

Research Projects of the Department of Communication Postgraduate Programmes
Master's Degree Final Projects in Digital Culture and Emerging Media

Ph.D. Thesis Proposal

**Cooperation or Competition:
A Qualitative Art-based Study on
Serbian Teachers' Perspectives on AI Integration in
Education**

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Year: 2023-2024**



M.A. in Digital Culture and Emerging Media
Communication Departmen

Modality A: Ph.D. Thesis Proposal

Abstract

The emergence of Artificial Intelligence (AI) and its tools in education requires more attention because of their impact on individuals involved, rather than merely affecting the technical aspects of teaching. Nowadays, we wonder about the destiny of teachers' role with the existence of AI in education, opening a debate on the possible replacement of human educators. Therefore the question arises: are teachers in a position to cooperate or compete with the newest inventions?

This research aims to examine Serbian teachers' perceptions of AI implications in education and personal relations to AI, through qualitative research methods complemented by art-based method. Finally, the process of participation will end in the co-creation of a set of guidelines for successful AI implementation.

Keywords:

Artificial Intelligence (AI), Education, Serbia, Teachers role, Teacher- AI relationship, Fears, Cooperation, Competition, Art-based, Guidelines

1. Introduction

A common concern that appears regarding the emergence of Artificial Intelligence (AI) in our reality, is addressed to our ability to process all those innovations before they take over our lives, routines, the way we think, and possibly completely take our place. As in most of the social spheres, the future of education remains uncertain in environments where AI will become increasingly dominant (Selwyn, 2019). The amount and nature of tasks that will be entirely taken over by machines in the future and the teachers' job within the automated system are some of the biggest debates. Will educators remain distinct and irreplaceable in some parts, or robots and other AI-based tools will be able to fully replicate the most humanistic features?

Therefore, it is valuable to examine the dichotomy between two perspectives: the implementation of AI in education and the role of the teachers in student teaching and upbringing. This project focuses on the point of view of the main actors: teachers. Being able to find out if they consider AI in education as a tool that enhances their possibilities or as a threat that jeopardizes their occupation, we can see how realistic the future predictions are. The research will be based in Serbia, a middle-income country, where the educational landscape is becoming increasingly influenced by technological innovations.

Despite all the technical advancements, still, the most important advantages of human teachers are pedagogical skills in leading the learning process, motivation for students, emotional bonds with them, and navigating students how to critically think. Teachers' stances on the influence of AI on those roles and practices will be the first objective of the examination. The second objective will explore the deeper personal influence that AI has, focusing on the major fears and dreads of educators. Realizing them, we would be able to think about the future direction in empowering crucial stakeholders, creating a reality in which artificial capabilities remain subordinate to human oversight. Finally, the third objective aims at creating a set of recommendations as a research outcome, done by teachers. The originality of this work should be in the research design: qualitative inquiry, providing understanding, combined with an art-based method, that will help uncover nuanced perspectives on the teacher's - AI cooperation or competition.

The research paper will be used as an example of an innovative immersive approach to the topic related to education, communication and technology. It will bring more attention to this, not sufficiently discussed topic, bearing in mind its everyday rising importance on the

individual and collective levels. The work contribution will be in filling the academic research gap with the possibility of providing a new framework for the coming research, supporting the growth of the academic community.

2. Research design

The objectives and research questions of the present research are organized as follows:

Main objectives

- O1. To understand Serbian high school teachers' *perceptions of the implications of AI for their role and practice* as educators
- O2. To explore *teachers' personal relation to AI-based tools and devices* in the classroom.
- O3. To *create a set of guidelines* for the teachers' future praxis with *the implementation of AI technologies*

Specific objectives

O1.1. To understand Serbian high school teachers' perspectives on the potential impact of AI on their pedagogical skills

How do teachers perceive the significance of their pedagogical skills considering the integration of AI in education?

What changes do they anticipate in their pedagogical skills in the future?

O1.2 To explore Serbian high school teachers' perspectives on the potential impact of AI on personal relationships with students.

What are teachers' points of view on the importance of their role in student motivation with the emergence of AI in education?

How do teachers make sense of their emotional bonding with students with the integration of AI in education?

What changes do they imagine in their future role in student motivation and emotional bonding with students?

O1.3 To explore Serbian high school teachers' perspectives on the potential impact of AI on fostering students' critical skills.

How do teachers perceive the value of their role in fostering students' critical skills with the integration of AI in education?

What changes do they expect in fostering students' critical skills in the future?

O2.1 To understand Serbia high school teachers' attitudes and feelings towards AI-based tools in teaching and learning.

In what ways do teachers see AI-based tools in education as possible cooperators or competitors in teaching and learning?

What are teachers' fears and hopes regarding AI implementation in education?

O3.1 To design and validate the set of practical recommendations to assist teachers in incorporating AI into their teaching practices.

