

Creative andragogic methods in teaching young people who have completed formal education



Teaching (Today for) Tomorrow: Bridging the Gap between the Classroom and Reality

3rd International Scientific and Art Conference
Faculty of Teacher Education, University of Zagreb in
cooperation with the Croatian Academy of Sciences and
Arts

Snježana Dubovicki, Anita Kostanjčar

*Faculty of education, University of Osijek, Croatia
sdubovicki@gmail.com*

**Section - Education for personal
and professional development**

Paper number: 3

**Category: Original scientific
paper**

Abstract

The changes that are taking place at the European and global levels and in national educational policies affect adult education systems, the professional status of andragogues, but also the determination of the competencies they need. We can say that today's conditions of adult education are far different from those that prevailed in the last decade. In the last ten years, lifelong education has become imperative for success and one of the conditions for survival on the global scene.

Today, when the target group is no longer just students in the immediate vicinity of higher education institutions, but citizens from all over the world, we need to think about teaching in foreign languages, teaching in an online environment, as well as about current and potential methods and procedures that will creatively contribute to the competences of individuals and their competitiveness on the labor market. With all the changing components in education and teaching at all levels, the only constant is learning and acquisition of knowledge throughout life.

The concept of lifelong education pushes the boundaries of education that does not end with formal education and enables career changes, as well as changes in profession and qualifications, even after formal education in adulthood, and the acquisition of additional competencies. This paper presents creative andragogical methods that have emerged from the world of entrepreneurship, and have gradually entered the field of education and teaching, particularly among the younger population who have just graduated from the formal education system but wish to retrain or further educate and improve their skills in their profession to enhance their competitiveness in the open labour market.

Key words:

Andragogy; Lifelong education; Competences; Creativity; Teaching methods.

Introduction

Due to the increasingly rapid obsolescence of knowledge, the dynamic labor market and the development of technology, lifelong education becomes an indispensable concept available to everyone, and modern societies in the modern era are becoming "knowledge societies" (Pastuović, 2006; Vizek Vidović & Vlahović Štetić, 2007; Lukenda, 2017; Mijalić Krešić, 2021; Dubovicki & Dilica, 2022; Dubovicki & Kostanjčar, 2023). The right to education is a fundamental right of every individual and implies the possibility of inclusion in educational programs at any age and stage of life. Opportunities for retraining, skill development, and further education are available after formal education in adulthood and enable adults to keep pace with contemporary changes and challenges. In developed countries, which have ensured the satisfaction of the basic needs of the population, the main development goals are considered to be the satisfaction of the so-called higher needs, primarily referring to all quality relationships with other people and self-actualization (Kulić & Despotović, 2005; Pastuović, 2006). For the successful implementation of lifelong education, intrinsic motivation, attractive education programs that meet labor market needs, accessibility in the terms of time, place, but also financial and other material resources play a significant role. Additional motivation for education in adulthood will be created by the contents and teaching methods for adults that take into account their cultural habits and life experience. Numerous international strategic documents, action plans and declarations emphasize the importance of lifelong education (Declaration of the UNESCO Conference: Call to Action Sofia, 2002; Lifelong Learning in Europe, 2002; Memorandum of the European Commission on Lifelong Learning, 2006; European Commission: European Cooperation in the Field of Education Policies, 2020) emphasizing that adults will be motivated to invest in their further education if they achieve self-realization through professional development, financial benefit, personal satisfaction and recognition in society.

The communication and information revolution imposes a new perspective on lifelong education of adults (Matijević, 2009). The teacher is no longer the only media from whom we can hear, learn and see something, but today we can talk about pluralism and multimedia, which have greatly affected the education of adults. Some results of earlier research show that informal learning increasingly relies on the flexible framework and space provided by mobile media (Clough et al., 2008; Davies & Ball, 2008). Such adult learning in a new (multi)media environment certainly has an impact not only on different learning styles but also on the quality of life (Matijević, 2009).

Characteristics of adult learning

The different ways we learn are called learning styles. There are several different learning styles and we cannot say that one is significantly more successful than the other. First of all, it will depend a lot on the individual, his prior knowledge, mental and material capabilities, cultural differences, motivation and (multi)media environment (Pashler et al., 2008; Mitchell et al, 2009; Matijević, 2009; Lethaby & Harries, 2016). Learning style represents the way in which an individual prepares and concentrates, processes, internalizes and retains new educational content. By recognizing our learning style, we have taken the first step towards our own success (Šprljan & Rosandić, 2008).

The human brain has always been the focus of research by numerous scientists. In this sense, studies in neuroscience that study the brain including its left and right hemispheres are particularly significant. In the 19th century, neuroscientists hoped to identify the functions of each individual area of the brain. In 1826, Spurzheim created a picture of the brain in which he showed the locations of certain personality traits. He divided the brain into thirty-five organs, each representing the specifics characteristics of individual personality traits. (Figure 1).

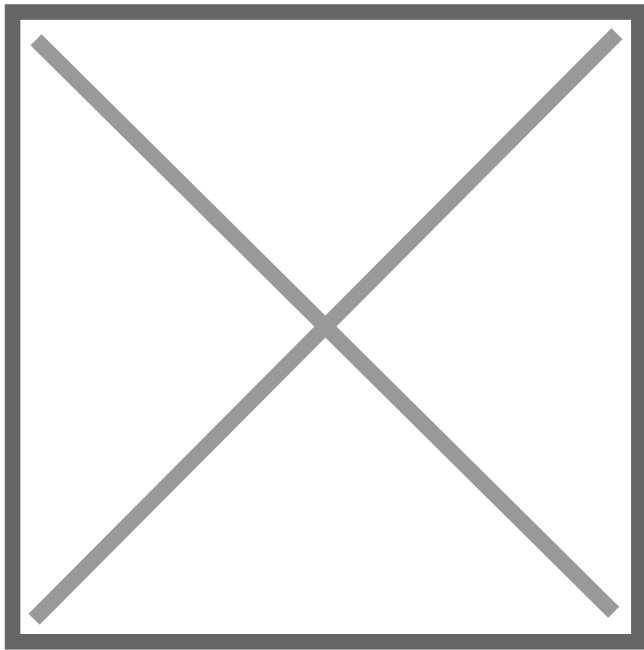


Figure 1.

