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## Redefining Student Autonomy through AI Literacy in the Era of Generative AI

### Abstract

The fast adoption of generative artificial intelligence (AI) applications like ChatGPT in the educational sector has strongly transformed the way learners interact with knowledge creation, which is mostly relevant to language learning situations. Although it is still feared that AI might make people less independent thinkers, recent studies indicate that its effect might largely hinge on the level of AI literacy in the learner. This paper explores the possibility of redefining student autonomy in the AI-mediated setting by considering the idea that generative AI, when implemented via the inquiry-based prompting approach, can facilitate, as opposed to undermine, the process of independent learning. Based on literature on the learner autonomy and artificial intelligence as an educational tool, the study applies a conceptual framework to study the trends of AI usage. The results show that the more students are involved in the critical work with AI, such as questioning, evaluating, and refining it, the more they exhibit the presence of cognitive involvement. On the contrary, blind application tends to result in shallow learning. The article concludes that AI literacy is a competence that serves as a means of meaningful autonomy and must be included in the contemporary educational practice.

**Keywords:** Artificial intelligence literacy, student agency, generative AI, inquiry learning, teaching English as a foreign language, online pedagogy

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## Generativ süni intellekt mühitində AI savadlılığı kontekstində tələbə muxtariyyətinin yenidən konseptuallaşdırılması

### Xülasə

Generativ süni intellekt (AI) alətlərinin, xüsusilə ChatGPT kimi sistemlərin təhsilə sürətli inteqrasiyası tələbələrin bilik əldə etmə və emal etmə üsullarını əhəmiyyətli dərəcədə dəyişdirmişdir. Xüsusilə dil öyrənmə mühitlərində bu alətlər yalnız informasiya əldə etmək üçün deyil, həm də ideyaların formalaşdırılması, mətnlərin strukturlaşdırılması və dilin təkmilləşdirilməsi üçün geniş istifadə olunur. Bu isə tələbə müstəqilliyi anlayışının yenidən nəzərdən keçirilməsini zəruri edir.

Məqalədə generativ süni intellekt dövründə tələbə müstəqilliyinin AI savadlılığı kontekstində necə yenidən müəyyənləşdirilə biləcəyi araşdırılır. Tədqiqat göstərir ki, generativ AI-dən inquiry-based prompting yanaşması ilə istifadə edildikdə tələbənin tənqidi düşünmə və reflektiv öyrənmə bacarıqları güclənir. Əksinə, AI-nin qeyri-tənqidi istifadəsi səthi öyrənməyə və asılılığa gətirib çıxara bilər.

Məqalədə AI savadlılığının tələbə müstəqilliyinə təsiri analiz edilir və göstərilir ki, bu bacarıq tələbənin AI ilə şüurlu və məqsədli işləməsini təmin edən əsas amildir. Nəticə olaraq qeyd olunur ki, müasir təhsil sistemində AI-dən istifadəni məhdudlaşdırmaqdan daha çox, tələbələrdə AI savadlılığını inkişaf etdirmək vacibdir. Bu yanaşma texnologiyanın öyrənmə prosesini zəiflətməsinin qarşısını alaraq, əksinə, onu daha effektiv və mənalı edir.

**Açar sözlər:** süni intellekt savadlılığı, tələbə müstəqilliyi, generativ süni intellekt, inquiry-based learning (sorgu əsaslı öyrənmə), dil öyrənməsi, rəqəmsal pedaqogika

## Introduction

The introduction of generative artificial intelligence into the field of education has changed the way people access and create knowledge fundamentally. AI systems like ChatGPT are becoming more popular among students to generate ideas, organize the texts, and polish the language. This has led to the reevaluation of learner autonomy which has always been viewed as a principle that implies independent learning and self-regulation (Benson, 2011). Generative AI has brought a novel paradigm where learning is mediated by how it interacts with intelligent systems. On the one hand, this opens up possibilities to support and feedback, but on the other hand, it raises the issue of dependency and less active thinking (Kasneci et al., 2023). This is especially important in language learning settings, in which writing is intimately connected with thinking. Nevertheless, the influence of AI does not depend on its existence only. According to Luckin et al. (2016), the educational technologies influence the learning outcomes only in accordance with the possibilities of their use. This turns the focus to AI literacy, which refers to the skill to interpret, judge, and engage with the AI systems in a critical manner (Ng et al., 2021). Students who are more AI literate tend to be more inclined to make use of AI, whereas students who are less AI literate will have to passively stick to it.

### Research

*Generative AI and learning processes Reconfigurations.* The penetrations of generative artificial intelligence in the educational scenario have also inherently altered the framework of learning systems. Generative AI is actively involved in the production of knowledge, whereas the previous digital tools played a major role in accessing information alone. This transformation is a change in the process of retrieving information to creating content where the role of the learner is altered to a knowledge co-creator instead of a knowledge hunter. The traditional learning settings required the students to follow a series of mental activities, which included the generation, organization, and refining of ideas. These phases which were usually difficult and revisioned were instrumental in building up more knowledge. Nevertheless, systemic AI systems have now been able to do most of these tasks and give out organized responses and output that is linguistically enhanced. Although it is more efficient, it can also decrease the chances of cognitive struggle, which is a prerequisite to meaningful learning (Warschauer, 2021). Meanwhile, generation AI provides interaction and feedback possibilities in a new manner. Students are able to experiment with ideas, check out options and get instant feedback. Subsequently, this makes the learning process more dynamic and iterative. This is because AI has a duality of being a potential shortcut and cognitive support, which underscores the significance of its utilization (Kasneci et al., 2023).