What will be the steps, approaches and methods for successfully incorporating AI into their teaching practices?

This research will be a mishmash of *qualitative methods* and *art-based method* as two complementary stages.

In the first phase, the pre-screening survey will help to establish participants' groups based on their responses regarding AI usage in education. Data collection will be realized through **focus groups** which aim to make participants familiar with the topic, enable the mutual exchange of opinions, the establishment of more sophisticated central themes and new ideas (Stewart, & Shamdasani, 2014). Then, semi-structured, one-on-one **interviews** will be conducted to gain insights into teachers' unique perspectives, attitudes and experiences, highlighting aspects which are personally important to them. This way findings from focus group conversations will be validated, adding revelations of more sensitive topics. The outcomes of both instruments will be transcribed and then coded into themes that will be used as groundwork for the further phases.

After the thematic analysis is done, findings will be further explored during the second phase using the form of art-based method: **applied drama workshop** (Leavy, 2020). Following the participants' interpretation and reflection session, when they will map their own themes, will be analyzed as the workshop outcome.

Finally, as a dissemination activity, the set of recommendations will be co-created among the participants, resulting in practical recommendations for future praxis on AI implementation in teaching praxis.

3. Theoretical framework

3.1. The Media Ecology of Education

Despite the efforts of many theorists to explain how exactly media and technology influenced the educational system, it remained impossible to map only one-way outcomes, without considering it a reciprocal relationship. Instead of mere conduits, the active arbitration of media, in the form of diverse communication technologies, is shaping the environment as a whole, influencing the feelings, thoughts, and actions of participants. Subsequently, they shape and assign roles and identities in our contemporaneity (Strate, 2017). Schools and classrooms, when conceptualized as media in their own right, facilitate the exchange and transformation of information and codes, being a mediator in the tradition of *the medium is the message* (McLuhan, 1964). Therefore “the "content" of any medium is always another medium” (p.23), explains that education being translated through the means of technology holds a significant meaning, rather than what is actually taught in school. Embracing technological communication in our reality and practices raises the question of how will those mediums shape society and the future of education (Lynch, 2002). As McLuhan and Leonard (1967) reveal, familiarizing technology logic in social processes and progressively blurring boundaries between school and the world, will imply modification of the roles of the main characters in education: students and teachers.

Technology, especially digital, is considered an essential part of our culture, communication habits and lifestyle, while also playing a significant role in citizenship and what it means to actively participate in society (Selwyn, 2016). Becoming *human extensions* (Strate, 2017), deeply embedded in social structures, they integrate into the educational organisation, transforming the nature of learning (Contreras-Espinosa, & Garcia Medina, 2011). Nowadays, digital technology is without any doubt “reconfiguring the ways in which information and knowledge are created, accessed and used” (Selwyn, 2016, p.133). Contrarily, social, political and economic factors influence the technologies back and shape their purpose and design (Selwyn, 2022).

Therefore, the artefacts and latest trends in (digital) education can only be understood as a whole, with all participants included in the process of creation and distribution in an active

system. Recent inventions, which took part in building a new, *digital culture* (Buckingham, 2007), resulted in educators surviving an existential crisis, trying to keep their position within the educational ecosystem, cooperating and competing (Strate, 2017). To end, education got far away from the conventions of *what is done* vaguing to the qualitative perspective of *how it is done*, implying that the manner and tool motivate the content.

Educational media ecology has significantly changed, starting from internet and virtual interfaces such as social networks, educational gaming, and online synchronous and asynchronous courses (Kuskis, & Logan, 2012). That further shaped the framework toward differentiated learning practices and manifold models of knowledge dissemination. *Social media as a reality* (Gudaitytė, 2023) brought us to the point where “schools remain a “secondary media”, disconnected and distant from the other “real” online social media life” (p.9). Phenomena typical for the present day, “Education overload” signifies that the environment surrounding education becomes richer in contents and stimuli than within it (Ciastellardi, 2012). Living immersed in this ecology, forced users to gain new skills, form new habits, and develop different cognitive processes, social behaviours and self-esteem; this new actuality happened to be in a huge gap from the traditional state of mind that was kept in education, resulting in numerous students’ changes in attention span, (multi)sensory orientation and therefore difficulties in academic achievement (De Kerckhove, & McLuhan, 2012). On the wave of *participatory culture* (Jenkins, Ito, & Boyd, 2015), education today is a “global house” where are celebrated collaborative and experiential learning, constructivism and life-long learning (Ciastellardi, 2012). Finally, the awakening of artificial intelligence technologies in educational frameworks significantly switched the discourse on the upcoming changes, distancing traditional ways of teaching even more (Gudaitytė, 2023).