A Phrenological View of Brain Function and Organization: A Guide to the Most Important Areas (Sawyer, 2006, 79 according to Johann Kaspar Spurzheim, 1826)

I. Organ of love, II. Organ of fertility, III. Organ of inhabitiveness, IV. Connecting organ, V. Organ of combativeness, VI. Organ of destructiveness, VII. Organ of secrecy, VIII. Organ of Greed, IX. Organ of Constructivism, X. Organ of self-esteem, XI. Organ of love approval, XII. Organ of cautiousness, XIII. Organ of benevolence, XIV. Organ of Worship, XV. Organ of firmness, XVI. Organ of conscientiousness, XVII. Organ of Hope, XVIII. Organ of magnificence, XIX. Organ of ideality, XX. Organ of Joy XXI. Organ of imitation, XXII. Organ of individuality, XXIII. Organ of configuration, XXIV. Organ size, XXV. Organ of weight and resistance, XXVI. Organ of coloring, XXVII. Organ of locality, XXVIII. Calculation organ, XXIX. Organ of order, XXX. Organ of possibilities, XXXI. Organ of time, XXXII. Organ of melody, XXXIII. Organ of language, XXXIV. Organ of comparison, XXXV. Organ of causality

We can certainly say that the brain is an organ whose every part plays an unimaginable role when it comes to learning and teaching. Earlier research abounds in analyses of the functioning of the left and right hemisphere of the brain (Rubenzer, 1981; Hoppe, 1988; Restak, 1993; Dubovicki, 2013; 2016), which are often critically questioned (Topolovčan, 2023). The development of brain research in the terms of observing learning styles as important factors in adapting the educational process and enabling its maximum development (Messick, 1976; Keefe, 1982; Holt, 1983; Maras et al., 2018), conclude on the connection between intellectual abilities and cognitive, affective and physiological learning styles (Sunko, 2008). Taking in consideration the different attitudes, behaviors and the specific characteristics with which each individual approaches learning, the following learning styles have been recognized: activist, reflector, theorist and pragmatist (Figure 2).

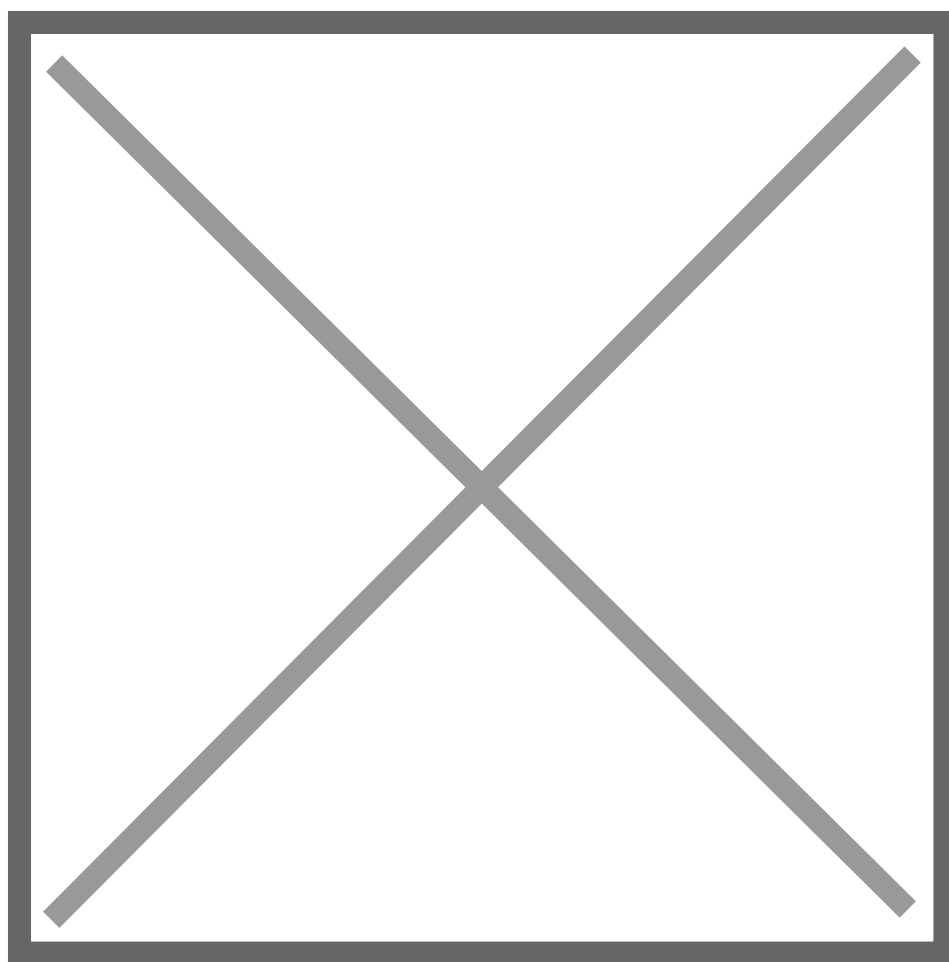


Figure 2.

Experiential learning cycle (Vizek Vidović & Vlahović Štetić, 2007, according to Kolb, 1984) and learning styles (Vizek Vidović & Vlahović Štetić, 2007, according to Kolb, AY and Kolb, DA, 2005; according to Honey and Mumford, 1992)

In Figure 2, we can see the separation of four types of people with regard to their characteristics and learning method, which resulted from sociological, emotional and psychological characteristics and stimulating incentives, i.e. environmental conditions. In addition to the different needs and characteristics of each individual, the learning style is also influenced by the individual processing of information, that is, the way a person acquires different content (Vizek Vidović & Vlahović Štetić, 2007; Hatami, 2013). An activist is a person who learns through experience without being burdened with theoretical assumptions and/or prejudices, but on the basis of his own perception and experience, he masters new knowledge. Personal experience and reflection is a feature of the learning style that is characteristic of the reflector. The reflector collects information and draws conclusions based on this information and acquires new knowledge (Gazibara, 2018). The theorist applies a deductive style in a systematic approach to everything he does. First, he studies the general theory or principles, and then applies it (Vizek Vidović & Vlahović Štetić, 2007). Practical application, i.e. learning through practice, is characteristic of a pragmatist. This is the person who will first directly check whether a theory works and whether it can be usefully applied (Bubnys & Žydzūnaite, 2010). We believe that all of the above mentioned is extremely important for the learning and teaching process, because the recognition of students' varying learning styles can help the teacher in the preparation of the teaching process itself, and, accordingly, in the application of different teaching methods.

