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Reconsidering Student Success in the Age of Artificial Intelligence

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The year 2023 proves to be a watershed moment in the development of artificial intelligence (AI). The pursuit of AI has a long history, well over a half-century, but the arrival of ChatGPT—a transformer-based Large Language Model (LLM)—in 2023 represents a true inflection point as ChatGPT shows a glimpse of intelligence.

As we have worked in higher education and educational technology to contemplate the implications of AI, we cannot but consider the possible transformation of future student success in the age of AI. Just last year, Hu (2023) published an op-ed calling for a brave new college as a brave new world of human learning is on the horizon with the looming influences of AI.

Observing the rapid development of AI research and examining more evidence of AI-powered learning and assessment applications in higher education, we think it is time to systematically reconsider the nature of student success in the age of artificial intelligence, from both scholarship and policymaking perspectives.

As a higher education scholar, Martin Trow's work has demonstrated the power of conceptual thinking on higher education research, policy, and practice. Trow's work (1974) on the development of the higher education system from elite to mass to universal access, published over half a century ago, has greatly influenced scholarship in higher education while also having a lasting impact on policymaking in higher education globally.

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Similarly, the evolution of AI-infused or AI-powered postsecondary education may go through a multiphase process, while the expectation, nurturing, and evaluation of student success may have to be adjusted as the process moves forward. The speed of this evolution can vary depending on countries, regions, and other factors, but it will go through different phases, nevertheless.

One of the most common metrics that measure student success is student attainment of valuable postsecondary credentials. In the past decade and even in the near future, AI is considered mainly a *tool* to expedite student success in postsecondary education (McKinsey & Company, 2022). That is, higher education would utilize the AI advancement to improve teaching, advising, and administrative processes so that the needs of the current generation of students can be met in the current educational and economic environment. It is an age of "adoption" of AI as a tool for promoting student success in the existing framework. In this phase, AI-mediated tools and processes are plenty. AI-assisted or AI-enabled personalized teaching, tutoring, assessment, and advising have the potential to provide timely and targeted supports to promote individual student success.

Eventually, AI advances and becomes "agents" to provide supplementary assistance in core areas of human life, as Bill Gates (2023) has suggested. According to Gates (2023), "Agents are smarter. They're proactive—capable of making suggestions before you ask for them. They accomplish tasks across applications" (para 10). If this comes true, it could surely change how we live and how we should educate students for the future. Obviously, it could dramatically change what skillsets and credentials would be valuable in the labor market. Higher education will have to adapt the model of education to ensure what we offer is what the future workforce needs to have. Student success may need to go beyond credential completion that equips them for the dramatically changed world. The arrival of AI agents would not only transform the labor market landscape by pressuring students to become more adaptive but also may require students to gain competency in working and collaborating with AI agents.

In the long-term, when AI truly gets to the stage of artificial general intelligence (AGI), AI may well supplant the current skillsets of college graduates; higher education needs to be fundamentally transformed to consider what to offer to prepare students to succeed not only in learning but also in the broader AI-powered societal life. This is a scenario that Hu intended to project in his earlier op-ed (2023). Student success would differ qualitatively from today's conception. College education needs to prepare students to survive and thrive in a world that human beings share with silicon-based intelligent beings. One fundamental question to ask is what competitive advantages college graduates would have over silicon-based intelligent beings. Perhaps, a holistic development of human nature will be one of the few areas that can help students maintain an advantage, if any, in that world (Kuh, 2018).

No matter what the future holds, it is time to contemplate that possible future and start reconsidering student success in that brave new world.

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