One of the most intriguing features of education accompanied by AI is datafication, prevailing to make education more measurable and finally predictable. What makes the difference now, lies in the changed purposes and beneficiaries of data processing, giving the manipulative power to certain actors. (Williamson, et. al., 2023). Meanwhile, open data still remains with many debates regarding privacy and data control.

Jeremy Knox (2019) uses the term ‘postdigital’ to portray the current context of techno-education, which does not refer just to the usage of digital devices, but a wider understanding of the socio-technical apparatus. The result is a struggle to define education in an increasingly

datafied society. Not only that these fast-evolving changes cannot be reversed, but they tend to accumulate and model the way we live and perceive the world, necessitating new forms of education and competencies to adapt to emerging times. Nevertheless, we are about to face an increase in the IT industry in charge of the majority of disciplines (Selwyn, et. al., 2020) and many other changes that will be shaping the world we live in and within, how we think, what we believe and what we expect from our future and education.

3.2. Technology in Education Critics

Neil Selwyn (2019) stresses that the most intriguing and dangerous facet of technology is that, although it is developed with a specific purpose, its interaction with societal dynamics often leads to unforeseen epilogue. Additionally, seeing that technological change has been automatically connected to “progress” and “innovation” (Selwyn, 2016) it was misconceived, that its simple application in education would be enough to enhance both learning and learners. While technology-based learning (Ed Tech) promises experiences that exceed the limitations of old settings (Gallagher, & Williamson, 2022), *technological solutionism* (Selwyn, 2016) becomes our normality, especially for the school actors who already lost faith in their obsolete educational systems.

Above all, digitalisation should make education more democratic, minimizing social injustices, as described by Neil Selwyn (2016). Discussion on how ICT technology should be effectively used in teaching was opened (Visvizi, et. al., 2018) underlining the need for educational systems to develop their abilities “to predict the unpredictable“, meaning that institutions are still not ready for such a plot twist. Therefore, fostering the technological implementation as a synthetic augmentation, with low system support and real reorganization, can result in placing new disparities (Selwyn, 2016). In the end, even technology-immersed education ended up being dependent on social class, race and disability, with mechanization amplifying those discrepancies and reinforcing particular privileges. In this case, the bias of media and mediums stands out, fulfilling its potential in various social effects, from symbolic to physical and personal (Strate, 2017).

All being said, there is still a suspicion about whether we may skip or avoid technology today. As the author stated, especially related to the matter of AI for Education (AIED)

technologies “There is a fine line between being assisted and being supervised. There is a similarly fine line between being guided and being directed” (Selwyn, 2019, p.88). On account of this, we should think more about technology, we should get to know it better and we should definitely make our efforts to keep it as a tool that serves us, not that we owe to.

3.2. Artificial Intelligence in Education (AIED) concerning Professional Identity and Emotional Labor

Diving deeper into the technology integration in all realms of human existence, with the range of its devices and applications, we should pay more attention to the side effects of life in the high-tech world, inclining to become mostly AI-driven. Apart from the observable shifts in behaviour, authors like Sherry Turkle (2011) highlight that there are personality traits that alter as individuals form relationships with and towards devices and networks. The complex interplay between digital technology and identity configuration should be carefully analyzed, considering the complexity of human personality with its sub-identities.

One of them, known as professional identity, appears as a separate theoretical framework, being examined in connection to job-related implications such as self-efficacy, motivation, commitment and job satisfaction (Flores & Day, 2006). In a teaching profession, it is expected beyond domain-specific knowledge, that an educator owns a pedagogical skill: knowing not just what to teach, but also how to teach. That being the case, competencies are not what educators have but what educators are.

As explained by the authors (Beijaard, et. al., 2004) in the formation of professional identity participate, besides many factors, different strategies in how they cope with changes that they face. They refer to the work of Connelly and Clandinin on the concept of *‘shifting selves’*, when teachers are facing professional and personal challenges. Thus, what is referred to as professional identity is far from being a static term; rather, it is a lifelong process provisional on conditions and environments, as well as the individual involvement in personal identity formation (Beauchamp & Thomas, 2009).

The research by Chun Lai and Tan Jin (2021) confirmed that professional identity is constructed and shaped according to external influences, such as technology, but conversely, some personality features leverage the acceptance and types of innovations applied.

Furthermore, teachers face certain anxieties and tensions when encountering situations in which their previous experience with technology was not sufficiently developed, so they require more time to gain new skills (Visvizi, et. al., 2018). Inevitably, personality features that participate in the constitution of a professional identity are closely affected by technological changes and disruptions that tackle each individual. Furthermore, the way that professional identity is shaped determines the way that approaches innovation and interrogations. Even if commented as influenced by technological development, the professional identity of teachers, now under the AI influence, has not been prioritized and put into the research scope yet.

