametric statistical techniques were applied. In addition, the relatively small sample size and the unequal distribution of respondents across certain subgroups (e.g. gender, ownership structure) further justified the use

of distribution-free tests. Therefore, the Mann–Whitney U and Kruskal–Wallis tests were selected as appropriate procedures for examining group differences. The detailed results of these analyses are presented in the Results section.

Results

Descriptive results for the HHRM 4.0 scale show that mean item scores among HR professionals range from 3.03 to 4.17 on a five-point scale. The highest value was recorded for flexible forms of work ($M = 4.17$), indicating that HR professionals most strongly perceive that employees have opportunities to engage in flexible work arrangements. Relatively high scores were also observed for close cooperation between HR and other departments ($M = 3.84$) and for organisational support for collaboration and knowledge sharing ($M = 3.71$). The lowest mean values were recorded for the use of technology to enhance employee engagement ($M = 3.03$), the use of digital analytics in HR decision-making ($M = 3.04$), the use of KPIs in the context of digitalisation ($M = 3.08$) and the existence of a competence development strategy for digital transformation ($M = 3.03$).

In this study, a mean score of 3.5 was set as the threshold for the sufficient prevalence of a given HHRM element. Because the midpoint of the scale (3) reflects neutrality rather than agreement, this threshold enables a clearer distinction between neutral/negative and explicitly positive perceptions among HR professionals. Based on this criterion, 11 out of 20 items met the threshold, resulting in an Index of Sufficient Prevalence of 55%. Given the predefined criterion of 70%, the findings indicate that holistic HRM cannot be considered sufficiently developed in the organisations included in the sample.

Further analyses examined differences in perceptions of HHRM 4.0 based on the characteristics of HR professionals and the organisations in which they work. Differences between HR managers and HR non-managers were assessed using the Mann–Whitney U test. Significant differences emerged for five items, with HR managers consistently assigning higher scores. Managers perceived more opportunities for employees to apply new technologies at work ($p = .011$), more frequent use of HR digital analytics ($p = .046$), more extensive implementation of digital HR solutions ($p = .026$), stronger organisational support for innovation and experimentation ($p = .007$) and more developed two-way communication between management and employees regarding digital transformation ($p = .044$). These findings point to a perceptual gap within the HR profession, whereby HR managers tend to view digital HR practices more favourably than HR non-managers.

Gender-based differences were also examined using the Mann–Whitney U test. No statistically significant differences were found for 19 out of 20 items ($p > .05$), suggesting that male and female HR professionals generally perceive holistic and digitalised HRM in similar ways. A single significant difference emerged for the use of digital analytics in HR decisions ($p = .038$), with women assigning higher ranks than men. This finding should be interpreted with caution given the substantial gender imbalance in the sample (approximately 85% women).

The role of organisational ownership was explored using the Kruskal–Wallis test among HR professionals employed in foreign-owned, domestic private and public organisations. Ownership structure emerged as a major differentiating factor, with significant differences observed for 18 out of 20 items (all $p < .05$). HR professionals in foreign and domestic private companies consistently reported higher levels of HHRM 4.0 practices, whereas those in public organisations reported notably lower levels. The largest gaps were found in interest in learning new technologies, support for digital skill development, provision of training including AI and automation, opportunities to apply new technologies, the use of HR digital analytics, the implementation of digital HR tools and the application of KPIs in digital contexts. Strong differences were also observed in perceptions of innovation culture, managerial communication and encouragement of employee initiative, with public-sector HR professionals consistently reporting the lowest scores.

Sectoral differences (manufacturing, finance and services) were limited. Only one item—HR strategy’s integration of sustainability (ESG)—showed a statistically significant difference ($p = .041$), with the highest scores reported by HR professionals in manufacturing organisations. All other items did not show any significant sector-based differences.

Age-related differences were selective but noteworthy. Statistically significant differences were found in perceptions of support for digital skill development ($p = .032$) and in the provision of digital skills training, including AI and automation ($p = .046$). HR professionals aged 51–55 reported the highest scores in both cases. The lowest scores were reported by the oldest group (56+) for support for digital skill development and by the 31–40 age group for training provision. No statistically significant age differences were observed for the remaining items.

Finally, neither organisational size nor total work experience showed statistically significant effects on HR professionals’ perceptions of HHRM 4.0 (all $p > .05$). Variables with highly unbalanced category distributions (HR tenure, organisational tenure and educational level) were not included in group comparisons, as meaningful statistical testing was not feasible.

It should be noted that the high internal consistency of the HHRM 4.0 scale reflects the integrative and systemic nature of the construct rather than the uniform or high-level implementation of its individual elements. Consequently, the relatively modest prevalence index does not contradict the scale's reliability, but rather indicates that while the conceptual domains of holistic HRM 4.0 are clearly defined and coherently measured, their practical implementation across organisations remains uneven.

Discussion

The results of this study show that holistic HRM under Industry 4.0 conditions is only partially developed in the surveyed organisations. An Index of Sufficient Prevalence (ISP) of 55% indicates that nearly half of the examined elements of HHRM 4.0 fall below the threshold for sufficient implementation. Particularly low scores were observed for the use of KPIs in digital HR, the use of HR analytics, the strategic development of digital competences and the implementation of technological solutions aimed at supporting employee engagement. These results suggest that organisations often introduce individual digital tools without embedding them into a broader and strategically coordinated HR architecture. This pattern aligns with the findings of Bhatti and Alqasa (2025), who argue that fragmented implementation of digital systems is one of the most common barriers to successful digital HR transformation.

Similarly, Vidhya Priya and Sundharesalingam (2022) note that organisations in developing economies rarely implement sophisticated HR analytics systems, which is reflected in the present results. These patterns are consistent with broader reviews of technology-driven HRM change, which highlight both opportunities and challenges linked to digitalisation, analytics and automation (Venkateswara Prasad et al., 2024). Focacci et al. (2024) point to a paradox of digitalisation: despite technological progress, organisations often fail to develop processes and metrics that allow digital innovations to generate real organisational value. Zhang and Chen (2023) further argue that successful digital transformation depends on the ability of organisations to integrate technological innovation, strategic HR processes and appropriate employee competences.

The macroeconomic context sheds additional light on these findings. Serbia ranks 72nd out of 141 countries in the World Economic Forum's Global Competitiveness Report (Schwab, 2019), with indicators related to skills and human capital among the weaker ones. This result is consistent with Kayembe and Nel (2019), who show that developing countries often lag in digital adaptation due

to infrastructural, financial and competence constraints. The Digital Serbia Initiative 2025–2027 strategy (Strategija Inicijative „Digitalna Srbija” 2025–2027) stresses the need to develop digital skills, but programmes are predominantly oriented towards formal education, while the needs of employed adults often remain outside the strategy’s focus.

Regarding demographic differences, the results show that gender generally does not have a strong impact on perceptions of digital HR practices, with the exception of digital analytics where women report higher scores ($p = .038$). This finding may be interpreted in light of Li et al. (2008), who show that men and women use new technologies in different ways, with women developing a more detailed understanding of practical applications once they adopt a technology. However, the sample composition (85% women) requires caution in interpretation.

Age has a selective influence: respondents aged 51–55 give the most positive ratings of organisational support and training provision, while the lowest scores are documented among the youngest (31–40) and the oldest (56+) respondents ($p = .032$ and $p = .046$ for the two affected items). This pattern may also reflect generational differences in learning styles and digital preferences. At Thariq (2023) shows that different generational cohorts engage with learning in distinct ways, suggesting that younger employees may relate to digital solutions differently and, in some cases, evaluate organisational initiatives more critically.

A pronounced gap is evident between HR managers and non-managerial HR staff: managers consistently report higher levels of digital practices on key items related to the application of new technologies, use of digital analytics, implementation of digital HR tools, innovation culture and two-way communication (all $p < .05$). This aligns with the Technology Acceptance Model (Marikyan & Papagiannidis, 2024), according to which perceived usefulness and access to technological resources strongly shape attitudes toward digitalisation. Jovanović and Krasulja (2025) show that deliberately structured continuous professional development within HR teams – such as talent acquisition communities and modular training programmes – strengthens HR professionals’ ability to follow technological change and improve key performance indicators. These findings suggest that those HR roles with greater access to such learning opportunities may also perceive digital transformation more positively.

From an organisational perspective, the strongest differences are observed between the private and public sectors. Domestic and foreign private companies significantly outperform public enterprises in almost all aspects of holistic HRM – from digital skills and training to innovation and two-way communication. This is in line with the European Commission (2024) report, which notes that

the public sector in Serbia is progressing slowly in professionalising the HR function and digitalising processes. Ciancarini et al. (2024) stress that digital transformation in the public sector requires not only technical modernisation, but also deep cultural and institutional changes, including stronger digital competences and greater involvement of IT professionals.

By contrast, sectoral differences are minimal, with the exception of integrating sustainability into HR strategy, where manufacturing companies score higher than financial organisations ($p = .041$). This is consistent with Kalvakolanu and Prasad (2023), who argue that the digital transformation of HR follows a relatively uniform pattern across sectors due to the global standardisation of HR technologies.

Overall, the findings suggest that organisations in Serbia are undergoing partial digital transformation of the HR function: some elements (e.g. flexible work arrangements, cross-functional collaboration) are well developed, while key strategic components – analytics, competence development, innovation culture – remain under-implemented. The results point to the need for systemic, interdisciplinary and andragogically grounded approaches to developing digital competences, as well as for strengthening organisational capacities for integrating technology into HR processes.

Furthermore, the results are consistent with broader European policy frameworks that emphasise continuous upskilling and reskilling of adults as a prerequisite for a resilient and digitally competent workforce. Frameworks such as DigComp 2.2 provide a common language for mapping and developing digital competences across the areas of information and data literacy, communication and collaboration, content creation, safety and problem solving (Vuorikari et al., 2022). Similarly, the European Skills Agenda highlights the need for coordinated efforts by employers, education providers, and policy-makers to design accessible learning opportunities for adults (European Commission, 2020). For organisations, this translates into the task of operationalising these frameworks through context-sensitive workplace learning mechanisms – such as mentoring, peer-to-peer learning, microlearning formats and the use of open and low-cost digital resources – that enable employees to update their skills continuously despite budgetary constraints (Jovanović & Krasulja, 2025). At the same time, the development of digital competences is effective only when combined with transversal skills such as critical thinking, problem solving, collaboration and learning-to-learn, which enable employees to use digital tools in a reflective, responsible and contextually appropriate way, thereby strengthening organisational resilience and capacity for continuous adaptation (European Commission, 2018; OECD, 2021).

Conclusion

The study indicates that elements of holistic human resource management under Industry 4.0 conditions are not yet sufficiently widespread in organisations in Serbia. From an andragogical perspective, the findings primarily contribute to understanding learning within organisations by showing how HRM 4.0 practices shape adults' opportunities for workplace learning and competence development, rather than organisational learning understood as a collective process of knowledge creation. With a prevalence index of 55%, most organisations demonstrate only partial implementation of HHRM 4.0, while key strategic components – such as digital analytics, the use of KPIs, the systematic development of digital competences, and innovation-supportive practices – remain underdeveloped.

The core contribution of this research lies in the use of an author-developed, multidisciplinary instrument that integrates knowledge from HRM, digital transformation, innovation studies and learning in organisations – domains that are inherently connected to adult learning processes. This framework enabled a comprehensive analysis of how organisations conceptualise and enact digital HR practices and how organisational and demographic characteristics shape the perceptions of HR professionals. The results indicate that HR transformation is not only a technical but also an educational process requiring continuous learning, competence development and changes in professional behaviour.

Differences identified between private and public organisations, between HR managers and HR non-managers, and across age groups indicate that digital transformation is uneven and shaped by access to learning opportunities, organisational roles and working conditions. These patterns also have andragogical relevance: they underscore the importance of differentiated learning pathways, tailored competence-development programmes and workplace environments that support adult learning and the transfer of digital skills.

The main limitations of the study relate to the sample structure and the unequal representation of several organisational and demographic categories. Future research should employ larger and more balanced samples, complement quantitative approaches with qualitative methods, and examine longitudinal changes in digital HRM practices and workplace learning.

Despite these limitations, the study offers valuable insights into the current state of holistic HRM in the digital era and highlights the importance of a strategic, integrated and human-centred approach. Organisations that successfully connect technological advancement with learning, competence development and an innovation-oriented culture are more likely to position the HR

function as a key driver of sustainable digital transformation and as a facilitator of meaningful adult learning in the workplace. For adult education and HR development practice, this implies moving beyond isolated training events towards coherent, long-term learning strategies that align workplace learning initiatives with recognised competence frameworks (such as DigComp) and create everyday opportunities for employees to experiment with digital tools, share knowledge and reflect on their learning.

References

- AGUSTONO, D. O. S., NUGROHO, R., & FIANTO, A. Y. A. (2023). Artificial intelligence in human resource management practices. *KnE Life Sciences*, 8(9), 958–970. <https://doi.org/10.18502/kss.v8i9.13409>
- ALLEN, T. D., GOLDEN, T. D., & SHOCKLEY, K. M. (2015). How effective is telecommuting? Assessing the status of our scientific findings. *Psychological Science in the Public Interest*, 16(2), 40–68. <https://doi.org/10.1177/1529100615593273>
- AT THAARIQ, Z. Z. (2023). Learner characteristics based on generational differences. *Journal Pendidikan Humaniora*, 11(1), 10–20.
- BHATTI, M. A., & ALQASA, K. M. A. (2025). Digital integration in human resource management: Role of effective communication, data privacy and information accessibility. *Profesional De La Información*, 34(1), 1–14. <https://revista.profesionaldeinformacion.com/index.php/EPI/article/view/87936>
- CIANCARINI, P., GIANCARLO, R., & GRIMAUDO, G. (2024). Digital transformation in the public administrations: A guided tour for computer scientists. *IEEE Access*, 12, Article 3363075. <https://doi.org/10.1109/ACCESS.2024.3363075>
- DEVĚLLIS, R. F. (2017). *Scale development: Theory and applications* (4th ed.). SAGE.
- ELKJÆR, B. (2004). Organizational learning: The “third way”. *Management Learning*, 35(4), 419–434.
- EUROPEAN COMMISSION. (2018). *Key competences for lifelong learning: European reference framework*. Publications Office of the European Union. <https://education.ec.europa.eu/document/key-competences-for-lifelong-learning>
- EUROPEAN COMMISSION. (2020). *European Skills Agenda for sustainable competitiveness, social fairness and resilience*. Publications Office of the European Union. <https://ec.europa.eu/social/main.jsp?catId=1223&langId=en>
- EUROPEAN COMMISSION. (2024). Serbia 2024 Report https://enlargement.ec.europa.eu/document/download/3c8c2d7f-bff7-44eb-b868-414730cc5902_en?filename=Serbia%2520Report%25202024.pdf.
- FELDMAN, D., & NG, T. (2021). Participation in continuing education programs: Antecedents, consequences and implications. In M. London (Ed.), *The Oxford handbook of lifelong learning* (2nd ed., pp. 347–366). Oxford University Press.

- FOCACCI, C. N., PICHULT, F., & RONDEAUX, G. (2024). Managers in the era of digital transformation: Navigating the dual realities of time. *New Technology, Work and Employment*, 1–10. <https://doi.org/10.1111/ntwe.12320>
- HASAN, M., HAQUE, M. A., NISHAT, S., & HOSSAIN, M. M. (2024). Upskilling and reskilling in a rapidly changing job market: Strategies for organizations to maintain workforce agility and adaptability. *European Journal of Business and Management Research*, 9(6), 2502. <https://doi.org/10.24018/ejbmr.2024.9.6.2502>
- HININGS, B., GEGENHUBER, T., & GREENWOOD, R. (2018). Digital innovation and transformation: An institutional perspective. *Information and Organization*, 28(1), 52–61. <https://doi.org/10.1016/j.infoandorg.2018.02.004>
- ILLERIS, K. (2018). *Contemporary theories of learning*. Taylor & Francis.
- DIGITAL SERBIA INITIATIVE. (2024). “Digital Serbia” Initiative strategy 2025–2027: Unlocking the next level of [Presentation]. <https://www.dsi.rs/wp-content/documents/DIGITAL-SERBIA-INITIATIVE-STRATEGY-2025-2027.pdf>
- JOVANOVIĆ, T. P., & KRASULJA, N. D. (2025). Enhancing talent acquisition through lifelong learning: A case study. *Inovacije u nastavi*, XXXVIII(1), 120–132.
- KALVAKOLANU, S., & PRASAD, K. (2023). Human resource management digitalization. *International Review*, 3–4, 163–171. <https://doi.org/10.5937/intrev2304160K>
- KANE, G. C., PALMER, D., PHILLIPS, A. N., KIRON, D., & BUCKLEY, N. (2015). Strategy, not Technology, Drives Digital Transformation: Becoming a Digitally Mature Enterprise. <http://sloanreview.mit.edu/projects/strategy-drives-digital-transformation/>
- KAYEMBE, C., & NEL, D. (2019). Challenges and opportunities for education in the Fourth Industrial Revolution. *African Journal of Public Affairs*, 11(3), 79–94.
- LI, S., GLASS, R., & RECORDS, H. (2008). The Influence of Gender on New Technology Adoption and Use—Mobile Commerce. *Journal of Internet Commerce*, 7(2), 270–289.
- MARIKYAN, D., & PAPAGIANNIDIS, S. (2024). Technology Acceptance Model: A review. In S. Papagiannidis (Ed.), *TheoryHub Book*. <https://open.ncl.ac.uk/> ISBN: 9781739604400
- MEIJERINK, J., BOONS, M., KEEGAN, A., & MARLER, J. (2021). Algorithmic human resource management: Synthesizing developments and cross-disciplinary insights on digital HRM. *The International Journal of Human Resource Management*, 32(12), 2545–2562. <https://doi.org/10.1080/09585192.2021.1925326>
- OECD. (2021). *Skills for a 21st century: OECD Learning Compass 2030*. OECD Publishing. <https://www.oecd.org/en/data/tools/oecd-learning-compass-2030.html>
- POÓR, J., SLAVIĆ, A., TÓTH, K., BERBER, N., & KERÉKES, K. (2020). Benchmarking in human resource management in focus of Central and Eastern Europe in the light of CRANET research. *Strategic Management*, 25(1), 21–28. <https://doi.org/10.5937/StraMan2001021P>
- RAVICHANDRAN, T. (2018). Exploring the relationships between IT competence, innovation capacity and organizational agility. *The Journal of Strategic Information Systems*, 27(1), 22–42. <https://doi.org/10.1016/j.jsis.2017.07.002>
- ROGERS, E. (2003). *Diffusion of innovations* (5th ed.). Free Press.

- SCHWAB, K. (2017). *The fourth industrial revolution*. Crown Publishing.
- SCHWAB, K. (2019). *The Global Competitiveness Report 2019*. World Economic Forum.
- STROHMEIER, S. (2020). Digital human resource management: A conceptual clarification, *German Journal of Human Resource Management*, 34(3), 345–365.
- VENKATESWARA PRASAD, B., YOUNUS HAMRAAIA, M. H., SHARMA, B. C., & PEREIRA, C. S. (2024). The impact of technology on human resource management: Trends and challenges. *Educational Administration: Theory and Practice*, 30(5), 9746–9752. <https://doi.org/10.53555/kuey.v30i5.4635>
- VIDHYA PRIYA, P., & SUNDHARESALINGAM, P. (2022). Impact of Industry 4.0 on Human Resource Process. *Ushus Journal of Business Management*, 21(2), 41–56. <https://doi.org/10.12725/ujbm.59.4>
- VUORIKARI, R., KLUZER, S., & PUNIE, Y. (2022). *DigComp 2.2: The Digital Competence Framework for Citizens – With new examples of knowledge, skills and attitudes*. European Commission, Joint Research Centre.
- WESTERMAN, G., CALMÉJANE, C., BONNET, D., FERRARIS, P., & MCAFEE, A. (2011). *Digital Transformation: A Roadmap for Billion-Dollar Organizations*. MIT Center for Digital Business and Capgemini Consulting.
- ZHANG, J., & CHEN, Z. (2023). Exploring human resource management digital transformation in the digital age. *Journal of the Knowledge Economy*, 15, 1482–1498. <https://doi.org/10.1007/s13132-023-00445-5>

Paula Guimarães¹, Amina Isanović Hadžiomerović²,
Majda Richer³, Lazar Vujić⁴

State Responsibility vs. Individual Commitment in Adult Education Policies in Bosnia and Herzegovina, Serbia and Portugal⁵

Abstract: This paper examines how the concepts of State responsibility and individual commitment are defined and operationalised in adult education policies in the three selected countries: Bosnia and Herzegovina, Serbia and Portugal. Based on the comparison of current adult education policy documents from each country, key categories are analysed: political-educational guidelines, political priorities, organisational and administrative dimensions, educational and conceptual elements through which State responsibility and individual commitment are discursively constructed. The analysis is contextualised within the process of Europeanisation and EU integration. Bosnia and Herzegovina and Serbia are both currently in the process of negotiating EU accession and share a common socialist past as part of the former Yugoslavia. Portugal serves as a comparative case of an EU Member State with a longer alignment with European frameworks. The theoretical framework is based on the three logics multidimensional model of analysis developed by Lima and Guimarães (2011, 2018, 2024) containing: (1) democratic-emancipatory and social transformation, (2) modernisation, State control and adaptation, and (3) human resource management personal optimisation logic. Categories and dimensions identified

¹ University of Lisbon, Portugal, <https://orcid.org/0000-0002-2197-1004> (pguimaraes@ie.ulisboa.pt)

² University of Sarajevo, Bosnia and Herzegovina, <https://orcid.org/0000-0003-2751-7010> (amina.isanovic@ff.unsa.ba)

³ Institute for Educational Research, Serbia, <https://orcid.org/0009-0002-4689-038X> (majda.richer@gmail.com)

⁴ University of Belgrade, Serbia, <https://orcid.org/0009-0002-3970-0031> (lazarvuji1@gmail.com)

⁵ This research was funded by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia (Contract No. 451-03-136/2025-03/ 200018). Additionally, this work was supported by National Funds through FCT-Portuguese Foundation for Science and Technology, I.P., under the scope of UIDEF — Unidade de Investigação e Desenvolvimento em Educação e Formação, UID/04107/2025, <https://doi.org/10.54499/UID/04107/2025>.

The paper was developed as a result of participation in the Adult Education Academy (2025) organized by the Julius-Maximilians-Universität Würzburg on the topic of International Comparative studies in adult education and lifelong learning.

in the analysed documents will be positioned along the *continuum* according to the three logics to show how States assumes responsibility for adult education and how it requires (or constrains) individual commitment to engage in learning and education throughout life as a human right. Using thematic content analysis of official policy documents, the paper investigates if and how State interventions are combined with support for individual initiative, and how these dynamics are reflected in the structure and societal role of adult education in different European countries.

Keywords: adult education policy, state responsibility, individual commitment, Bosnia and Herzegovina, Serbia, Portugal

Odgovornost države naspram individualne posvećenosti u politikama obrazovanja odraslih u Bosni i Hercegovini, Srbiji i Portugaliji⁶

Apstrakt: U ovom se radu ispituje kako su koncepti odgovornosti države i individualne posvećenosti definisani i operacionalizovani u politikama obrazovanja odraslih u tri odabrane zemlje: Bosni i Hercegovini, Srbiji i Portugaliji. Na osnovu poređenja aktuelnih dokumenata javnih politika u oblasti obrazovanja odraslih u svakoj od tih zemalja, analiziraju se ključne kategorije: političko-obrazovne smernice, politički prioriteti, organizacione i administrativne dimenzije, kao i obrazovni i konceptualni elementi putem kojih se diskurzivno konstituišu odgovornost države i individualna posvećenost. Analiza je kontekstualizovana u okviru procesa evropeizacije i integracije u Evropsku uniju. Bosna i Hercegovina i Srbija se trenutno nalaze u procesu pregovora o pristupanju EU i dele zajedničku socijalističku prošlost dok su se nalazile u sastavu bivše Jugoslavije. Portugalija služi kao komparativni primer države članice EU sa dužim periodom usklađivanja sa evropskim okvirima. Teorijski okvir se zasniva na trostrukom modelu analize zasnovanom na logikama, koji su razvili Lima i Guimarães (2011, 2018, 2024), a koji obuhvata: (1) demokratsko-emancipatorsku i društveno-transformativnu logiku, (2) logiku modernizacije, državne kontrole i prilagođavanja i (3) logiku upravljanja ljudskim resursima i lične optimizacije. Kategorije i dimenzije identifikovane u analiziranim dokumentima

⁶ Ovo istraživanje je finansiralo Ministarstvo nauke, tehnološkog razvoja i inovacija Republike Srbije (Ugovor br. 451-03-136/2025-03/200018). Osim toga, ovaj rad je podržan nacionalnim sredstvima posredstvom FCT – Portugalske fondacije za nauku i tehnologiju, I.P., u okviru Jedinice za istraživanje i razvoj obrazovanja i stručnog osposobljavanja (UIDEF – Unidade de Investigação e Desenvolvimento em Educação e Formação), UID/04107/2025, <https://doi.org/10.54499/UID/04107/2025>.

Rad je nastao kao rezultat učešća u Akademiji za obrazovanje odraslih (2025), koju je organizovao Univerzitet Julius-Maximilians u Würzburgu, na temu međunarodnih komparativnih studija u obrazovanju odraslih i celoživotnom učenju.

su pozicionirane duž kontinuuma u skladu sa ove tri logike, kako bi se pokazalo na koji način države preuzimaju odgovornost za obrazovanje odraslih i kako zahtevaju (ili ograničavaju) individualnu posvećenost uključivanju u učenje i obrazovanje tokom celog života kao ljudsko pravo. Korišćenjem tematske analize sadržaja zvaničnih dokumenata javnih politika, u radu se ispituje da li se i na koji način državne intervencije kombinuju sa podrškom individualnoj inicijativi, kao i kako se ove dinamike odražavaju na strukturu i društvenu ulogu obrazovanja odraslih u različitim evropskim zemljama.

