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**Interdisciplinary Approach to ELT in Higher Education in AI Era: Developing Metacognition Through Creative Practice**

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**Abstract**

With the unfolding of events such as pandemic, wars and invention of the AI, it becomes crucial to fix the focus of the academic goals of the teaching and learning process in order to make the educational process as fruitful and relevant as possible. The point of departure (POD) for this study lies in the apparent necessity to transform pedagogical practices in higher education providing a comparatively balanced approach for the development of the hard and soft skills focusing on metacognition. While prior multiple researches have already examined Augmented Reality and its impact on motivation and the development of hard and soft skills, less attention has been given to how development of metacognition through creative practices such as writing analytical texts while reviewing artworks or writing artwork-inspired creative texts can foster improved teaching and learning environments with Augmented Reality (AR) and support both hard and soft skill development. It is obvious that metacognition is not something new; however, the awareness about the learning processes and what is crucial for acquisition of the language will boost the autonomy of the students in the wider modern context and lead to positive outcomes. When it comes to advanced technologies, metacognition plays a crucial role here to keep the balance between the real life and time and the reality offered by means of the technology. In practice, this creates a balanced learning environment that leads to the more efficient outcomes in ESL/EFL acquisition. In the classroom where AI and other digital tools are revolutionizing the educational climate, creativity can be considered a factor that leads to progress transforming the teaching and learning process into more humanized practice intended to achieve higher learning outcomes. Humanization is the aspect that educators should strongly consider to concentrate on as it is fundamental for the development of the soft skills that are as important as hard skills. To make up for a risk of imbalance between those two metacognition seems to stand out as one of the practical skills that educators and learners must be aware about and practice. This teaching framework focuses not only on language acquisition, but also on the development of metacognition and complex thinking through the analysis of artworks in English, transforming the teaching-learning process into a meaningful real-life experience. Through guided observation, discussion, and reflection, students engage with art as a context for thinking, communication, and self-awareness as a result developing metacognition. This study investigates how university instructors can implement creative practices in ELT to enable university students achieve higher results in ESL/EFL acquisition that is focused on the development of skills. Using empirical methods, students' practical responses to the tasks were collected from the lecture series *Developing Metacognition Through Creative Practice in English* between KJU in Budapest, Hungary, and ISU, Tbilisi, Georgia, through open interactive lectures. Qualitative analysis was applied to the responses to identify the complexities of the produced language, ideas and level of metacognitive awareness. Findings indicate that ESL/EFL students experience a dynamic transformation of metacognitive level of awareness characterized by three major improvements:

1. increased motivation
2. minimized dependency on technology, prompting for learning not output, while producing complex texts
3. improved understanding of the effectiveness of the individual learning strategies and the flexibility to choose the alternative method for favourable outcomes.

The study contributes to ongoing debates in higher education about the AI tools and the teaching and learning environment by highlighting the importance of the focus in teaching/learning frameworks in shaping educational processes during digital transformation. It suggests that professional development initiatives should move beyond technical training to include reflective components. Furthermore, the findings underscore the need for activation of the skills that have not been prioritized before as skills in contemporary educational settings. Overall, this research advances understanding of how digitalization reshapes the academic environment and offers practical recommendations for supporting educators and learners in overcoming these changes. By foregrounding metacognition as one of the central skills of transformation of teaching and learning approach, the study provides a foundation for future research and a particular framework development in ESL and ELT in higher education.

**Keywords:** metacognition, complex thinking, Augmented Reality (AR), ELT, ESL, meta-constructivist learning environment, Theory of Mind (ToM).

