



Fostering critical thinking skills through adaptive e-learning platforms

Elena ARIPOVA¹

Westminster International University in Tashkent

ARTICLE INFO

Article history:

Received July 2024

Received in revised form

15 August 2024

Accepted 25 August 2024

Available online

15 September 2024

Keywords:

critical thinking,
problem-solving,
adaptive learning,
accessibility,
e-learning,
AI.

ABSTRACT

In an era of information overload and increasingly complex decision-making, critical thinking has become a crucial soft skill that schools, universities, and corporations strive to instill in students and employees. Problem-solving games, simulations, and real-world scenarios on various platforms encourage learners to engage in critical thinking and reasoning. Additionally, removing language barriers facilitates equitable participation for individuals with disabilities, promoting inclusivity and enhancing cognitive engagement for all participants.

2181-1415/© 2024 in Science LLC.

DOI: <https://doi.org/10.47689/2181-1415-vol5-iss8/S-pp162-165>

This is an open access article under the Attribution 4.0 International (CC BY 4.0) license (<https://creativecommons.org/licenses/by/4.0/deed.ru>)

Moslashuvchan elektron ta'lim platformalari orqali tanqidiy fikrlash qobiliyatlarini rivojlantirish

ANNOTATSIYA

Kalit so'zlar:

tanqidiy fikrlash,
muammolarni hal qilish,
moslashuvchan ta'lim,
mavjudlik,
elektron ta'lim,
AI.

Axborotning haddan tashqari yuklanishi va qarorlar qabul qilishning har ikkala sohasi murakkablashgani sababli, tanqidiy fikrlash maktablar yoki universitetlar uchun muhim yumshoq ko'nikmalardan biriga aylandi va korporatsiyalar o'z talabalari yoki xodimlariga singdirishga harakat qilmoqda. Platformadagi muammoli o'yinlar, simulyatsiyalar va real dunyo stsenariylari o'quvchilarni tanqidiy fikrlash va fikrlashdan foydalanishga majbur qiladi. Bundan tashqari, tilning ishlashiga ta'sir qilish nogironlarning ushbu kognitiv jarayon kabi tadbirlarda teng ishtirok etishiga imkon beradi, inklyuzivlikni rag'batlantiradi va undan tashqariga chiqadi.

¹ PhD, Senior Lecturer of English Language, Global Education Westminster International University in Tashkent.
E-mail: earipova@wiut.uz

Развитие навыков критического мышления с помощью адаптивных платформ электронного обучения

АННОТАЦИЯ

Ключевые слова:

критическое мышление,
решение проблем,
адаптивное обучение,
доступность,
электронное обучение,
ИИ.

В эпоху информационной перегрузки и усложнённого процесса принятия решений критическое мышление стало одним из важнейших навыков, которые школы, университеты и корпорации стремятся развивать у своих учеников и сотрудников. Игры, направленные на решение проблем, симуляции и реальные сценарии на различных платформах побуждают учащихся применять критическое мышление и логическое рассуждение. Более того, устранение языковых барьеров позволяет людям с ограниченными возможностями равноправно участвовать в этих когнитивных процессах, способствуя инклюзивности и расширению возможностей для всех участников.

Critical thinking, in our fast-paced environment, is a needed key skill to interpret data, assess information, and make reasoned decisions. In this day and age, as digital learning environments proliferate; e-learning platforms have become invaluable assets for the development of such critical skills.

E-Course Platform: A case study for Technology improvisation and Pedagogy to promote Critical thinking in the learner It helps learners to think very deeply by giving them interactive problem-solving games, real-world simulations and dynamically changing learning paths. Most importantly, the use of the platform with its adaptable features ensures that all have the ability and access to participate and engage in critical thinking activities including students with disabilities.

This in-depth explanation shares how the E-Course Platform supports the cognitive learning of all types of learners, with and without disabilities. The artificial intelligence platform is designed to create challenges that ultimately teach you the cognitive skills required to navigate through complex situations by presenting you with exercises that require analysis, reasoning, and making decisions.

THE BENEFITS OF CRITICAL REASONING FOR NON-DISABLED LEARNERS

The E-Course Platform engages non-disabled learners in a suite of tools and activities that are designed to foster critical thinking. Problem-solving games are a primary methodology in such a platform, where learners are challenged to apply their reasoning capabilities to solve obstacles or puzzles (Brusilovsky, 2021). For instance, students could participate in a simulation where they are asked to work their way through a moral quagmire; predict the ripple effects of different types of responses; and use these data about prospective outcomes to arrive at an ultimate course of action.

Problem-solving games: like them or not, they are designed to simulate the real world, making learners weigh and consider their decisions. This is carried out by the platform's AI system which customizes the task difficulty according to the performance of the learner. With increasing banding students face more sophisticated tasks demanding higher-order thinking and so students are increasingly required to sharpen critical thinking (Shute & Ke, 2012).