*The Re-allocation of Cognitive Labor.* Redistribution of cognitive effort is among the greatest impacts of generative AI. Learning does not occur only within the inner mental processes, but it is spread throughout the interactions between the learner and the AI system. This view goes together with the distributed cognition theory according to which thinking is the result of interaction between people and external means (Hutchins, 1995). In this regard, AI is not just another information source but an active participant in the thought process. But the most important question is whether the learner has control in this interaction or not. Students have a high level of cognitive involvement when they actively control and judge AI products. On the other hand, the role of the learner is passive in case AI determines the direction of the work.

*Passive learning and superficial learning.* The uncritical application of generative AI is likely to result in shallow learning. In such cases, students: believe AI-produced content blindly, put an emphasis on doing, not knowing, minimize cognitive effort. According to the research, such involvement leads to an underdeveloped conceptual level and poor critical thinking (Kasneci et al., 2023). Even though the completed work might seem right and properly organized, it might be shallow and repetitive. The given phenomenon can be interpreted as a cognitive outsourcing, in which the process of thinking is delegated to the AI system. These behaviors do not allow the learner autonomy to develop.

*Interactive Learning and Active participation.* On the contrary, active and reflective AI use can be helpful in further learning. Students who are critically involved in AI outputs are likely to: question and analyze answers, modify and refine ideas, evaluate different points of view. This methodology is in line with constructivist theory of learning that focuses on active knowledge building (Jonassen, 1999). The AI used in this model is also an exploration tool and not a substitute to the process of thinking. Holmes et al. (2019) consider that AI can be used to improve reflective learning by facilitating a more transparent cognitive process. Interaction with AI makes students externalize their thought, as well as being part of a process of progressive refinement.

*Strategies of Cognitive Engagement: Inquiry-Based Prompting.* Inquiry-based prompting is a major element in enhancing active learning using AI. This method is aimed at making students speak to the AI using questions instead of asking it to provide answers fully. An example is where a student may request a full essay but may ask: What are the flaws with this argument? “How can this idea be improved?” What are other possible ways of thinking? These kinds of questions make the student think about his/her personal knowledge and think at a higher level (Babasoy, 2025). In this regard, AI will be used as a cognitive scaffold, which aids but not substitutes intellectual work (Luckin et al., 2016).

*Artificial Intelligence Literacy and Building Critical Autonomy.* The level of AI literacy of a learner is a crucial factor in the effectiveness of the AI usage. AI literacy does not consist solely of the technical knowledge but also the critical mindfulness and moral comprehension (Ng et al., 2021). High AI literate students can: assess the validity of AI results, detect limitations and biases, inculcate AI-generated content in their reasoning. According to Long and Magerko (2020), AI literacy is the capacity to communicate with AI systems critically and informedly. This competence enables the learner to have control over learning process. Consequently, the autonomy in the AI-mediated learning contexts must be perceived as the so-called critical autonomy, meaning the capability to think independently when interacting with external cognitive tools.

*Discussion.* The results of this research indicate that it is more complicated than a mere contradiction that generative artificial intelligence is associated with learner autonomy. Instead of perceiving AI as a threat or a benefit, it is more reasonable to discuss how learners deal with it. In this regard, the lack of support does not constitute autonomy, but rather the ability to control and critically interpret that support. This point of view is compatible with the distributed cognition concept that considers thinking to be the process shared by individuals and tools (Hutchins, 1995). When it is applied to the study of AI-mediated learning, it implies that the thinking processes are formed in the course of the interaction with the intelligent systems. This does not however necessarily diminish autonomy. Conversely, it transforms the circumstances in which autonomy is practiced. One of the most important conclusions is that AI increases the disparities among learners. Learners who are weak AI literate are likely to use AI outputs without critical analysis resulting into passive learning. Conversely, individuals who are more AI literate are more active, doubting and editing AI output. This corroborates the research that has been done on the importance of AI literacy in influencing the learning outcomes (Ng et al., 2021). The inquiry-based prompting strategy turns out to be an efficient approach toward keeping the cognitive interest. This method transforms learning to become product based to process based by motivating students to pose questions, assess answers and develop ideas. This will make AI one of the exploration tools, but not a means of thinking. Pedagogically, the results indicate that teachers need to emphasize the organization of AI use, as opposed to its limitation. Activities that involve critical engagement with AI have the potential of preserving autonomy among learners and facilitating learning. Lastly, it is necessary to state that this is a conceptual study. The study of the way in which AI literacy is formed and how it affects learning under different conditions requires further empirical studies.

## Conclusion

Introduction of generative artificial intelligence into learning has largely transformed the way student agency can be interpreted. Instead of weakening the concept of independent learning, AI

undermines the traditional assumptions of autonomy and demands the latter to be redefined. The notion of autonomy in the AI-mediated environments is not founded on the working independently, but on the capacity to hold cognitive control in the interaction with intelligent systems. In this paper, AI literacy has been identified as one of the focal points in this change. Students with this competence have higher chances of critically interacting with AI, critically assessing the resultant outputs, and using them in their line of thought. On the contrary, blind application could result in shallow knowledge and heightened addictions (Ng et al., 2021). The results also highlight the significance of the inquiry-based prompting as a mechanism that allows maintaining active learning. This method changes the attitude of producing answers to creating meaning because it motivates students to ask questions, hone them, and think them out. Pedagogically, the research indicates that education systems should focus on introducing AI literacy in education and teaching methods. Instead of prohibiting the use of AI, educators are advised to teach students on how to use it in a critical and responsible manner. To sum up, generative AI does not necessarily diminish the autonomy of the learner but instead transforms it. The major problem of learning is how to make students active, reflective, and responsible in terms of intellect when using increasingly sophisticated technologies.

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