Ključne reči: politika obrazovanja odraslih, odgovornost države, individualna posvećenost, Bosna i Hercegovina, Srbija, Portugalija

Introduction

Over the past two decades, the developments in the global and European political landscape have led to a reframing of adult education, which is treated less as a State-guaranteed right and more as an individual responsibility and obligation to engage in learning in order to enhance employability, fulfil civic duties and support social integration (Elfert, 2019; Hinzen, 2011). In parallel, although lifelong learning is frequently referenced, most documents and initiatives associated with the UN 2030 Agenda focus predominantly on children and young people within formal education contexts (UNESCO/UIIL, 2022). Furthermore, the Sustainable Development Goals (SDGs) do not recognise adult education as a distinct priority, but rather subsume it under broader notions such as “education for all” or “learning opportunities for youth and adults” (Benavot, 2018; Grotlüschen et al., 2024; UN, 2015).

State responsibility, referred to as the obligations of governments to create enabling frameworks, allocate resources and ensure access to adult education opportunities (Lima & Guimarães, 2011), is even less visible in documents framing policy development at national levels (Hinzen, 2011). Popović (2021) elaborates this shift in light of emergence of lifelong learning as an umbrella term, which has sidelined all others, including adult education, as a term denoting a distinct sector with its own structures and resources. This (re)definition positions learning as an individual responsibility, often with minimal structural support, undermining the State’s role as a guarantor of educational access and equity.

The shift from adult education, as a right to individual own’s commitment (such as a duty), has redefined both the roles of the State and the individual. Now, the right to education, traditionally the State’s obligation, has been transformed into a duty to learn, closely tied to economic imperatives, such as employability in a volatile labour market (Biesta, 2021; Finger & Asún, 2001). This has contributed

to a growing disconnect between policy formulation and implementation, weakening State accountability and transparency while shifting the burden onto individuals to navigate and finance their own learning (Lima & Guimarães, 2011).

This paper examines how State responsibility and individual commitment are defined and operationalised in the adult education policies of Bosnia and Herzegovina, Serbia and Portugal. These three countries provide a compelling comparative framework due to their distinct historical, political and socioeconomic contexts, as well as their varying stages of alignment with European Union (EU) frameworks. Bosnia and Herzegovina and Serbia, both emerging from a shared socialist past as former Yugoslav republics, are currently navigating the complexities of EU accession processes. Their adult education policies reflect efforts to align with European standards while addressing post-socialist and transitional challenges. Portugal, as a longer-standing EU Member State, offers a contrasting perspective, with its policies shaped by decades of integration within European frameworks and a focus on modernisation and especially human capital development (Magone, 2003).

The analysis is grounded in the three logics multidimensional model proposed by Lima and Guimarães (2011, 2018, 2024), which categorises adult education policies according to three distinct rationales: (1) *democratic-emancipatory and social transformation logic*, with emphasis on education as a human right and a tool for social inclusion and empowerment; (2) *modernisation, State control and adaptation logic*, focusing on State-driven initiatives to align education as adaptation with national development goals; and (3) *human resource management personal optimisation logic*, prioritising economic competitiveness and workforce skills. Applying this framework and building on previous comparative studies (Doutor & Guimarães, 2019; Košmerl et al., 2023), the paper explores how State responsibility and individual commitment are discursively constructed across key policy dimensions: educational guidelines, political priorities, organisational and administrative structures and educational and conceptual elements.

Adult education policies in Bosnia and Herzegovina, Serbia and Portugal have not yet been comparatively analysed within a single, coherent analytical framework. By comparing these three cases, this paper contributes to the broader discourse on adult education policies within diverse European contexts. It seeks to answer the following questions:

- How do Bosnia and Herzegovina, Serbia and Portugal define and operationalise State responsibility and individual commitment in their adult education policies?
- How are these concepts reflected across political-educational guidelines, political priorities, organisational and administrative dimensions and educational and conceptual elements?

- How does the process of Europeanisation influence the (im)balance between State and individual roles in fostering lifelong learning?

The paper is structured as follows. It begins with an outline of the theoretical framework guiding the analysis, followed by a discussion of the case selection, including the methods and underlying rationale and an analysis and interpretation of the findings. The final section addresses the research questions and highlights key issues identified in each of the countries analysed.

Theoretical framework

The analysis draws on a theoretical framework developed by Lima and Guimarães (2011, 2018, 2024), which identifies how each of the three logics can be recognised through four dimensions: political orientations, political priorities, administrative organisation and educational and conceptual elements.

The democratic-emancipatory and social transformation logic is based on principles of decentralisation and participation of diverse actors, prioritising education for active citizenship and democracy. The modernisation, State control and adaptation logic is characterised by government control and provision of elementary and vocational education serving the goals of the State, while the human resource management and personal optimisation logic positions the labour market in the centre and sees individuals as responsible for their own learning (Lima & Guimarães, 2024).

Bosnia and Herzegovina and Serbia are both former Yugoslav countries that are now candidates for EU membership. Therefore, we expect that the modernisation, State control and adaptation logic will appear as a legacy of earlier political orientations, while the human resource management and personal optimisation logic will have an increasing presence, impacted by the EU neoliberal policy and the countries' accession aspirations. Portugal has been an EU member since 1986, hence its wider alignment with the EU neoliberal agendas. However, historical and political differences also impact the way in which these policies are reflected on a national level.

Examining how these logics manifest across four dimensions will provide insight into the underlying orientations of the adult education policies in the three countries. The first dimension to be examined concerns the general political orientations, referring to "laws, rules and norms that enable a public policy to be adopted" (Lima & Guimarães, 2024, p. 29). Understanding the political context requires examining the broader conditions of policy development and how each analysed policy relates to other laws and State priorities within the

wider political landscape. The second dimension focuses on political priorities, defined as “the ends targeted by ALE, and the domains on which a public policy focuses, the relevant objectives and targets, the adult learners and educators” (Lima & Guimarães, 2024, p. 29). Since the documents analysed are general adult education policies, they should provide insight into the areas the State prioritises, the goals it sets for adult education and how it defines adult learners and educators. The third dimension is the organisational framework, which refers to “the implementation of the public policy, including centralised or decentralised structures, funding, the procedures and technical processes involved in conducting ALE activities, quality assurance, evaluation and accountability procedures” (Lima & Guimarães, 2024, p. 29). Here, it is necessary to examine both the implementation envisioned in the policy documents and the practical realities: how these policies are executed, which actors are involved, and how accountability and quality assurance are handled. The fourth dimension addresses the conceptual elements, described as “the theoretical references underlying the ends, methods and processes inherent to implementing a public policy (e.g. ALE conceptions, pedagogical models, forms of participation and assessment, etc.)” (Lima & Guimarães, 2024, p. 29). These didactical approaches indicate the presence of underlying adult education philosophies. The units of analysis and key terms are presented in Table 1.

Table 1. Three adult education logics

	<i>Democratic-emancipatory and social transformation</i>	<i>Modernisation, State control and adaptation</i>	<i>Human resource management and personal optimisation</i>
<i>Political-educational guidelines</i>	Democracy, emancipation, decentralisation, bottom-up dynamics, State, civil society and social movements, participation	State as a central actor, social and economic modernisation, education and training for social control	Influence of international governmental organisations, ALE as a social policy, labour market needs
<i>Political priorities</i>	Equality, social and educational, transformation, solidarity	Access for all and equal opportunities, ALE as a basic social right, ALE as a compulsory program, adult learners as voters and workers	Adult learners as a central subject, employability, competitiveness, productivity, skills development
<i>Organisational and administrative dimensions</i>	CSOs, social movements, participatory decision-making and self-governing	Formalisation of education, State provision and State providers, effectiveness and efficacy of ALE	Managerial procedures, partnerships, profit-making, civil society and State
<i>Educational and conceptual elements</i>	Empowerment, critical thinking, dialogicity, knowledge linked to local-global concerns, ethical and political dimensions	Literacy, basic education and training, functional literacy, formal and non-formal education, transmission of knowledge	Skills and knowledge valued by the labour market, autonomy and free choice of adult learners, and commodification of ALE

Source: Adapted from Lima and Guimarães (2024, p. 30)

Another concept considered in this paper is Europeanisation. Following Saurugger and Radaelli (2008), Europeanisation includes:

“[p]rocesses of (a) construction, (b) diffusion and (c) institutionalisation of formal and informal rules, procedures, policy paradigms, styles, ‘ways of doing things’ and shared beliefs and norms which are first defined and consolidated in the making of EU decisions and then incorporated in the logic of domestic discourse, identities, political structures and public policies” (2008, p. 213).

These processes have prompted extensive debate regarding their impact within the European Union, particularly in the context of the construction of the European Education Area. Many of the adopted policy goals, shaped through a predominantly top-down approach and with implications for democratic social life, reflect neoliberal modes of governance: (a) by promoting human capital and employability-oriented rationales, as well as processes of marketisation and commodification; and (b) by weakening State accountability and shifting responsibility onto individuals. By narrowing the broader purposes of education (Holford & Milana, 2022), EU adult education policy documents increasingly construct the learner as responsible, self-managing and accountable for their own upskilling (Fejes, 2008; Guimarães & Barros, 2025; Lima & Guimarães, 2011).

When referring to the influence of Europeanisation on the national adult education policies of EU Member States, such as Slovenia, Mikulec and Jelenc Krašovec (2016) argue that Europeanisation contributes to marketisation and commodification. In addition, Antunes (2025) describes a process of *dual Europeanisation* in Portugal’s adult education. On the one hand, rhetorical Europeanisation refers to the discursive adoption of EU goals, language and priorities. Governments invoke Europe—using EU terminology, benchmarks and narratives—mainly at the level of policy texts, speeches and strategic documents. On the other hand, practical Europeanisation concerns the actual implementation of EU-inspired reforms in national adult education systems. Antunes (2025) shows that this implementation is partial, selective and often inconsistent, with countries adopting some measures (e.g., skills agendas) but resisting or neglecting others (e.g., inclusive participation goals). Börzel (2002) further highlights that adaptation pressures may distort national democratic processes, particularly where there is a significant “misfit” between EU and domestic institutions.

Therefore, the influence of the European Union depends not only on the EU itself, but also on national policy dynamics, including processes of retrenchment or transformation, as well as on educational capacity and the national authorities’ political will to prioritise specific issues and governance instruments.

Methodology

Selection of country cases

Country cases include Bosnia and Herzegovina, Serbia and Portugal. The first two are neighbouring countries that share a common historical trajectory as former Yugoslav republics and a long-standing tradition of andragogy as an academic discipline. Education policy in the post-Yugoslav era mainly addressed goals related to modernising the system in order to facilitate structural adjustments in transitioning to market economy (Halász, 2015). The field of adult education has been associated with the concept of lifelong learning, as “a means of raising the competitiveness of the economy and boosting human capital” (Mikulec & Kump, 2018, p. 4). International organisations (such as DVV International, GIZ, ETF, World Bank, ILO, just to mention the most active ones) played an important role in supporting the establishment of the legal framework, curriculum modernisation or capacity building in adult education. In both countries, the EU integration process has introduced external pressures to align national policies with European standards, including lifelong learning, employability, validation of non-formal and informal learning and quality assurance frameworks. At the same time, these countries face significant political constraints that influence the pace and scope of policy implementation.

In contrast, Portugal demonstrates a long-standing tradition of EU-driven policy alignment. Since 2000, Portugal has implemented a comprehensive set of governance instruments, including the European and National Qualifications Frameworks, the National Catalogue of Qualifications and national lifelong learning benchmarks and indicators. Nevertheless, Portugal still faces challenges, particularly in promoting inclusivity and addressing regional disparities in access, participation and outcomes.

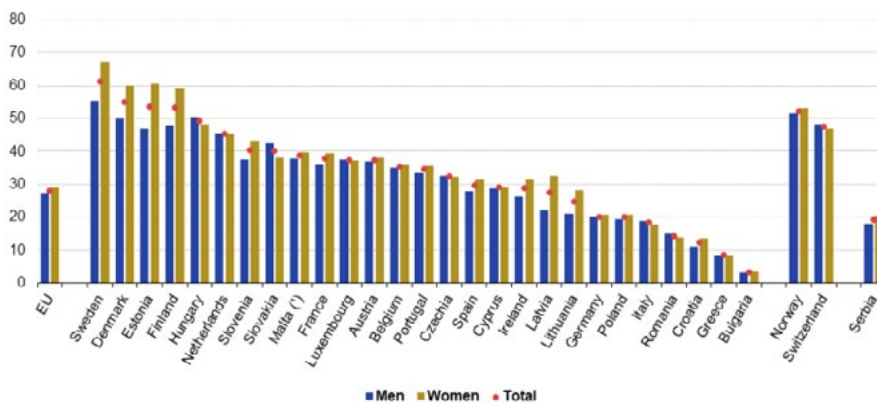
The below Figure illustrating ALE participation rates according to the 2024 Adult Education Survey (AES)⁷ (Eurostat, 2024) shows significant differences between the three countries. Portugal stands close to the EU average (46.8%) with participation rate of 44.2%, while Serbia is below the average with participation rate of 19.9%⁸ (Statistical Office of the Republic of Serbia, 2022). The latest data available for Bosnia and Herzegovina from 2018 show that 8.7% of adults participated in formal or non-formal education (BHAS, 2018).

⁷ Eurostat (2024). Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Adult_learning_-_participants, accessed on 7 January 2026.

⁸ Statistical Office of the Republic of Serbia. (2022). Available at: <https://www.stat.gov.rs/en-US/vesti/20231031-anketa-o-obrzovanju/?a=0&cs=2400> accessed in January 2026.

Participation rate in education and training (last 12 months) by sex, 2024

(% of people aged 25-64, EU-LFS)



Note: ranked on overall participation (men and women)

(*) Low reliability.

Source: Eurostat (online data code: trng_lfs_17)

eurostat

Figure 1. Participation rate in education and training

Source: Eurostat⁹ (2024)

The above data could be indicative of the systems' support to adult learning and education, especially with respect to funding, availability of programme offer and structural support in overcoming barriers to participation (such as educational leave).

Methods and selection of documents

Using a comparative approach, the study analyses official policy documents from Bosnia and Herzegovina, Serbia and Portugal to explore how these countries balance State intervention with expectations of individual responsibility. This approach sheds light on the extent to which policies foster adult education as a public good versus a personal responsibility and how these dynamics are influenced by the process of Europeanisation (Mikulec, 2016).

The present study employs a comparative method as described by Egetenmeyer (2016, 2020) comprising of the three steps:

⁹ Eurostat. (2024). Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Adult_learning_-_participants

- (1) descriptive juxtaposition – selected comparable policy documents from the three countries were first described individually based on the categories derived from the theoretical framework. In this step, similarities and differences are identified;
- (2) analytical juxtaposition – identifies a leading logic in the each of the three policy documents and compares it to the others;
- (3) analytical interpretation – identifies the reasons for the similarities and differences.

Methodological challenges of international comparative research stem from the comparability of selected cases (Mikulec & Egetenmeyer, 2025, p. 4), the need for them to bear certain equivalence that enables drawing relevant conclusions related to the concepts, models and practices in different intellectual traditions, socio-cultural contexts or political models. This challenge was addressed in this research by choosing two countries with similar adult education traditions and current political priorities related to EU accession. This is referred to in literature (Steinmetz, 2021) as the strategy of *most similar systems design (MSSD)*. The two countries together stand as different systems compared to Portugal, which here serves as an example of a country that has developed its adult education policies in compliance with EU requirements.

The analysis drew on qualitative document analysis and thematic analysis based on predefined theoretical categories. It involved a concept-driven analysis (or deductive) approach, as opposed to a data-driven (inductive) approach, where categories are not derived from a theory but are empirically-based (Kuckartz, 2019). The analytic procedure entailed finding, selecting, appraising (making sense of) and synthesising data in documents (Bowen, 2009). The thematic content analysis involved identifying evidence within the selected policy documents, such as ideas and illustrative quotations, that reflect the logics guiding the study.

The following documents were analysed:¹⁰

- *Principles and Standards in the Field of Adult Education in Bosnia and Herzegovina*.¹¹ This document defines the basic principles, quality standards and institutional responsibilities governing adult education in the country. It emphasises that adult education is a part of the overall education system of the country marking it as “area of specific public interest and of high societal priority” (Council of Ministers of Bosnia and Herzegovina, 2014a, p. 112).

¹⁰ ChatGPT and Google translation were used to translate quotations from the selected programmes into English.

¹¹ Council of Ministers of Bosnia and Herzegovina. (2014a). Available at: <http://www.sluzbenilist.ba/page/akt/Xohz4nh78h77yTszRxd6k=>

- *Strategic Platform for the Development of Adult Education in the Context of Lifelong Learning in Bosnia and Herzegovina (2014–2020)*, adopted by the Council of Ministers of Bosnia and Herzegovina (2014b).¹² The document represents the first State-wide strategy of adult education in the country. Although it has expired, the evaluation of its implementation concluded that its objectives had not been fully met and the decision was taken to proceed with its implementation after a revision and alignment with the EU accession requirements.
- *Strategy for the Development of Education and Upbringing in the Republic of Serbia until 2030* (Government of the Republic of Serbia, 2021). Although the focus of this paper is adult education, a more general education strategy was analysed, due to the fact that “there are no recent versions of Serbian Adult Education Law or the Strategy (which are a decade and nearly two decades old, respectively)” (Popović et al., 2024, p. 8). Therefore, we consider this policy to be the most influential and indicative when it comes to the practice of adult education in Serbia.
- The *Qualifica Programme*, implemented since 2016 and building on the earlier *New Opportunities Programme* (2005–2011) (International Labour Organization, 2013), focuses— in line with European Union guidelines and governance instruments—on raising qualification levels by expanding access to basic and upper-secondary education (up to the 12th grade), as well as to vocational qualifications and skills development, in order to meet labour market demands. The programme emphasises self-directed learning and individual accountability, expecting learners to actively engage with existing provisions, including the recognition of prior learning, adult education and training courses and short-duration programmes. Data on the programme were collected from a range of national and EU sources.

Results

The thematic analysis identified categories related to the three logics across the four documents in each country (see Table 2).

¹² Council of Ministers of Bosnia and Herzegovina (2014b). Available at: <http://www.sluzbenilist.ba/page/akt/TgoI9GmxLiY=>

Table 2. Identification of categories in policy documents in Bosnia and Herzegovina, Serbia and Portugal

CATEGORIES	COUNTRIES		
	<i>Bosnia and Herzegovina</i>	<i>Serbia</i>	<i>Portugal</i>
Political-educational guidelines	Flexible, democratic system compatible with EU standards Partnership and multi-sectoral approach Creation of favourable social environment and mechanisms for adult education Personal and professional development Employability Social inclusion Active and responsible living Sensibility towards social changes and labour market needs Enabling lifelong learning	Economy that is competitive on the European and global markets Centralised approach to strategy development Developing a culture of lifelong learning, critical thinking, media literacy, participation, inclusion Identify needs for certain profiles, aligned with the needs of employers and State's developmental needs Society that fosters solidarity, respect, inclusion in education enabling quality education for all	National Qualification Framework in line with the EQF National Qualification Catalogue including training relevant for labour market needs Strong articulation between education (school education certification) and training (professional qualification) Aims directed at economic development and competitiveness
Political priorities	Socio-economic revitalisation Employability and competitiveness in the knowledge market Mobility and professional flexibility of individuals Solution to key social and economic problems in the country Democratisation of social relations Improving legislation Establishing effective participation mechanisms Expanding programmatic and institutional capacity Ensuring and enhancing quality	Career guidance Qualifications and mobility on the labour market Higher education financed by the State and social responsibility of universities Accessibility and openness of education Encouraging interculturalism. Publicly acclaimed organisers of adult education activities corresponding to labour market needs Functional basic adult education	Raise school certification and professional qualification levels of the whole Portuguese population Individuals responsible for their employability, education and training path
Organisational and administrative dimensions	Polycentric governance model Laws regulating adult education in each part of the country Diverse providers: public and private educational institutions Employment offices Professional associations and trade unions NGOs Cultural and religious institutions	Limited decentralisation without shared governance Multi-level administrative structure Strong regulatory and control mechanisms Multiple providers, both State and private State funding and financial control Focus on labour market in annual plans	Centralised in a national agency Funding mostly from the ESF Local education centres are located in public, profit-making and NGOs but funded by the ESF Based on local adult education and training centres spread all over the countries

CATEGORIES	COUNTRIES		
	<i>Bosnia and Herzegovina</i>	<i>Serbia</i>	<i>Portugal</i>
Educational and conceptual elements	Lifelong learning Participation in the labour market Flexibility of learning Quality of offer Shared responsibility of sectors	Adaptation to technological and labour market needs Improvement of knowledge and skills Competence and entrepreneurship growth Strategic control of education	Lifelong learning Quality of offer Certification Qualifications Competences

Bosnia and Herzegovina

Political-educational guidelines

The *Strategic Platform* (Council of Ministers of Bosnia and Herzegovina, 2014b) serves as a framework for developing a favourable social environment and foundational mechanisms for adult education in the context of lifelong learning. The mission of adult education is defined as to enable adult citizens to access education and learning throughout their lives and to contribute to their personal and professional development, employability, social inclusion and preparation for active and responsible living.

The vision of adult education is a flexible, democratic system aligned with EU standards; sensitive to diverse social changes and labour market needs for various educational profiles; oriented toward meeting the needs and interests of both the learners and employers; attracting individuals and enabling their lifelong learning.

Political-educational guidelines stated in the *Strategic Platform* encompass:

- ensure universal access to adult education, regardless of socio-economic status, age, region, language, ethnicity, religion or physical/intellectual ability;
- establish high standards for educational conditions, programmes, processes and learning outcomes;
- implement an accreditation system in line with international best practices;
- promote international cooperation in quality monitoring and evaluation;
- position adult education as a key driver of individual and societal development;

- align learning outcomes with labour market demands, contributing to economic growth and improved quality of life;
- increase the efficiency of educational processes by improving learning outcomes and optimising resource use;
- offer diverse formal and non-formal programmes tailored to individual needs, supported by diversified and rational funding models. Emphasise lifelong learning as a profitable, long-term investment by individuals, the State and employers;
- fully implement systems for validating competencies gained through non-formal and informal learning, aligned with the BiH Qualifications Framework and the European Qualifications Framework (EQF);
- provide structured support systems for career development and lifelong counselling to promote employability, social inclusion and informed decision-making by adult learners.

In terms of political-educational guidelines, the *Strategic Platform* demonstrates a human resource management and personal optimisation orientation, particularly given its focus on employability, labour-market relevance, economic growth and efficiency. The modernisation and State control logic is observed in the establishment of standards, accreditation systems and quality assurance mechanisms. The State is positioned as the central coordinating actor responsible for regulation, monitoring and harmonisation with European policies.

Political priorities

The national documents state that adult education in the context of lifelong learning contributes to socio-economic revitalisation, increased employability and competitiveness in the knowledge market, as well as mobility and professional flexibility of individuals. To this end, the State needs to set a systematic intersectoral approach to the development of adult education based on the principles of openness and accessibility. *The Strategic Platform* should serve as “an instrument for initiating the resolution of key social and economic issues in Bosnia and Herzegovina” (Council of Ministers of Bosnia and Herzegovina, 2014b, p. 21). Therefore, it places special emphasis on vocational adult education. This was further reinforced in a document titled *Enhancing Quality and Relevance of Vocational Education and Training in Bosnia and Herzegovina – based on Riga Conclusions (2021–2030)* (Council of Ministers of Bosnia and Herzegovina, 2021)¹³.

¹³ Council of Ministers of Bosnia and Herzegovina. (2021). Available at: <http://sluzbenilist.ba/page/akt/LYW-clz1EQ28=>

Aligned with the declared need for accelerated economic development and increased employability, social cohesion and the democratisation of social relations, the fundamental strategic goals include (Council of Ministers of Bosnia and Herzegovina, 2014b):

1. Improvement of legislation on adult education in the context of lifelong learning and its harmonisation with the EU reference framework;
2. Establishment of effective mechanisms for the participation of relevant (representative) and other social partners in the adult education process in the lifelong learning framework;
3. Development of programmatic and institutional capacities and enhancement of accessibility of adult education in the context of lifelong learning;
4. Ensuring and raising the quality of adult education within the lifelong learning framework.

Adult education is primarily framed as an instrument for addressing labour market needs and accelerating economic growth, corresponding closely to the human resource management and optimisation logics outlined in Table 1. Within this perspective, lifelong learning is positioned as a means of enhancing individual employability and overall competitiveness, rather than as a social right or an emancipatory project. The emphasis on legislative reform, alignment with EU frameworks, the establishment of quality assurance mechanisms and the development of institutional and programmatic capacities reflects a modernisation-oriented approach centred on State control and adaptation. In this context, the State assumes a coordinating and regulatory role, using adult education policy as a tool for alignment with European standards.

Organisational and administrative dimensions

Education governance in Bosnia and Herzegovina is carried out according to a polycentric and asymmetric model (centralised in the Republika Srpska (RS) and decentralised in the BiH Federation, where cantons have effective control over education). The RS, the ten BiH Federation cantons and the Brčko District (BD BiH) have full and undivided jurisdiction over education. Each of these constitutional units has established its own institutions and bodies for organising and managing education.

Adult education and training, whether as a regular activity or as a complement to regular education, is provided by public and private educational institutions, other specialised institutions (workers' universities, vocational training and education centres, driving schools, foreign language schools, computer schools, etc.), employment offices, professional associations, non-governmental organisations (NGOs), penal institutions, religious institutions, trade unions, et al.

In Bosnia and Herzegovina, State responsibility for adult education is primarily exercised through the establishment of legal frameworks, standards and principles that tightly regulate the organisation of the sector. Financial support is channelled through public employment services, primarily to support the upskilling and reskilling of unemployed individuals and those with low levels of qualification. Policy in this area focuses on legislative development, employability and the validation of non-formal and informal learning. At the same time, lifelong learning is recognised as an overarching policy framework, implying an expectation of individual commitment to continuous learning.

The polycentric and asymmetric governance structure in Bosnia and Herzegovina, combined with the fact that lower education authorities exercise full jurisdiction over education, point to modernisation, State control and adaptation logics. The education authorities' responsibility is primarily realised through the establishment of laws, standards and organising principles, indicating a clear emphasis on regulation and control rather than participatory self-governing.