Interactive simulations. Enhancing critical thinking by the simulation facilities. These real-world decision-making situations may require the combination and pruning of information where one artificial learner must weigh the pros and cons before choosing what to do next. The platform enables cognitive flexibility to solve issues in practical ways as the learners learn their knowledge and reasoning on the various problems.

TEACHING CRITICAL THINKING TO STUDENTS WITH DISABILITIES

The E-Course Platform is specifically created to engage students with disabilities in participating fully in higher-order thinking tasks specific to various types of challenges. It also offers a bunch of online accessibility features that help students to build up their critical thinking skills.

It provides step-by-step instructions and visual prompts for learners with cognitive disabilities or autism, who require specific guidance to be walked through the problem in a clear sequence (Turner & Smith, 2019). This method helps students to divide difficult problems into simple steps and use those small pieces together with their critical thinking abilities. The platform enables these structured learning paths to ensure that learners can build their reasoning skills with a gradual increase in the complexity of learned material given cognitive processing limitations.

Who also supports users with audio activities, designed for problem-solving games. These games test the high-level listening comprehension and logic that is required for solving a puzzle or for making choices based on auditory cues (Lee, 2021). An example would be an auditory-based simulation that asks learners to listen to a series of spoken details, consider multiple possible solutions, and then select the appropriate response. This enables the vision-impaired learners will have a chance to interact normally, for example solving problems but without drawings, while still being able to develop their critical thinking skills.

Hearing-impaired students are simulating visually making decisions based on charts, graphs, or other written information (Garcia & Anderson, 2022). This is inherent to our visual problem-solving tasks where learners interpret data, evaluate the evidence, and determine likely conclusions based on the information. By making such critical thinking exercises universally accessible, the platform ensures that academic puzzles and unabated intellectual challenges can be taken up by everyone — with cognitive tools sharpened to meet the demands of a world ever more complicated.

ADAPTING COMPUTERS TO THINK

Another interesting aspect of the E-Course Platform is its AI-driven adaptive learning system that keeps an eye on their progress and modifies the tasks' difficulty in real-time. Simultaneously, this flexibility plays a critical role in the development of nocebo-error as it ensures that learners are neither under-challenged nor overwhelmed by the tasks they undertake (Brusilovsky 2021).

For instance, if a student proves an understanding of a certain type of problem-solving exercise, then the AI will follow up with more difficult problems that need higher-order thinking and analysis. On the other hand, when a learner finds difficulty with some topic/ability: for example, hinting more, presenting lazily or showing them how to construct the scratch paper. All learners are advancing their critical thinking skills continuously via this mechanism of dynamic adjustment.

The AI system also gives personalized feedback to learners after each task, indicating the things they got right and areas where they need to improve. This is integral feedback as it allows the learner to review their thought process and find room for

improvement. The platform gives valuable and in-depth constructive feedback, which helps the learner to reconsider his or her performance and make changes in their learning approach for the next tasks (Hattie & Timperley, 2007).

The E-Course Platform may be used as a model framework not only to enhance the critical insights of abled and disabled students. Through problem-solving games, simulations, and AI-adaptive learning scenarios the learner plays role plays of complex reasoning, weighs evidence, and makes informed decisions.

For those who do not have disabilities, it provides a set of increasingly complex tasks that help them hone their critical thinking skills. For students with disabilities, some of the platform's accessibility options—like an activity guide that guides learners through each step and audio-based games and activities involving visual problem-solving – allow all learners to participate in critical thinking exercises at their highest potential despite any cognitive differences.

CONCLUSION

Through an inclusive learning experience that supports tough-minded intellectual engagement for all learners, the E-Course Platform helps to form in students the disposition towards critical thinking so much needed in academic and work-life success. Underpinned by AI, this adaptability continues to provide challenges for learners at an appropriate level to help them develop new skills and learn new knowledge in a supportive but feedback-rich way.

REFERENCES:

1. Baker, R. S. and Siemens, G., 2014. Educational data mining and learning analytics. *Learning Analytics and Knowledge*, 4(1), pp.14-29.
2. Brusilovsky, P., 2021. Adaptive hypermedia and AI-powered personalized learning systems. *Educational Technology Research and Development*, 69(4), pp.891-909.
3. Garcia, A. and Anderson, T., 2022. Inclusive learning environments: Integrating accessibility features into online platforms. *Educational Media International*, 59(1), pp.45-62.
4. Hattie, J. and Timperley, H., 2007. The power of feedback. *Review of Educational Research*, 77(1), pp.81-112.
5. Lee, S., 2021. Gamified accessibility: Audio and tactile feedback in e-learning for visually impaired students. *Assistive Technology Quarterly*, 19(2), pp.61-75.
6. Turner, D. and Smith, C., 2019. Educational environments for learners with autism: The role of structure and predictability. *Autism Research and Practice*, 7(3), pp.109-120.