Should robots replace teachers? (Selwyn, 2019) is a debate that reveals a subtle concern, suggesting that the case, once held unimaginable, might become possible. “Robot teachers hold many advantages over human teachers as noted, and the economic implications of these factors, coupled with developments in AI, robotics, and machine learning, suggest that in the future, the teacher’s job could be performed more effectively by robots” (Edwards, et. al., 2018, p. 349). The question is how will they position themselves in a completely new-rising environment, keeping their prominence, in a situation when sky folds of their identity have been put at risk?

As a consequence, it is not a surprise that a teacher's job involves many emotions that “play such a pivotal role in teacher practice and identity given that teaching itself is fundamentally a relational activity.” (Gkonou & Mercer, 2018, p. 161 as cited in Miller, & Gkonou, 2018, p. 50). “Working” on emotions, commonly referred to as emotional labour (Flores & Day, 2006), is significantly prevalent in the teaching job which is responsible for maintaining many occasional factors, keeping in mind the student's best interest, sometimes despite their own feelings.

On the other hand, teachers are facing many uncertainties regarding technological changes, particularly AI dominance, and future educational praxis being dependent on their ability to strive (Sperling et. al., 2024). The workload oppression brought on the teachers by the institution on one side, and the sense of outrage on the other, can result in the feeling of helplessness and frustration that is not sensed, even in some forms of burnout and depression (Brennan, 2006). The article suggests some possible measures such as emotional expression, promoting its recognition in a professional framework and constructive distress. Still, not much attention was brought to the emotional well-being of the teachers after the huge changes in

education, particularly and lately, AI discharge.

3.3. AI Education for Educators

Given the societal and personal implications of an AI-driven technological revolution, it appears crucial to empower all actors, especially teachers, to ensure their preparation for the upcoming changes in teaching and learning. Even though AI emergence is a central topic in all public discourses, as well as in education, “critical literacy theories have not sufficiently accounted for how AI and computational agents change what it means to be critically literate” (Leander & Burriss., 2020, p.1263). In this sense, it could be argued that AI Literacy is under construction, still not being clearly divided and stated from Critical Media Literacy (CML) (Thornley & Rosenberg, 2024). Although CML is automatically considered a discipline aimed at instructing students to critically observe, evaluate and produce media content and raise civil engagement (Bulger & Davison, 2018), it remains essential for educators as well, who will need to develop new skills and tools to effectively teach. AI and its applications cannot be considered a medium which remains “between” but becomes “within”, and tends to go “against” its users. Therefore, a new communication world would require new competencies to navigate our safe and responsible existence in it.

The necessity of AI literacy “become particularly directed toward compulsory education, putting teachers’ professional knowledge at the centre of the AI literacy discourse” (Sperling et. al., 2024, p.1). Since equipping students with critical media skills has become an educational goal at all educational levels (Yavuz-Konokman, 2020) it is of utmost importance to put efforts into incorporating the same proficiency into the teacher's training, as a separate unit, with special attention to the phenomenon of AI in education.

4. Literature Review

While it appears as a significant topic, very few works focused on situations of AI in education emergence in the Serbian framework. Most works summarise its conditions, advantages and disadvantages, not paying much attention to the teacher's point of view, where literature significantly lacks. Accordingly, it is noteworthy to complement knowledge with an overview of works related to the same topic worldwide.

Firstly, a vast amount of literature tends to explain **types of AI-based technologies** which are already present in education and **complex procedures and algorithms** that stay behind the **functions of AI**. The final goal of artificial intelligence is establishing human-like reasoning to finally overcome it, becoming more accurate and efficient because of its predictability, decreased percentage of mistakes, absence of emotional influence and lower costs (Selwyn, 2019). According to Holmes & Tuomi (2022), all newborn Artificial Intelligence Educational Systems (AIED) can be divided into student-, teacher- and institution-focused AIEDs. In the case of learners, besides Intelligent Tutoring Systems (ITS), one of the most common instruments in teaching today is a chatbot, such as ChatGPT; the Serbian example is also ADA (Academic Digital Assistant) which aims to improve interaction between students and educational institutions (Vukomanović, 2022). Teachers' support is usually provided with other types of tools, mostly based on surveillance and monitoring (Holmes & Tuomi, 2022). Predominantly used tools by Serbian teachers are connected to automating tasks, saving time and assessment (Ilić, 2022).

The second ground topic circles around **trends** respecting the integration of AI in education, its **opportunities and challenges** and **teachers' perceptions and attitudes** toward AIED. AI in education enables individualized tutoring and teachers' time management (Pedro, et. al., 2019) along with simplifying administrative tasks, making learning materials more comprehensive, facilitating global learning, and handling large amounts of data quickly (Johnson 2019 as cited in Felix, 2020); providing meaningful feedback (Chassignol et. al., 2018). The aim is to 'free up teachers' time, enabling them to focus on student guidance and one-to-one communication' (Pedro et.al., 2019, p.13). While smart systems can compose more personalized content, based on previous learner interest and result statistics, and therefore better learning outcomes, education becomes more inclusive and equitable provisioning opportunities for all.

