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Abstract

The aim of this paper is to present and discuss the disruptions, challenges, and opportunities that the introduction of chatbots and tools such as ChatGPT could bring to higher education and to the relationship between the institution and its students. The authors adopt a “positive” perspective, considering this tool as an opportunity that is offered to business schools and universities to revise and improve some of their processes, in order to deliver a better service and experience to their students.

This paper analyses the potential impact of ChatGPT on the three main stages of university activity: the pre-curricular phase (recruiting, selection, admission, and enrollment); the curricular phase (in-class pedagogy and overall student experience); the post-graduate phase (job market and alumni).

Keywords: Artificial intelligence, ChatGPT, higher education, pedagogy, business school

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ChatGPT is here to stay: How can higher education institutions benefit from it?

Introduction

The use of Artificial Intelligence (AI) in education is not new and some scholars have already started to study its impact and how it can simultaneously support universities, instructors, staff, and students (Pucciarelli and Cobo-Benita, 2022; Chen et al., 2020; Roll & Wylie, 2016). Despite the perceived benefits, there are challenges for educational institutions, in particular changing the traditional paradigm: inertia and fixed processes may prevent the adoption of innovative tools such as ChatGPT (or, more in general, Generative AI - GenAI - and Artificial Intelligence Text Generators - AITG). As it has been asserted by some education experts, the accelerated change, already underway, requires a re-assessment of the value proposition in education. With the introduction of this technology, it is imperative to analyse pedagogical objectives, the development of competencies beyond the traditional teaching models, adapting the curricula, course content, training the faculty, and modifying evaluation criteria in a short time (Divendi et al, 2023). Regrettably, bureaucracy may prevent a timely implementation of changes while many businesses and industries are already utilising these tools, as is clear for example with the rapid integration of AI (and, more specifically, Generative AI - GenAI) in many digital products. Nevertheless, in the post-pandemic environment, academia seems to have accelerated its digital transformation not only for instruction, but also for research and even in its administrative processes (Mohammadian et al., 2020). Indeed during the confinement the use of technology and a change of the processes were unavoidable to continue daily operations.

Now that the global pandemic seems to be over, higher education institutions have to seriously think about how new technologies (and AI specifically) impact their ordinary operations. The aim of this paper, therefore, is to present an overview of the potential disruptions, challenges, and opportunities that AI (and, specifically, GenAI and AITG) could bring (or is already bringing) to the operations and system of higher education institutions, adopting the perspective of the students' life cycle.

Three moments in the student life cycle

To better analyse the impact of Gen AI on higher education institutions, it can be helpful to distinguish between three major moments of a student life cycle: a pre-curricular phase (recruiting, application, selection, admission, and enrollment); a curricular phase (curriculum design, both the in-class pedagogy and the overall student experience); and a post-graduate phase (job market and alumni).

ChatGPT in the pre-curricular phase

The very first interactions students have with a university are in the pre-enrollment phase, i.e. through the marketing material for recruitment, selection, application, and admission processes. The use of Gen-AI in this stage can be considered both from the university's and the students' perspective.

The advantages for university marketing teams using generative AI tools to create their promotional material for attracting new students are evident, as in fact generative AI tools are widely adopted by marketing teams for their content marketing, SEO, social media posting, brochures, and websites texts, etc. In addition, we should not forget that this

technology is also able to generate effective promotional videos, automatic chats to answer routine questions of the new students, and, in the near future, will potentially run informative webinars and informative sessions.

There are many open questions when it comes to students using ChatGPT for writing their university admission essay. The debate is at the moment focused on the ethical implications and whether or not it should be allowed. Asking for an admission essay is one of the most common practices in many Universities and top business schools all over the world. Applicants are usually asked to fill in online forms, to provide several documents (e.g., diploma, GPA score, reference letters, etc.), and to write essays or answer questions where they critically self-reflect on their personal experiences, their motivations to apply, and their future goals. These personal statements are (or at least used to be) time-consuming, and they represent an important part of the selection process, especially in top highly selective higher education institutions. Students can now prompt ChatGPT with their own ideas, giving inputs on main claims and the points they want in the essay and then let the text generator elaborate, “limiting” the work of the AI to the final “confection.”

Can an essay written by ChatGPT be considered on the same level as an essay written by a human being? Some voices are already stating the end of the university admission process as we know it, as detecting whether the admission essay has been written by a real student or by AI-generates could be difficult. Others suggest reviewing the admission process, either by discounting the essay in favour of other elements, such as a live interview; or by “fighting” AI tools with other AI tools such as antiplagiarism and AI detectors. Even a recorded video-presentation (requested by a growing number of higher education institutions) could present in the future similar issues as AI is becoming able to generate video with realistic AI avatars and text-to-speech tools.

