

May the Force Be with You JedAI: Balancing the Light and Dark Sides of Generative AI in the Educational Landscape

Aras Bozkurt

Anadolu University, Türkiye

Haesol Bae

University at Albany, State University of New York, USA

Abstract: Generative AI, much like the Force in Star Wars, wields significant power, capable of immense good or potential harm depending on its application. This editorial indicates the dual nature of generative AI within educational contexts, drawing parallels to the light and dark sides of the Force. Generative AI's proficiency in language manipulation positions it as a transformative tool in education, yet its influence must be managed wisely. The evolution of AI mirrors the advent of personal computers, suggesting a future where individuals may have personal AI assistants tailored to their needs. This speculative future poses critical questions about the balance of force between humans and AI. This editorial along with articles published in the special issue urge critical reflection on our current path and the decisions that will shape the future of AI in education.

Keywords: Generative AI, artificial intelligence, AIEd, educational technology (EdTech),, online teaching and learning

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Episode I: The Force Awakens

"The Force is with me, and I am with the Force." — Star Wars Rogue One

No technology is neutral, and therefore neither is generative AI. Every technology comes with some advantages and disadvantages, and these advantages and disadvantages are determined by how and in what way the *force* of the technology is used. Generative AI is a force in its own right, mainly because language, the most sophisticated technology ever invented by humans, can now be wielded by another human invention: generative AI (Bozkurt, 2023). Accordingly, language forms the foundation of nearly all human culture. Human rights, for instance, are not inherent in our genetic code; instead, they are cultural constructs created through storytelling and legal frameworks. AI has developed notable capabilities in manipulating and generating language in various forms, including words, sounds, and images. In doing so, AI has effectively accessed and altered the core mechanisms of our civilization (Harari, 2023). Therefore, the use of language, with its light and dark sides, by the generative AI is actually the awakening of the force. In such a time, we find ourselves at a crossroads, questioning whether we are on the brink of an algorithmic renaissance that enriches and enhances the educational experience, or if we face an apocalypse where the essence of human learning and interaction is compromised (Bozkurt & Sharma, 2024).

Episode II: Return of the JedAI

"A Jedi uses the Force for knowledge..." — The Empire Strikes Back

The Force is neither good nor bad, but where you are in the larger spectrum causes you to see the dark or light side of the Force. To find the light side you need to find your way in the darkness, and, for that, you need to be literate. If generative AI is also a force, AI literacy is an important and critical set of skills to have to use it in the right way. In essence, AI literacy is about using AI technologies effectively and responsibly (Laupichler et al., 2022; Ng et al., 2021), and it is composed of six key constructs which are; recognize, know and understand, use and apply, evaluate, create, and navigate ethically (Almatrafi et al., 2024). AI literacy emphasizes the importance of knowing and using AI technologies effectively, and this leads us to the concept of prompt engineering.

Prompt engineering is an increasingly important skill set (White et al., 2023), art and science needed to communicate effectively with large language models (LLMs) facilitating generative AI (Bozkurt, 2024). Since the results of open-ended prompts can be ambiguous, structured prompts that accurately describe what is being asked and how it is being asked are important for achieving the desired outputs (Liu & Chilton, 2022). Therefore, skillfully crafted prompts are pivotal for facilitating effective communication and interaction with AI, blending technical precision with creative insight.

In all, while our AI literacy identifies the dimension of our interaction with generative AI, prompt engineering defines the depth and width of our interaction where humans and generative AI can co-create with efficiency and creativity. Thus, if we would like to use the generative AI for knowledge, and metaphorically return like a JedAI, we need to develop ourselves in AI literacy to

become highly aware users and value prompt engineering as an art and science to enable truly effective human-AI interaction.

Episode III: A New Hope [or Despair]

"The Force is what gives a Jedi his power. It's an energy field created by all living things. It surrounds us and penetrates us. It binds the galaxy together." — *Star Wars: The Last Jedi*

What made computers important in the digital information age was not only their processing power but also their emergence as personal computers (PCs) (Pedwell, 2024). This meant that everyone could process their own information or access the information they wanted. The magic word in this process was 'personal', not the 'computer' itself. Thus, when we see technology as an extension of humans and a tool that increases their capacity (McLuhan, 1962, 1964) and amplifies their abilities (Uttamchandani et al., 2022), it is a very likely future scenario that a similar evolution as in the case of personal computers will take place with generative AI. That is, humans will have their specifically trained personal LLMs and ChatBots to meet their demands.

In an AI oriented speculative future (Bozkurt et al., 2023; Peters & Green, 2024; Vrabčič Dežman, 2024), we need to ask the following questions to understand whether a future that envisions the emergence of personal generative AI is a hope or despair: Who will be master and who will be slave in this new symbiotic process? Who will choose the light side and become JedAI or who will choose the dark side and become Sith, and how will they use the force to build a future?

Episode IV: The Phantom Menace

"I am a manifestation of the force, a force that consists of two parts. Living beings generate the living force, which in turn powers the wellspring that is the cosmic force." — *Star Wars: The Clone Wars*

While the idea of AI is three thousand years old, generic AI has been around for about three quarters of a century, and generative AI has only recently come into our lives. The fact that the generative AI can use language, create original content in line with our prompts, and even see, hear and understand us while communicating and interacting not only astonished us but also tempted us to use this technology further.

When we consider that developments in the AI ecosystem are progressing exponentially, what we are witnessing now is the heartbeat of a baby in the womb. This baby will be born, crawl, walk and, one day, run. This is not a prediction but a very possible future. But now comes the question we need to answer? From whom will this technological baby learn life modeling? Will it learn by imitating humans like human babies or will AI technologies learn by interacting with each other? Both answers are worrying because if they will learn from humans, human reality is full of mistakes, but if they will learn from each other, an uncontrolled force is not only dangerous for everyone but also for everything.

Final Episode: The Empire Strikes Back

“The Force is a trap. It calls us with dreams of power or skill or just being able to change things. It’s the same, light or dark. But it chews us up, uses us for its purposes, whatever bizarre cosmic goals it’s trying to achieve and tells us it’s destiny. We aren’t people to it. We’re just tools. Tools named Jedi and Sith.” — Star Wars: The Destiny Path

The educational technology community often fails to learn from history. One view is that we will repeat past mistakes with new technologies. Even worse than failing to learn is that we often do not even know the lessons. We tend to ignore historical insights in our excitement to embrace current innovations (Rushby, 2013). In the educational technology community, there is a tendency to refer to innovative, exciting technologies as the next best thing that will save education. These technologies are often expected to transform education, perhaps even replace educators. Many are drawn to the novelty effect, which has generated numerous hypes throughout the history of educational technology, viewing EdTech as a savior (Bozkurt, 2020). This situation can be metaphorically described as the song remains the same, but the tempo keeps changing (Mishra et al., 2009). In this context, the question arises whether generative AI is a hype or a new song that changes tempo. If our inability to learn from our mistakes has created an empire, it is very likely that this empire will be reinvigorated by the emergence of generative AI technologies and strike us again.

In line with the above-mentioned thoughts, the following understanding can actually emerge. Are we indeed experiencing Stockholm Syndrome by believing too much in technology and especially in generative AI technologies? Are we actually falling in love with our executioner while dreaming of a future dominated by technology? Or are these extremely optimistic scenarios [!] and generative AI is really a technology divinely sent from the sky to solve all problems? Whether we envision a dystopian or utopian future, the trajectory of both depends on the answers we give today, and that is where this editorial and published articles aim to provoke your critical thinking.

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Competing Interests

The authors have no competing interests to declare.

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