In a survey with Serbian teachers, a number of participants expressed an understanding of what AI is (45.5%) and acknowledged the aforementioned benefits of AIED (Kuleto et. al., 2022). Another study showed that a very small percentage, less than 20%, claims that AI is used in their educational praxis (Stanić & Stanić, 2024). It was found that AI tools are effectively used by teachers mostly to detect plagiarism made by the students' misuse of AI. The reason for such a rare appliance can be hidden behind the fact that numerous teachers from Serbia do not have even basic digital skills in using information and communication technology (ICT) in

teaching (Ilić, 2022). On that behalf, influence can be the level of (un)readiness for effective usage of AI solutions (Hartono, et. al., 2023). Correspondingly, Wang, et. al. (2023) confirm that AI readiness resulted in increased agency and knowledge of how to integrate innovation, as well as results, while it decreased daunting feelings. This was approved in a study with Serbian teachers (Kuleto et. al., 2022) where ones who had a level of awareness and knowledge about AI, could recognize opportunities of AI.

Finally, research (Velandar et. al., 2023) stated that teachers in other countries still have misconceptions and a superficial understanding of AI algorithms and that they will require more support in addressing personal challenges (Chounta et. al., 2022). Basic education on AI and cross-disciplinary skills are declared as fundamental, in the case of Serbian teachers (Bucea-Manea-Țoniș et. al., 2022). Although teachers have faced many tools and platforms during the COVID-19 pandemic (Kuleto et. al., 2022), forced and not very proficient, there is still a missing responsibility of institutions to systematically implement automated teaching aids in schooling. The deadline is becoming closer with students already welcoming such initiatives, being much more competent than their educators. The majority of teachers in the Serbian study stated that they feel difficulties and chances when it comes to AI integration which calls for the necessity that systems listen more to the teachers (Kuleto et. al., 2022). Therefore, studies conclude with the appeal for the establishment of AI strategies for the future, starting with AI literacies, included in curriculums.

Meanwhile, ADM (Automated Decision Making) is constructed to monitor students' attention levels and emotional states, calculating and predicting learners' reasoning and responses (Selwyn, 2019). *Educational data mining and learning analytics* (Holmes & Tuomi, 2022) are escalating worldwide, as in Serbia (Ilić, 2022). Even though results show a positive increase in student engagement, their usage raises ethical issues, inviting institutions all around the world to develop regulations regarding the protection of human rights (Holmes & Tuomi, 2022). Respecting AI innovations, “Serbia announced several education reforms, guided by a solid commitment to EU integration” (Bucea-Manea-Țoniș et. al., 2022. p.13) setting the Actional Plan ¹on a national level.

¹ Акциони план за период 2020–2022. године за примену Стратегије развоја вештачке интелигенције у Републици Србији за период 2020–2025. година: 81/2020-21. [Action Plan for the Period 2020–2022 for the Implementation of the Strategy for the Development of Artificial Intelligence in the Republic of Serbia for the Period 2020–2025: 81/2020-21]. (n.d.). Pravno Informacioni Sistem Republike Srbije. Retrieved May 20, 2024, from <https://pravno-informacioni-sistem.rs/SIGlasnikPortal/eli/rep/sgrs/vlada/drugiakt/2020/81/1/reg>

According to Baidoo-Anu, Owusu Ansah (2023, p. 59):

Policymakers, researchers, educators and technology experts should work together and start conversations on how these evolving generative AI tools could be used safely and constructively to improve education and support students' learning.

Another corpus of literature explores the **significance of teachers' functions** compared to computer-based solutions and **their positioning next to AI in Education**. An argument that social interaction is the basis of the learning process (Chassignol et. al., 2018) and that people develop self-consciousness and personal identity through human bodily interaction (Felix 2020) underlines the advantageous position of a teacher, who uses verbal and non-verbal communication. As someone responsible for the facilitation of the learning process, fostering students' creativity, critical thinking, and problem-solving abilities (Gentile et. al., 2023), the most discussed components of the teaching profession are interpersonal skills, one of them, student motivation for learning (Felix, 2020). The research (Chiu, et. al., 2023) is shedding light on the fact that even motivation for engaging students in learning with AI is dependent on teachers' support and the effectiveness of their AI implementation, with Chat GPT, only enhancing learning (Jeon, 2023). In Serbia's case, teachers favoured the opportunities brought by AI, keeping the opinion that the "relationship between teachers and students will not be lost by automating certain activities" (Kuleto et. al., 2022, p. 9). In the meantime, emotion-aware conversational agents become the direction where developers are the most focused nowadays (Sharples, 2023) which is one of the biggest doubts in academic works.