Creating a teaching process by applying different teaching methods from the field of education and teacher training respects the diversity of experience of adults who come with different prior knowledge (Bognar & Matijević, 2005). This kind of approach helps people understand their unique needs and creates a more engaging environment that encourages participants to be as much as possible involved in the learning process. Participants experience periods of interest and boredom throughout the training process, and using a variety of techniques will contribute to raising the level of motivation. In this way, the responsibility for the progress and adoption of the content outlined in the learning outcomes is evenly distributed between the participants and the teacher. Continuous media presence often allows students to return to a part of the lesson at any time (if the lesson is recorded) or to learn (especially a foreign language) even while doing some other activity (e.g. a person runs and wears headphones and learns at the same time foreign language).

Creative teaching methods and procedures in teaching adults

The need to incorporate various interactive teaching methods that take into consideration adult learning styles and personality traits has been imposed by knowledge of contemporary adult education teaching and learning methods as well as the various learning styles of adults. In this way, it is possible to more efficiently focus the attention of the participants on the content they need to learn. Learning will be more successful if the person is active during class, if he feels that

he can participate in the formulation of learning goals, if he is entrusted with the responsibility for learning outcomes and if he has the possibility of self-assessment of his own achievements.

The above indicates that the andragogist who is the leader of the teaching activity should take care to recognize the goals and needs of those he teaches and show what meaning teaching can have for the student himself (Vizek Vidović & Vlahović Štetić, 2007). By combining and supplementing teaching methods and techniques, the most successful outcomes in adult education are achieved (Matijević, 2018 according to Andrilović et al., 1985). Although some authors overlap numerous approaches, there are no universal recommendations for the use of a particular approach as the most effective for teaching and learning adults.

Furthermore, there are different approaches to learning and teaching methods with regard to division and classification criteria. Throughout the historical development of didactic theory and practice, numerous authors advocated different divisions of methods and techniques in teaching (Komensky, 1871; Poljak, 1989; Jelavić, 1998; Peko & Pintarić, 1999; Bognar & Matijević, 2002; Cindrić et al., 2010). Some of the significant authors who wrote about teaching methods used in teaching, among other things in adult education, are presented in Table 1. Types of teaching methods. The paper does not present all the teaching methods that are mentioned in the literature, but only those that are most often mentioned in the pedagogical and didactic literature.

Table 1.

Types of teaching methods

Teaching methods	Teaching method	Methodical procedure	Authors
Verbal methods	Method of oral presentation	Narration	Cindrić et al. (2010)
		Reasoning	Andrilović et al. (1985)
		Explanation	Axinte et al. (2010)
		Reporting	Vizek Vidović & Vlahović Štetić (2007)
	The conversation method	Brainstorming	Cindrić et al. (2010)
		Discussion (polemic, debate, discussion)	Sharma (2006); Vizek Vidović & Vlahović Štetić (2007), Bengé Kletzien & Cota Bekavac (2005)
		Free conversation	Andrilović et al. (1985)
		Development conversation	Axinte et al. (2010)
		Catechetical conversation	Vizek-Vidović & Vlahović Štetić (2007)

Method of reading and working on the text	Related or reproductive written works - copying, labeling, typing	Cindrić et al. (2010)	
	Semi-connected or semi-free written assignments - answering questions, dictation	Sharma (2006)	
	Independent written works - composition, reformulation	Andrilović et al. (1985)	
Visual methods	Drawing method	Drawing graphic signs (voltmeter, topographic and cartographic signs)	Spajić-Vrkaš et al. (2004)
		Drawing graphic symbols - abstract, ambiguous (coat of arms, sword...)	
		Geometric drawing	
		Graphical representation of quantitative relationships	
		Schematic drawing of the subject	
		Schematic representation of the process	
		Drawing based on observation and representation of natural objects	
	The method of illustrative works	Concretization of abstraction	
		Illustrating the plot	
Praxeological methods	Demonstration method	Demonstrating static objects	The Pole (1984)
		Demonstrating dynamic natural phenomena	Vizek-Vidović & Vlahović Štetić (2007)
	Method of practical works	Handiwork	Matijević (2009)
		Machine work	Andrilović et al. (1985)
Creative teaching methods:	Game method	Method of reverse learning process - group puzzle	Axinte et al. (2010)
		Role playing - role-play	Đurić (2009)
		Simulation	Alfirev & Rajaković (2002)
	Picasso painting	artistic creation	Dubovicki (2013)
	Morphological analysis	scientific creation	Dubovicki (2016)

Future workshop	Work - technical creation	Bognar, 2005; Bognar & Matijević (2005)
Design thinking		Martin (2009); Starkey & Tempest (2009); Glen et al. (2014); Matthews & Wrigley (2017); Waidelich et al. (2018); Pap et al. (2019); Charles (2022); Rupčić, 2022
PAR method		Kunt (2020); Korkut & Kopal (2018);
SCAMPER method		Korkut & Kopal (2018); Nikolić (2019); Solomon (2003)

Although the importance and role of creativity and the use of creative teaching methods in the more successful realization of the teaching process, as well as achieving desired learning outcomes, have been emphasized for many years, other sciences are increasingly entering the fields of pedagogy and education in a broader sense (informatics, economics, mathematics...) (Dubovicki, 2019; Topolovčan & Dubovicki, 2019; 2024). The education system is increasingly adapting to the needs of the labor market, so in the field of adult education we are reaching for newer and redesigned teaching methods. Some of them are especially used in the field of economics, and are better known as: Design thinking, PAR and SCAMPER method. The mentioned methods are particularly well received by the younger population of adults due to their applicability in a real economic environment. Following a defined teaching structure according to the mentioned methods also empowers them for the open labor market in such a way that by applying structured steps of certain methods, they increase their competitiveness when seeking jobs in the open labor market, as well as in the economic environment.