### Introduction

The aim of this article is to explore why it becomes crucial to fix the focus of the academic goals in the teaching and learning process with the implementation of Augmented Reality in order to make the educational process and acquisition of ESL as fruitful and relevant as possible. Along with development of hard and soft skills, it is necessary to focus on metacognition. This research focuses not only on language acquisition, but also on the development of metacognition and complex thinking through the analysis of artworks in English, transforming the teaching–learning process into a meaningful real-life experience. Educational processes that involve art-based discussion combined with immersive technologies such as AR create opportunities for deeper language acquisition, reflective learning and self-awareness, suggesting a new level of constructivist pedagogy. This research takes into consideration important concepts such as metacognition, Dewey’s Theory of Mind (Charlotte Ruhl, updated on October 1, 2025), cognitive constructivism, based on the work of Jean Piaget and social constructivism, based on the work of Lev Vygotsky (Saul McLeonid, updated on March 31, 2025).

### Main Part

Creativity seems to be the authentic way to progress in education, and it brings forward the skills that are far beyond the scope of the hard or soft skills. Educators in the continuum of the digital revolution highlight the importance of metacognition. Metacognition and its teaching value in the contemporary context of student autonomy is better embraced through its intradisciplinary perspective where psychological perspective enables the educators to get a deeper insight into the teaching-learning process. “Metacognition is defined as the capacity to reflect on, evaluate, and control first-order cognitive processes such as decision-making, memory, and perception” (Sucharit Katyal, Stephen M. Fleming, 2024).

Metacognition is not merely a high-level cognitive functioning dependent on theory of mind (ToM), but also the capacity that requires components such as metamemory – the knowledge and awareness of one’s own memory processes – attention, conflict resolution, error correction, and executive functioning. Theory of mind refers to the understanding that other individuals have mental states, such as knowledge, intentions, and beliefs: this can lead to intelligent inferences that are crucial for social interaction, since it has an impact on empathy, deception, and the ability to engage in complex social reasoning (Sharon Link, 2021).

This article focuses on the importance of the development of metacognition in ELT practices to expend the flexibility of the traditional classroom meeting the requirements of the contemporary educational environment. In the classroom where AI and other digital tools are revolutionizing the educational climate, creativity and understanding intercultural communication subtleties can be considered a factor that leads to progress transforming the teaching and learning process into more globally humanized practice intended to achieve deep learning process with favorable outcomes. Creating environments that are friendly and foster communication on cultural and intercultural level is the aspect that educators should strongly consider to concentrate on as it is fundamental for the development of the soft skills that are as important as hard skills in ELT. “Due to its focus on linguistic and cultural practices, language learning is inevitably an intercultural process, whether or not it is explicitly recognized in teaching. The intercultural dimensions of language learning become particularly important when the focus is on developing learners’ communicative competence since that communication is typically intercultural” (Will Baker, April 2024). Therefore, the analysis of the focus and learning climate in the modern classroom is necessary to set the goals that will satisfy the needs of the modern classroom: Is focusing solely on linguistic potential and developing hard and soft skills sufficient? Educators keep underscoring the importance of focusing on the hard skills along with the soft skills and implementing the technology (AR); however, without the constructivist approach to teaching and learning the efficiency and motivation among the students might be under question. Constructivist learning theory suggests that learners construct knowledge through active engagement with their environment and interactions with others. (Saul McLeonid, updated on March 31). When it comes to advanced technologies, metacognition plays a crucial role here to keep the balance between the real life and time and the reality offered by means of the technology. From my practice, this enables both students and teachers to engage with Augmented Reality through the experience and perception that is balanced and might lead to the more efficient outcomes in ESL/EFL acquisition where “AR enhances intrinsic motivation, reduces anxiety, and fosters engagement...”. (Oto-Millera, N.; Pellicer-Ortín, S.; Bustamante, J.C., 2025).

Challenges for the modern teaching-learning practices are that digital tools increase hubris potentially depriving the learners from the necessary process of making an effort, failing and trying again which is the

fundamental principle of the growth mindset. What becomes a concern is not making mistakes and failing, but the attempt to find some ways that will lower the anxiety of failure or overcoming the challenges by faster solutions. “... as advanced EFL learners strive to express increasingly complex ideas in writing, many turn to translation strategies as a form of cognitive support. To cope with these linguistic challenges, they frequently relied on mental and partial translation (L1 to L2) as scaffolding practices to express complex ideas, finding it helpful for the development of fluency and vocabulary, yet often detrimental to naturalness.” (Oto-Millera, N., Pellicer-Ortín, S., & Bustamante, J. C. (2025), pg.7).