Educational and conceptual elements

The centrality of lifelong learning is framed less as a right and more as a continuous process of upskilling in response to evolving labour-market conditions, implying individual responsibility for maintaining employability. Under the *Principles and Standards* (Council of Ministers of Bosnia and Herzegovina, 2014a), “[L]ifelong learning is the best response to the shift from the concept of a lifetime job to the concept of lifelong required knowledge, skills and competencies.” This explicit reference to the participation in the labour market positions adult education as a means to enhance productivity, competitiveness and adaptability.

The notion of shared responsibility of sectors, involving the State, employers, education providers and individuals, suggests a governance model based on partnerships and managerial coordination, characteristic of human resource management approaches influenced by labour-market policies.

Educational and conceptual elements identified in adult education policy documents in Bosnia and Herzegovina point to a predominantly instrumental

understanding of adult education, in which learning is valued primarily for its contribution to employability and economic participation. Within this dominant economic rationale, concepts such as social cohesion – defined as “societal support for the personal development of individuals who democratically pursue shared goals, through the reduction of poverty and social exclusion and the achievement of equity and intergenerational solidarity” (Council of Ministers of Bosnia and Herzegovina, 2014a) – tend to remain overly generic and serve a largely declarative rather than a substantive policy function.

The analysed documents indicate that the guiding principles of adult education policies in Bosnia and Herzegovina are framed as instruments for achieving “the harmonisation of educational and other sectoral policies on adult education with international and European policies in this field and faster integration into the European lifelong learning area” (Council of Ministers of Bosnia and Herzegovina, 2014a). These principles include stronger linkages between education and the economy, as well as the development of a national qualifications framework. Such an orientation delineates areas of State responsibility while positioning lifelong learning primarily as a matter of individual commitment, without adequately addressing the funding of educational programmes or the expansion of access to learning opportunities. The analysed documents also fall short of recognising the role of adult education in social transformation, civic empowerment and democratisation. In practice, this is reflected in the educational authorities’ focus on regulatory frameworks, quality assurance and alignment with European policies, while adult learners are expected to engage in learning largely on their own initiative and according to their financial means. This approach risks reinforcing existing inequalities and limits the potential of adult education to function as a vehicle for broader social inclusion and democratic participation.

Serbia

Political-educational guidelines

The Strategy (Government of the Republic of Serbia, 2021) defines the actors involved in its creation – such as the Ministry of Education and Science and Technological Development, the Education Improvement Institute, the Education Quality Assessment Institute and the Qualifications Agency and the Vojvodina Education Secretariat – indicating a centralised approach to the development of the strategy, as all of the institutions are connected to the government and there is no mention of other non-State actors.

The Strategy's vision involves "development of a society and economy based on knowledge, a society that fosters solidarity, respect, inclusion in education enabling quality education for all and economy that is competitive at the European and world economy market" (Government of the Republic of Serbia, 2021, p. 27). Although the vision mentions solidarity and inclusion, the prominence of the human resource management logic is evident, as competitiveness, economy and labour market needs are prioritised and positioned as central.

With regard to political guidelines, the strategic vision aligns closely with a human resource management logic, emphasising the primacy of labour market needs. At the same time, in terms of policy formulation, a State-modernisation logic is evident, reflected in the centralised approach to strategy development.

Political priorities

Three categories related to adult education are prioritised in the Strategy: career guidance and counselling, higher education and adult education. The fact that career guidance, of all adult education areas, is recognised as a separate and crucial category, points to the presence of the human resource management logic.

The following two key domains of adult education are addressed in the document: Functional Basic Adult Education (FBAE) and Publicly Recognised Organisers of Activities. Within the first domain, FBAE, the identified challenges relate to "the organisation and quality of formal adult education, particularly in light of high dropout rates from education programmes" (Government of the Republic of Serbia, 2021, p. 21). This emphasis on participation barriers within formal education points to the presence of modernisation and State control logic. The second domain is partially framed through a human resource management logic, with the primary concern being that programmes offered by Publicly Recognised Organisers of Activities "do not fully align with labour market needs" (Government of the Republic of Serbia, 2021, p. 21). At the same time, since the status of these organisers is granted by the Ministry, a centralised approach—characteristic of State control and modernisation logic—is also evident. It is important to note that non-formal education is mentioned only 18 times in the document and almost exclusively in relation to employability and qualifications. This narrowing is particularly evident in the discussion of Publicly Recognised Organisers of Activities, where the stated objective is "to improve the knowledge and education of the working-age population in line with labour market needs, including through the promotion of accreditation of Publicly Recognised Organisers of Activities and non-formal education" (Government of

the Republic of Serbia, 2021, p. 22). A similar orientation is reflected in one of the Strategy's objectives, defined as "improving the methodological framework for the development of non-formal education based on qualification standards" (Government of the Republic of Serbia, 2021, p. 32). Non-formal education is referenced outside accreditation and qualification processes only marginally, for example in relation to the improvement of language competences, where it is recognised as an important component. Overall, this suggests a process of the 'formalisation' of non-formal education through an emphasis on accreditation, reinforcing State control, alongside its neoliberalisation through a focus on qualifications and labour market alignment, reflecting the presence of a human resource management logic.

Organisational and administrative dimensions

With regard to funding, the Strategy acknowledges that "in the future it is necessary to increase funding for education and that a reduction in State funding should not be supported, given the strategic importance of education for economic and social development" (Government of the Republic of Serbia, 2021, p. 24). However, although not explicitly addressed in the Strategy, ongoing national discussions in the field of higher education have considered the introduction of a voucher system, which would allow students to choose between private and public universities. This development points to a potential shift towards a more market-oriented approach. Thus, while the strategy itself reflects a dominant State control and modernisation logic, policy developments in practice suggest an increasing influence of human resource management logic.

With regards to implementation, the Strategy explicitly defines the bodies involved in implementation, including the Ministry of Education and Science and Technological Development, the Vojvodina Education Secretariat, the Education Improvement Institute, the Education Quality Assessment Institute and the Qualifications Agency, the Vojvodina Pedagogical Institute, education institutions at different levels, as well as other ministries, national and local authorities, when intersectoral cooperation is needed (Government of the Republic of Serbia, 2021, p. 58). Although there is visible decentralisation, through inclusion of local level bodies, the implementation is in the hands of national institutions and there is no anticipated involvement of other actors, such as civil society or academia, which points to the presence of State control and modernisation logic. An analysis of the implementation of the Strategy, needs to include an analysis of its Annual Plans, as Popović et al. indicate that democracy, interculturality

and tolerance are excluded from these plans and that the focus is on labour market needs (2024), pointing to the presence of the human resource management logic. Thus, in organisational terms, funding and implementation in the strategy are aligned with a modernisation and State control logic, while developments in practice indicate a gradual shift towards a human resource management logic.

Conceptual elements

The Strategy describes adult education as “improving knowledge and skills of the working-age population in line with the labour market” (Government of the Republic of Serbia, 2021, p. 21), while non-formal education is described as a “flexible way of adapting education to technological changes and labour market needs” (Government of the Republic of Serbia, 2021, p. 22). The reduction of adult and non-formal education to instruments for adapting to labour market demands and technological change points to the presence of a human resource management logic.

Portugal

Political-educational guidelines

Political guidelines point at the human resources and personal optimisation logic, allowing a clear link between economic development and education and training; they are defined in a set of legal documents, such as the one referring to the national qualification framework that “defines the structure and levels of qualification of the education and training system” (Direção Geral do Emprego e das Relações de Trabalho, n.d.). Additionally, this framework “defines eight levels of qualification, by adopting the levels of knowledge, skills and attitudes and learning outcomes of the European Qualification Framework, in order to allow comparison of the national qualification and education and training framework with the ones of other Member-States” (Direção Geral do Emprego e das Relações de Trabalho, n.d.¹⁴). In parallel, the national catalogue of qualification¹⁵ (ANQEP, 2025) includes 373 qualifications, to be developed by 6,902 competence units¹⁶

¹⁴ Direção Geral do Emprego e das Relações de Trabalho. (n.d.). Available at: <https://www.dgert.gov.pt/quadro-nacional-de-qualificacoes>

¹⁵ ANQEP. (2025). Available at: <https://catalogo.anqep.gov.pt>

¹⁶ Competences denote specialised technical knowledge within professional and economic sectors overseen by sectoral qualification councils (ANQEP, 2025).

and 5,961 short-term training modules. These instruments were built by 18 sectoral councils for qualifications¹⁷.

Political priorities

The human resource management and personal optimisation logic is once again central to the Qualifica programme in relation to its political priorities. This orientation is illustrated by the programme's dissemination strategy, which relies on mass media campaigns, including short promotional videos (typically under one minute) featuring testimonials from adult learners participating in existing provision. These narratives emphasise messages such as “take charge of yourself and invest in your future” and “more qualifications, better job opportunities”¹⁸ (Qualifica, n.d.).

In addition, the programme's stated objectives explicitly prioritise increasing qualification levels and improving workforce employability by equipping individuals with skills aligned with labour market needs, as well as adapting the training offer and institutional network accordingly¹⁹ (Eurydice, 2025a).

Organisational and administrative dimensions

The Qualifica programme is structured around the national agency responsible for the overall coordination of provision.²⁰ Its implementation is supported by a network of 313 local adult education centres distributed across the country²¹

¹⁷ These sectoral councils include, among others, “organisations that regulate access to and exercise of professions and professional activities; trade union confederations and associations, employers institutions directed at commerce and industry development, [as well] as clusters of competitiveness” (ANQEP, 2025). These sectors cover a variety of economic areas such as agrifood, handicrafts and goldsmithing, commerce and marketing, civil construction and urbanism, cultural heritage and content production, defence and security, maritime economy, energy and environment, chemical industries, ceramics, glass and others, information technology, electronics and telecommunications, wood, furniture and cork, metallurgy and metalworking, fashion, health and community services, business services, personal services, transport and logistics, tourism and leisure.

¹⁸ Qualifica. (n.d.). Available at: <https://www.qualifica.gov.pt/#/>

¹⁹ Eurydice. (2025b). Available at: <https://eurydice.eacea.ec.europa.eu/pt-pt/eurypedia/portugal/educacao-e-formacao-de-adultos>

²⁰ ANQEP – the National Agency for Qualification and Vocational Education and Training – was the relevant national body until August 2025. However, a broader reorganisation of the education system initiated in September 2025 resulted in the dissolution of ANQEP (Decree-Law No. 104/2025, 11 September). Adult education and training provision under the Qualifica programme is now coordinated by the Institute for Education, Quality and Evaluation (EduQA) (Decree-Law No. 105/2025, 12 September) (Eurydice, 2025c). See more at: <https://eurydice.eacea.ec.europa.eu/pt-pt/eurypedia/portugal/distribuicao-das-responsabilidades>

²¹ Qualifica. (n.d.). Available at: <https://www.qualifica.gov.pt/#/pesquisaCentros>
Eurydice. (2025b). Available at: <https://eurydice.eacea.ec.europa.eu/pt-pt/eurypedia/portugal/instituicoes-que-ministram-educacao-e-formacao-de-adultos>

(Eurydice, 2025b; Qualifica, n.d.), which operate in accordance with guidelines issued by the national body overseeing the development of educational provision.

As outlined by Eurydice, adult education in Portugal comprises a range of qualification pathways enabling adults to obtain basic education certification (4th, 6th or 9th grade), upper secondary certification (12th grade) and/or professional qualifications. These pathways include the Recognition, Validation and Certification of Competences (RVCC) process, Adult Education and Training Courses (EFA), Certified Modular Training (FMC), Secondary Education Completion Pathways (Decree-Law No. 357/2007 of 29 October) and Technological Specialisation Courses²² (Eurydice, 2026).

Educational and conceptual elements

The Qualifica programme is based on a set of ideas in line with EU guidelines that refer to human resources management and personal optimisation logic. The ones most referred to include: lifelong learning, adult education and training, certifications, qualifications, competences, validation of non-formal and informal learning, learning outcomes²³ (Eurydice, 2026).

In parallel, there is a strong emphasis on data, including indicators such as the number of registrations, participation in guidance and counselling processes and the number of enrolled and certified adult learners²⁴ (Eurydice, 2025a). This reliance on statistical monitoring of programme implementation highlights the importance of performance benchmarks and indicators, largely shaped by EU frameworks, which the Portuguese network of local adult education centres is expected to meet. Such data also enable cross-national comparisons with adult education provision in other EU countries, reflecting broader trends of “governance by numbers” within the European Education Area. Processes of uniformisation, standardisation and Europeanisation are further reinforced through the use of comparative data sources, such as EUROSTAT statistics and Eurydice databases. These developments point to the emergence of new modes of governance (Alexiadou, 2014; Radaelli, 2008). At the same time, the growing emphasis on technical dimensions of adult education—such as quality assurance, monitoring and adaptation—signals a shift away from

²² Eurydice. (2026). Available at: <https://eurydice.eacea.ec.europa.eu/pt-pt/eurypedia/portugal/principais-tipos-de-oferta-formativa>

²³ Eurydice. (2026). Available at: <https://eurydice.eacea.ec.europa.eu/pt-pt/eurypedia/portugal/principais-tipos-de-oferta-formativa>

²⁴ Eurydice. (2025a). Available at: <https://eurydice.eacea.ec.europa.eu/pt-pt/eurypedia/portugal/educacao-e-formacao-de-adultos>

approaches centred on social transformation, which are characteristic of democratic-emancipatory logics (Desjardins, 2013).

Data interpretation

Bosnia and Herzegovina

Like other former Yugoslav republics, Bosnia and Herzegovina did not develop a coherent adult education policy before it gained independence (Jelenc, 2018; Žiljak, 2018). The development of modern adult education in the country has been shaped by the prevailing political, social and economic contexts, which have formed four distinct periods (Isanović Hadžiomerović, 2018):

- (1) post-World War II reconstruction until the 1970s;
- (2) secondary education reform and education crisis from the 1970s to 1990;
- (3) the 1992–1995 war and post-war reconstruction;
- (4) policy development in adult education in 2000s.

Each period had specific objectives, organisation models and key actors involved in adult education. In the post-World War II socialist period, adult education in Bosnia and Herzegovina was deeply embedded in the State-driven ideological, economic and social development goals (Isanović Hadžiomerović, 2018). Though no adult education policy was developed during the Yugoslav era, adult education was used as a tool for State-led modernisation, with emphasis on literacy campaigns, worker training and ideological education. It was shaped by collectivist principles and implemented through public institutions such as workers' and people's universities, which aimed to train the workforce for the emerging industry. Presumably due to the proliferation of educational opportunities and the enthusiastic inclusion of the popular masses in various social and educational activities and in the memory of people participating in it, this period is cherished as the "golden age of andragogical work in Bosnia and Herzegovina" (Mavrak, 2004, p. 65). Officially, the first Andragogy course was introduced in the 1970s within the Department of Pedagogy and Psychology of the Sarajevo University Faculty of Philosophy (Mavrak, 2004).

By the 1970s, adult education was perceived as continuation of formal schooling. It was still deliberately utilised as an instrument for driving societal transformation and economic modernisation. Vocational secondary schools and companies – which were all State-owned – started to take an important role as

adult education providers offering retraining and upskilling opportunities in a wider range of specialisations. As a result, general education was sidelined in favour of narrowly focused, highly practice-oriented and vocational training. This trend, while supporting immediate labour needs, ultimately suspended the system's ability to promote lifelong learning, retraining and adaptability (Halász, 2015). However, reforms in secondary vocational education and the integration of adult education into formal systems led to the declining prominence and gradual closure of workers' and people's universities.

The outbreak of the 1992–1995 war brought destruction of educational and overall social infrastructure, which also coincided with the collapse of the Yugoslav socialist regime and transition of the country towards democracy. This turbulent period witnessed near-erasure of adult education from national priorities and the idea of adult education from the Yugoslav period was no longer welcome in the new vision of society and its democratic values. Adult education was relegated to the margins by the education authorities who were more concerned with rebuilding the formal education system. Nonetheless, this was the time when the first NGOs – both international and local – started to emerge and provide adult education. The offered programmes focused on personal development, foreign language training and basic digital skills and were often organised in informal settings as community-based learning.

The early 2000s marked the beginning of a new phase, driven by international assistance and efforts to align with the EU standards. For the first time, concrete steps were taken towards building a legal framework for adult education in Bosnia and Herzegovina, which resulted in the development of strategies, laws and education standards (Isanović Hadžiomerović et al., 2022). This period was marked by decentralisation, privatisation and diversification of providers. Adult education providers included NGOs, private training centres, industry actors and public schools. International donors (GIZ, USAID, ILO, SIDA...) became increasingly active in the sector through various types of projects, most of them being employment-related. However, no institution similar to previous workers' and people's universities was established in this period. Adult education became increasingly commodified, focusing on training for the labour market. Despite greater programme variety, development was often *ad hoc*, donor-driven and lacking long-term strategy and quality assurance. Yet, these market-oriented pathways often failed to address broader social needs – civic and environmental education, personal wellbeing or inclusive community education.

Given the country's asymmetric and polycentric education governance, the development of adult education policy in Bosnia and Herzegovina spanned a full decade, from 2009 to 2019. It was backed by DVV International's Office

in Sarajevo, through its advocacy and expert support not only related to policy making, but also to the professionalisation of adult education. The first adult education law in Bosnia and Herzegovina was adopted in Republika Srpska in 2009 and the last in Posavina Canton in 2019. Today, all 13 education authorities have their own legislation on adult education, in addition to the State-level *Strategy for the Development of Adult Education in Bosnia and Herzegovina in the Framework of Lifelong Learning for the Period 2014–2020* and the *Standards and Norms in Adult Education in Bosnia and Herzegovina*.

Bosnia and Herzegovina was granted candidate status for European Union membership in March 2024. All policy efforts in various fields over the past decade have been driven by the aspiration to align the measures with the EU regulation. In adult education specifically, this is highlighted in the first strategic objective stating: “Improvement of legislation for adult education in the context of lifelong learning and alignment with the European Union reference framework” (Council of Ministers of Bosnia and Herzegovina, 2014b). A specific measure referring to alignment with the EU framework includes “creating conditions for the recognition of non-formal education and informal learning” (Council of Ministers of Bosnia and Herzegovina, 2014a).

Serbia

Adult education in Serbia is shaped by its long and complex history, rooted in societal changes during the 19th century, when first legal steps were taken to structure and create an education system (Miljković, 2014, 2019). That milestone was marked with the introduction of Serbia’s first educational law in 1833 (Miljković, 2019, p. 94). Throughout the 19th century, Serbia was a country liberating itself from the Ottoman empire, just beginning to constitute its statehood and administrative apparatus. Miljković notes that, during this phase, many intellectuals were sent abroad to learn at more advanced international institutions and apply what they had learned abroad to the Serbian context. More specifically, he notes that “the practice of financing best students to study abroad enabled Serbia to, without investing in its own institutions, obtain professionals and get to know progressive European scientific and political ideas and gain experience based on which its own institutions could be created” (Miljković, 2019, p. 107). We can note that international influences throughout history were utilised to support the State that was undergoing development, relying on already established institutions in other countries, but adapting the knowledge to the needs of the Serbian context. Introduction of the first education law, perception of education as a tool

for building the administrative apparatus and modernising the country through international exchanges, points to the domination of modernisation and State control logic in this period. Alongside the top-down modernisation approach, the acts of dissent on the margins indicated the presence of the democratic-emanipatory approach, which persisted throughout the 19th century and at the beginning of the 20th century. Medić and Ceković Popović (1996), as well as Miljković (2019), identify two trajectories of adult education: a) as a subversive activity within the workers' movement (as a result of the industrialisation and formation of the working class), and b) within the civic movement (influenced by ideas of enlightenment, nationalism and romanticism). The socialist thought developed within the worker movement "was against the ruling regime and therefore the andragogical activity was subversive (from the ruling regime's point of view) and was being developed in spite of it" (Miljković, 2019, p. 136). This showcases that participatory, emancipatory education was developed within social movements and civil society. Later on, throughout the 20th century, adult education evolved through formats such as Sunday, domestic and extended schools (Kulić & Despotović, 2010). Modernisation and State control were still the most prominent approach to adult education after second Yugoslavia was established as a communist country (1945). Samolovčev describes massive literacy campaigns that were being conducted by the State, with 2,324,158 newly literate people, but he notes that this was done only at the elementary level, without extending deeper professional and general knowledge needed for economic and social activities (Samolovčev, 1963, according to Miljković, 2014). According to Miljković, adult education had a strong ideological component in the subsequent periods of Yugoslavia, although still satisfying various educational needs of the population, contributing to holistic personal development (Miljković, 2014). The establishment of Department of Andragogy at the Faculty of Philosophy, University of Belgrade in 1979 was a significant event for the further constitution of adult education in Serbia.

The system of adult education started to collapse during the 1990s and the wars that followed. Medić et al. note that "according to 1990 data, Yugoslavia had 200 worker, public and open universities. Today, their number has decreased by at least a half, or even two-thirds" (Medić et al., 2009, p. 18). The situation is similar when it comes to the basic education of adults, where the number of schools for basic adult education has decreased from several dozens to 14 schools in Serbia (Miljković, 2014). Medić et al. conclude that the "lack of societal care and interest for this area led to the reduction, complete overhaul or closure of adult education institutions and forms" (Medić et al., 2009, p. 18). That said, subversive, bottom-up activities still existed but were not dominant: the presence

of the democratic emancipatory approach existed on the margins. Popović et al. point out that Serbia has a significant tradition in organising civil society movements in the “90s (against war, against regime)” and that its civic protest played the most important role in overthrowing the authoritarian regime (Popović et al., 2020, p. 86).

The development of adult education in Serbia underwent a significant shift after 2000, when democratic reforms opened the country towards European integration. On the one hand, this period was marked by State-led modernisation and the reconstruction of the education system, including the adoption of the Law on Adult Education and the development of three adult education strategies. On the other hand, it was also characterised by processes of privatisation and neoliberal reform, accompanied by the increasing prominence of the human resource management logic. Reflecting on the period from 2000 to 2012 and the development of these strategies, Despotović and Popović (2014) identify notable conceptual differences, which they attribute to the varying contexts in which the strategies were formulated. They see the first strategy (2001) as conceptually aligned with UNESCO’s humanistic, enlightenment-emancipatory discourse, although it was never fully adopted. In contrast, they see the subsequent strategies (2007 and 2012) as incorporating a more economic-utilitarian approach and the rhetoric of the European Union. The authors link this shift to Serbia’s EU candidacy and the fact that these later strategies were developed with EU support, thereby reflecting its economic and neoliberal priorities, discourse and vocabulary. (Despotović & Popović, 2014).

They conclude that adult education policies during this period were largely oriented towards the adoption of EU guidelines and that Serbia lacked an authentic and autonomous policy on adult education (Despotović & Popović, 2014).

Conditions have deteriorated markedly since 2012, when a change in the political regime led to the consolidation of an increasingly authoritarian form of governance. At the declarative level, the government aligns itself with EU democratic values. In practice, however, Serbia is characterised as a “hybrid” regime, marked by the centralisation of power and the presence of “empty” democratic institutions that exist formally but allow only limited public participation (Popović & Maksimović, 2024, p. 287). In the field of adult education policymaking, this shift is reflected in the diminished role of academic and research communities, which exercised greater influence before 2012 but are now largely confined to predefined topics with limited scope for input (Popović & Maksimović, 2024). While broader stakeholder participation once had a more meaningful impact, it is now often instrumentalised to legitimise pre-

determined government decisions (Popović & Maksimović, 2024). This centralisation of power is accompanied by a strengthened neoliberal orientation in adult education policymaking. Although neoliberal discourses had already gained traction between 2000 and 2012, progressively intensifying across successive adult education strategies (Despotović & Popović, 2014), the emergence of a hybrid regime has further reinforced this trajectory. It is evident in the declining influence of non-governmental actors and researchers, the growing prominence of employers and international corporations in policymaking and the adoption of key legislative measures, such as the National Qualifications Framework Act and Dual Education Act, both aligned with EU policy priorities (Popović & Maksimović, 2024).

These developments are also reflected in the national 2025 Annual Adult Education Plan, which prioritises upskilling and reskilling as central responses to social and economic change. This focus mirrors the objectives promoted through the European Skills Agenda and related Council Recommendations on upskilling pathways and individual learning accounts, as explicitly noted in the plan (Government of the Republic of Serbia, 2025, p. 4).

Portugal

Portugal does not have a long-standing tradition of adult education policy. The most significant developments began in the 1970s, particularly following the democratic revolution of 25 April 1974. This period was marked by widespread civic engagement, which fostered a vision of adult education grounded in democratic and emancipatory principles (Lima, 2008; Lima & Guimarães, 2018). Adult education was strongly influenced by popular education traditions, emphasising participatory methods and socio-educational activism. Civil society organisations played a central role, developing a wide range of local initiatives characterised by independence and creativity (Melo & Benavente, 1978).

In 1986, Portugal adopted the Education System Act (still in force today) (Assembly of the Republic, 2023) and joined the European Economic Community. At the time, the country faced the challenge of modernising its economy and infrastructure, improving efficiency in both the public and private sectors and enhancing productivity and competitiveness. Despite these priorities, adult education was not treated as a strategic policy area (Lima, 2008). The Education System Act focused primarily on second-chance education and vocational training, largely modelled on the formal school system. Although vocational training was included, it was not formally recognised as a branch of adult education.

This development marked a shift towards policies emphasising modernisation and State control (Lima & Guimarães, 2011, 2018).

Between the mid-1980s and mid-1990s, second-chance education and vocational training became central components of adult education policy. Typically delivered through evening classes in mainstream schools, second-chance education primarily targeted young people who had dropped out of formal schooling. While this model made use of the existing national school network, it also revealed significant challenges, including high dropout rates and weak coordination with community-based and popular education initiatives. Over time, the formal school system came to dominate, marginalising more decentralised approaches and imposing rigid certification and progression requirements (Lima & Guimarães, 2011). During the same period, vocational training emerged as a distinct yet parallel pathway. Heavily supported by EU funding, it frequently operated independently of – and at times in tension with – popular and basic education models, thereby exposing underlying structural, political and educational incompatibilities (Lima, 2008).