Design thinking (DT)

Design thinking (DT) is a technique that is applied in the economic environment with the purpose of finding solutions for improved results, and in the educational context, a redesigned application of DT has created a method that encourages the acquisition of new skills and knowledge in a practical and creative way (Pap et al., 2019). The teaching method based on design thinking (hereinafter referred to as DT) arose due to the evident inadequacy of the learning and teaching methods of educational institutions with the real economic environment, which has raised concerns regarding employability (Charles, 2022). The authors emphasize (Martin, 2009; Starkey & Tempest, 2009; Glen et al., 2014; Matthews & Wrigley, 2017) that the application of DT in the educational context has developed thanks to the valuable contributions that DT has made in business and management. In an educational context, design reflection encourages students to develop their ideas and experience their own mistakes as part of the learning process (Rupčić, 2022). This process is a set of different methods, which are applied in order to achieve the best possible result

and there is no standardized model of application of the design thinking method (Waidelich et al., 2018). Design thinking uses divergent thinking as a way to ensure more possible solutions are explored at the initial level, and then convergent thinking to advance and realize the final solution (Pap et al., 2019). Common procedures are based on the processes of reflection, creation and reflection: 1. Compassion – observing the environment and active listening, researching possibilities for improvement, analysis of limitations, identification of the type of problem (eg. personal versus group challenge); 2. Defining – selection and interpretation of important data collected in the sympathy phase, review of the observed problem, transformation from the discovered need into a clear goal; 3. Forming a plan - thinking in order to find a solution to the problem, choosing the best idea, analysis of limitations, clear definition of the idea; 4. Prototype – prototype construction, feedback collection, prototype improvement analysis, assessment of available resources; 5. Evaluation – definition of criteria for success, monitoring of changes in the environment, planning and presentation of prototypes (Rupčić, 2022).

In the context of adult education, the application of the design thinking method encourages students to think and solve problems in a new and unproven way and represents a kind of preparation for navigating a rapidly changing and technologically increasingly complex society (Pap et al., 2019). The mentioned benefits were also detected as a result of encouraging creativity in teaching (Dubovicki, 2013; 2016). The advantages of the DT approach in acquiring knowledge are as follows: 1. understanding the content from a different perspective, 2. studying the problem in detail to determine its root cause, 3. developing innovative thinking and creative problem solving, 4. ensuring that the final outcome meets the goals and requirements, 5. it results in a new experience, which is more efficient and useful for the students than the traditional approach and 6. it enables the continuous expansion of knowledge (Pap et al., 2019).

PAR method (Present - Apply - Review Method)

The name of the PAR method is an acronym consisting of the initial letters of the Anglosaxon name Present - Apply - Review. The application of the PAR method requires that the participants think about the answers to the given questions, agree on them in pairs and then present the solution (Kunt, 2020). After presenting their work and considering the interpretations of the other pairs, each pair discusses the solution they have chosen, clarifies any misconceptions, and ultimately comes up with the correct answer. In case of disagreement, each member of the couple should argue their solution or opinion. The PAR model is characterized by three phases of learning new teaching content, which is shown in Figure 3.