It is obvious that metacognition is not something new; however, the awareness about the learning processes and what is better for acquisition of the language will boost the autonomy of the students in the wider modern context. The generative AI will turn into an effective “companion” in case students decide to collaborate with it. Most importantly when there are difficulties to fulfil the written assignment students will switch from “prompting for output” to “prompting for learning” (Peter Arashiro, 2025).

Moreover, development of the metacognition will increase the decision-making and metamemory; therefore, the learner will “collaborate” with AI with higher level of awareness. Besides, the learner will be equally confident about what they learn and memorize when only books and realia are available. It will prevent the dependency on gadgets and digital tools creating a healthier and more fruitful environment.

The environment for the development of metacognition and complex thinking has to be defined by what is necessary to teach and learn, not what is offered.

Focusing on what matters is the key:

1. Hard Skills - language skills, academic skills.
2. Soft Skills - communication, leadership, teamwork, self-awareness, empathy, problem-solving, creativity, time-management, (inter)cultural awareness, critical thinking, adaptability, and emotional intelligence.
3. Metacognition defined as ‘thinking about thinking’, is more than this: an individual’s ability to plan, monitor, evaluate, and make changes to their own learning behaviours in order to confront challenges more effectively. The elements of active monitoring and modifying of thought processes make it also a form of self-regulation, involving self-awareness, critical analysis skills, and the ability to problem-solve (Rosalyn Sword, March 17, 2021).
4. Growth Mindset - how much we believe our basic qualities can be changed or developed (Jennifer Smith, October 28, 2025).

Taking into consideration educational environment in its broader sense, Practice English Language Skills and Metacognitive Awareness Through Art-Based Discussion Exploiting 4G Model of Deep Learning is suggested for keeping the balance between the creative context and activities in the classroom boosted with AR. 4G Model is the teaching-learning process which focuses on raising the metacognitive awareness (how one learns best, what are one’s strengths or limitations) and metacognitive regulations (observing oneself as if from outside to notice introspective processes, monitoring one’s own progress, planning the tasks based on self-reflection, evaluating one’s outcome).

The production of the text, both written or oral, can be the most difficult aspect of learning languages as far as it involves intercultural communication, critical thinking and complex thinking. The complex thinking that allows the learners to discuss the artworks through different perspectives opens up the opportunity for deeper learning and developing metacognition.

Conceptual Framework: The 4Gs of Deep Learning

GLIMPS – a first quick look or initial idea.

GRASP – understanding something clearly and firmly exploiting metacognitive knowledge and regulations.

GROW – deepening knowledge; expanding and evolving understanding.

GLOW – knowledge is embodied, internalized, and expressed.

The series of lectures titled *Developing Metacognition Through Creative Practice* have been conducted among students of ISU, Tbilisi, Georgia and KJU, Budapest, Hungary. The lectures included art-based lesson frameworks from the *Artful Thinking Project © Project Zero, Harvard Graduate School of Education, and Nathalie Ryan*, which were selected and adapted taking into consideration the level of metacognition according to the age [1] and types of metacognitive learners [2]. Throughout the teaching-learning process metacognitive constructivism evolved which might require more observation and exploration.

Knowledge is constructed by the individual through their subjective real-life experiences, intercultural collaboration with the given reality (including AR) and the world, and continuous self-reflection. Learning is an individual and subjective process that involves constructing meaning from one's experiences through mental processes such as attention, perception, self-reflection and metamemory (Socratic Awareness). Realities are subjective, diverse and constantly evolving for each individual, the learner constructs their own understanding of them associating it to reality as it is, despite the fact that there is one objective truth and it might exist independently of the learner. For instance, students might reflect on personal experiences not only to construct meaning and understanding, but also to gain metacognitive awareness of the cognitive processes such as what one memorizes better the details or the main idea of the text, visual material or audio. This takes constructivism in pedagogy to a different level: *meta-constructivism*.