Up to the late 1990s, adult education policy continued to prioritise formal second-chance education, driven by the belief that adults needed to complete compulsory schooling (nine years at the time) as a foundation for democratic participation and social equality. Although various initiatives contributed to reducing dropout rates and raising overall educational attainment, they were insufficient to close the gap between Portugal and other European countries (Portugal, 2025).

From the late 1990s onwards, adult education policy became increasingly aligned with the EU's lifelong learning strategy, placing greater emphasis on human resource development. The link between education/training and economic growth became more pronounced. Two main certified pathways were introduced: (1) adult education and training courses, which combined general education with vocational training, sometimes incorporating work-based learning; and (2) recognition of prior learning, which validated competences acquired through life experience, thereby enhancing their social and economic value (Guimarães, 2011).

Between 2005 and 2011, the *New Opportunities Programme* (Portugal, 2025) encompassed both these pathways. During this period, adult learner participation increased significantly, especially in recognition of prior learning. Over one million adults engaged with the program, resulting in 600,000 learners obtaining educational diplomas, one-third of whom also acquired professional qualifications. Funded primarily by the European Social Fund (75%), the programme operated through a nationwide network of local adult education centres employing over 10,000 educators (EAEA, 2011). Additionally in 2009, the 12th

grade was established as the standard level of compulsory education, alongside pathways enabling adult learners to obtain upper secondary qualifications.

After 2011, Portugal entered a severe economic and social crisis, partly driven by the global financial downturn and austerity measures imposed by the EU, the European Central Bank and the International Monetary Fund. These pressures were compounded by high unemployment, deteriorating living conditions, low public morale and a breakdown in social and political consensus (Mateus, 2010). The adult education policy was effectively suspended from 2012 to mid-2016. The *New Opportunities Programme* was discontinued, adult education centres were closed, educators were dismissed and funding was slashed. As a result, participation in adult education – particularly at basic and secondary levels – declined sharply.

The Portuguese economy began a gradual recovery in 2014, driven by sectors such as tourism and various industries (e.g. transport, electronics, pharmaceuticals and extractive industries). In August 2016, the government introduced the *Qualifica Programme* (Portugal, 2025), which renewed the focus on adult education and training courses, as well as the recognition of prior learning. This marked a new phase in adult education policy, emphasising principles aligned with human resource management and employability (Lima & Guimarães, 2018). Following the COVID-19 pandemic, these provisions were maintained and the alignment between Portuguese adult education policy and European Union lifelong learning frameworks became more pronounced. The number of adult learners enrolled slowly arose (Guimarães, 2024).

Conclusions

The comparative analysis of Bosnia and Herzegovina, Serbia and Portugal reveals a persistent tension between humanistic and utilitarian (technical-economic) orientations in adult education policy across Europe. Although all three countries formally align with the European Union's strategic framework for lifelong learning, their policy approaches differ in the extent to which they uphold adult education as a structured societal responsibility grounded in human rights.

The emphasis on socio-economic revitalisation, employability, competitiveness in the knowledge market, mobility, flexibility and vocational adult education positions adult learners as economic actors whose skills and productivity are central to national development.

In Bosnia and Herzegovina, adult education continues to be shaped by a fragmented institutional framework and limited State coordination, reflect-

ing the country's broader political and administrative complexity. While policies recognise lifelong learning as a guiding principle, their implementation is often constrained by the absence of shared public responsibility and sustainable funding mechanisms. Consequently, adult education tends to operate through locally driven or donor-supported initiatives rather than as a coherent, State-led system for personal, professional and civic development. Although elements of State control and modernisation logics are present in BiH's policy documents, the State's role is undermined by the lack of effective State-led mechanisms and reliance on donor funding. Moreover, this strategy opens the space for human resource management logics with its emphasis on employability and projects resulting in measurable indicators, but without interest in the true emancipatory and humanistic value of education.

With reference to the three research questions, it can be concluded that effective State responsibility is less visible in Bosnia and Herzegovina, primarily due to the absence of a dedicated budget line for adult education and the lack of publicly funded adult education institutions or centres. There is a growing reliance on private providers and civil society organisations, often delivering donor-funded adult education programmes. Although widening the provision of adult education and increasing participation are identified as policy priorities (Council of Ministers of Bosnia and Herzegovina, 2014a), in practice no single authority holds a clear legal obligation to ensure funding, even though basic adult education is, in some cases, provided free of charge. In such a context, adult education is highly dependent on private provision and individual initiative, reflecting the influence of human resource management and personal optimisation logics. Within ongoing processes of Europeanisation, policy priorities increasingly emphasise innovation, digital and green skills, and stronger links between education and the labour market (European Commission, 2025a). Bosnia and Herzegovina has also joined the European Social Fund Plus (ESF+) as an associated participant in projects funded under the Employment and Social Innovation (EaSI) strand²⁵ (European Commission, 2025b). These developments further reinforce a trajectory towards human resource management and optimisation logics. At the same time, low participation rates in formal and non-formal adult learning (BHAS, 2018) underscore the need for more effective funding mechanisms and stronger efforts to widen access and participation. In the current context, an imbalance between State responsibility and individual commitment continues to limit the expansion of participation and learning opportunities.

²⁵ European Commission. (2025b). Available at: <https://european-social-fund-plus.ec.europa.eu/en/news/esf-welcomes-bosnia-and-herzegovina-new-participating-country> (accessed on 18 December 2025).

Serbia presents a more centralised and strategically defined approach to adult education policy. Its policy framework reflects an apparent balance between economic objectives, such as enhancing labour market mobility and professional qualifications and the broader social purposes of education. Nevertheless, despite formal commitments to inclusion, accessibility and interculturalism, adult education in Serbia remains shaped by strong State regulation and a predominantly instrumental orientation, with limited attention to its civic and emancipatory dimensions. In terms of Europeanisation, both earlier studies (Despotović & Popović, 2014; Popović & Maksimović, 2024; Popović et al., 2024) and the strategy analysed in this paper indicate a growing shift towards a human resource management logic. This shift can be partly attributed to increased alignment with EU policy frameworks and their associated neoliberal discourse. However, it is important to note that, while education reforms follow these EU-oriented narratives, they simultaneously tend to neglect the non-economic objectives articulated within EU policies, as evidenced in the analysis of annual plans (Popović et al., 2024).

In Serbia, there is a coexistence of human resource management and State control logics. Policy formulation (i.e. the development of strategies), the political system (particularly funding and implementation) and the structure of the adult education system (as reflected in functional literacy programmes and Publicly Recognised Organisers of Activities) are predominantly aligned with the modernisation and State control logic. In contrast, societal aims, policy priorities and educational objectives are more closely aligned with the human resource management logic. This duality can be explained by the fact that political system and adult education system are not so easily changed, grounded in historical roots of a system that is traditionally guided by modernisation and State control logic. By contrast, societal aims and policy objectives tend to reflect forward-looking aspirations and the country's strategic orientation, increasingly shaped by alignment with the EU's neoliberal policy framework. The coexistence of these paradigms is also linked to the broader political context in Serbia. As previous research has shown, the participation of civil society and academia in education policymaking is limited, and when non-State actors are included, their involvement is often symbolic or tokenistic, with little substantive influence on decision-making processes (Popović et al., 2024). This results in a configuration characterised by a tension between, on the one hand, centralised State control with marginal participation of non-State actors, and, on the other hand, the growing influence of a human resource management logic associated with Europeanisation – largely driven by alignment with neoliberal EU policies, often at the expense of other policy dimensions.

Portugal represents a model of alignment between national policy and European frameworks, underpinned by a strong institutional foundation and substantial investment through the European Social Fund. However, despite notable achievements in expanding qualifications and access, Portugal's adult education system remains largely instrumental, focusing predominantly on employability, professional training and economic competitiveness. At the same time, as noted by Antunes (2017, 2019, 2025), there are significant discrepancies between the rhetorical framing of adult education and training policy and its fragile implementation in practice.

Taken together, the three cases point to a broader European dilemma: lifelong learning policies prioritise economic objectives, such as upskilling, reskilling and labour market mobility, at the expense of the transformative, emancipatory and democratic purposes of adult education. The humanistic ideal of lifelong learning as a right and a public good is progressively overshadowed by its economic instrumentalisation.

Lifelong learning does not provide guidance on the selection of priority areas and it has evidently slipped from its initial humanistic orientation to a utilitarian mode, where policy attention and funding are concentrated on education areas related to employment, training, professional development, upskilling and reskilling. Thus, if adults are even recognised within the concept of lifelong learning, they are reduced to users of pragmatic skill-oriented programmes, intended for “‘workforce,’ ‘employees,’ ‘employable,’ ‘human resources’ – and other objects of professional training, in the service of economic development” (Popović, 2014, p. 170).

In addressing the research questions guiding this paper, it can be argued that Bosnia and Herzegovina and Serbia face the dual challenge of EU accession and alignment with lifelong learning frameworks shaped by human resource management and personal optimisation logics. Portugal, an EU member for four decades, has already internalised these frameworks, clearly reflecting the influence of management and human resources, as well as the personal optimisation trend. Within this context, State responsibility has given way to individual commitment, with adult education framed more as a duty linked to labour market requirements. As a result, adult education appears to have lost much of its emancipatory and democratic orientation, as policy frameworks rely on a multiple actors rather than the State as the primary guarantor of the right to education. This raises an important question for future research: will Bosnia and Herzegovina and Serbia, in the context of potential EU membership, replicate the dual trajectory of Europeanisation observed in Portugal, or will adult education policy (following several logics) emerge as a more coherent and central component of the policy agenda?

References

- ALEXIADOU, N. (2014). *Policy learning and Europeanisation in education: governance of a field and the transfer of knowledge*. Symposium Books.
- ANQEP. (2025). *Catálogo Nacional de Qualificações*. <https://catalogo.anqep.gov.pt>
- ANTUNES, F. (2017). European policies of adult education in Portugal: challenges and prospects. *European Journal of Education*, 52(3), 273–289.
- ANTUNES, F. (2019). Europeanisation and adult education: between political centrality and fragility. *Studies in Continuing Education*, 42(3), 298–315.
- ANTUNES, F. (2025). Made in the EU: dual Europeanisation and the rhetorical construction of adult education. *RELA – European Journal for Research on the Education and Learning of Adults*, 16(1), 115–134.
- ASSEMBLY OF THE REPUBLIC. (2023). *Lei de bases do sistema educativo*. <https://diariodarepublica.pt/dr/legislacao-consolidada/lei/1986-34444975>
- BENAVOT, A. (2018). The invisible friend: Adult education and the Sustainable Development Goals. *Adult Education and Development*, 58, 4–9. <https://www.dvv-international.de/en/adult-education-and-development/editions/section-1-playing-a-role/introduction/the-invisible-friend-adult-education-and-the-sustainable-development-goals>
- BHAS. (2018). *Demography and Social Statistics: Adult Education Survey*. Agency for Statistics of Bosnia and Herzegovina, https://bhas.gov.ba/data/Publikacije/Saopstenja/2018/EDU_02_2017_Y1_0_BS.pdf
- BIESTA, R. (2021). Reclaiming a future that has not yet been: The Faure report, UNESCO's humanism and the need for the emancipation of education. *International Review of Education*, 68(3–4), 1–18.
- BÖRZEL, T. (2002). Pace-setting, foot-dragging, and fence-sitting. Member state responses to Europeanisation. *Journal of Common Market Studies*, 40(2), 193–214.
- BOWEN, G. A. (2009). Document analysis as a qualitative research method. *Quality Research Journal*, 9(2), 27–40.
- COUNCIL OF MINISTERS OF BOSNIA AND HERZEGOVINA. (2014a). *Principles and Standards in the Area of Adult Education in Bosnia and Herzegovina*. “Official Gazette of Bosnia and Herzegovina”. No. 39/14, <http://www.sluzbenilist.ba/page/akt/Xohz4nh78h77yTszRxd6k=>
- COUNCIL OF MINISTERS OF BOSNIA AND HERZEGOVINA. (2014b). *Strateška platforma razvoja obrazovanja odraslih u kontekstu cjeloživotnog učenja u Bosni i Hercegovini za razdoblje 2014–2020*. “Official Gazette of Bosnia and Herzegovina”, No. 96/14, <http://www.sluzbenilist.ba/page/akt/TgoI9GmxLiY=>
- COUNCIL OF MINISTERS OF BOSNIA AND HERZEGOVINA. (2021). *Enhancing Quality of Vocational Education and Training in Bosnia and Herzegovina – Based on Conclusions from Riga (2021–2030)*. “Official Gazette of Bosnia and Herzegovina”, No. 15/21. <http://sluzbenilist.ba/page/akt/LYWc1z1EQ28=>
- DESJARDINS, R. (2013). The economics of adult education: A critical assessment of the state of adult education. In T. Nesbit, & M. Welton (Ed.), *Adult Learning in a*

- Precarious Age, New Directions for Adult and Continuing Education*, 138, (81–90). <https://doi.org/10.1002/ace.20056>
- DESPOTOVIĆ, M., & POPOVIĆ, K. (2014). Strategije obrazovanja odraslih – želje, potrebe, mogućnosti i rezultati. U B. Knežić, A. Pejatović, & Z. Milošević (Ed.), *Modeli procenjivanja i strategije unapređivanja kvaliteta obrazovanja odraslih* (pp. 47–68). IPA, Filozofski fakultet.
- DIREÇÃO GERAL DO EMPREGO E DAS RELAÇÕES DE TRABALHO. (n.d.). *Quadro Nacional de Qualificações*. <https://www.dgert.gov.pt/quadro-nacional-de-qualificacoes>
- DOUTOR, C., & GUIMARÃES, P. (2019). Adult education and lifelong learning policies: An analysis of Greece and Portugal. *Andragoška spoznanja/Studies in Adult Education and Learning*, 25(1), 15–31. <http://dx.doi.org/10.4312/as.25.1.15-31>
- EGETENMEYER, R. (2016). What to compare? Comparative issues in adult education. In M. Slowey (Ed.), *Comparative adult education and learning. Authors and texts* (pp. 79–116). Firenze University Press.
- EGETENMEYER, R. (2020). Comparative adult and continuing education: A guiding essay. In R. Egetenmeyer, V. Boffo, & S. Kröner (Ed.), *International and Comparative Studies in Adult and Continuing Education* (pp. 17–30). Firenze University Press. <https://doi.org/10.36253/978-88-5518-155-6.02>
- ELFERT, M. (2019). Lifelong learning in Sustainable Development Goal 4: What does it mean for UNESCO's rights-based approach to adult learning and education? *International Review of Education*, 65(4), 537–556. <https://link.springer.com/article/10.1007/s11159-019-09788-z>
- EUROPEAN ASSOCIATION FOR THE EDUCATION OF ADULTS (EAEA). (2011). *EAEA Country Report on Adult Education in Portugal*. https://eaea.org/wp-content/uploads/2018/01/portugal_country-report-on-adult-education-in-portugal.pdf
- EUROPEAN COMMISSION. (2025a). Commission Implementing Decision of 28. 11. 2025 amending Implementing Decision C(2024) 7375 as regards the addition of the Reform Agenda for Bosnia and Herzegovina and the adjustment to multiannual work programme under the Reform and Growth Facility for the Western Balkans. https://enlargement.ec.europa.eu/document/download/b94fe222-e437-46db-87f0-397c16bf2820_en?filename=BiH%20.%20CID.PDF
- EUROPEAN COMMISSION. (2025b). ESF+ welcomes Bosnia and Herzegovina as a new participating country. <https://european-social-fund-plus.ec.europa.eu/en/news/esf-welcomes-bosnia-and-herzegovina-new-participating-country>
- EUROSTAT. (2024). *Adult learning – participants*. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Adult_learning_-_participants
- EURYDICE. (2025a). *7. Educação e formação de adulto*. <https://eurydice.eacea.ec.europa.eu/pt-pt/eurypedia/portugal/educacao-e-formacao-de-adultos>
- EURYDICE. (2025b). *7. Educação e formação de adultos. 7.3. Instituições que ministram educação e formação de adultos*. <https://eurydice.eacea.ec.europa.eu/pt-pt/eurypedia/portugal/instituicoes-que-ministram-educacao-e-formacao-de-adultos>
- EURYDICE. (2025c). *7. Educação e formação de adultos 7.1 Distribuição das responsabilidades*. <https://eurydice.eacea.ec.europa.eu/pt-pt/eurypedia/portugal/distribuicao-das-responsabilidades>

- EURYDICE. (2026). 7. *Educação e formação de adulto. 7.4 Principais tipos de oferta formativa*. <https://eurydice.cacea.ec.europa.eu/pt-pt/eurydedia/portugal/principais-tipos-de-oferta-formativa>
- FEJES, A. (2008). *Historicizing the lifelong learner: Governmentality and neoliberal rule*. Routledge.
- FINGER, M., & ASÚN, J. M. (2001). *Adult education at the crossroads: Learning our way out*. Zed Books, NIACE.
- GROTLÜSCHEN, A., BELZER, A., & ERTNER, M. (2024). The role of adult learning and education in the Sustainable Development Goals. *Int Rev Educ*, 70, 205–221. <https://doi.org/10.1007/s11159-024-10066-w>
- GUIMARÃES, P. (2011). *Políticas de Educação de Adultos em Portugal (1999–2006). A Emergência da educação e Formação para a Competitividade*. Universidade do Minho/Cied.
- GUIMARÃES, P. (2024). Políticas de educação de adultos desde 1974: a valorização da lógica da otimização pessoal. In D. Justino (Coord.), *o Ensino em Portugal antes e depois do 25 de Abril*. Escolarização e Ensino Primário, vol. 2 (pp. 89–109). Fundação Manuel Francisco dos Santos.
- GUIMARÃES, P., & BARROS, R. (2025). Seeking continuities and discontinuities in the European policy agenda(s) for adult learning – Reflections on purposes and governance. *Journal of Adult and Continuing Education*, 31(2), 391–415. <https://doi.org/10.1177/14779714241306722>
- HALÁSZ, G. (2015). Education and Social Transformation in Central and Eastern Europe. *European Journal of Education*, 50(3), 350–371. <https://doi.org/10.1111/ejed.12130>
- HINZEN, H. (2011). Policy developments towards lifelong learning in the European Union. In J. Yand, & R. Valdes-Cotera (Ed.), *Conceptual Evolution and Policy Developments in Lifelong Learning* (pp. 98–110). UNESCO UIL. <http://unesdoc.unesco.org/images/0019/001920/192081e.pdf>
- HOLFORD, J., & MILANA, M. (2022). The European Union and Lifelong Learning Policy. In K. Evans, W. O. Lee, J. Markowitsch, & M. Zukas (Eds.), *Third International Handbook of Lifelong Learning*. Springer International Handbooks of Education. Springer. https://doi.org/10.1007/978-3-030-67930-9_27-1
- INTERNATIONAL LABOUR ORGANIZATION. (2013). *New Opportunities, Portugal*. <https://www.skillsforemployment.org/knowledge-product-detail/5160>
- ISANOVIĆ HADŽIOMEROVIĆ, A. (2018). In search of identity: Adult education in Bosnia and Herzegovina between the socialist legacy and neoliberal tendencies. *Studies in Adult Education and Learning*, 24(4), 37–52. <https://doi.org/10.4312/as.24.4.37-52>
- ISANOVIĆ HADŽIOMEROVIĆ, A., PFANZELT, A., & PFANZELT, H. (2022). *Study on Adult Learning and Education in Bosnia and Herzegovina*. DIE & DVVI
- JELENC, Z. (2018). Adult education in Slovenia before and after the transition period. *Studies in Adult Education and Learning*, 24(4), 69–88. <https://doi.org/10.4312/as.24.4.69-88>
- KOŠMERL, T., MIROSHNIKOV, M., SIMEON ADERIBIGBE, A., & GUIMARÃES, P. (2023). UNESCO's Global Reports on Adult Learning and Education. Conceptual Elements and Political Priorities in Nigeria, Russia, and Slovenia. *Sisyphus*, 10(3), 186–205. <https://doi.org/10.25749/sis.25583>

- KUCKARTZ, U. (2019). Qualitative Text Analysis: A Systematic Approach. In G. Kaiser, & N. Presmeg (Ed.), *Compendium for Early Career Researchers in Mathematics Education* (pp. 181–197). ICME-13 Monographs. Springer.
- KULIĆ, R., & DESPOTOVIĆ, M. (2010). *Uvod u andragogiju*. Svijet knjige.
- LIMA, L. C. (2008). A educação de adultos em Portugal (1974–2004). In R. Canário, & B. Cabrito (Ords.), *Educação e formação de adultos. Mutações e convergências* (pp. 31–60). EDUCA.
- LIMA, L. C., & GUIMARÃES, P. (2011). *European Strategies in Lifelong Learning: A Critical Introduction*. Barbara Budrich.
- LIMA, L. C., & GUIMARÃES, P. (2018). Lógicas políticas da educação de adultos em Portugal. *Cadernos de Pesquisa*, 48(168), 600–623. <https://doi.org/10.1590/198053144926>
- LIMA, L., & GUIMARÃES, P. (2024). Revisiting a theoretical model to understanding adult learning and education policies. In M. Milana, P. Rasmussen, & M. Bussi (Ed.), *Research Handbook on Adult Education Policy* (pp. 27–42). Edward Elgar/Palgrave.
- MAGONE, J. M. (2003). *The Politics of Southern Europe. Integration into the European Union*. Greenwood Publishing Group.
- MATEUS, A. (2010). Boom and a long slump in a small economy of the Eurozone: the Portuguese case. In SSRN 1558305.
- MAVRAK, M. (2004). Obrazovanje odraslih u Bosni i Hercegovini. *Obrazovanje odraslih*, 4(2), 61–78.
- MEDIĆ, S., & CEKOVIĆ POPOVIĆ, K. (1996). Conceptions of people's education in Serbia on the beginning of the 20th century. *Andragoške studije*, 3(1), 5–24.
- MEDIĆ, S., POPOVIĆ, K., MILANOVIĆ, M., & DESPOTOVIĆ, M. (2009). *Funkcionalno osnovno obrazovanje odraslih: programski/prosvetni ogled kao aktivna mera*. Institut za pedagogiju i andragogiju.
- MELO, A., & BENAVENTE, A. (1978). *Educação Popular em Portugal (1974–1976)*, Livros Horizonte.
- MIKULEC, B. (2016). Impact of the Europeanisation of education: Qualifications frameworks in Europe. *European Educational Research Journal*, 16(4), 455–473. <https://doi.org/10.1177/1474904116673645>
- MIKULEC, B., & JELENC KRAŠOVEC, S. (2016). Marketising Slovene adult education policies and practices using mechanisms of the Europeanisation of education. *European Journal for Research on the Education and Learning of Adults*, 7(2), 151–170. <https://doi.org/10.3384/rela.2000-7426.rela9081>
- MIKULEC, B., & KUMP, S. (2018). Adult education policies in the states of the territory of former Yugoslavia: Between the Legacy of State Socialism and European and Global Pressures. *Studies in Adult Education and Learning*, 24(4), 3–18. <https://doi.org/10.4312/as.24.4.3-18>
- MIKULEC, B., & EGETENMEYER, R. (2025). Contemporary Perspectives on International Comparative Adult Education Research, Networks and Teaching. *Studies in Adult Education and Learning*, 31(1), 3–22. <https://doi.org/10.4312/as/21951>
- MILJKOVIĆ, J. (2014). Evropska obrazovna politika i upravljanje sistemom obrazovanja odraslih. *Doktorska disertacija odbranjena na Filozofskom fakultetu u Beogradu*. Filozofski fakultet.

- MILJKOVIĆ, J. (2019). *Sistem obrazovanja odraslih: pogled iz konteksta*. Institut zapedagogiju i andragogiju.
- POPOVIĆ, K. (2014). *Globalna i evropska politika obrazovanja odraslih*. IPA, Filozofski fakultet i Društvo za obrazovanje odraslih.
- POPOVIĆ, K. (2021). Destruktivan pohod celoživotnog obrazovanja. *Obrazovanje odraslih*, 21 (2), 53–77.
- POPOVIĆ, K., & MAKSIMOVIĆ, M. (2024). *Hybrid political regimes and adult education – the example of Serbia*. In M. Milana, P. Rasmussen, & M. Bussi (Eds.), *Research handbook on adult education policy* (pp. 283–299). Edward Elgar.
- POPOVIĆ, K., MAKSIMOVIĆ, M., & JOVANOVIĆ, A. (2020). *Learning Democracy Beyond the Traditional Didactics*. In S. Sava, C. Borca, & G. Clitan (Eds.), *Collective Capacity Building Shaping Education and Communication in Knowledge Society*. https://www.researchgate.net/publication/339021450_Learning_Democracy
- POPOVIĆ, K., MAKSIMOVIĆ, M., & DJERASIMOVIĆ, S. (2024). Hybridisation of adult education policy in peripheral countries: A system theory analysis of EU–Serbia relations. *Journal of Adult and Continuing Education*, 31(2).
- PORTUGAL. (2025). *Education and Training 2025*. <https://op.europa.eu/en/publication-detail/-/publication/f6a5f8c9-beb7-11f0-a612-01aa75ed71a1/language-en>
- QUALIFICA. (n.d.). *Portal Qualifica*. <https://www.qualifica.gov.pt/#/>
- RADAELLI, C. M. (2008). Europeanisation, policy learning, and new modes of governance. *Journal of Comparative Policy Analysis*, 10(3), 239–254. <https://doi.org/10.1080/13876980802231008>
- SAURUGGER, S., & RADAELLI, C. M. (2008). The Europeanization of Public Policies: Introduction. *Journal of Comparative Policy Analysis: Research and Practice*, 10(3), 213–219. <https://doi.org/10.1080/13876980802276847>
- STATISTICAL OFFICE OF THE REPUBLIC OF SERBIA. (2022). Adult Education Survey. <https://www.stat.gov.rs/en-US/vesti/20231031-anketa-o-obrzovanjuo/?a=0&s=2400>, accessed in January 2026.
- STEINMETZ, J. (2021). *Politics, Power and Purpose: An Orientation to Political Science*. Fort Hays State University Digital Press.
- UN. (2015). *Transforming our world: The 2030 agenda for sustainable development*. United Nations, A/RES/70/1. <https://sdgs.un.org/2030agenda>
- UNESCO/UIIL. (2022). *Adult Learning and Education*. UNESCO Institute for Lifelong Learning. <https://uil.unesco.org/adult-education>
- GOVERNMENT OF THE REPUBLIC OF SERBIA. (2021). *Strategija razvoja obrazovanja i vaspitanja u Republici Srbiji do 2030. godine*. Službeni glasnik RS, br. 63/2021. <https://prosveta.gov.rs/wp-content/uploads/2021/09/SROVRS-2030-1.pdf>
- GOVERNMENT OF THE REPUBLIC OF SERBIA. (2025). *Godišnji plan obrazovanja odraslih u Republici Srbiji za 2025. godinu*. <https://pravno-informacioni-sistem.rs/eli/rep/sgrs/vlada/odluka/2025/16/1/reg>
- ŽILJAK, T. (2018). Adult education in Croatia after 1990. *Studies in Adult Education and Learning*, 24(4), 53–68. <https://doi.org/10.4312/as.24.4.53-68>

Neda Čairović Pavlović¹, Zorana Pešić²

Uverenja univerzitetskih nastavnika o primeni veštačke inteligencije u obrazovanju³

Apstrakt: Ubrzan razvoj veštačke inteligencije značajno utiče na transformaciju visokog obrazovanja, a nastavnici su ključni akteri tog procesa. Dosadašnja istraživanja uglavnom su bila usmerena na studente, a perspektiva visokoškolskih nastavnika u Srbiji ostaje nedovoljno istražena. Polazeći od shvatanja uverenja kao prediktora ponašanja, cilj istraživanja je bio da se ispituju uverenja nastavnika o veštačkoj inteligenciji i faktorima koji ih oblikuju. Istraživanje je sprovedeno na uzorku od 125 nastavnika sa osam visokoškolskih institucija u Srbiji. Rezultati pokazuju da nastavnici najčešće koriste veštačku inteligenciju u istraživačkom radu i pripremi nastave, dok je njena primena u realizaciji nastave i evaluaciji ređa. Uočen je jaz između teorijskih promišljanja i realnih uverenja nastavnika o njenim potencijalima. Dok nastavnici veruju u doprinos veštačke inteligencije efikasnosti i razvoju digitalnih kompetencija studenata, indiferentni su prema njenoj ulozi u suštinskim pitanjima podučavanja i učenja. Varijacije u uverenjima povezane su sa učestalošću i oblastima primene, usavršavanjem i institucionalnom podrškom.