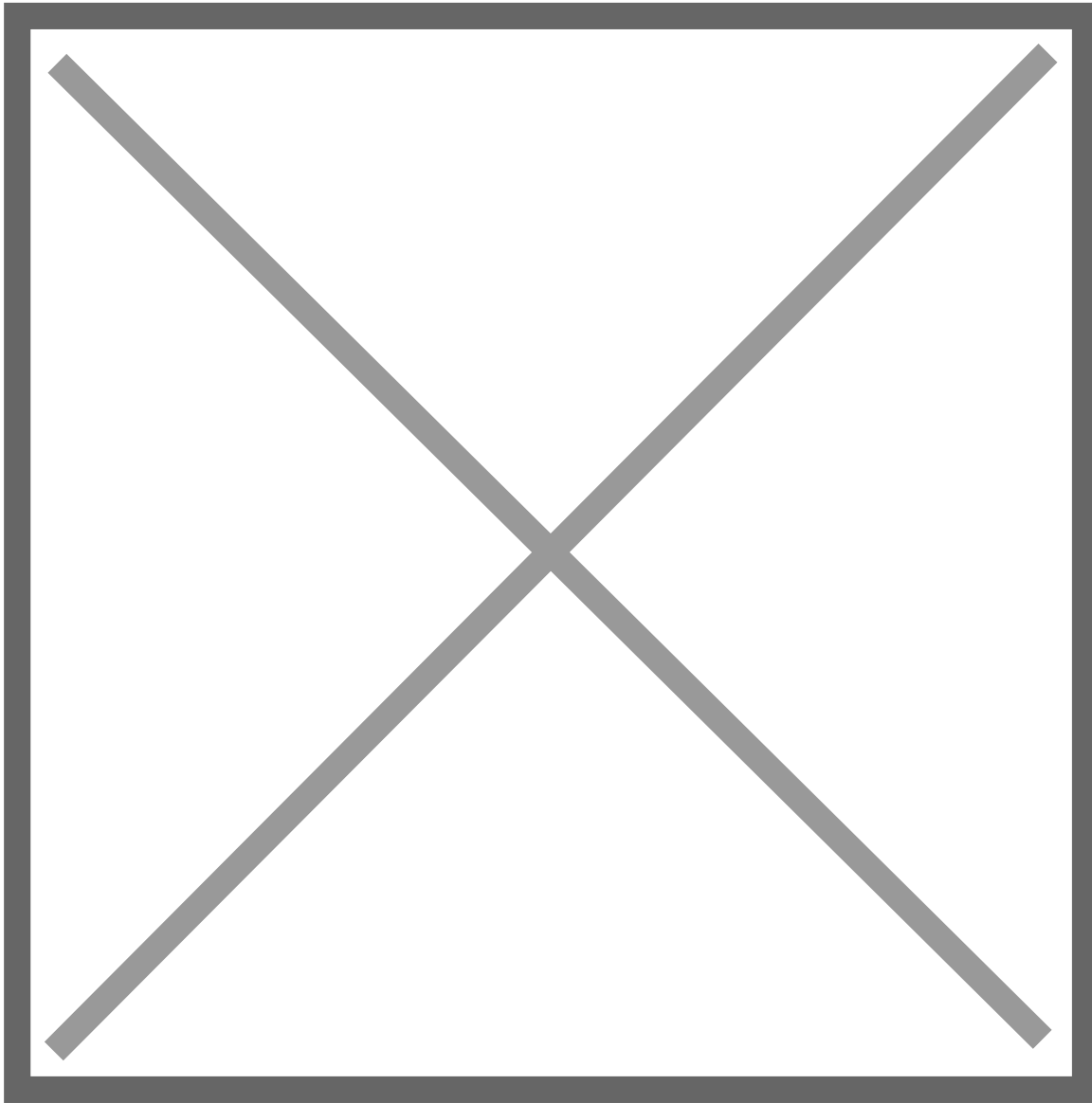


Figure 3.

Characteristics of the PAR technique

With this method, emphasis is placed on collaborative learning, which requires the participants to analyze the content, solve it together, and thereby indirectly develop the skills of teamwork and assertive communication.

SCAMPER method

Scamper is a technique that emerged from the world of entrepreneurship, but it can be successfully applied for educational purposes, especially in the education of the younger population of adults. According to authors Korkut & Kopal (2018), each letter of the SCAMPER method is an acronym (Figure 4) that represents separate questions that must be considered in

order to achieve the desired result. It implies group work and encourages creativity in groups of participants in terms of finding solutions to certain problems. It suggests teamwork and fosters innovation among participants in terms of resolving certain issues. It is used in accordance with a set of guidelines, asking questions regarding the subject matter at all times, and adhering to all seven letters of the acronym that makes up the method's name.

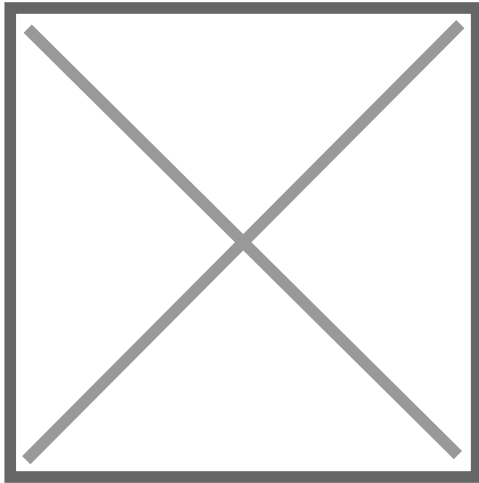


Figure 4.

The meaning of the acronym SCAMPER

In Figure 4, we can see the acronym consisting of the letters SCAMPER. Below is an explanation of the mentioned terms:

- S - substitute - thinking about what needs to be changed.
- C - combine - different knowledge is connected and integrated, i.e. old ideas from which new ones should be created.
- A - adapt - means adding new elements, adapting to the current situation.
- M - modify - encourages a change of perspective. Contemplating about what should be changed and what should be kept.
- P - put to the use (change of purpose or purpose of use) - encourages adaptation to new challenges, new knowledge, enabling new functionality.
- E - eliminate - represents simplification and facilitation, as well as contemplation about what could be eliminated to make what we want to keep maximally useful.
- R - reverse/ rearrange - stands for reconstruction, and in this step the most acceptable ideas are chosen.

By asking numerous questions that are guided by the initial letters of the names of the techniques, creativity and creative thinking are encouraged. Creativity significantly depends on the context. Individuals have it as a natural gift, but for many, creativity is very underdeveloped. Using the SCAMPER method, it is possible to develop and improve ideas that can help us solve problems.

Answering the questions encourages a creative approach to the problem and the adoption of new content. The creativity of the participants plays a decisive role in the effectiveness of the application of this method. By applying a constructivist teaching strategy, the SCAMPER method in an educational context aims to help students develop metacognition, critical thinking and problem-solving skills (Solomon, 2003). By applying the SCAMPER method, an attempt is made to transform current knowledge and create a new perspective. Although creativity plays a decisive role in this technique, it is important to try to implement it regardless of the participant's personality. Such a way of working emphasizes a strong orientation to the process of education, instead of exclusively to its result. The emphasis is on the method of acquiring new knowledge, not on the content itself. It is important to point out that the process of acquiring knowledge is not opposed to the result, but both are equally taken into account, not even as separate entities, but as a dialectical unity. In this sense, improvisation helps to put emphasis on methodology in the educational process instead of exclusively on content (Nikolić, 2019).

Active learning in the context of adult education

The concept of active learning is not at all a new pedagogical or didactic concept. The same is indirectly mentioned in the history of pedagogy during the period of school development - pedagogical school directions (Munjiza, 2009; Turk, 2009). Despite the many definitions of active learning, we can say that active learning represents learning in which a high degree of independence and self-regulation is achieved, various thinking strategies and specific cognitive skills are applied that enable essential learning, analysis and comparison of information, their connection with existing knowledge and critical judgment their meanings; learning that enables long-term memory (Turk, 2009; Dubovicki, 2016). The discourse on lifelong learning emphasizes, among other things, the importance of the active involvement of the individual and the need to take responsibility for his own learning and the end result. This is especially emphasized in the adult education, because active learning includes different perspectives of the participants. It is based on the constructivist theory of learning, where participants, with the support of an andragogist, research and develop knowledge on their own. Contemporary adult education involves an active and partnership-based relationship between participants and the andragogist leading the teaching process, using creative andragogical methods that include research-based, meaningful, and problem-based teaching.