Recent research (Škobo, 2024) talks about the psychological impact that AIED had on Serbian teachers. Pointed out are the stress and anxieties caused by the necessity to redefine their role and pedagogical strategies, forcing them to undertake for their reputation in the system, at the cost of their mental health. The newest date of this report confirms the increasing need for attention to be paid to topics such as personal responses to the AI emergence in the Academic landscape.

Despite everything, Felix (2020) still believes that one of the greatest features of educators lies in their pedagogical ability: to identify knowledge gaps and bring them to the attention of learners, who may be unaware of these deficiencies. Guilherme (2019) reminds us that education essentially intends for character development, in addition to knowledge transmission, an aspect that lies at the heart of the teacher-student relationship. A study by Gentile et. al.

(2023) elucidates the arrival of AI a radical change that made a shift in paradigm when it comes to the role of the teacher, suggesting that educators must revise it to keep up with the discourse. Today, even more than before, teachers should turn around to the predominant, humanistic part of the profession, which is *shaping people, their brains, souls, and moral values* (Gentile et. al., 2023, p.12).

5. Methodology

As discussed above, data collection will be done throughout two phases, firstly with qualitative methods (focus groups and interviews) and in the second part, findings will be complemented by an art-based approach. Data analysis methods will be thematic analysis regarding the first stage while outcomes of the applied drama workshop, as part of the art-based section, will be put under the collaborative analysis and reflection. The stages of data gathering and interpretation will be explained in order as they will be executed since the second phase related to the art-based modality is dependent on the findings from the first one.

5.1. Sampling, participants and setting

The research will be based in the Serbian capital city of Belgrade and will concern high school teachers. A list of high schools in Belgrade, including private and public schools will be deducted from the official network register² and institutions will be directly contacted. Proposing participation will also be done by directly reaching teachers through teachers' associations³, teachers who collaborate with the Faculty of Philosophy in Belgrade and with NGO CEPORA (Center for Positive Development of Children and Youth). The language of the research will be native (Serbian) to be sure that all participants can express their opinions and that everyone has the same level of understanding.

² City of Belgrade. (n.d.). Education and science. Retrieved June 20, 2024, from <https://www.begrad.rs/en/living-in-belgrade/201008-education-and-science/>

³ Obrazovanje.org. (n.d.). Ko smo mi. Retrieved June 20, 2024, from <https://www.obrazovanje.org/page/ko-smo-mi/>

5.2. Pre-screening Survey

As a preliminary step, a pre-screening survey will be included and conducted in the invitation emails as part of the recruitment process. It will require potential participants to express their previous experience and frequency of AI usage, answering a few multiple-choice questions. This way, it will be ensured that the chosen participants have some familiarity with AI applications in education. Predominantly, participants from different types of schools (public and private) and of different ages, genders, career durations, and subject teaching will be invited in order to reach heterogeneous groups and have diversity in discussion (Tracy, 2019). The expected number of participants joining the first phase of research will be between 30 and 40, based on the responses from the pre-screening survey. The number of participants will be reduced as the study progresses.

5.3 Focus Group

Focus groups will be conducted in a face-to-face format, with a duration of a maximum of 2 hours, video recorded. There will be 4-6 focus groups, reaching a maximum of 8 participants per group (Stewart, 2014), depending on the final number. Groups will be mixed and organized according to the participant's age as the age difference is expected to bring various points of view on technology implementation. On the contrary, since all participants share a common profession, their similar education, abilities, intelligence, and socioeconomic backgrounds will facilitate easier communication.

The purpose of conducting a focus group will be an exploration of phenomena, used as a starting point for the further stages of data collection (Stewart, 2014). Besides introducing teachers' perceptions on the topic, the focus group should establish a collective dynamic and cooperation, which will be beneficial for the development of the latest stages: workshop and dissemination activity.

The focus group plan will consist of a guide that follows research questions (from more general to more specific) including words like *how*, *why*, and *under what conditions*, without any prediction of possible answers (Stewart, 2014). During the conversation, the researcher will be able to interact with participants, follow up on the questions, deepen the matter of discussion

where needed and raise sub-questions depending on the discussion flow. Video recording will be transcribed and used as analysis material, after this segment is finished.

5.4. Interview

In the next step, the number of participants will be reduced to 15, based on their engagement in the focus group. The interview following the focus group will be conducted to strengthen and problematize previous data (Tracy, 2019). Individual depth interviews, of a narrative nature, will provide detailed insight about a particular persona, difficult to obtain in a collective setting (Tracy, 2019). Furthermore, semistructured, open-ended questions, (*Can you explain, How do you see, What is your opinion regarding, Why...*) should result in a more flexible conversation, rather than answering questions. Additionally, as in the previous stage, non-verbal communication will play a crucial role in mapping potential fears and hesitations. Voice recordings will be archived and transcribed for further research purposes.