Ključne reči: veštačka inteligencija, visoko obrazovanje, visokoškolski nastavnici, uverenja nastavnika

University Faculty's Beliefs about the AI Use in Education⁴

Abstract: The rapid development of artificial intelligence (AI) has been significantly influencing the transformation of higher education, with faculty playing a key role in this process. Previous research has largely focused on students, while the perspectives of uni-

¹ Univerzitet u Beogradu, Srbija, <https://orcid.org/0000-0001-5758-6979> (neda.cairovic@f.bg.ac.rs)

² Univerzitet u Beogradu, Srbija, <https://orcid.org/0009-0004-4843-9124> (zorana.pesic@f.bg.ac.rs)

³ Realizaciju ovog rada finansijski je podržalo Ministarstvo nauke, tehnološkog razvoja i inovacija Republike Srbije u sklopu finansiranja naučnoistraživačkog rada na Univerzitetu u Beogradu – Filozofskom fakultetu (broj ugovora 451-03-137/2025-03/ 200163).

⁴ This work was supported by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia within the framework of funding scientific research at the University of Belgrade, Faculty of Philosophy (Contract No. 451-03-137/2025-03/ 200163).

versity faculty in Serbia remain underexplored. Drawing on the understanding of beliefs as key predictors of behaviour, this study examines faculty beliefs about AI and the factors shaping them. The study was conducted on a sample of 125 educators working at eight higher education institutions in Serbia. The findings indicate that faculty most frequently use AI in research and course preparation, and less commonly in teaching and assessment. A gap was identified between theoretical reflections and faculty's actual beliefs about AI's potential. While faculty recognise AI's contribution to efficiency and the development of students' digital competencies, they remain neutral regarding its role in core aspects of teaching and assessment. Differences in faculty's beliefs are associated with the frequency and domains of AI use, professional development and institutional support.

Keywords: artificial intelligence (AI), higher education, faculty, educators' beliefs

Uvod

U savremenom trenutku, digitalni resursi zasnovani na veštačkoj inteligenciji postali su moćni alati koji imaju potencijal da duboko transformišu različite aspekte ljudskog života. Posebno, veštačka inteligencija preoblikuje način na koji pristupamo znanju i komuniciramo s njim, pružajući mogućnost obrade velikih količina podataka, identifikovanja složenih obrazaca i generisanja visokopersonalizovanih rešenja (Cordón García, 2023). U obrazovnom kontekstu, ti resursi otvaraju nove puteve za unapređenje nastavničkog rada, razvoj kompetencija studenata i prilagođavanje obrazovnog procesa savremenim trendovima.

S obzirom na sveprisutnu primenu digitalnih alata u visokom obrazovanju, postavlja se pitanje kako nastavnici doživljavaju i koriste veštačku inteligenciju u svojoj profesionalnoj delatnosti. Dosadašnja istraživanja pokazuju da postoji širok dijapazon percepcija i praksi, od entuzijastičnog prihvatanja do opreznog eksperimentisanja, pri čemu institucionalna podrška i prethodno iskustvo značajno oblikuju taj odnos (Sharma et al., 2019; Sharma et al., 2020; Popović Šević et al., 2025; Zawacki-Richter et al., 2019). Motivisane uočljivom neujednačenošću u iskustvima i uverenjima te nedostatkom istraživanja na našem prostoru, autorke ovog rada se fokusiraju na sagledavanje stanja u primeni veštačke inteligencije u visokoškolskom obrazovanju i posebno perspektive univerzitetskih nastavnika u Republici Srbiji.

Polazeći od shvatanja da se nastavnici u svom profesionalnom delovanju rukovode sistemom uverenja, može se pretpostaviti da njihova uverenja o veštačkoj inteligenciji predstavljaju važne prediktore njene primene u nastavnoj praksi. Imajući u vidu sve veći uticaj veštačke inteligencije, s jedne strane, a relativnu otpornost visokoškolskih institucija na promene, kao i značajnu ulogu nastavnika kao nosilaca i posrednika promena, s druge strane, ovo istraživanje je usmereno na ispitivanje uverenja visokoškolskih nastavnika o veštačkoj inteligenciji i fak-

tora koji doprinose njihovom razvoju. Sticanje takvog uvida je neophodan korak ka promišljenoj i efikasnoj integraciji veštačke inteligencije u visoko obrazovanje.

Teorijsko određenje veštačke inteligencije

Veštačka inteligencija je interdisciplinarno polje istraživanja usmereno na razvoj računarskih sistema sposobnih da obavljaju zadatke koji se tradicionalno povezuju sa ljudskom inteligencijom, kao što su rešavanje problema, donošenje odluka, prepoznavanje obrazaca, planiranje i učenje na osnovu iskustva (Coppin, 2004). Iako se pojam veštačke inteligencije koristi već više od pola veka, u savremenoj literaturi se ukazuje na to da ne postoji jedinstvena i univerzalno prihvaćena definicija tog koncepta, već da se on razvija kroz različite teorijske pristupe i tehnološke paradigme. Uprkos tim razlikama, tim pristupima je zajedničko razumevanje veštačke inteligencije kao operativnog i funkcionalnog koncepta, koji se odnosi na skup metoda i sistema zasnovanih na algoritamskoj obradi podataka, a ne na ontološko izjednačavanje mašinske i ljudske inteligencije (Nilsson, 2009).

U tom smislu, veštačka inteligencija se najčešće posmatra kao rezultat dugotrajnog razvoja računarskih i informacionih tehnologija koji je omogućio automatizaciju složenih kognitivnih procesa i prelazak sa striktno programiranih alata ka sistemima koji mogu da se prilagođavaju novim uslovima i samostalno optimizuju svoje delovanje (Chen, X. et al., 2020). Takvi sistemi ne oponašaju ljudsko razmišljanje u potpunosti već funkcionalno reprodukuju određene aspekte inteligentnog ponašanja, oslanjajući se na podatke, modele i algoritme (Sharma et al., 2019; Whitby, 2008). Razvoj veštačke inteligencije odvija se na preseku različitih disciplina, uključujući računarstvo, statistiku, psihologiju, lingvistiku i obrazovne nauke, što dodatno potvrđuje njenu izrazitu interdisciplinarnu prirodu. Upravo zahvaljujući toj sinergiji razvijeni su sistemi koji se sve češće primenjuju u obrazovnom kontekstu, sa ciljem da podrže nastavnike, unaprede procese učenja i doprinesu razvoju znanja i veština neophodnih za funkcionisanje u savremenom, tehnološki intenzivnom društvu.

U tom širem teorijskom okviru razvilo se i posebno interdisciplinarno polje veštačke inteligencije u obrazovanju (*Artificial Intelligence in Education – AIED*), koje je kao oblast istraživanja počelo da se formira još početkom devedesetih godina prošlog veka. Iako se AIED kao naučna oblast razvija već oko tri decenije, što potvrđuju i osnivanje Međunarodnog društva za veštačku inteligenciju u obrazovanju (*International AIED Society – IAIED*) 1997. godine i kontinuirano izdavanje časopisa *International Journal of Artificial Intelligence in Education*, šira obrazovna zajednica je tek u novije vreme počela intenzivnije da razmatra obrazovne implikacije savremenih sistema zasnovanih na veštačkoj inteligenciji

(Zawacki-Richter *et al.*, 2019). Ta vremenska diskrepanca između dugogodišnjeg istraživačkog razvoja i relativno kasnog šireg interesovanja dodatno ukazuje na značaj jasnog pojmovnog razgraničenja i teorijskog utemeljenja veštačke inteligencije kao nužnog polazišta za razumevanje njenog mesta u savremenom obrazovanju. U ovom radu veštačka inteligencija se razume kao skup digitalnih alata i sistema zasnovanih na algoritamskoj obradi podataka, koji imaju potencijal da unaprede efikasnost, individualizaciju i kvalitet obrazovnog procesa, podrže rešavanje složenih zadataka i omoguće razvoj digitalnih kompetencija, pri čemu se posmatraju kao tehnološka podrška nastavnicima i studentima, a ne kao zamena za ljudsko pedagoško delovanje. Takvo razumevanje veštačke inteligencije podrazumeva i sagledavanje i preispitivanje njenih mogućnosti i implikacija na sve segmente i aktere obrazovnog procesa, koje umnogome zavisi od načina njene integracije u visokoškolske institucije.

Veštačka inteligencija u visokom obrazovanju: od razumevanja do upotrebe

Obrazovni sistem se nalazi u procesu intenzivnih i višeslojnih promena uslovljenih ubrzanim razvojem digitalnih tehnologija. Obrazovanje više nije izolovani sistem već deo šire digitalne stvarnosti u kojoj se znanje stvara, deli i oblikuje kroz mrežne i tehnološki posredovane oblike interakcije (Senić Ružić, 2021). Savremeno doba obeleženo je ubrzanim tehnološkim razvojem koji je doveo do sve šire upotrebe veštačke inteligencije u različitim oblastima društva, uključujući i obrazovanje. Danas veštačka inteligencija više nije isključivo simbol naprednih računarskih sistema ili superkompjutera već obuhvata i brojne ugrađene digitalne sisteme koji omogućavaju primenu složenih algoritama u procesima učenja i podučavanja (Chen, L. *et al.*, 2020). Razvijeni su brojni sistemi, poput ekspertskih sistema za učenje matematike ili simulacija bioloških procesa, koji se oslanjaju na mehanizme veštačke inteligencije, omogućavajući interaktivnost i personalizaciju nastave (Hwang *et al.*, 2020).

Među njima se izdvajaju čet-botovi, virtualni asistenti i adaptivni sistemi učenja, koji pokazuju sposobnost da kreiraju interaktivna i podsticajna obrazovna okruženja te da prilagode nastavne sadržaje individualnim potrebama studenata (Haroud & Saqri, 2025). Osim toga, veštačka inteligencija omogućava automatizaciju rutinskih obrazovnih zadataka, kao što su ocenjivanje radova i praćenje angažovanja studenata, čime se nastavnicima ostavlja više prostora za planiranje i realizaciju složenijih nastavnih aktivnosti višeg kognitivnog reda (Barocas *et al.*, 2023; Khan *et al.*, 2022).

Poseban impuls široj primeni i javnom interesovanju za te alate predstavljalo je javno objavljivanje velikog jezičkog modela *ChatGPT* od kompanije *OpenAI* krajem 2022. godine, što je značajno uticalo i na institucije visokog obrazovanja (Mah & Groß, 2024). U tom kontekstu, veliki jezički modeli, zajedno sa analitičkom učenja, prepoznati su kao alati koji nastavnicima omogućavaju unapređeno planiranje nastave i efikasniju raspodelu resursa te sticanje dubljih uvida u procese učenja studenata. Povratne informacije zasnovane na podacima koje ti alati generišu mogu doprineti osmišljenijem nastavnom dizajnu i većoj delotvornosti nastavnog procesa (Crompton & Burke, 2023). Sve to pokazuje da veštačka inteligencija ima potencijal da oblikuje budućnost obrazovanja i stvori prostor za redefinisane nastavničkih uloga i prakse podučavanja i učenja.

U širem smislu, veštačka inteligencija u obrazovanju obuhvata primenu dubokog učenja, neuronskih mreža i logičkih algoritama u nastavnom procesu (Tsai et al., 2020). Njena sposobnost obrade velikih količina podataka i generisanja analitičkih uvida sve se intenzivnije integriše u različite obrazovne nivoe i kontekste. Posebno je značajna njena uloga u visokom obrazovanju, gde doprinosi unapređenju podučavanja i učenja, olakšanom procesu vođenja administrativnih obaveza i podsticanju inovacija. Međutim, ti potencijali zahtevaju pažljivo planiranje i odgovorno upravljanje, budući da visokoškolske institucije često nisu potpuno pripremljene da odgovore na izazove koje donose pitanja etike, privatnosti i ocenjivanja (Ifenthaler, 2017; Kohnke et al., 2023). Zato je za smislenu i humanistički orijentisanu integraciju veštačke inteligencije neophodno aktivno uključiti sve relevantne aktere, uz naglasak na transparentnu komunikaciju i profesionalni razvoj koji podstiču digitalnu pismenost (Chiu et al., 2023; Redecker, 2017). Upravo u tom okviru otvara se prostor za dalju analizu uloge nastavnika u visokom obrazovanju, kao ključnih nosilaca odgovorne i osmišljene primene veštačke inteligencije.

Polazeći od činjenice da tehnološki razvoj sam po sebi ne garantuje kvalitetne obrazovne promene (Senić Ružić, 2021), jasno je da stvarna integracija veštačke inteligencije u obrazovanje zavisi pre svega od nastavnika kao ključnih aktera obrazovne transformacije i njihove namere da te tehnologije primenjuju u praksi (Liu, 2025). Kako naglašava autorka Orlović Lovren, razmatrajući digitalno okruženje, „svi učesnici u njemu suočeni su sa neophodnošću da se promena prilagode i usavrše u tehnološkom pogledu, ali dostignu i neophodan nivo fleksibilnosti u korišćenju raspoloživih digitalnih alata i modifikovanju metoda rada, što se posebno tiče nastavnika ili voditelja” (Orlović Lovren, 2021, str. 70), što postaje posebno značajno u vreme veštačke inteligencije. Iako su perspektive studenata u vezi sa upotrebom veštačke inteligencije u učenju sve zastupljenije u istraživanjima (Delcker et al., 2024; Dragojević & Turudić, 2024; Gašević et al., 2023; Hornberger et al., 2023), uvidi u perspektive nastavnika i dalje su

relativno retki, naročito kada je reč o njihovoj spremnosti za primenu veštačke inteligencije u nastavnoj praksi i interesovanju za stručno usavršavanje u ovoj oblasti. Sprovedena istraživanja pokazuju da nastavnici nisu dovoljno upoznati sa ovim tehnologijama niti spremni za njihovu kvalitetnu primenu (Licardo et al., 2025; McGrath et al., 2023). Nastavnici nisu samo prenosiooci znanja već i uzori studentima u modelovanju primerene i odgovorne upotrebe veštačke inteligencije u obrazovnom kontekstu (Bećirović, 2023; Pratschke, 2024). Njihova spremnost, osposobljenost i samoeфикаsnost imaju presudnu ulogu u razvoju veština 21. veka, uključujući i upotrebu veštačke inteligencije (Long & Magerko, 2020; Ng et al., 2023). U tom smislu, nastavnici kao ključni akteri visokog obrazovanja mogu predstavljati platformu za dijalog o veštačkoj inteligenciji u obrazovanju, obuhvatajući njene mogućnosti i izazove, etička i pitanja privatnosti, implikacije po ocenjivanje, kao i strahove i očekivanja različitih aktera. Saradnja veštačke inteligencije i nastavnika može doprineti značajnim unapređenjima obrazovanja, ali samo ukoliko je nastavnik osnažen da koristi tu tehnologiju, a ne da bude njome zamenjen. Takav stav potvrđuju i nalazi istraživanja iz studentske perspektive, prema kojima najbolji obrazovni ishodi nastaju onda kada veštačka inteligencija preuzima rutinske zadatke, a nastavnik koristi dobijenu podršku kako bi se posvetio razumevanju, komunikaciji i razvoju kompleksnih kompetencija studenata (Akinwalere & Ivanov, 2022; Namatherdhala et al., 2020). U tom smislu je ispitivanje uverenja nastavnika koji se bave vaspitanjem i obrazovanjem ključan korak ka razumevanju stvarnih mogućnosti i ograničenja integracije veštačke inteligencije u visokom obrazovanju jer njihova uverenja direktno utiču na pedagoške odluke, profesionalne prakse i prihvatanje inovacija u nastavnom procesu.

Visokoškolski nastavnici i veštačka inteligencija: od uverenja ka prihvatanju i primeni

U istraživanjima o primeni veštačke inteligencije u obrazovanju dominantan pristup polazi od ispitivanja prihvatanja tehnologije kao preduslova i prediktora njene upotrebe u praksi podučavanja i učenja. Autori na različite načine istražuju prihvaćenost, primenjujući različite već razvijene modele prihvatanja tehnologije, poput *TAM*, *UTAUT*, *UTAUT2* (Cabero-Almenara et al., 2024; Rahiman & Kodikal, 2024), *WST* (Polak et al., 2022); inovirane modele prilagođene upotrebi veštačke inteligencije, ili kroz kreiranje i testiranje novih modela kombinovanjem različitih teorijskih pristupa (Ofosu Ampong, 2024). Svim ovim modelima je zajedničko traganje za faktorima koji utiču na prihvatanje, a time i primenu digitalnih tehnologija i veštačke inteligencije u obrazovnom kontekstu. Imajući u

vidu da su nastavnici ključni donosioci odluka o izboru tehnologije i alata koji se upotrebljavaju u podučavanju, autor Ofosu Ampong ističe da je od ključne važnosti upravo njihovo prihvatanje tehnologije koja je zasnovana na veštačkoj inteligenciji (Ofosu Ampong, 2024). Kako navodi autor Liu, „istraživanja o spremnosti univerzitetskih nastavnika da usvoje tehnologiju veštačke inteligencije ostaju relativno ograničena”, naglašavajući da se primena iznad pomenutih modela ograničava na percepciju nastavnika o upotrebljivosti tehnologije, a manje na ulogu individualnih, subjektivnijih faktora u njenom prihvatanju (Liu, 2025, str. 2). S druge strane, pojedini empirijski nalazi pokazuju da su odnos nastavnika prema veštačkoj inteligenciji, njihovi stavovi, a posebno namere korišćenja naj-snažniji prediktori stvarne primene veštačke inteligencije u podučavanju (Ofosu Ampong, 2024; Rahiman & Kodikal, 2024).

I van konteksta veštačke inteligencije, namere nastavnika se vide kao ključne determinatne njihovog ponašanja. U konceptu nastavnih perspektiva Danijela Prata uspostavlja se relacija između uverenja, namera i aktivnosti, pri čemu se uverenja sagledavaju kao ključni faktor u oblikovanju nastavničkih namera, koje zajedno sa njima utiču na ponašanje nastavnika u praksi podučavanja (Pratt et al., 2016). Da li ćemo nešto uraditi, zavisi od naše namere, ali da li ćemo uopšte nameravati da nešto uradimo, zavisi od toga kakva uverenja o tom fenomenu imamo. Brojna druga istraživanja u oblasti obrazovanja pokazuju da uverenja nastavnika imaju znatan uticaj na njihova ponašanja (Dirkx & Spurgin, 1992, Pratt, 1992, prema Taylor, 2002; Taylor et al., 2001; Pajares, 1992; Conti, 2007; Kagan, 1992). Važno je naglasiti da je reč o sistemu uverenja koji se odnosi na različite elemente i segmente procesa podučavanja i učenja, koji se razvijaju pod uticajem i teorijskih znanja i iskustveno stečenih znanja na osnovu kojih nastavnici uviđaju šta u praksi „radi”. Tako pojedini autori svoja istraživanja fokusiraju na vezu između pedagoških uverenja i prihvatanja i korišćenja tehnologije u obrazovanju, pri čemu je utvrđeno da uverenja o učenju i podučavanja bliža određenoj teorijskog perspektivi, poput konstruktivističke, doprinose učestalosti i načinu primene IKT-a i lakšem prihvatanju tehnoloških inovacija (prema Cabero-Alme-nara et al., 2024). Uz to, istraživanja u oblasti veštačke inteligencije potvrđuju da njena primena zavisi od uverenja koje nastavnik o tom fenomenu ima (Choi et al., 2023, prema Ofosu Ampong, 2024).

Imajući u vidu široke mogućnosti implementacije veštačke inteligencije i njen uticaj na sve segmente procesa podučavanja i učenja koje smo ranije opisali, smatramo da je moguće posmatrati je kao sastavni element procesa podučavanja, koji ulazi u interakciju sa svim ostalim elementima tog procesa. Veštačka inteligencija „transformiše tradicionalni odnos nastavnik – učenik u dinamiku nastavnik – veštačka inteligencija – učenik” (UNESCO, 2024). U tom smislu,

nije dovoljno istraživati vezu između uverenja o učenju i podučavanju i upotrebe veštačke inteligencije već fokus treba usmeriti na uverenja nastavnika upravo o veštačkoj inteligenciji u obrazovanju i stepenu njene prihvaćenosti i primene.

Metodološki okvir

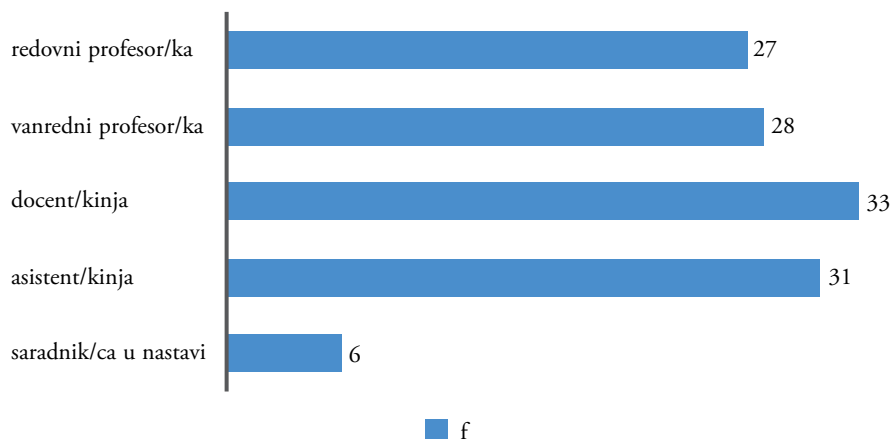
Da bismo ispitili uverenja visokoškolskih nastavnika o veštačkoj inteligenciji, istraživanje je vođeno sledećim istraživačkim zadacima:

- 1) mapirati stanje u primeni veštačke inteligencije od strane visokoškolskih nastavnika ispitivanjem učestalosti i načina na koji visokoškolski nastavnici koriste veštačku inteligenciju i kakvu podršku u tome imaju;
- 2) ispitati uverenja visokoškolskih nastavnika o primeni veštačke inteligencije u obrazovanju na osnovu njihovih procena saglasnosti sa odgovarajućim tvrdnjama;
- 3) ispitati razlike u proceni uverenja u odnosu na različite varijable (nastavno zvanje, fakultet na kojem su zaposleni, učestalost primene veštačke inteligencije, segmenti posla u kojima primenjuju veštačku inteligenciju, obučenosť za primenu i institucionalne podrške).

Istraživanjem je obuhvaćeno 125 nastavnika koji se bave pitanjima obrazovanja i vaspitanja sa osam visokoškolskih institucija u Srbiji (Tabela 1). Od toga, 78,4% uzorka čine žene, a samo 21,6% ispitanici muškog pola. Prosečna starost ispitanika je 43,2 godine, sa standardnim odstupanjem od 9,97. Najmlađi ispitanik ima 26 godine, a najstariji 65. U odnosu na trenutno nastavno zvanje ispitanici u uzorku su približno isto zastupljeni (Grafik 1), sa izuzetkom saradnika u nastavi, kojih je samo šest.