Active involvement in the learning process is one of the key factors in increasing the attention of participants in the teaching process. Teaching focused on the teaching process or teaching focused on the participants in the teaching process is an approach to teaching that emphasizes planning based on activities and experience rather than on knowledge that is acquired and facts that need to be memorized. Such learning is based on individual discovery, immediate experience, and creative work (Nikčević-Milković, 2004). An active approach to learning provides participants with more frequent feedback on their progress, takes into account different learning styles, allows them to discuss the content they are learning, and encourages the development of collaborative, communication, negotiation, and other "soft" skills. It also increases students' self-confidence through conversation with other students, but also through increased interaction between the

teacher and participants in the teaching process. In the active approach to adult learning, the andragogue, as the leader of the educational process, provides direct feedback on the level of acquisition, understanding, or misunderstanding, as well as on the misconceptions that need to be corrected.

Contemporary social demands also require a new type of knowledge, skills, abilities, values and attitudes, i.e. new competencies that promote innovation, creativity, ability to solve problems, critical thinking, entrepreneurship, information literacy, etc. (Peko & Varga, 2014). Active learning methods encourage the development of 21st century skills and are necessary to overcome the challenges of an unpredictable future (Stephen et al., 2010; Gazibara, 2013; Peko & Varga, 2014).

Turk (2009) investigates how active learning of students in university classes affects the development of creativity of future teachers and emphasizes active learning techniques, which he divides into three groups:

1. techniques that require shorter preparation and fewer resources – these include: the technique of teaching by questioning and brainstorming
2. techniques that require shorter written preparation and materials - these include: collaborative learning and the technique of mutual explanation
3. techniques that require longer written preparation and materials – these include: case study, peer learning, discussion, problem-based learning, and independent learning technique

The mentioned active learning techniques can be applied in various contexts, certainly in lifelong education and adult education. Knowing oneself, one's own goals, priorities, potential, relationship with time and process, insight into one's position in a group, team, collective, and contact with one's own thoughts and feelings become something that emerges beyond the usual frameworks of learning and teaching by the leader of the educational process (Urbanc & Kletečki Radović, 2007). The application of modern, creative methods in the educational context, by respecting the personal experiences and knowledge of the individual, lays the foundations for collaborative and experiential learning, which is the basis of active learning. Active participation of students in the teaching process (asking questions, research, solving problems, etc.) leads to their personal construction of knowledge. Therefore, the time spent on achieving the goal is as valuable as the knowledge gained at the end (Peko & Varga, 2014). This is especially important to apply in adults education, because it contributes to individualizing teaching process in which they are involved, and the teaching is more dynamic and purposeful for adults, which includes practical learning, encourages divergent and convergent learning and learning through discovery.

According to the conclusion

When organizing classes for adults, the use of various methods and techniques enables better insights into one's own interests, goals and priorities, i.e. the expression of the potential of the students, but also the general exploration of personal identity. When organizing classes for adults, the use of various methods and techniques allows for better insights into one's own interests,

goals, and priorities, as well as the expression of the potential of the learners and, more generally, the exploration of personal identity. Andragogues believe that the use of various methods and techniques requires greater engagement in the design of activities, and more complex competencies in divergent thinking and creativity are needed. However, such an approach leads to greater involvement of participants in the educational process, positively impacting the quantity, quality, and durability of overall knowledge. Such an approach helps participants develop creative thinking, better understanding, and improved memory by connecting ideas, words, and concepts.

It is also necessary to develop knowledge and insights about the appropriate approach to teaching adults and the andragogical profession in general, as well as insights into the appropriate competencies, skills, and knowledge that andragogical workers should possess. Andragogy as a science is underdeveloped and relies on pedagogy, and as a result, methodological and didactic procedures are often improvised to suit the adult population of learners. This is precisely why this paper presents methods that were developed on the basis of economic sciences and are applied in a real economic environment. Applying proven steps and procedures of the mentioned methods in an educational context has proven to be an effective way of teaching adults. Particularly significant are the media that provide additional benefits for the participants themselves, but which need to be properly dosed so that the humanizing role that the educational system as a whole nurtures is not lost. The intention is not to diminish the value and importance of existing teaching methods, but to open new challenges through interdisciplinarity and multimedia, which significantly meet the needs of today's learners and continuously present new challenges for the andragogue.

Given the increasing human lifespan, we can expect a rising trend in adult participation in educational programs in the future, and thus the significance of andragogy as a science will continue to grow, making it an important area to research and develop.

References

- Alfirev, G. & Rajaković, S. (2002). *Priručnik o andragoško-psihološkim načelima osposobljavanja*. Zagreb: Zavod za istraživanje i razvoj sigurnosti.
- Andrilović, V., Matijević, M., Pastuović, N., Pongrac, S., & Špan, M. (1985). *Andragogija*. Zagreb: Školska knjiga.
- Axinte, L., Baci, C. M., & Nichita, F. (2010). Teaching methods and tools used in adult education. *Lucrari Stiintifice*, 53(1), 302-305.
- Bognar, G. (2005). The concept of quality of life. *Social Theory and Practice*, 31(4), 561-580.
- Bognar, L., & Matijević, M. (2005). *Didaktika*. Zagreb: Školska knjiga
- Bubnys, R., & Žydžiūnaitė, V. (2010). Reflective Learning Models in the Context of Higher Education: Concept Analysis. *Problems of Education in the 21st Century*, 20, 58-70.
- Charles, S. (2022). Design Thinking, a Novel Approach for an Effective and Improved Educational System—A Review. *International Journal of Professional Development, Learners and Learning*, 4(1),

ep2205. <https://doi.org/10.30935/ijpdll/12010>

Cindrić, M., Miljković, D., & Strugar, V. (2010). Didaktika i kurikulum. Zagreb: IEP-D2.

Clough, G., Jones, A. C., Mcandrew, P., & Scanlon, E. (2008). Informal Learning with PDAs and Smartphones (EJ809121). *Journal of Computer Assisted Learning*, 24(5), 359-371.

Commission of the European Communities (2006). Adult learning: It is never too late to learn', Communication from the Commission, COM (2006) 614 final, Brussel Concept analysis. *Problems of Education in the 21st Century*, 20, 58-70.