5.5. Thematic Analysis

As a part of qualitative data analysis, thematic analysis will be applied to transcripts of focus groups and interviews, seeking to identify and interpret patterns of meaning (Clarke & Braun, 2021). This process will consider many steps in finding, redefining and finally contextualizing. The goal is to explore how participants create a sense of their world and how they uniquely interpret the same occasion. Since thematic analysis is value-based, it will require a reflexive research attitude in choice-making, related to the theory and starting point – objectives.

After data from focus group videos and interview voice recordings are documented they will be coded *in vivo* based on the participant's exact language (Leavy, 2022). Coding (Tracy, 2019) will include several steps: firstly summarising and organising the data, pursuing initial (first circle) coding, constantly revising and comparing with previously done, and finally defining specific *units* or *themes*. Software such as NVivo, Atlas.ti or MAXQDA will assist with data processing and analysis.

The thematic analysis aims to address the following specific objectives:

O1.1. To understand Serbian high school teachers' perspectives on the potential impact of AI on their pedagogical skills; O1.2. To explore Serbian high school teachers' perspectives on the potential impact of AI on personal relationships with students and O1.3. To explore Serbian high school teachers' perspectives on the potential impact of AI on fostering students' critical skills.

5.6. Applied Drama Workshop

After the main themes have been found, in order to investigate and represent them, a workshop in Applied Drama (theatre) will be designed and video recorded. Teachers' critical self-observation should be in focus while examining their inner feelings and fears regarding AI integration in Education, which they already expressed rationally. As a form of Art-Based Research (ABR), a workshop will be created to evoke and provoke (Leavy, 2022) and "illuminate, build understanding, or challenge our assumptions" (Leavy, 2020, p.18). One way of utilizing ABR is in performative genres, "which emphasize the importance of embodied and experiential knowledge" (Tracy, 2019, p. 71). Besides, it fosters collective cognition, while participants are engaged in their learning process. Performance goes beyond representation but becomes a way of participants thinking and meaning-making (Leavy, 2020).

Using ABR and drama in education has been proven effective for praxis and educators likewise (Cahnmann-Taylor, & Siegesmund, 2008). Therefore some activities "theatre-like" will be conducted, in the format of a workshop, with the same 15 participants that were chosen for the interview. Particular central components dedicated to the matter of AI and Educational praxis will be *Role Play* and *Forum Theatre*, in the middle between opening activities (warm-ups and energizers) and closing activities.

Role play is considered a planned sequence in which participants willingly choose to play a 'game' of drama, in *as if context* (Bolton, 1984). Teachers will have a chance to experience different scenarios, through different roles in simulations regarding AI usage in Education.

Even more complex and captivating, Forum Theatre will immerse participants deeper in the imagined reality, allowing them to stop and alter situations during the scene play (Boal, 2002).

Forum Theatre is an artistic and intellectual game which makes the spectator the main

protagonist (spect-actor) and allows anyone from the assembly to replace actors at any moment, trying to fight the oppressions. This technique remains very powerful when shedding light on possible challenges and dilemmas, allowing actors to reverse back, reconsider and improve some life occasions, which will be impossible in reality. On this occasion, reality with AI embedded in everyday life habits and decisions will be put into critical consideration. Main scenes will be created based on the themes deducted from the previous research stage, focusing on the most intriguing one (for example, if the majority of teachers stated that ChatGPT can give more accurate answers than them, the scene will be organized with that thematic and with appropriate roles).

5.6 Collaborative analysis and reflection

The outcomes of the workshop will be collectively analyzed and debated, shortly after the workshop, with all participants present face to face. The facilitator will comment on the main elements of workshops, raising reflexive questions to participants. Over the exchange of the individual experience, collaborative reflection should perform “development of a shared understanding and transformation of the collective knowledge practice” (Richter, 2012, p.1). They will be asked to contemplate scenarios, challenges and opportunities, such as their position in context Teacher - AI: cooperation or competition? Based on that, each participant will write the main words for both concepts on post-its. The final instance will be a knowledge-making process as well as the closing footprints in the form of participants’ own “themes” that will be compared with ones from the previous phase and video recording of a workshop, which will complete the research scope.

The main objective in this part of the research is O2.1 To understand Serbia high school teachers’ attitudes and feelings towards AI-based tools in teaching and learning.

5.7 Knowledge Exchange Outcome

To complete the process, participants will be asked to come up with a set of practical advice on how to act and use AI in Education effectively. Having in mind that during the research not many practical skills were taught, a brochure can be related more to the personal relations with AI, and how to deal with possible challenges and crises. Firstly, when data from all stages of

research are analyzed, they will be presented to the teachers. When finding out if the teacher-AI relationship is defined more as cooperation or competition and what are the major obstacles, teachers should reflect on the particular examples, deriving solutions or recommendations. This work should be collective, based on experiences, exchanged thoughts or gained knowledge throughout the process of participation resulting in **a set of printed guidelines to teach about and with AI**. In the final instance, the outcome can be teachers' education on how to use different approaches, such as drama, in their practice, especially regarding this topic and their own future uncertainties as well as from students.