Tabela 1. Distribucija ispitanika prema fakultetu na kome su zaposleni

Fakultet	f	%
Filozofski fakultet Univerziteta u Beogradu	33	26.4
Fakultet za obrazovanje učitelja i vaspitača Univerziteta u Beogradu	33	26.4
Filozofski fakultet Univerziteta u Novom Sadu	10	8.0
Pedagoški fakultet Univerziteta u Novom Sadu	21	16.8
Filozofski fakultet Univerziteta u Nišu	7	5.6
Fakultet pedagoških nauka Univerziteta u Kragujevcu (Jagodina)	20	16.0
Pedagoški fakultet Užice, Univerzitet u Kragujevcu	1	.8
N=125		



Grafik 1. Distribucija ispitanika prema nastavnom zvanju

U istraživanju je korišćena analitičko-deskriptivna metoda, a za prikupljanje podataka tehnika anketiranja. Visokoškolskim nastavnicima koji su zaposleni na fakultetima koji se bave pitanjima obrazovanja i vaspitanja upitnik je distribuiran elektronskim putem. Upitnik su činila pitanja otvorenog i zatvorenog tipa za ispitivanje nezavisnih varijabli (nastavnog zvanja, fakulteta na kojem su zaposleni, učestalosti primene veštačke inteligencije, segmenata posla u kojima primenjuju veštačku inteligenciju, obučenosti za njenu primenu i institucionalne podrške u primeni veštačke inteligencije), kao i trostepena skala procene (1 – ne slažem se, 2 – neutralan/na sam, 3 – slažem se) sa 12 stavki kojim se ispituju uverenja visokoškolskih nastavnika o primeni veštačke inteligencije u obrazovanju. Skala je preuzeta iz instrumenta autora Ofosua Amponga (Ofosu Ampong, 2024). Pouzdanost skale je proverena primenom Kronbahove alfe. Negativno formulisane stavke na kojima viši skor odražava nepoverenje u koristi veštačke inteligencije u obrazovanju rekodirane su pre izračunavanja pouzdanosti, kako bi viši skor dosledno označavao pozitivnija uverenja. Korigovana korelacija stavke sa ukupnim skorom i vrednost Kronbahovog alfa koeficijenta nakon izbacivanja stavki ukazala je na potrebu da se stavka *Verujem da će problemi sa internet vezom i nedostatak obučavanja ometati primenu veštačke inteligencije* izostavi iz skale. Pouzdanost skale nakon izbacivanja stavke bila je zadovoljavajuća ($\alpha = 0,73$). Informacije o korelaciji između stavki i eksplanatorna faktorska analiza pokazuju da skala nije jednodimenzionalna, da se uverenja nastavnika o veštačkoj inteligenciji diferenciraju u više tematskih domena – uverenja o obrazovnom potencijalu veštačke inteligencije, uverenja u čijom fokusu nije pedagoška korist već širi okvir u kome se ona implementira (poverenje u univerzitetske regulacije, ali i svest o potencijalnim društvenim rizicima), kao i uverenja o profesiji nastavnika u vreme veštačke inteligencije. Imajući u vidu cilj i

domete ovog istraživanja, dalja analiza je rađena na nivou pojedinačnih stavki uz uvažavanja ovih domena u interpretaciji podataka. Treba sprovesti dodatne postupke provjere validnosti i pouzdanosti korišćene skale. U analizi pojedinačnih stavki prikazane su originalne vrednosti radi očuvanja semantičkog značenja tvrdnji.

Podaci su prikupljeni 2025. godine i obrađeni putem *IBM SPSS Statistics*, v. 26. Za obradu podataka korišćeni su deskriptivna statistika, jednofaktorska analiza varijanse za neponovljena merenja (*ANOVA*), *post hoc* analiza i Pirsonov koeficijent korelacije.

Rezultati istraživanja

Prvi zadatak našeg istraživanja obuhvatio je mapiranje stanja u primeni veštačke inteligencije od visokoškolskih nastavnika. Pre svega nas je interesovala učestalost korišćenja veštačke inteligencije. Kao što pokazuju podaci u Tabeli 2, nastavnici obuhvaćeni našim uzorkom imaju iskustva u korišćenju veštačke inteligencije, dok neznatan broj ispitanika nikada nije koristio ovu tehnologiju.

Tabela 2. Učestalost korišćenja VI

Učestalost korišćenja VI	f	%	CF%
Nikada nisam koristio/la veštačku inteligenciju.	6	4,8	4,8
Retko je koristim (nekoliko puta godišnje).	17	13,6	18,4
Povremeno je koristim (1–2 puta mesečno).	40	32,0	50,4
Često je koristim (na nedeljnom nivou).	39	31,2	81,6
Svakodnevno je koristim.	23	18,4	100,0
N=125			

Većina ispitanika (80,8%) koristi veštačku inteligenciju u svom poslu, i to u različitim segmentima. Najviše se koristi u istraživačkom radu (52,8% ispitanika je koristi u tom segmentu), a zatim u pripremi nastave (45,6%). Nemali broj ispitanika koristi je za administrativne poslove (37,6%) i kreiranje studentskih zadataka (32,8%). Za razliku od toga, samo nekolicina ispitanika koristi veštačku inteligenciju u realizaciji nastave (11,2%), a najmanje u evaluaciji (7,2%). Pojedini ispitanici navodili su i druge segmente odnosno načine na koje koje koriste veštačku inteligenciju u svom poslu, među kojima su: *lektorisanje i tehničko uređenje teksta, editovanje teksta, kreativno vizuelno stvaralaštvo, kreiranje klipova, kreiranje neuronskih mreža i hibridnih modela AI*.

Od alata veštačke inteligencije najčešće primenjuju *ChatGPT*, a čak 47 ispitanika (37,6%) koristi samo tu alatku. Ostali, osim *ChatGPT*-a, koriste ra-

znovrsne alate, na primer: *DeepSeek, Canva, Grok AI, Perchance, InstaText, Gemini, Sora, AnswerThis, AI Studio, Freepik, Suno, Leonardo.Ai, Grammarly, Copilot, Anara, Elicit, Scite, Claude AI, NightCafe, HeyGen, Consensus, Justdown, Perplexity, Qwen, Diffit for Teachers, Zotero+AI, NotebookLM...*

Bez obzira na učestalost i raznovrsnost poslova u kojima koriste veštačku inteligenciju, samo 28 (22,4%) ispitanika se usavršavalo za njenu primenu. Najčešće se usavršavaju samostalno (kroz samostalno istraživanje, isprobavanje, praćenje relevantnih *You Tube* kanala), zatim u razmeni sa kolegama (razgovori sa kolegama, povezivanje sa kolegama iz inostranstva), na međunarodnim konferencijama, pomoću stručne literature, a pojedini i kroz različite programe obučavanja i usavršavanja (poput *CRAIE, Digitalna kompetencija nastavnika, Women go tech*, vebinari za pedagoge itd.).

Takođe, samo 28 ispitanika (22,4%) ima podršku u primeni veštačke inteligencije u svojoj instituciji. Najčešće je reč o obrazovnoj podršci, ali i o obezbeđenom pristupu različitim alatima. Ispitanici koji imaju institucionalnu podršku većinom dolaze iz iste visokoškolske ustanove koja ima *Centar za robotiku i veštačku inteligenciju u obrazovanju*, a koji po rečimu jednog ispitanika „*obezbeđuje pristup relevantnim alatima i tehnologijama, stručnu i savetodavnu podršku za njihovu primenu u nastavi i istraživanju, kao i organizovanje obuka, radionica i profesionalnog usavršavanja nastavnika. Pored toga, razvijene su interne smernice i preporuke za etičku i odgovornu upotrebu veštačke inteligencije, uz kontinuiranu podršku u pedagoškoj i metodološkoj integraciji AI u obrazovni proces*”.

Drugi zadatak našeg istraživanja ticao se uverenja visokoškolskih nastavnika o primeni veštačke inteligencije u obrazovanju. U Tabeli 3 dat je pregled procena za pojedinačne stavke skale obuhvaćene analizom.

Tabela 3. Prosečne procene uverenja visokoškolskih nastavnika o primeni veštačke inteligencije u obrazovanju

Uverenja	Min	Max	AS	SD
Veštačka inteligencija doprinosi efikasnosti.	1	3	2,77	.49
Veštačka inteligencija pokreće korišćenje novih tehnologija i rešenja u obrazovanju.	1	3	2,66	.61
Verujem da se alati veštačke inteligencije mogu prilagoditi da podrže lokalne jezike i kulturne kontekste.	1	3	2,64	.56
Verujem da integracija alata veštačke inteligencije u obrazovanju može pomoći studentima u razvoju digitalne pismenosti i digitalnih veština.	1	3	2,61	.65
Verujem da veštačka inteligencija može poboljšati rezultate učenja nudeći adaptivne platforme za učenje.	1	3	2,54	.64
Veštačka inteligencija doprinosi individualizaciji učenja.	1	3	2,35	.71

Uverenja	Min	Max	AS	SD
Verujem da je veštačka inteligencija snažna alatka za rešavanje kompleksnih problema.	1	3	2,18	.72
Verujem da prihvatanje veštačke inteligencije može pogoršati postojeće nejednakosti (u osiguravanju jednakog pristupa alatima veštačke inteligencije).	1	3	2,10	.73
Kada alati veštačke inteligencije budu dostupni i odobreni od univerziteta/fakulteta, biće bezbedni za primenu.	1	3	1,83	.72
Veštačka inteligencija može dovesti do gubitka posla nastavnika.	1	3	1,36	.66
Veštačka inteligencija će rešiti problem nedostatka nastavnika.	1	3	1,08	.33

N=125

Dobijeni rezultati pokazuju da visokoškolski nastavnici imaju pretežno pozitivna uverenja o obrazovnim potencijalima veštačke inteligencije. Najviše veruju u potencijal veštačke inteligencije da doprinese efikasnosti i u mogućnosti da podstakne korišćenje novih tehnologija i rešenja u obrazovanju. Pozitivna uverenja prepoznaju se i u različitim koristima primene veštačke inteligencije za studente – unapređenje njihove digitalne pismenosti i unapređenje rezultata učenja kroz adaptivne platforme za učenje. Uz to, relativno visoke procene date su i za uverenje o mogućnostima prilagođavanja alata veštačke inteligencije lokalnim i kulturnim kontekstima. Takvi nalazi pre svega ukazuju na to da visokoškolski nastavnici prvenstveno veruju u moć veštačke inteligencije da doprinese efikasnosti i inoviranja visokog obrazovanja, ali i da njena primena može da doprinese prilagođavanju učenja i kompetencijama studenata. S druge strane, kada je reč o obrazovnim potencijalima, nastavnici su indiferentni prema mogućnostima veštačke inteligencije da doprinese individualizaciji učenja i rešavanju kompleksnih problema. Veće standardne devijacije u tim tvrdnjama pokazuju da se nastavnici međusobno značajno razlikuju po ovim uverenjima.

U slučaju tvrdnji koje se odnose na šire institucionalne i socijalne uslove i rizike, podaci ukazuju na to da je većina nastavnika indiferentna, ali i da određeni deo izražava bojazan u vezi sa tim pitanjima. Deo nastavnika veruje da primena veštačke inteligencije nosi socijalne i etičke izazove, o čemu svedoče prosečne procene i standardne devijacije uverenja da ta tehnologija može pogoršati postojeće nejednakosti u obrazovanju. Niže prosečne vrednosti zabeležene su za uverenje da će alati veštačke inteligencije, kada budu institucionalno odobreni, biti bezbedni za primenu. Imajući u vidu da većina nastavnika nema institucionalnu podršku u primeni veštačke inteligencije u visokom obrazovanju, ne čudi to što postoji nepoverenje prema institucionalnim mehanizmima regulacije u toj oblasti.

Ukoliko se pogledaju uverenja koja su dobila najniže procene – uverenje da veštačka inteligencija može dovesti do gubitka posla nastavnika i da može rešiti problem nedostatka nastavnika, jasno je da nastavnici imaju izraženo nepoverenje u implikacije veštačke inteligencije na profesiju nastavnika i da veruju da veštačka inteligencija može biti jedan od elemenata, nastavnih alata ili resursa u podučavanju i učenju, ali da uloga nastavnika i dalje ostaje od presudnog značaja.

Osim mapiranja opšteg stanja u primeni veštačke inteligencije od visokoškolskih nastavnika koji se bave pitanjima obrazovanja i vaspitanja, kao i sticanja uvida u njihova uverenja o tom pitanju, zanimalo nas je i da li uverenja nastavnika variraju u odnosu na određene faktore poput nastavnog zvanja, učestalosti primene veštačke inteligencije, segmenata posla u kojima se primenjuje, obučenosti i institucionalne podrške u primeni.

Dok uverenja nastavnika ne variraju u odnosu na nastavno zvanje, fakultet na kome su ispitanici zaposleni pravi razliku samo u proceni jednog uverenja: *Verujem da veštačka inteligencija može poboljšati rezultate učenja nudeći adaptivne platforme za učenje* ($F = 2.637$, $df = 5$, $p = .027$). U svojim procenama izdvajaju se zaposleni na Filozofskom fakultetu u Novom Sadu (videti Tabelu 4 i Tabelu 5) koji snažno veruju u efekat koji adaptivne platforme za učenje imaju na rezultate učenja. Osim njih, uverenja zaposlenih na Fakultetu za obrazovanje učitelja i vaspitača Univerziteta u Beogradu o tom pitanju značajno su pozitivnija u odnosu na zaposlene na Fakultetu pedagoških nauka Univerziteta u Kragujevcu (Tabela 4 i Tabela 5).

Tabela 4. Prosečne procene uverenja *Verujem da veštačka inteligencija može poboljšati rezultate učenja nudeći adaptivne platforme za učenje* u odnosu na fakultet na kome su ispitanici zaposleni

Fakultet	N	M	SD
Filozofski fakultet Univerziteta u Beogradu	33	2,45	.71
Fakultet za obrazovanje učitelja i vaspitača Univerziteta u Beogradu	33	2,73	.57
Filozofski fakultet Univerziteta u Novom Sadu	10	2,90	.32
Pedagoški fakultet Univerziteta u Novom Sadu	21	2,38	.67
Filozofski fakultet Univerziteta u Nišu	7	2,71	.49
Fakultet pedagoških nauka Univerziteta u Kragujevcu (Jagodina)	20	2,25	.64
Filozofski fakultet Univerziteta u Beogradu	33	2,45	.71

N=124 (iz analize je izuzet Fakultet pedagoških nauka u Užicu jer je u istraživanju učestvovao samo jedan ispitanik sa tog fakulteta)

Tabela 5. Razlike u proceni uverenja *Verujem da veštačka inteligencija može poboljšati rezultate učenja nudeći adaptivne platforme za učenje u odnosu na fakultet* – ANOVA Post hoc LSD test

Nastavno zvanje		<i>MD (I-J)</i>	<i>SE</i>	<i>p</i>
Filozofski fakultet Univerziteta u Novom Sadu	Filozofski fakultet u Beogradu	.445*	.225	.050
	Fakultet za obrazovanje učitelja i vaspitača Univerziteta u Beogradu	.519*	.239	.032
	Fakultet pedagoških nauka Univerziteta u Kragujevcu	.650*	.241	.008
Fakultet za obrazovanje učitelja i vaspitača Univerziteta u Beogradu	Fakultet pedagoških nauka Univerziteta u Kragujevcu	.477*	.176	.008

*Statistička značajnost na nivou 0,05

Učestalost primene veštačke inteligencije je faktor koji oblikuje više uverenja, i to:

- uverenje da veštačka inteligencija doprinosi efikasnosti ($F = 6.665$, $df = 4$, $p = .000$);
- uverenje da veštačka inteligencija doprinosi individualizaciji ($F = 4.059$, $df = 4$, $p = .004$);
- uverenje da je veštačka inteligencija snažna alatka za rešavanje kompleksnih problema ($F = 3.865$, $df = 4$, $p = .005$).

Naknadnom *post hoc* analizom utvrđeno je da se razlike u procenama tih uverenja javljaju između onih nastavnika koji nikada ne koriste ili retko koriste veštačku inteligenciju i onih koje je primenjuju učestalije, pa gotovo i svakodnevno (Tabela 6). Prosečne procene (Tabela 7) grupa između kojih postoje razlike pokazuju da oni nastavnici koji učestalije koriste veštačku inteligenciju više veruju u doprinos koji ona može da ima u efikasnosti i individualizaciji učenja, kao i u rešavanju kompleksnih problema. Ti podaci pokazuju da se prihvatanje i razvoj uverenja o obrazovnim potencijalima veštačke inteligencije razvijaju shodno njenoj upotrebi.

Tabela 6. Razlike u proceni uverenja u odnosu na učestalost primene – ANOVA Post hoc LSD test

Uverenje	Učestalost primene		<i>MD (I-J)</i>	<i>SE</i>	<i>p</i>
Veštačka inteligencija doprinosi efikasnosti.	Nikada nisam koristio/la veštačku inteligenciju.	Povremeno je koristim (1–2 puta mesečno).	-.558*	.199	.006
		Često je koristim (na nedeljnom nivou).	-.756*	.199	.000
		Svakodnevno je koristim.	-.790*	.208	.000
	Retko je koristim (nekoliko puta godišnje).	Često je koristim (na nedeljnom nivou).	-.452*	.132	.001
		Svakodnevno je koristim.	-.486*	.145	.001
		Povremeno je koristim (1–2 puta mesečno).	-.232	.119	.054
Veštačka inteligencija doprinosi individualizaciji učenja.	Retko je koristim (nekoliko puta godišnje).	Često je koristim (na nedeljnom nivou).	-.418*	.197	.036
		Svakodnevno je koristim.	.616*	.311	.050
		Retko je koristim (nekoliko puta godišnje).	.841*	.217	.000
	Povremeno je koristim (1–2 puta mesečno).	Često je koristim (na nedeljnom nivou).	.483*	.177	.007
		Često je koristim (na nedeljnom nivou).	.424*	.178	.019
		Često je koristim (na nedeljnom nivou).	.424*	.178	.019
Verujem da je veštačka inteligencija snažna alatka za rešavanje kompleksnih problema.	Retko je koristim (nekoliko puta godišnje).	Često je koristim (na nedeljnom nivou).	-.602*	.200	.003
		Svakodnevno je koristim.	-.772*	.220	.001
	Povremeno je koristim (1–2 puta mesečno).	Svakodnevno je koristim.	-.428*	.180	.019

* Statistička značajnost na nivou 0,05

Tabela 7. Prosečne procene uverenja u odnosu na učestalost primene veštačke inteligencije

Uverenje	Učestalost primene VI	N	M	SD
Veštačka inteligencija doprinosi efikasnosti.	Nikada nisam koristio/la veštačku inteligenciju.	6	2,17	.75
	Retko je koristim (nekoliko puta godišnje).	17	2,47	.62
	Povremeno je koristim (1–2 puta mesečno).	40	2,73	.51
	Često je koristim (na nedeljnom nivou).	39	2,92	.35
	Svakodnevno je koristim.	23	2,96	.21
Veštačka inteligencija doprinosi individualizaciji učenja.	Nikada nisam koristio/la veštačku inteligenciju.	6	2,17	.75
	Retko je koristim (nekoliko puta godišnje).	17	1,94	.75
	Povremeno je koristim (1–2 puta mesečno).	40	2,30	.65
	Često je koristim (na nedeljnom nivou).	39	2,36	.74
	Svakodnevno je koristim.	23	2,78	.52
Verujem da je veštačka inteligencija snažna alatka za rešavanje kompleksnih problema.	Nikada nisam koristio/la veštačku inteligenciju.	6	2,33	.52
	Retko je koristim (nekoliko puta godišnje).	17	1,71	.69
	Povremeno je koristim (1–2 puta mesečno).	40	2,05	.75
	Često je koristim (na nedeljnom nivou).	39	2,31	.66
	Svakodnevno je koristim.	23	2,48	.67

N=125

Analiza varijanse je pokazala i da različiti segmenti posla u kojima se primenjuje veštačka inteligencija prave razliku u procenama različitih uverenja u smeru snažnijih uverenja u njene mogućnosti i efekte u podučavanju i učenju – efikasnost, individualizaciju učenja, koristi adaptivnih platformi za učenje, poboljšanje digitalne pismenosti studenata i mogućnosti prilagođavanja te tehnologije lokalnom i kulturnom kontekstu. Iskustvo upotrebe veštačke inteligencije za pripremu nastave ostvaruje efekte na najveći broj uverenja, što je jedan i od najčešćih segmenata posla u kojima visokoškolski nastavnici koriste tu tehnologiju. Nastavnici koji koriste veštačku inteligenciju u pripremi nastave u većoj meri veruju da ona:

- doprinosi efikasnosti rada ($F = 9.551$; $p = .002$);
- podržava individualizaciju učenja ($F = 11.622$; $p = .001$);
- unapređuje ishode učenja kroz adaptivne platforme ($F = 13.336$; $p < .001$);
- doprinosi razvoju digitalne pismenosti studenata ($F = 5.574$; $p = .020$);
- može se prilagoditi lokalnim jezicima i kulturnim kontekstima ($F = 6.067$; $p = .015$).

Različiti segmenti posla pokazali su se kao faktor koji oblikuje ne samo uverenja o obrazovnim potencijalima veštačke inteligencije već i ona uverenja koja se odnose na širi institucionalni i društveni okvir za njenu implementaciju i

odnos prema profesiji nastavnika. Zanimljivo je to što je u segmentu primene veštačke inteligencije u istraživačkom radu pronađena statistički značajna razlika na nivou uverenja koja se tiču institucionalnih regulacija ($F = 6.431$; $p = .012$), pri čemu ispitanici koji je koriste u istraživačkom radu više veruju u njenu bezbednu primenu bez potrebe za eksternim institucionalnim odobravanjem i verifikovanjem njene bezbednosti. Takođe, nastavnici koji koriste veštačku inteligenciju u pripremi nastave izražavaju manju bojazan zbog rizika da veštačka inteligencija produbljuje nejednakosti ($F = 4.412$; $p = .038$), dok oni koji je koriste u administrativnim poslovima u manjoj meri percipiraju rizik od gubitka posla nastavnika ($F = 8.022$; $p = .005$).

Pokazalo se da je usavršavanje za primenu veštačke inteligencije značajno za razvoj uverenja visokoškolskih nastavnika o:

- doprinosu veštačke inteligencije individualizaciji učenja ($F = 8.068$, $df = 1$, $p = .005$);
- pozitivnom efektu koje adaptivne platforme za učenje mogu imati na rezultate učenja ($F = 9.663$, $df = 1$, $p = .002$);
- veštačkoj inteligenciji kao snažnom alatu za rešavanje kompleksnih problema ($F = 9.658$, $df = 1$, $p = .002$);
- mogućnostima adaptibilnosti veštačke inteligencije lokalnim jezicima i kulturnim kontekstima ($F = 13.333$, $df = 1$, $p = .000$).

Poredeći prosečne procene tih uverenja između onih nastavnika koji su se usavršavali za primenu veštačke inteligencije i onih koji nisu (Tabela 8), zaključuje se da različiti vidovi usavršavanja (bilo organizovani, samoinicijativni i samostalni) dovode do pozitivnijih uverenja nastavnika o dometu njenih obrazovnih potencijala.

Tabela 8. Prosečne procene uverenja u odnosu na usavršavanje u oblasti primene veštačke inteligencije

Uverenje	Usavršavanje za primenu VI	N	M	SD
Veštačka inteligencija doprinosi individualizaciji učenja.	Usavršavali su se.	28	2,68	.61
	Nisu se usavršavali	97	2,26	.71
Verujem da veštačka inteligencija može poboljšati rezultate učenja nudeći adaptivne platforme za učenje.	Usavršavali su se.	28	2,86	.45
	Nisu se usavršavali.	97	2,44	.66
Verujem da je veštačka inteligencija snažna alatka za rešavanje kompleksnih problema.	Usavršavali su se.	28	2,54	.58
	Nisu se usavršavali.	97	2,07	.73
Verujem da se alati veštačke inteligencije mogu prilagoditi da podrže lokalne jezike i kulturne kontekste.	Usavršavali su se.	28	2,96	.19
	Nisu se usavršavali.	97	2,55	.60

Institucionalna podrška takođe pravi razlike u procenama visokoškolskih nastavnika o doprinosu veštačke inteligencije individualizaciji učenja ($F = 8.068$, $df = 1$, $p = .005$) i verovanju u veštačku inteligenciju kao snažnu alatku za rešavanje kompleksnih problema ($F = 4.579$, $df = 1$, $p = .034$). Na osnovu prosečnih procena (Tabela 9), vidimo i u ovom slučaju da podrška doprinosi pozitivnijim uverenjima o pomenutim snagama i mogućnostima primene veštačke inteligencije u obrazovanju. Za razliku od prethodnih faktora, ispostavlja se da je institucionalna podrška značajna i za uverenje o mogućnostima veštačke inteligencije u rešavanju problema nedostatka nastavnika ($F = 6.377$, $df = 1$, $p = .013$), pri čemu oni koji imaju institucionalnu podršku imaju malo pozitivnija uverenja o kapacitetima veštačke inteligencije u ovom segmentu, mada i dalje izražavaju pretežno neslaganje.

Tabela 9. Prosečne procene uverenja u odnosu na postojanje institucionalne podrške za primenu veštačke inteligencije

Uverenje	Institucionalna podrška	N	M	SD
Veštačka inteligencija doprinosi individualizaciji učenja.	Imaju institucionalnu podršku.	28	2,68	.55
	Nemaju institucionalnu podršku.	97	2,26	.73
Verujem da je veštačka inteligencija snažna alatka za rešavanje kompleksnih problema.	Imaju institucionalnu podršku.	28	2,43	.57
	Nemaju institucionalnu podršku.	97	2,10	.74
Veštačka inteligencija će rešiti problem nedostatka nastavnika.	Imaju institucionalnu podršku.	28	1,21	.50
	Nemaju institucionalnu podršku.	97	1,04	.25

Diskusija

Rezultati sprovedenog istraživanja pružaju uvid u stanje i perspektive visokoškolskih nastavnika o primeni veštačke inteligencije u podučavanju i otvaraju prostor za razmatranje potreba i mogućnosti unapređenja njene primene u visokom obrazovanju.

Na osnovu dobijenih podataka može se uočiti da većina visokoškolskih nastavnika obuhvaćenih uzorkom učestalo primenjuje veštačku inteligenciju u svom poslu. Slične tendencije su uočljive i u istraživanjima sprovedenim u drugim zemljama. Tako, studija sprovedena na uzorku visokoškolskih nastavnika iz Slovenije, sa fakulteta koji obrazuju buduće nastavnike, pokazuje takođe da najveći udeo nastavnika koristi veštačku inteligenciju povremeno (2–3 puta mesečno), uz izraženu disperziju odgovora koja ukazuje na to da nezanemarljiv broj nastavnika tu tehnologiju integriše gotovo svakodnevno u svoju profesionalnu

delatnost (Licardo et al., 2025). Za razliku od toga, istraživanje sprovedeno u Srbiji na uzorku od 312 univerzitetskih nastavnika pokazuje da čak 41,7% ispitanika ne primenjuje tu tehnologiju u podučavanju (Popović Šević et al., 2025). Poredeći te podatke, čini se ipak da su oni čija uloga nije samo nastavnička nego i uloga profesionalaca koji se bave pitanjima obrazovanja i vaspitanja skloniji upotrebi veštačke inteligencije u nastavnom procesu.