Davies, P., & Ball, M. (2008). Informal Learning: A Vision for the Twenty First Century? *Adults Learning*, 19(8), 18-19.

Dubovicki, S. (2013). Povezanost kurikuluma učiteljskog studija i razvoja kreativnosti studenata. [Unpublished doctoral dissertation]. Zagreb: Filozofski fakultet, Sveučilišta u Zagrebu.

Dubovicki, S. (2016). Kreativnost u sveučilišnoj nastavi. Osijek: Fakultet za odgojne i obrazovne znanosti, Sveučilište Josipa Jurja Strossmayera u Osijeku.

Dubovicki, S. (2019). Methodological Creativity in Pedagogical Research – Global Challenge. U: M.

Carmo, (ur.), *Education and New Developments 2019*, Vol. II (str. 36–40). Lisbon, Portugal: InScience Press. <https://doi.org/10.36315/2019v2end008>

Dubovicki, S., & Dilica, K. (2022). Biographies of the Future as a Creative Method of Visioning in Education. *Journal of Futures Studies*, 27 (1), 109-118.

[https://doi.org/10.6531/JFS.202209_27\(1\).0008](https://doi.org/10.6531/JFS.202209_27(1).0008)

Dubovicki, S., & Kostanjčar, A. (2023). How can future studies help us in professional and personal development? In S. Inayatullah, S. Dubovicki, & A. Bilić (Eds.), *Didactic Challenges IV: Futures Studies in Education* (pp. 46 - 57). Osijek: Josip Juraj Strossmayer University of Osijek and Croatian Academy of Sciences, Center for Scientific Work in Vinkovci

Đurić, A. (2009). Važnost igre u nastavnom procesu (igrokaz, simulacije i računalne igre). *Školski vjesnik*, 58(3), 345-354.

European Commission: European Cooperation in the Field of Education Policies (ET 2020). https://ec.europa.eu/education/policies/european-policy-cooperation/et2020-framework_hr

Gazibara, S. (2013). Aktivno učenje: put prema uspješnom odgoju i obrazovanju. *Školski vjesnik*, 62 (2-3), 375-389.

Gazibara, S. (2018). Aktivno učenje kao didaktičko-metodička paradigma suvremene nastave. [Unpublished doctoral dissertation]. Zagreb: Filozofski fakultet Sveučilišta u Zagrebu.

Glen, R., Suci, C., & Baughn, C. (2014). The need for design thinking in business schools. *Academy of Management Learning & Education*, 13(4), 653-667. <http://www.jstor.org/stable/43696653>

Hatami, S. (2013). Learning styles. *ELT Journal*, 67(49), 488-490. <https://doi.org/10.1093/elt/ccs083>

Hoppe, H. H. (1988). Utilitarians and Randians vs Reason. *Liberty*, 20(2), 53 – 64.

Jelavić, F. (1998). *Didaktika*. Jastrebarsko: Naklada Slap

Keefe, J. W. (1982). Assessing student learning styles. In: J. W. Keefe (Ed.), *Student learning styles and brain behavior* (pp. 1-18). Reston, VA: National Association of Secondary School Principals

Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning & Education*, 4(2), 193-212.

Komensky, J. A. (1871). *Didaktika*. Zagreb: Knjigotiskara Dragutina Albrechta.

Korkut, D., & Kopal, R. (2018). *Kreativnost 4.0: evolucija i revolucija*. Zagreb: Algebra; Visoko učilište

Effectus

Kulić, R., & Despotović, M. (2005). *Uvod u andragogiju*. Zenica: Dom štampe Zenica.

Kunt, Z. (2020). Art-based methods for participatory action research (PAR). *Interactions: Studies in Communication & Culture*, 11(1), 87-96. https://doi.org/10.1386/iscc_00008_1

Lethaby, C., & Harries, P. (2016). Learning styles and teacher training: are we perpetuating neuromyths? *ELT Journal*, 70(1), 16-27. <https://doi.org/10.1093/elt/ccv051>

Lifelong Learning in Europe (2002). Moving towards EFA Goals and the CONFINTEA V Agenda Call to Action, 'Sofia Conference on Adult Education 9th November 2002', Sofia

Lukenda, A. (2017). Genealogija koncepta cjeloživotnog učenja. *Acta Iadertina*, 14(1), 131-147.

Maras, N., Topolovčan, T., & Matijević, M. (2018). Konstruktivistička didaktika i neurodidaktika u diskursu reformne pedagogije - Teorijska polazišta, dileme i komparacija. *Nova prisutnost*, XVI (3), 561-576. <https://doi.org/10.31192/np.16.3.9>

Martin, R. L. (2009). *The opposable mind: How successful leaders win through integrative thinking*. Boston: Harvard Business Press.

Matijević, M. (2009). Informalno učenje odraslih u novom (multi)medijskom okruženju. *Andragoški glasnik*, 13(2), 105-111.

Matijević, M. (2018). Neki didaktički i andragoški miskoncepti o gledanju na kvalitetu obrazovanja odraslih In V. Rajić & S. Kušić (Eds.), Zbornik radova 8. međunarodne konferencije o obrazovanju odraslih (pp. 37 - 44). Zagreb: Agencija za strukovno obrazovanje i obrazovanje odraslih, Hrvatsko andragoško društvo.

Matthews, J., & Wrigley, C. (2017). Design and design thinking in business and management higher education. *Journal of Learning Design*, 10(1), 41-54. <http://dx.doi.org/10.5204/jld.v9i3.294>

Messick, S. (1976). *Individuality in Learning*. San Francisco: Josey- Bass.

Mijalić Krešić, R. (2021). Suvremene andragoške metode u poučavanju ljudskih prava u Programu srednjoškolskog obrazovanja odraslih za zanimanje policajac/policajka. *Andragoški glasnik*, 25 (1-2(41)), 67-73.