Using empirical methods, students' practical responses to the tasks were collected from the lecture series *Developing Metacognition Through Creative Practice in English* between both KJU in Budapest, Hungary, and ISU, Tbilisi, Georgia, through open interactive lectures. Qualitative analysis was applied to the responses to identify the complexities of the produced language, ideas and level of metacognitive awareness.

### Conclusion

Findings indicate that ESL/EFL students experience a dynamic transformation of metacognitive level awareness characterized by three major improvements:

1. increased motivation;
2. minimized dependency on technology, prompting for learning not output, while producing complex texts;
3. improved understanding of the effectiveness of the individual learning strategies and the flexibility to choose the alternative method for favorable outcomes.

The creative works expended the cultural context for the language acquisition making it accessible and achievable for the advanced learners on the level of complex thinking and metacognitive observation and self-reflection. Metacognition facilitates integration of the processes related to cognition, creativity, technology, and humanization in modern education. In the era of AI and Augmented Reality, educators have to balance technological innovation with authentic human development. Art-based discussion, constructivist pedagogy, and balanced use of immersive technologies such as AR create opportunities for deeper language acquisition, reflective learning, and self-awareness. The integration of metacognitive practices into ELT enables learners not only to acquire language skills, but also to become autonomous, reflective, and critically thinking individuals capable of meaningful participation in the contemporary learning environment.

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**ინტერდისციპლინური მიდგომა ინგლისური ენის სწავლებაში უმაღლეს განათლებაში AI-ის ეპოქაში:  
მეტაკოგნიციის განვითარება შემოქმედებითი პრაქტიკის საშუალებით**

გაიანე მანასიანი

**რეზიუმე**

პანდემიის, ომებისა და ხელოვნური ინტელექტის განვითარების ფონზე, განსაკუთრებულ მნიშვნელობას იძენს სწავლებისა და სწავლის პროცესში აკადემიური მიზნების სწორად განსაზღვრა, რათა საგანმანათლებლო პროცესი იყოს მაქსიმალურად ეფექტიანი და თანამედროვე მოთხოვნებთან შესაბამისი. წინამდებარე კვლევის საწყისი საფუძველი უკავშირდება უმაღლეს განათლებაში პედაგოგიკური პრაქტიკის გარდაქმნის აუცილებლობას, რაც გულისხმობს „მყარი“ და „რბილი“ უნარების განვითარების უფრო დაბალანსებულ მიდგომას მეტაკოგნიციაზე ფოკუსირებით. მიუხედავად იმისა, რომ არაერთი კვლევა უკვე შეეხო გაფართოებულ რეალობას, მის გავლენას მოტივაციასა და სხვადასხვა უნარების განვითარებაზე, შედარებით ნაკლები ყურადღება ეთმობა იმას, თუ როგორ შეიძლება მეტაკოგნიციის განვითარებამ შემოქმედებითი პრაქტიკების საშუალებით, მაგალითად, ხელოვნების ნიმუშების ანალიზისას ან ხელოვნებით შთაგონებული შემოქმედებითი ტექსტების შექმნის გზით გააუმჯობესოს სწავლებისა და სწავლის გარემო AR-ის გამოყენებით და ხელი შეუწყოს როგორც „მყარი“, ისე „რბილი“ უნარების განვითარებას. სტატიაში განხილულია, თუ როგორ შეუძლიათ უნივერსიტეტის ლექტორებს ELT-ში (English Language Teaching) შემოქმედებითი პრაქტიკების გამოყენება, რათა სტუდენტებმა ESL/EFL-ის შესწავლის პროცესში უკეთესი შედეგები აჩვენონ უნარებზე ორიენტირებული სწავლების პირობებში.

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