Osim relativno učestalog korišćenja, rezultati našeg istraživanja pokazuju da se veštačka inteligencija primenjuje i u različitim segmentima nastavničkog posla, mada je njena upotreba najviše izražena u fazi pripreme nastave. Teorijska razmatranja upotrebe veštačke inteligencije u obrazovanju ukazuju na širok spektar mogućnosti za njenu primenu u svim fazama procesa podučavanja – od planiranja i realizacije nastave, preko adaptivnih i tutoring sistema za učenje, pružanja povratnih informacija i ocenjivanja, do administrativnih zadataka nastavnika. Ipak, rezultati pokazuju da visokoškolski nastavnici koriste tek ograničen deo tih mogućnosti, što ukazuje na to da, uprkos visokoj učestalosti korišćenja, stvarni potencijal veštačke inteligencije ostaje u velikoj meri neiskorišćen.

U istraživanju koje su sproveli Popović Šević i saradnici, dobijen je podatak da više od polovine univerzitetskih nastavnika procenjuje svoje poznavanje veštačke inteligencije na bazičnom nivou te da samo 172% ispitanika stiče ta znanja u svojoj instituciji, dok ostali to čine uglavnom samostalnim istraživanjem i praćenjem naučnih publikacija (Popović Šević et al., 2025). I na osnovu rezultata dobijenih našim istraživanjem može se zaključiti da, iako iskusni u primeni veštačke inteligencije, visokoškolski nastavnici su prepušteni sami sebi u usavršavanju u toj oblasti i da podrška u tome izostaje. Takvo stanje doprinosi pomenutom nedovoljnom iskorišćavanju potencijala veštačke inteligencije u visokoškolskom obrazovanju. Potreba za organizovanom obrazovnom podrškom u primeni veštačke inteligencije na visokoškolskom nivou prepoznata je i u drugim istraživanjima (Licardo et al., 2025; McGrath et al., 2023; Popović Šević et al., 2025; Shahzad et al., 2025;).

Opisana praksa primene veštačke inteligencije reflektuje se i u uverenjima visokoškolskih nastavnika. Dobijeni rezultati ukazuju na to da nastavnici obuhvaćeni uzorkom imaju donekle pozitivna uverenja o primeni veštačke inteligencije u obrazovanju, na nivou njenih obrazovnih potencijala. Takvi rezultati su u skladu sa nalazima istraživanja iz drugih zemalja koji ukazuju na optimizam visokoškolskih nastavnika u pogledu njene upotrebe (Firaina & Sulisworo, 2023; Hussain, 2020) i na uverenje da ona može da poboljša procese učenja i podučavanja (Licardo et al., 2025). Ipak dobijeni rezultati u izvesnoj meri odstupaju od istraživanja sprovedenih u Srbiji. Na primer, istražujući stavove dveju grupa univerzitetskih nastavnika – onih koji koriste i onih koji ne koriste *ChatGPT*, autori

navode da se te dve grupe ne razlikuju značajno u percepciji veštačke inteligencije kao alata za podršku u podučavanju: „U ovom slučaju, pored korisnika koji ne koriste ChatGPT, čiji su stavovi uglavnom bili negativni do neutralni, čak su i korisnici ChatGPT-a pretežno izrazili neutralne stavove” (Popović Šević et al., 2025, str. 11). Mada u ovom istraživanju nije konkretizovano o kojim vidovima podrške je reč, možemo reći da naši ispitanici imaju pozitivniji odnos. Dok visokoškolski nastavnici obuhvaćeni našim istraživanjem veruju da veštačka inteligencija ne može da zameni nastavnike ali može da doprinese različitim segmentima procesa učenja i podučavanja, rezultati impliciraju da nastavnici imaju bojazan prema socijalnim i etičkim aspektima primene veštačke inteligencije.

Najviše veruju u potencijal veštačke inteligencije da doprinese efikasnosti i u mogućnost da podstakne korišćenje novih tehnologija i rešenja u obrazovanju. Unapređenje efikasnosti i produktivnosti vrlo često se u teorijskim i empirijskim nalazima navodi kao jedna od najznačajnijih koristi integracije veštačke inteligencije u obrazovni kontekst (Hussain, 2020; Licardo *et al.*, 2025). Snažna uverenja postoje i kada je reč o prilagođavanju alata veštačke inteligencije različitim jezičkim i kulturnim kontekstima, ali i unapređenju digitalne pismenosti studenata.

Za razliku od toga, nastavnici pokazuju indiferentnost prema mogućnostima veštačke inteligencije da doprinese individualizaciji učenja i rešavanju kompleksnih problema. Takav nalaz odstupa od teorijskih promišljanja i dominantnih diskursa o mogućnostima i efektima veštačke inteligencija u obrazovanju. Kontinuirani razvoj i unapređivanje čet-botova, virtuelnih asistenata, adaptivnih sistema za učenje i drugih platformi i alata, kako smo ranije naveli, usmeren je upravo ka kreiranju individualizovanih i podsticajnih obrazovnih okruženja (Haroud & Saqri, 2025). Osim toga, pojedina istraživanja u drugim kontekstima (Hussain, 2020; Ofosu Ampong, 2024) pokazuju da, u odnosu na naš uzorak, drugi visokoškolski nastavnici izražavaju pozitivniji odnos prema mogućnostima veštačke inteligencije u tim segmentima procesa podučavanja i učenja. Veće standardne devijacije zabeležene kod tih uverenja ukazuju takođe na izraženiju heterogenost uverenja nastavnika u potencijale veštačke inteligencije za individualizaciju učenja i rešavanje kompleksnih problema. Takva heterogenost može odražavati razlike u profesionalnim iskustvima i stepenu upoznatosti sa tehnologijama, što je karakteristika i uzorka u ovom istraživanju. Tome u prilog govori i podatak da nastavnici koji učestalije koriste veštačku inteligenciju izražavaju snažnija uverenja ne samo o njenom doprinosu efikasnosti već upravo i o njenoj ulozi u individualizaciji učenja i rešavanju kompleksnih problema. Takvi podaci ukazuju na to da se prihvatanje i razvoj pozitivnih uverenja o obrazovnim potencijalima veštačke inteligencije razvijaju shodno njenoj upotrebi.

Iako se može pretpostaviti da upotreba veštačke inteligencije doprinosi razvoju pozitivnijih uverenja univerzitetskih nastavnika, rezultati ovog istraživanja ukazuju na složeniju prirodu tog odnosa. Naime, nastavnici koji koriste veštačku inteligenciju u pripremi nastave u manjoj meri izražavaju uverenje da ona produbljuje nejednakosti, dok oni koji je primenjuju u administrativnim poslovima slabije percipiraju rizik od gubitka posla nastavnika. Činjenica da su statistički značajne razlike uočene samo u odnosu na pojedine, a ne i očekivane segmente profesionalne primene, otvara važna pitanja za dalju interpretaciju. Ostaje nejasno da li sama upotreba veštačke inteligencije doprinosi smanjenju strahova od gubitka posla i etičkih dilema primene veštačke inteligencije u podučavanju ili pak već postojeća uverenja usmeravaju nastavnike da selektivno primenjuju veštačku inteligenciju u određenim oblastima rada, a da istovremeno izbegavaju druge.

Niske prosečne vrednosti zabeležene su kod uverenja da će alati veštačke inteligencije, kada budu institucionalno odobreni, biti bezbedni za primenu. U kontekstu izostanka institucionalne podrške većini nastavnika u primeni veštačke inteligencije u visokom obrazovanju, nepoverenje prema institucionalnim mehanizmima regulacije u toj oblasti deluje očekivano. Istovremeno, rezultati pokazuju da oni nastavnici koji imaju institucionalnu podršku izražavaju snažnija uverenja o doprinosu veštačke inteligencije individualizaciji učenja i vide je kao snažnu alatku za rešavanje kompleksnih problema. Čini se da nastavnici ne tražaju za formalnim institucionalnim odobrenjem već pre svega za konkretnom institucionalnom podrškom, koja ima ulogu da obezbedi sigurnu i odgovornu primenu veštačke inteligencije u obrazovanju.

Brojna istraživanja potvrđuju da institucionalna podrška, u vidu jasne regulative, obezbeđene infrastrukture, kreiranja podsticajnog okruženja i osnaživanja nastavnika za primenu veštačke inteligencije, predstavlja jedan od ključnih faktora njene uspešne integracije u visoko obrazovanje (Licardo et al., 2025; Liu, 2025; Rahiman & Kodikal, 2024). Kako navode Ajanvale i saradnici, „sprovedenjem obaveznih politika za promociju upotrebe tehnologije veštačke inteligencije, pružanjem resursne podrške i organizovanjem sistematske obuke, škole stvaraju povoljne uslove koji podstiču nastavnike da se aktivno uključe u učenje o tehnologiji veštačke inteligencije, čime se poboljšava njihova pripremljenost za veštačku inteligenciju” (Ayanwale MA et al., 2024, prema Liu, 2025, str. 4). Kako vidimo, institucionalna podrška nema ulogu samo u obezbeđivanju uslova i resursa za integraciju veštačke inteligencije već i u kreiranju kulture korišćenja veštačke inteligencije čime se ostvaruju efekti na odnos nastavnika i „njihovo poverenje u veštačku inteligencije” (Liu, 2025, str. 9), kao i na podsticanje usavršavanja za njenu primenu. Dalji razvoj institucionalne podrške na visokoškolskim

institucijama u našoj zemlji vidi se kao neophodan korak, posebno imajući u vidu uverenja nastavnika koja ukazuju na postojeću i opravdanu zabrinutost za društvene i etičke aspekte primene veštačke inteligencije.

Pokazalo se da je usavršavanje za primenu veštačke inteligencije značajan faktor u razvoju pozitivnih uverenja visokoškolskih nastavnika, što se posebno odnosi na njen doprinos individualizaciji učenja, efekte adaptivnih platformi na ishode učenja, mogućnosti u rešavanju kompleksnih problema i uverenje o razvoju platformi u smeru veće prilagodljivosti lokalnim i kulturnim kontekstima. Bez obzira na oblik usavršavanja, nastavnici koji su razvijali znanja i veštine u oblasti veštačke inteligencije izražavaju snažnija uverenja o njenim potencijalima u ovim domenima. Uzimajući u obzir te i prethodne podatke, jasno je koliko su potrebni i važni kreiranje prilika za usavršavanje u ovoj oblasti i podsticanje visokoškolskih nastavnika da u njima učestvuju. Kako navode MekGrat i saradnici, „univerzitetskim nastavnicima je potrebna obuka kako bi razumeli implikacije veštačke inteligencije na svoje podučavanje i kako bi bili bolje pripremljeni za druge tehnologije koje se primenjuju u visokom obrazovanju” (McGrath et al., 2023, str. 8).

Kada je reč o uverenjima o domenu odnosa prema profesiji nastavnika u vreme veštačke inteligencije, rezultati pokazuju da visokoškolski nastavnici veruju da veštačka inteligencija ne može da zameni nastavnika – da ne može dovesti do gubitka posla niti može da reši problem nedostatka nastavnika. Veštačka inteligencija se percipira kao jedan od elemenata procesa podučavanja, kao alat ili resurs, a ne kao zamena za nastavnika. Saglasnost koja postoji između uverenja visokoškolskih nastavnika i perspektive studenata po ovom pitanju (Akinwale & Ivanov, 2022; Dragojević & Turudić, 2024; Namatherdhala et al., 2020) potvrđuje da obrazovanje uz veštačku inteligenciju ne znači manju potrebu za nastavnikom – naprotiv, ono zahteva njegovu prisutnost više nego ikada, kao garanta kvaliteta, orijentacije i etičnosti u vremenu kada tehnologija oblikuje način na koji učimo i mislimo.

Zaključak

Polazeći od savremenih teorijskih pristupa koji veštačku inteligenciju definišu kao operativni i funkcionalni koncept, a ne kao ontološki ekvivalent ljudskoj inteligenciji (Nilsson, 2009), rezultati ovog istraživanja potvrđuju da se takvo razumevanje u velikoj meri reflektuje i u praksama visokoškolskih nastavnika. U teorijskom delu rada istaknuto je da se veštačka inteligencija u obrazovanju dominantno posmatra kao skup digitalnih sistema i alata zasnovanih na algoritamskoj

obradi podataka, čija pedagoška vrednost zavisi od načina njihove integracije u obrazovni proces (Zawacki-Richter et al., 2019). Empirijski nalazi ovog istraživanja pokazuju da nastavnici veštačku inteligenciju upravo u tom smislu i koriste – pre svega kao podršku istraživačkom radu, pripremi nastave i administrativnim aktivnostima – dok se njeni potencijali u direktnoj realizaciji nastave i evaluaciji učenja koriste znatno ređe.

Ovakav obrazac primene u skladu je sa teorijskim uvidima autora koji pokazuju da se nove tehnologije u obrazovanju u početnim fazama integracije najčešće koriste za unapređenje postojećih praksi, a ne za njihovu suštinsku transformaciju (Selwyn, 2016). Iako literatura naglašava da sistemi zasnovani na veštačkoj inteligenciji mogu doprineti individualizaciji učenja, razvoju adaptivnih obrazovnih okruženja i unapređenju formativne i sumativne evaluacije (Chen, L. et al., 2020; Holmes et al., 2019), rezultati ovog istraživanja pokazuju da se ti pedagoški potencijali u praksi visokoškolskih nastavnika još uvek koriste marginalno. Time se empirijski potvrđuje postojanje jaza između teorijski prepoznatih mogućnosti veštačke inteligencije i načina na koji se ona trenutno implementira u visokom obrazovanju.

Analiza uverenja nastavnika dodatno osvetljava tu diskrepancu. Uverenja ispitanika o veštačkoj inteligenciji pre svega kao sredstvu za unapređenje efikasnosti i razvoj digitalnih kompetencija studenata, ali i verovanje da ona ne može zameniti nastavnika u skladu je sa dominantnim teorijskim pristupima koji veštačku inteligenciju posmatraju kao podršku obrazovnim procesima, a ne kao autonomnog pedagoškog aktera (Coppin, 2004; Whitby, 2008). Ipak, ograničeno poverenje u njene mogućnosti u različitim domenima (obrazovnom radu, širim društvenim uslovima i rizicima te odnosu prema profesiji nastavnika), a posebno u pojedinim segmentima procesa podučavanja i učenja ukazuje na to da u visokom obrazovanju i dalje postoji značajan prostor za preispitivanje nastavnčkih perspektiva neophodnih za promišljenu i sistematsku integraciju veštačke inteligencije.

U celini posmatrano, rezultati ovog istraživanja doprinose razumevanju veštačke inteligencije u visokom obrazovanju kao pedagoški i kontekstualno uslovljenog fenomena, čiji dometi zavise od načina na koji se teorijski koncepti prevode u obrazovne politike i nastavne prakse. Veštačka inteligencija se u perspektivi nastavnika prepoznaje kao moćan, ali nedovoljno iskorišćen resurs, što pokazuje da ključni izazov savremenog visokog obrazovanja nije u prihvatanju tehnologije same po sebi, već u njenoj smisljenoj, kritički promišljenoj i pedagoški utemeljenoj integraciji.

Ovo istraživanje je usmereno na visokoškolske nastavnike koji se profesionalno bave pitanjima obrazovanja i vaspitanja i polazi od pretpostavke da su

upravo njihova uverenja ključna za promišljenu i održivu integraciju veštačke inteligencije u obrazovni kontekst. S obzirom na njihovu ulogu u oblikovanju pedagoških praksi, smernica i profesionalnih diskursa, nepoverenje te grupe u potencijale veštačke inteligencije može predstavljati ozbiljnu prepreku njenoj doslednoj i efikasnoj primeni u praksi. Nalazi prethodnih istraživanja ukazuju na to da podsticajno profesionalno okruženje i kolege koje deluju kao uzori značajno doprinose razvoju osećaja pripremljenosti za primenu veštačke inteligencije (Liu, 2025), što dodatno potvrđuje centralnu ulogu uverenja visokoškolskih nastavnika u širenju promišljene primene tih tehnologija.

Upravo zbog takve uloge visokoškolskih nastavnika, razumevanje njihovih uverenja ne može se ograničiti isključivo na percepciju potencijala veštačke inteligencije, već mora obuhvatiti i njihove kritičke stavove, dileme i zabrinutosti. Naime, uverenja nastavnika se ne oblikuju samo na osnovu očekivanih pedagoških koristi već i kroz procenu rizika, etičkih implikacija i mogućih dugoročnih posledica primene tih tehnologija u obrazovanju. U tom smislu, sve izraženija upotreba alata veštačke inteligencije otvara brojna pitanja koja se odnose na akademski integritet, epistemološku pouzdanost znanja, autonomiju studenata, ali i profesionalni identitet nastavnika. Kao posebno problematični aspekti primene veštačke inteligencije u obrazovanju navode se rizik od prekomernog oslanjanja studenata na alate veštačke inteligencije, smanjenje razvoja kritičkog mišljenja, mogućnost generisanja netačnih ili pristrasnih informacija te nedovoljnu transparentnost algoritamskih procesa (Akinwalere & Ivanov, 2022). Posebno se ističe zabrinutost da nekritička integracija alata veštačke inteligencije može dovesti do transformacije nastavne uloge – od stručnjaka i mentora ka nadzorniku i regulatoru upotrebe tehnologije (Chiu et al., 2023). Osim toga, pitanja zaštite podataka, autorskih prava i algoritamske pristrasnosti dodatno komplikuju profesionalne i etičke okvire delovanja u visokom obrazovanju. Nalazi našeg istraživanja ukazuju na tu etičku dimenziju, budući da su ispitanici izražavali zabrinutost zbog društvenih posledica primene veštačke inteligencije, posebno njenog potencijala da produbljuje postojeće nejednakosti. Takve procene pokazuju da je kritička upotreba alata veštačke inteligencije za nastavnike neraskidivo povezana sa principima pravičnosti i društvene odgovornosti, što dodatno usmerava razmatranje praktičnih implikacija dobijenih rezultata i ukazuje na potrebu za sprovođenjem daljih istraživanja tih pitanja.

Dobijeni rezultati imaju važne praktične implikacije. Pre svega, ukazuju na potrebu za sistematskim i strateški osmišljenim oblicima profesionalnog usavršavanja koji bi visokoškolskim nastavnicima omogućili dublje razumevanje mogućnosti i ograničenja veštačke inteligencije, uz istovremeni razvoj kompe-

tencija i uverenja neophodnih za njenu primenu u procesima podučavanja i učenja. Osim toga, rezultati ukazuju na značaj snažne institucionalne podrške, koja ne obuhvata samo tehničku infrastrukturu i regulatorne okvire već i stvaranje podsticajnog profesionalnog okruženja te mehanizme motivisanja i osnaživanja nastavnika za odgovornu i refleksivnu upotrebu veštačke inteligencije u visokom obrazovanju.

Povezujući teorijska shvatanja veštačke inteligencije sa trenutnim stanjem u praksi i uverenjima visokoškolskih nastavnika, ovaj rad je pružio empirijski utemeljen uvid koji može poslužiti kao polazište za razvoj institucionalnih politika i strategija, programa profesionalnog usavršavanja i modela integracije veštačke inteligencije u savremeno visoko obrazovanje. Time se stvaraju uslovi za razvoj i preispitivanje uverenja visokoškolskih nastavnika, budući da bez promene uverenja nije moguće očekivati ni promenu prakse podučavanja – a naši nalazi pokazuju da je ona potrebna.

Reference

- AKINWALERE, S. N., & IVANOV, V. (2022). Artificial Intelligence in Higher Education: Challenges and Opportunities. *Border Crossing*, 12(1), 1–15. <https://doi.org/10.33182/bc.v12i1.2015>
- BAROCAS, S., HARDT, M., & NARAYANAN, A. (2023). *Fairness and machine learning: Limitations and opportunities*. MIT Press.
- BEĆIROVIĆ, S. (2023). Challenges and barriers for effective integration of technologies into teaching and learning. In *Digital pedagogy: The use of digital technologies in contemporary education* (pp. 123–133). Springer Nature Singapore. https://doi.org/10.1007/978-981-99-0444-0_10
- CABERO-ALMENARA, J., PALACIOS-RODRÍGUEZ, A., LOAIZA-AGUIRRE, M. I., & RIVAS-MANZANO, M.D.R.D. (2024). Acceptance of Educational Artificial Intelligence by Teachers and Its Relationship with Some Variables and Pedagogical Beliefs. *Education Science*, 14: 740. <https://doi.org/10.3390/educsci14070740>
- CHEN, L., CHEN, P., & LIN, Z. (2020). Artificial intelligence in education: A review. *IEEE Access*, 8, 75264–75278. <https://doi.org/10.1109/ACCESS.2020.2988510>
- CHEN, X., XIE, H., & HWANG, G.-J. (2020). A multi-perspective study on Artificial Intelligence in Education: Grants, conferences, journals, software tools, institutions, and researchers. *Computers and Education: Artificial Intelligence*, 1, 100005. <https://doi.org/10.1016/j.caeai.2020.100005>
- CHIU, T. K. F., XIA, Q., ZHOU, X., CHAI, C. S., & CHENG, M. (2023). Systematic literature review on opportunities, challenges, and future research recommendations of artificial intelligence in education. *Computers and Education: Artificial Intelligence*, 4, 100118. <https://doi.org/10.1016/J.CAEAI.2022.100118>

- CONTI, G. J. (2007). Identifying Your Educational Philosophy: Development of the Philosophies Held by Instructors of Lifelong-learners (PHIL). *MPAEA Journal of Adult Education*, 36 (1), 19–37.
- COPPIN, B. (2004). *Artificial Intelligence Illuminated*. USA.
- CORDÓN GARCÍA, O. (2023). Inteligencia Artificial en Educación Superior: Oportunidades y Riesgos. *RiiTE Revista interuniversitaria de investigación en tecnología educativa*, 15, 16–27. <https://doi.org/10.6018/riite.591581>
- CROMPTON, H., & BURKE, D. (2023). Artificial intelligence in higher education: The state of the field. *International Journal of Educational Technology in Higher Education*, 20(1), 1–22. <https://doi.org/10.1186/s41239-023-00392-8>
- DELCKER, J., HEIL, J., IFENTHALER, D., SEUFERT, S., & SPIRGI, L. (2024). First-year students AI-competence as a predictor for intended and de facto use of AI-tools for supporting learning processes in higher education. *International Journal of Educational Technology in Higher Education*, 21(1), 1–13. <https://doi.org/10.1186/s41239-024-00452-7>
- DRAGOJEVIĆ, T., & TURUDIĆ, J. (2024). Upotreba modela ChatGPT u visokom obrazovanju. *Nastava i vaspitanje*, 73(2), 315–325. <https://doi.org/10.5937/nasvas2403315D>
- FIRAINA, R., & SULISWORO, D. (2023). Exploring the Usage of ChatGPT in Higher Education: Frequency and Impact on Productivity. *Buletin Edukasi Indonesia (BEI)*, 2(1), 39–46. <https://doi.org/10.56741/bei.v2i01.310>
- GAŠEVIĆ, D., SIEMENS, G., & SADIQ, S. (2023). Empowering learners for the age of artificial intelligence. *Computers and education: artificial intelligence*, 4, 1–4. <https://doi.org/10.1016/j.caeai.2023.100130>
- HAROUD, S., & SAQRI, N. (2025). Generative ai in higher education: Teachers' and students' perspectives on support, replacement, and digital literacy. *Education Sciences*, 15(4), 396. <https://doi.org/10.3390/educsci15040396>
- HOLMES, W., BIALIK, M., & FADEL, C. (2019). *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*. Center for Curriculum Redesign.
- HORNBERGER, M., BEWERSDORFF, A., & NERDEL, C. (2023). What do university students know about Artificial Intelligence? Development and validation of an AI literacy test. *Computers and Education: Artificial Intelligence*, 5, 100165.
- HUSSAIN, I. (2020). Attitude of University Students and Teachers towards Instructional Role of Artificial Intelligence. *International Journal of Distance Education and E-Learning*, 5(2), 158–178. <https://doi.org/10.36261/IJDEEL.V5I2.1057>
- HWANG, G. J., XIE, H., WAH, B. W., & GAŠEVIĆ, D. (2020). Vision, challenges, roles and research issues of Artificial Intelligence in Education. *Computers and Education: Artificial Intelligence*, 1, <https://doi.org/10.1016/j.caeai.2020.100001>
- IFENTHALER, D. (2017). Are higher Education Institutions prepared for Learning Analytics? *TechTrends*, 61(4), 366–371. <https://doi.org/10.1007/s11528-016-0154-0>
- KAGAN, D. M. (1992). Implications of research on teacher belief. *Educational Psychologist*, 27, 65–90. https://doi.org/10.1207/s15326985ep2701_6

- KHAN, S., ZAMAN, S. I., & RAIS, M. (2022). Measuring student satisfaction through overall quality at business schools: A structural equation modeling: Student satisfaction and quality of education. *South Asian Journal of Social Review*, 1(2), 34–55. <https://doi.org/10.57044/SAJSR.2022.1.2.2210>
- KOHNKE, L., MOORHOUSE, B. L., & ZOU, D. (2023). Exploring generative artificial intelligence preparedness among university language instructors: A case study. *Computers and Education: Artificial Intelligence*. <https://doi.org/10.1016/j.caeai.2023.100156>
- LICARDO, M., KRANJEC, E., LIPOVEC, A., DOLENC, K., ARCET, B., FLOGIE, A., PLAVČAK, D., IVANUŠ GRMEK, M., BEDNJIČKI ROŠER, B., SRAKA PETEK, B., & LAURE, M. (2025). *Generativna umetna inteligenca v izobraževanju: Analiza stanja v primarnem, sekundarnem in terciarnem izobraževanju*. Slovenija: Univerza v Mariboru, Pedagoška fakulteta.
- LIU, N. (2025). Exploring the factors influencing the adoption of artificial intelligence technology by university teachers: the mediating role of confidence and AI readiness, *BMC Psychology*, 13, 311. <https://doi.org/10.1186/s40359-025-02620-4>
- LONG, D., & MAGERKO, B. (2020). What is AI Literacy? Competencies and Design Considerations. Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems, 1–16. <https://doi.org/10.1145/3313831.3376727>
- MAH, D. K., & GROSS, N. (2024). Artificial intelligence in higher education: exploring faculty use, self-efficacy, distinct profiles, and professional development needs. *International Journal of Educational Technology in Higher Education*, 21(1). <https://doi.org/10.1186/s41239-024-00490-1>
- MCGRATH, C., PARGMAN, T. C., JUTH, N., & PALMGREN, P. J. (2023). University teachers' perceptions of responsibility and artificial intelligence in higher education-An experimental philosophical study. *Computers and Education: Artificial Intelligence*, 4, 1–9. <https://doi.org/10.1016/j.caeai.2023.100139>
- NAMATHERDHALA, E., SHARMA, R., & TYAGI, R. (2020). Artificial Intelligence in Educational Administration: An Overview. *International Journal of Advanced Science and Technology*, 29(9s), 4993–5000.
- NG, D. T. K., LEUNG, J. K. L., SU, J., NG, R. C. W., & CHU, S. K. W. (2023). Teachers' AI digital competencies and twenty-first century skills in the post-pandemic world. *Educational Technology Research and Development*, 71(1), 137–161. <https://doi.org/10.1007/s11423-023-10203-6>
- NILSSON, N. J. (2009). *The quest for artificial intelligence*. Cambridge University Press.
- OFOSU AMPONG, K. (2024). Beyond the hype: exploring faculty perceptions and acceptability of AI in teaching practices, *Discover Education*, 3, 38. <https://doi.org/10.1007/s44217-024-00128-4>
- ORLOVIĆ LOVREN, V. (2021). *Podučavanje odraslih: strategije i metode*. Beograd: Institut za pedagogiju i andragogiju Filozofskog fakulteta Univerziteta u Beogradu.
- PAJARES, M. F. (1992). Teachers's Beliefs and Educational Research: Cleaning up a Messy Construct. *Review of Educational Research*, 62(3), 307–332.