Mitchell, B. S., Xu, Q., Jin, L., Patten, D., & Gouldsborough, I. (2009). A cross-cultural comparison of anatomy learning: Learning styles and strategies. *Anatomical Sciences Education*, 2(2), 49-60. <https://doi.org/10.1002/ase.73>

Munjiza, E. (2009). *Povijest hrvatskog školstva i pedagogije*. Osijek i Slavonski Brod: Filozofski fakultet Sveučilišta u Osijeku i HPKZ, Ogranak Slavonski Brod.

Nikčević-Milković, A. (2004). Aktivno učenje na visokoškolskoj razini. *Život i škola*, 12(2), 47-54.

Nikolić, T. (2019). Reći" da, i..." učenju-obrazovni proces kao improvizacija. *Andragoške studije*, (2), 93-111. <https://doi.org/10.5937/AndStud1902093N>

Pap, M., Vdović, R., & Baletić, B. (2019). Design Thinking metoda u znanstvenom istraživanju, edukaciji i poslovnoj praksi. *Prostor*, 27 (2(58)), 334-347. [https://doi.org/10.31522/p.27.2\(58\).12](https://doi.org/10.31522/p.27.2(58).12)

Pashler, H., McDaniel, M., Rohrer, D., & Bjork, R. (2008). Learning Styles: Concepts and Evidence. *Psychological Science in the Public Interest*, 9(3), 105-119. <https://doi.org/10.1111/j.1539-6053.2009.01038.x>

Pastuović, N. (2006). Kako do društva koje uči. *Odgojne znanosti*, 8(2 (12)), 421-441.

Peko, A., & Pintarić, A. (1999). *Uvod u didaktiku hrvatskoga jezika*. Osijek: Pedagoški fakultet, Sveučilište u Osijeku.

Peko, A., & Varga, R. (2014). Active Learning in Classrooms. *Život i škola*, 31(1), 59 - 75.

Poljak, V. (1989). *Didaktika*. Zagreb: Školska knjiga.

Restak, R. (1993). The creative brain. In J. Brockman (Ed.), *Creativity* (pp. 164-175). New York: Touchstone.

Rubenzer, R. (1981). The Role of the right hemisphere in learning and creativity implications for enhancing problem solving ability. In J. C. Gowan, J. Khatena, & E. P. Torrance (Eds.), *Creativity: It is Educational Implications* (pp. 272 - 288). Dubuque, Iowa, USA: Toronto, Ontario, Canada: Kendall/Hunt Publishing Company.

Rupčić, N. (2022). *Stvaranje i razvoj inovativnih poslovnih modela*. Rijeka: Sveučilište u Rijeci, Ekonomski fakultet.

Sawyer, R. K. (2006). Educating for innovation. *Thinking skills and creativity*, 1(1), 41-48.
<https://doi.org/10.1016/j.tsc.2005.08.001>

Sharma, K. K. (2006). *Optics: principles and applications*. Amsterdam: Elsevier.

Solomon, G. (2003). Project-based learning: A primer. *Technology and Learning-Dayton*, 23(6), 20-30.

Starkey, K., & Tempest, S. (2009). The winter of our discontent: The design challenge for business schools. *Academy of Management Learning & Education*, 8(4), 576-586.
<http://www.jstor.org/stable/27759195>

Stephen, C., Ellis, J., & Martlew, J. (2010). Taking active learning into the primary school: a matter of new practices? *International Journal of Early Years Education*, 18(4), 315-329.
<https://doi.org/10.1080/09669760.2010.531916>

Spajić-Vrkaš, V., Stričević, I., Maleš, D., & Matijević, M. (2004). *Poučavati prava i slobode: priručnik za učitelje osnovne škole: s vježbama za razrednu nastavu*. Zagreb: Istraživačko-obrazovni centar za ljudska prava i demokratsko građanstvo Filozofskog fakulteta Sveučilišta u Zagrebu

Sunko, E. (2008). Pedagoške vrijednosti poznavanja stilova učenja. *Školski vjesnik*, 57 (3-4), 297-310.

Šprljan, K. A., & Rosandić, A. (2008). *Krug znanja: priručnik za učitelje, nastavnike i profesore*. Zagreb: Školska knjiga.

Topolovčan, T., & Dubovicki, S. (2019). The Heritage of the Cold War in Contemporary Curricula and Educational Reforms. *Center for Educational Policy Studies Journal*, 9(2); 11-32.
<https://doi.org/10.26529/cepsj.567>

Topolovčan, T. (2023). The unknown about the known: The myths about teaching, school, learning, instruction and education. In S. Inayatullah, S. Dubovicki & A. Bilić (Eds.), *Didactic Challenges IV: Futures Studies in Education* (pp. 20 - 31). Osijek: Josip Juraj Strossmayer University of Osijek and Croatian Academy of Sciences, Center for Scientific Work in Vinkovci

Topolovčan, T., & Dubovicki, S. (2024). Evidence-Based Education in Discourse around the Concept of Bildung. *Journal of Elementary Education*, 17(3), 343-356. <https://doi.org/10.18690/rei.3576>

Turk, M. (2009). Utjecaj aktivnog učenja u visokoškolskoj nastavi na razvoj stvaralaštva budućih nastavnika. In L. Bognar, J. Whitehead, B. Bognar, M. Perić-Kraljik & K. Munk (Eds.), Poticanje stvaralaštva u odgoju i obrazovanju (pp. 107-115). Zagreb: Profil International.

Urbanc, K., & Kletečki Radović, M. (2007). Aktivno učenje i kritičko mišljenje u kontekstu supervizijskog, edukacijskog i pomažućeg odnosa. Ljetopis socijalnog rada, 14 (2), 355-366.

Vizek-Vidović, V., & Vlahović Štetić, V. (2007). Modeli učenja odraslih i profesionalni razvoj. Ljetopis socijalnog rada, 14(2), 283-310.

Waidelich, L., Richter, A., Kölmel, B., & Bulander, R. (2018). Design thinking process model review. In 2018 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC) (pp. 1-9). IEEE.

Revizija #2

Stvoreno 3 svibnja 2025 09:34:34 od Martina Gajšek

Ažurirano 3 svibnja 2025 09:41:01 od Martina Gajšek