This segment addresses the third objective O3.1 To design and validate the set of practical recommendations to assist teachers in incorporating AI into their teaching practices.

The table below summarizes all the contents of the research plan described above:

Table 1. *Research plan overview*

Specific Objectives	Research Questions	Data Collection	Data Analysis
O.1.1.To understand Serbian high school teachers' perspectives on the potential impact of AI on their pedagogical skills	RQ.1.1. How do teachers perceive the significance of their pedagogical skills considering the integration of AI in education? RQ.1.2. What changes do they anticipate in their pedagogical skills in the future?	FOCUS GROUP & INTERVIEW	THEMATIC ANALYSIS
O.1.2.To explore Serbian high school teachers' perspectives on the potential impact of AI on personal relationships with students.	RQ.1.2.1. What are teachers' points of view on the importance of their role in student motivation with the emergence of AI in education? RQ.1.2.2. How do teachers make sense of their emotional bonding with students with the integration of AI in education? RQ.1.2.3. What changes do they imagine in their future role in student motivation and emotional bonding with students?		
O.1.3.To explore Serbian high school teachers' perspectives on the potential impact of AI on fostering students' critical skills.	RQ.1.3.1. How do teachers perceive the value of their role in fostering students' critical skills with the integration of AI in education? RQ.1.3.2. What changes do they expect in fostering students' critical skills in the future?		
O.2.1. To understand Serbian high school teachers' attitudes and feelings towards AI-based tools in teaching and learning.	RQ.2.1.1. In what ways do teachers see AI-based tools in education as possible cooperators or competitors in teaching and learning? RQ.2.1.2. What are teachers' fears and hopes regarding AI implementation in education?	APPLIED DRAMA WORKSHOP	COLLABORATIVE ANALYSIS AND REFLECTION
O.3.1. To design and validate the set of practical recommendations to assist teachers in incorporating AI into their teaching practices.	RQ.3.1.1. What will be the steps, approaches and methods for successfully incorporating AI into their teaching practices?	GUIDELINES	

5.7. Limitations

The limitation of this work is the possibility of falling for generalizations since the number of participants is limited. Other drawbacks are biased opinions under “social pressure” and difficulties with objectively interpreting open-ended questions (Stewart, 2014) because of the characteristics of qualitative research. Due to the nature of the art-based method, which is philosophical and subjective, some conclusions can be misinterpreted. Although the idea of examining actual feelings and non-verbal attitudes sounds interesting and provoking, the inclusion of emotions can be slick terrain, because it can have unexpected effects and can influence research in another direction.

5.8. Research Ethics

All the participants will sign the informed consent since having a part in this research must be voluntary. To show respect and confidentiality when it comes to the participants, their data and their answers, all findings will be anonymized and used exclusively for scientific purposes (Leavy, 2022). Moreover, the nature of the workshop will require special attention to respect for well-being, keeping the research environment safe for everyone, without the possibility for any emotion or outcome to become harmful to participants. All teachers will have the right to express their feelings and thoughts freely and equally but also to ask for help or step out if they in any stage of the research do not feel comfortable or beneficial. Pompeu Fabra University Research Ethics Board will review the proposal to ensure that standards are met.

6. Timeline of execution of the project

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
First Year												
Literature review	█	█	█	█								
Theoretical framework building	█	█	█	█								
Research design and methods expansion					█	█	█	█				
Ethical protocols preparation					█	█	█	█				
Pre-screening Survey and Participants Election									█	█	█	█
Second Year												
Literature review	█	█	█									
Focus Group Preparation		█	█									
Focus Group Execution			█	█	█							
Focus Group Transcription and Data Processing					█	█	█	█				
Focus Group Thematic Analysis						█	█	█	█			
Semi-structured Interview Preparation		█					█					
Semi-structured Interview Execution							█	█	█			
Interview Transcription and Data Processing									█	█	█	█
Interview Thematic Analysis										█	█	█

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Акциони план за период 2020–2022. године за примену Стратегије развоја вештачке интелигенције у Републици Србији за период 2020–2025. година: 81/2020-21. [Action Plan for the Period 2020–2022 for the Implementation of the Strategy for the Development of Artificial Intelligence in the Republic of Serbia for the Period 2020–2025: 81/2020-21]. (n.d.). Pravno Informacioni Sistem Republike Srbije. Retrieved May 20, 2024, from <https://pravno-informacioni-sistem.rs/SIGlasnikPortal/eli/rep/sgrs/vlada/drugiakt/2020/81/1/reg>