- POLAK, S., SCHIAVO, G., & ZANCANARO, M. (2022). Teachers' Perspective on Artificial Intelligence Education: an Initial Investigation. In S. Barbosa, C. Lampe, C. Appert, D.A. Shamma, S. Drucker, J. Williamson, & K. Yatani (Eds.), *CHI Conference on Human Factors in Computing Systems* (pp. 1–7). Association for Computing Machinery. <https://doi.org/10.1145/3491101.3519866>
- POPOVIĆ ŠEVIĆ, N., ŠEVIĆ, A., SLIJEČEVIĆ, M., & KRSTIĆ, J. (2025). AI adoption in higher education: Exploring attitudes and perceived benefits between users and non-users. *Online Journal of Communication and Media Technologies*, 15(4), e202528. <https://doi.org/10.30935/ojcm/17246>
- PRATSCHKE, B. M. (2024). *Generative AI and education: Digital pedagogies, teaching innovation and learning design*. Springer Nature.
- PRATT, D., SMULDERS, D., & ASSOCIATES. (2016). *Five Perspectives on Teaching: Mapping a Plurality of the Good*. Second Edition. Florida: Krieger Publishing Company
- RAHIMAN, U. H., & KODIKAL, R. (2024). Revolutionizing education: Artificial intelligence empowered learning in higher education, *Cogent Education*, 11(1), 2293431. DOI: 10.1080/2331186X.2023.2293431
- REDECKER, C. (2017). European framework for the digital competence of educators: Dig-CompEdu. Joint Research Centre (JRC) Science for Policy Report, 95. <https://doi.org/10.2760/159770>
- SELWYN, N. (2016). *Education and Technology: Key Issues and Debates*. Bloomsbury.
- SENIĆ RUŽIĆ, M. (2021). Digitalna transformacija obrazovanja u Srbiji – Pitanje digitalne pismenosti ili digitalne kompetencije. U I. Jeremić, N. Nikolić i N. Koruga (ur.), *Vaspitanje i obrazovanje u digitalnom okruženju*, zbornik radova (str. 11–24). Filozofski fakultet Univerziteta u Beogradu, Institut za pedagogiju i andragogiju Filozofskog fakulteta u Beogradu, Pedagoško društvo Srbije.
- SHAHZAD, F., AVUNDUK, Z. B., ULLAH, Z., & ARSLAN, A. (2025). Understanding management educators' perspectives on AI adoption: A qualitative study. *The International Journal of Management Education*, 23(3), 1–13. <https://doi.org/10.1016/j.ijme.2025.101274>
- SHARMA, R. C., KAWACHI, P., & BOZKURT, A. (2019). The landscape of artificial intelligence in open, online and distance education: Promises and concerns. *Asian J. Distance Educ*, 14(2), 1–2.
- SHARMA, R., NAMATHERDHALA, E., & TYAGI, R. (2020). Smart Technologies in Educational Administration: A Review. *International Journal of Scientific & Technology Research*, 9(2), 3662–3666.
- TAYLOR, E. W. (2002). Teaching Beliefs of Graduate Students in Adult Education: A Longitudinal Perspective. In R. M. Cervero, B. C. Courtenay, & C. H. Monaghan, *The Cyril O. Houle Scholars in Adult and Continuing Education Program Global Research Perspectives: Volume 2* (pp. 120–131). <http://www.coe.uga.edu/hsp/monographs2/taylor.pdf>
- TAYLOR, E. W., DIRKX, J., & PRATT, D. (2001). Personal Pedagogical Systems: Core Beliefs, Foundational Knowledge, and Informal Theories of Teaching. *Adult Education Research Conference*. <https://newprairiepress.org/aerc/2001/papers/71>

- TSAI, Y. S., RATES, D., MORENO-MARCOS, P. M., MUÑOZ-MERINO, P. J., JIVET, I., SCHEFFEL, M., DRACHSLER, H., DELGADO KLOOS, C., & GAŠEVIĆ, D. (2020). Learning analytics in European higher education—trends and barriers. *Computers & Education*, 155. <https://doi.org/10.1016/j.compedu.2020.103933>
- UNESCO. (2024). *AI competency framework for teachers*. France: UNESCO. <https://doi.org/10.54675/ZJTE2084>
- WHITBY, B. (2008). *Artificial Intelligence: A Beginner's Guide*. U.K.
- ZAWACKI-RICHTER, O., MARÍN, V. I., BOND, M., & GOUVERNEUR, F. (2019). Systematic review of research on artificial intelligence applications in higher education—Where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), 1–27. <https://doi.org/10.1186/s41239-019-0171-0>

POLEMIKA, KRITIKA

POLEMICS, REVIEW

Prikaz knjige: Pejzaži učenja. Relacije mesta, znanja i umetničkih praksi¹

Knjiga *Pejzaži učenja. Relacije mesta, znanja i umetničkih praksi*, u izdanju Instituta za pedagogiju i andragogiju Univerziteta u Beogradu – Filozofskog fakulteta, sadrži 178 strana. Sadržaj knjige podeljen je u jedanaest celina: „Uvodne reči“, „Afirmacija nepoznatog u učenju i obrazovanju“, „Prostorni preokret: refleksija o primeni prostornih koncepata u obrazovanju odraslih“, „Rekonceptualizacija mesta i prostora u obrazovanju odraslih: kritičke teorije i javna pedagogija“, „Ontološka i epistemološka priroda mesta“, „Grad kao tekst: flanerstvo i mapiranje urbanih pejzaža“, „Hodanje kao preispitivanje mesta i stvaranje znanja“, „Situacionisti – stvaranje novih životnih prostora kao kreativni bunt“, „Priče o biljkama: interdisciplinarna umetničko-obrazovna aktivnost“, „Završni osvrt“, „Post scriptum“.

Autorka Maja Maksimović, vandredna profesorka na Odeljenju za pedagogiju i andragogiju Filozofskog fakulteta u Beogradu, upoznaje nas sa afirmacijom nepoznatog u učenju i obrazovanju i poziva da se upustimo u razmišljanje o obrazovanju i učenju odraslih iz perspektive refleksije i rekonceptualizaciji koncepata mesta i prostora u obrazovanju odraslih, stvaranje znanja hodanjem, lutanjem i stvaranjem novih životnih prostora kroz kreativni bunt.

Autorka pitanje mesta i prostora u andragogiji promišlja kroz prizmu teorijskih pristupa kritičke pedagogije, javne pedagogije i ideja situacionista. Iz tog ugla, osobe koje uče se ne posmatraju kao pasivni recipijenti znanja već kao aktivni učesnici u kreiranju javnog prostora i obrazovnih praksi.

Pejzaži učenja su mnogo više od stručnog štiva namenjenog studentima andragogije i svima onima koji se bave učenjem i obrazovanjem odraslih. Ovo je knjiga kroz koju mogu da lutaju i tragaju za novim perspektivama sve radoznale osobe koje obrazovanje pronalaze na svakom mestu u kojem se prepliću umet-

¹ Maksimović, M. (2025). *Pejzaži učenja. Relacije mesta, znanja i umetničkih praksi*. Beograd: Univerzitet u Beogradu – Filozofski fakultet.

nost, otvorenost i učenje kao nepredvidljiv proces koji omogućava transformaciju pojedinca i zajednice.

Posebna vrednost monografije su primeri iz prakse, koji ilustruju kako se teorijski koncepti mogu otelotvoriti u konkretnim obrazovnim situacijama. Iz jedne opisane interdisciplinarnе umetničko-obrazovne aktivnosti učimo kako biljke koje postaju eksponati u galeriji pričaju neočekivane priče, a uče nas da su znanje i odgovori na mnoga pitanja često tamo gde i ne slutimo. Pejzaži učenja se kriju u zvukovima, u pričama biljaka koje nikada nisu ispričane, u hrabrosti da se promeni hodnik institucije u kojoj godinama, skoro svakog dana, čekamo da nešto počne, da se desi susret, da se zajedno zapitamo kuda nas vode odgovori na naša pitanja. Knjiga nas vodi i na putovanje van nama poznatog evropskog prostora. U iskustivima iz Brazila shvatamo da se najbolje uči na greškama, da nismo sami u ekosistemu i da je komunikacija sa okruženjem u kojem učimo ključna za razvoj.

Ova monografija u izdanju Instituta za pedagogiju i andragogiju Univerziteta u Beogradu – Filozofskog fakulteta donosi svima koji su zainteresovani za učenje i obrazovanje odraslih nov pogled na svetove umetnosti i obrazovanja koji se često stapaju u jedno u svakodnevnim praksama koje su obojene spoznajama, transformacijama, promenama i uvidima.

Autorka knjige zastupa stanovište koje se opire standardizaciji procesa učenja, uvažavajući ne samo značaj konteksta već i emocija i umetnosti proživljenog. Obrazovni proces vidi kao obilje mogućnosti koje se kontinuirano razvijaju i nastaju, ali nas i upozorava da smo podložni da se mnoge prakse obrazovanja odraslih lako uklapamo u neoliberalne diskurse, čemu treba da se odupremo lutanjem, melanholijom i kreativnim izrazom.

Uputstvo za autore priloga

Dostavljanje radova

Časopis publikuje radove koji nisu ranije objavljeni na drugom mestu. Radovi se dostavljaju redakciji isključivo u elektronskoj formi, na e-adresu: ipa.as@f.bg.ac.rs.

Format teksta

Tekstovi se dostavljaju u Word formatu, u obimu od 25.000 do 60.000 slovnih znakova, latiničkim pismom. Uz to je neophodno dostaviti i apstrakt rada u obimu do 1.000 slovnih znakova, tri do pet ključnih reči, kao i najvažnije podatke o autoru/ki rada, u obimu do 250 slovnih znakova. Neophodno je navesti trenutnu poziciju na kojoj se autor/ka nalazi, tj. instituciju ili organizaciju u kojoj je zaposlen/a, godinu rođenja (koja se ne objavljuje, već služi u svrhe katalogizacije) i e-adresu. Ukoliko rad ima više autora, za svakog pojedinačnog autora/ku treba navesti sve prethodno pomenute podatke. Sem naslova, rad može sadržati i dva nivoa podnaslova, koji se ne numerišu. Za sva isticanja i naglašavanja u tekstu koristiti kurziv (*italic*), ne koristiti podvlačenja i druge forme naglašavanja. Slike, tabele i grafičke prikaze označiti odgovarajućim brojem (arapskim) i naslovom koji ih jasno objašnjava i dostaviti ih u formatu pogodnom za štampanje.

Jezik

Radovi se dostavljaju na srpskom, engleskom, nemačkom, hrvatskom, bošnjačkom i crnogorskom jeziku, a jezici objavlivanja su srpski (kao i hrvatski, bošnjački, crnogorski) i engleski. Za tekstove na srpskom jeziku uredništvo obezbeđuje prevod apstrakata na engleski, a za tekstove na engleskom prevod apstrakata na srpski jezik.

Citiranje i literatura

Pozive na literaturu treba davati u tekstu, u zagradama, a fusnote koristiti samo kada je neophodno, npr. za komentare i dopunski tekst. Pri citiranju izvora (štampanih i elektronskih) i u bibliografiji koristiti isključivo APA stil (APA Citation Style – American Psychological Association). Detaljnije u: Publication Manual of the American Psychological Association, Seventh Edition (2020). Takođe videti na: <http://www.apastyle.org/>.

Na kraju rada navodi se spisak korišćene literature. Radovi se navode abecednim redom. Za tačnost citata i referenci odgovorni su autori.

Recenziranje

Rad recenziraju dva eksterna recenzenta. Recenzije su tajne. Recenzije se u propisanom formatu dostavljaju uredništvu. Na osnovu pozitivne recenzije urednici donose odluku o objavljivanju rada i o tome obaveštavaju autora/ku. O redosledu članaka u časopisu odlučuju urednici. Članci se razvrstavaju u sledeće kategorije: izvorni naučni radovi, pregledni radovi, stručni radovi. Časopis objavljuje i: prevode značajnih dokumenata (i, izuzetno, prevode članaka objavljenih na nekom drugom mestu), hronike, prikaze i kritike, intervjue i polemike, bibliografije i informacije o aktuelnim događanjima (skupovima, projektima, publikacijama) iz zemlje, regiona, Evrope i sveta.

Autorska prava

Sva prava zadržava ©Institut za pedagogiju i andragogiju, Univerzitet u Beogradu, Filozofski fakultet. Redakcija zadržava pravo izmena u tekstu. Za objavljivanje priloga se ne isplaćuje honorar. Prevod ili naknadno objavljivanje tekstova iz časopisa u drugim izvorima je besplatno, uz obaveznu prethodnu saglasnost uredništva. Saglasnost nije potrebna za korišćenje časopisa u istraživačke i nastavne svrhe, za citiranje, prikaze, kritike i u privatne svrhe. O citiranju i objavljivanju delova časopisa poželjno je obavestiti uredništvo.

Notes for Contributors

Paper Submission

The journal publishes texts which haven't been published previously. Editorial Board receives only MS Word type electronic submissions sent to e-mail: ipa.as@f.bg.ac.rs.

Notes on style

All papers submitted should be between 25.000 and 60.000 characters (with spaces), in Latin letter. Abstract should also be submitted of no more than 1000 characters (with spaces), the title of the manuscript, as well as 3–5 keywords. Submissions should include: full name, institutional affiliation and position of the author; basic data on author (up to 250 characters with spaces) and the contact information, as well as the date of birth (will not be published, serve just for the catalogue). If there is more than one author, the information should be provided for each author. Articles should be structured using up to two levels of headings. Numbering should not be used in headings. Italic formatting is allowed for emphasizing. Bolding, underlining and other such formatting are not allowed. Figures, pictures and tables should be named and numbered by Arabic numerals, and supplied in a form suitable for reproduction.

Language

Serbian, English, German, Croatian, Bosnian and Montenegrin languages are acceptable languages. Papers will be published in Serbian (as well as Croatian, Bosnian and Montenegrin) and in English. For papers published in English additional abstract in Serbian will be provided by Editorial Board, while for papers published in Serbian additional abstract in English will be provided.

Quotations and References

References to literature should be placed in the text, within parentheses. It is acceptable to use footnotes, however, it is recommended to use them only if necessary e.g. for comments and additional text. All quotations should be referenced using APA Citation Style (American Psychological Association). See: Publication Manual of the American Psychological Association, Seventh Edition (2020). See also <http://www.apastyle.org/>.

References in APA style should be listed alphabetically at the end of the paper. It is the contributor's responsibility to ensure that all references and citations are correct.

Reviews

Submitted manuscripts are subject to peer review by two external reviewers at the discretion of the Editorial Board. Reviews are confidential (anonymous peer reviews). Papers which receive positive reviews are published, and authors are informed beforehand. The editors determine the order of articles. Reviewed articles are categorized as follows: original scientific articles, review articles, professional articles. The journal publishes also translation of relevant documents (or, exceptionally, translation of papers published elsewhere), chronicles, scientific reviews, polemics and interviews, bibliographies, information about current projects, events and publications in the national, European and global adult education and learning field.

Copyright

© 2002 Institute for Pedagogy and Andragogy, University of Belgrade, Faculty of Philosophy. All rights reserved. Authors receive no payment for texts submitted or published in the journal. With the exception of fair dealing for the purposes of teaching, research or private study, criticism, reviews and citations, no part of this publication may be reproduced, stored, or transmitted in any form or by any means without the prior permission in writing from the copyright holder. There is no copyright fee for translation or reprinting, but the Editorial Board should be informed.

Lista recenzenata

dr Violeta Orlović Lovren

Univerzitet u Beogradu, Srbija

dr Edisa Kecap

Univerzitet u Beogradu, Srbija

dr Fergal Finnegan

Univerzitet Mejnnt, Irska

dr Sanja Petkovska

Institut za kriminološka i sociološka istraživanja, Srbija

dr Antonia Batzoglou

Univerzitet u Londonu, Ujedinjeno Kraljevstvo

dr Dragan Bulatović

Univerzitet u Beogradu, Srbija

dr Sanja Đerasimović

Univerzitet u Eksiteru, Ujedinjeno Kraljevstvo

dr Hajdana Glomazić

Institut za kriminološka i sociološka istraživanja, Srbija

dr Barry Golding

Federativni univerzitet Australije, Australija

dr Maurice de Greef

Univerzitet Vrije u Briselu, Belgija

dr John Henschke

Univerzitet Lindenvud, Sjedinjene Američke Države

dr Joanna Ostrouch-Kamińska

Univerzitet Varmije i Mazurije u Olštinu, Poljska

dr George Koulaouzides

Helenski otvoreni univerzitet, Grčka

dr Milica Marušić

Institut za pedagoška istraživanja, Srbija

dr Miloš Milenković

Univerzitet u Beogradu, Srbija

dr Miljana Milojević

Univerzitet u Beogradu, Srbija

dr Alison Laurie Neilson

Univerzitet u Koimbri, Portugalija

dr Edmee Ollagnier

profesor u penziji, Univerzitet u Ženevi, Švajcarska

dr Goran Opačić

Univerzitet u Beogradu, Srbija

dr Ognjen Radonjić

Univerzitet u Beogradu, Srbija

dr Marko Radovan

Univerzitet u Ljubljani, Slovenija

dr Jost Reischmann

Univerzitet Bamberg, Nemačka

dr Maja Savić

Univerzitet u Beogradu, Srbija

dr Luiza Olim de Sousa

Severozapadni univerzitet u Počestfromu, Južna Afrika

Alan Tuckett

Univerzitet u Vulverhemptonu, Ujedinjeno Kraljevstvo

dr Zoran Velkovski

Univerzitet u Skoplju, Severna Makedonija

dr Ivan Nišavić

Institut za filozofiju i društvenu teoriju, Univerzitet u Beogradu

List of Reviewers

dr Violeta Orlović Lovren

University of Belgrade, Serbia

dr Edisa Kecap

University of Belgrade, Serbia

dr Fergal Finnegan

Maynooth University, Ireland

dr Sanja Petkovska

Institute of Criminological & Sociological Research, Serbia

dr Antonia Batzoglou

University of London, United Kingdom

dr Dragan Bulatović

University of Belgrade, Serbia

dr Sanja Đerasimović

University of Exeter, United Kingdom

dr Hajdana Glomazić

Institute of Criminological & Sociological Research, Serbia

dr Barry Golding

Federation University Australia, Australia

dr Maurice de Greef

Vrije Universiteit in Brussels, Belgium

dr John Henschke

Lindenwood University, United States of America

dr Joanna Ostrouch-Kamińska

University of Warmia and Mazury in Olsztyn, Poland

dr George Koulaouzides

Hellenic Open University, Greece

dr Milica Marušić

Institute for Educational Research, Serbia

dr Miloš Milenković

University of Belgrade, Serbia

dr Miljana Milojević

University of Belgrade, Serbia

dr Alison Laurie Neilson

University of Coimbra, Portugal

dr Edmee Ollagnier

ret. University of Geneva, Switzerland

dr Goran Opačić

University of Belgrade, Serbia

dr Ognjen Radonjić

University of Belgrade, Serbia

dr Marko Radovan

University of Ljubljana, Slovenia

dr Jost Reischmann

Bamberg University, Germany

dr Maja Savić

University of Belgrade, Serbia

dr Luiza Olim de Sousa

North-West University in Potchefstroom, South Africa

Alan Tuckett

University of Wolverhampton, United Kingdom

dr Zoran Velkovski

University of Skopje, North Macedonia

dr Ivan Nišavić

Institute for Philosophy and Social Theory, University of Belgrade

Andragogical Studies

Andragogical Studies is a scholarly peer-reviewed journal, devoted to theoretical, historical, comparative and empirical studies in adult and continuing education, lifelong and lifewide learning. The journal reflects ideas from diverse theoretical and applied fields, addressing the broad range of issues relevant not only for Serbia, but also for the whole of Europe, as well as for the international audience. The journal publishes research employing a variety of topics, methods and approaches, including all levels of education, various research areas – starting with literacy, via university education, to vocational education, and learning in formal, non-formal and informal settings.

Publisher

Institute for Pedagogy and Andragogy, University of Belgrade, Faculty of Philosophy
Postal address: Ćika-Ljubina 18–20, 11000 Belgrade
E-mail: ipa.as@f.bg.ac.rs, Telephone number: 00381-11-3282-985.

Print ISSN: 0354–5415

Online ISSN: 2466-4537

UDK: 37.013.83+374

Editors-in-Chief

MIOMIR DESPOTOVIĆ, University of Belgrade, Faculty of Philosophy
KATARINA POPOVIĆ, University of Belgrade, Faculty of Philosophy

Associate Editors

Maja Maksimović, University of Belgrade, Faculty of Philosophy
Aleksandar Bulajić, University of Belgrade, Faculty of Philosophy

Assistant Editors

Nikola Koruga, University of Belgrade, Faculty of Philosophy
Kristina Robertson, University of Belgrade, Faculty of Philosophy

Editorial Board

Šefika Alibabić Hodžić, University of Belgrade, Faculty of Philosophy
Marcie Boucouvalas, Virginia Polytechnic Institute and State University, USA
George A. Koulaouzides, Hellenic Open University, Greece

Sabina Jelenc, University of Ljubljana, Slovenia

Snežana Medić, University of Belgrade, Faculty of Philosophy
Sandra L. Morrison, University of Waikato, New Zealand
Balázs Németh, University of Pécs, Hungary
Ekkehard Nuisel von Rein, University of Kaiserslautern, Germany
Kristinka Ovesni, University of Belgrade, Faculty of Philosophy
Aleksandra Pejatović, University of Belgrade, Faculty of Philosophy
Borut Mikulec, University of Ljubljana, Slovenia
Cristina Maria Coimbra Vieira, University of Coimbra, Portugal
Tamara Nikolić, University of Belgrade, Faculty of Philosophy
Niamh O'Reilly, AONTAS (National Adult Learning Organisation), Ireland

Journal Secretary

Brankica Nikitović, University of Belgrade, Faculty of Philosophy

Design: Zoran Imširagić

Cover Design: Sanja Crnjanski

Typesetting: Irena Đaković

Prepress: Dosijs studio, Belgrade

Proofreading for English language: Irena Ždinarsić-Trbojević

Andragogical Studies was launched in 1994, and since 2002 the journal is published twice annually. Responsible for the editing policy is the **Institute for Pedagogy and Andragogy** (University of Belgrade, Faculty of Philosophy), Ćika-Ljubina 18–20, 11000 Belgrade. The journal publishing is supported by the Ministry of Education, Science and Technological Development of Republic of Serbia.

Catalogue: National Library of Serbia

Andragogical studies is categorized as the international journal by the decision of the Ministry of Education, Science and Technological Development of Republic of Serbia (M23). Andragogical studies is an open access journal, established as the journal of international authorship within European Reference Index for the Humanities and Social Sciences (ERIH PLUS).

Indexing: National Library of Serbia (Belgrade); Serbian Library Consortium for Coordinated Acquisition (kobson.nb.rs); Serbian Citation Index (<http://scindeks.ceon.rs>); European Reference Index for the Humanities and Social Sciences (ERIH PLUS) (<https://dbh.nsd.uib.no/publiseringskanaler/erihplus/>); Library of the German Institute for Adult Education DIE, Bonn.

CIP – Каталогизacija y publikaciji
Народна библиотека Србије, Београд
37.013.83(497.11)

ANDRAGOŠKE studije : časopis za proučavanje obrazovanja
i učenja odraslih = Andragogical Studies : Journal for the Study
of Adult Education and Learning / urednici Miomir Despotović,
Katarina Popović. – God. 1, br. 1/2 (apr./okt. 1994)– . – Beograd :
Institut za pedagogiju i andragogiju, 1994– (Beograd : Službeni
glasnik). – 24 cm

Dva puta godišnje. – Tekst na srp. i engl. jeziku. – Drugo izdanje na
drugom medijumu: Andragoške studije (Online) = ISSN 2466-4537
ISSN 0354-5415 = Andragoške studije



1838