Melissa Rapp (Admission Director for Emory University's Goizueta Business School in the US) was curious about the quality of ChatGPT written essays and the implications for assessing candidates in the future. She made the experiment of trying to use AI to answer two top business schools MBA programme essay applications: the iconic Stanford Graduate School of Business 650-word essay “*What matters the most to you, and why?*”, and the 600-word essay “*As we review your application, what more would you like us to know as we consider your candidacy for the Harvard School MBA program?*” Within seconds from the original prompt, essays were ready and were mediocre-good quality, correct in the grammar and structure, but lacking in originality, presenting somehow superficial, trite cliché statements, missing thus the genuine self-introspection and emotions that admission officers are looking for. The question is whether and up to which level improved prompting (i.e. giving the right instructions to the AI text generator) and self-learning implementation of the tool could raise the quality of these essays?

Finally, we asked ChatGPT itself how a university could benefit from the use of AI in the admission and selection process. Here is the answer of ChatGPT. Some of the statements may be questionable, and for instance the analysis criteria to discriminate information is not described in more depth:

The incorporation of ChatGPT into the admission and recruiting processes of universities presents numerous potential benefits. Firstly, ChatGPT can act as a virtual assistant, answering queries from prospective students about admissions criteria, course requirements, and university policies. This can reduce the workload of university staff and provide a more efficient and streamlined process for students. Additionally, ChatGPT can analyse the responses of prospective students during interviews to identify their suitability for admission to different courses. Moreover, by analysing large amounts of data, ChatGPT

can help universities to better understand the preferences of potential students and tailor their outreach and recruitment strategies accordingly. Overall, the use of ChatGPT in the admission and recruiting processes has the potential to enhance the efficiency and effectiveness of these processes, ultimately benefiting both the university and its prospective students.

ChatGPT in the curricular phase

In the curricular phase, AITG can be used by educators to develop syllabus, prepare content and rubrics, generate test questions, class practices, summarise materials, and proof-read instructions, cases, and translated text. Also, for in-class pedagogy, ChatGPT can be introduced to contrast or critically study concepts or facts reviewed in the course, but also to identify potential biases or errors in the bot answers. During an in-class experiment, for instance, a professor asked ChatGPT to mention the best president of a country and each day the answer was different until the tool refused to answer this question and displayed a “politically correct” answer without inclining for any of the previous mandates’ names.

Considering the students’ experience, there may be practical, theoretical, and social implications. AI can motivate in-class interaction that promotes peer-learning. Its use can also support the development of digital literacy, and information analysis. In parallel, a consequence may be the on-the-job formation of certain competencies that are already demanded in the job market; these include decision-making with the use of reliable information, problem-solving supported by technology, collaboration in virtual and hybrid environments, and adaptability when facing an unexpected variable in the learning process, that includes the advantage of using AITG. The use of AI in education, therefore, requires a significant paradigm shift in which applying knowledge and learning experience become critical.

Here is what ChatGPT writes about how a university may benefit from it for its courses and in classes:

Integrating ChatGPT into university courses and classes can provide a range of benefits to both students and instructors.

Firstly, it can help in the development of more interactive and engaging courses by providing students with a chatbot that can answer their questions in real-time. This will enhance the overall learning experience, make the courses more accessible to students, and enable more efficient and effective communication between students and instructors, particularly in online or distance learning environments.

Secondly, ChatGPT can help in automating tasks such as grading and feedback, freeing up instructors' time for other activities. This will allow them to focus on providing personalised feedback to students and improving the quality of their teaching.

Moreover, ChatGPT can provide students with access to a vast repository of knowledge and information, assisting with research and learning.

Lastly, ChatGPT can assist in the creation of more inclusive courses by providing support for students with disabilities or those who speak English as a second language. By generating responses in plain language, ChatGPT can help ensure that all students have access to the same level of support.

In conclusion, ChatGPT has the potential to transform the way universities deliver their courses and classes by providing a more interactive, efficient, and inclusive learning experience.

The downside of promoting familiarity with this AI technology may be unethical usage, as well as the overuse of AI substituting the intellectual work required to prepare an assignment, answer an exam, or learn how to do rigorous research while discriminating between valid and reliable sources of information. In addition, it is imperative to consider the digital gap of certain students that come from marginalised circumstances (Lee, 2014) with limited access to technology, in some cases aggravated by other inequalities such as disability, age, ethnicity, and gender (Longoria et al., 2022). Schools will need to address their need to develop the necessary skills early in life to prevent students from being at a disadvantage for these reasons. Potentially, these new AI technologies could quickly and significantly widen the digital divide that already exists and potentially increase global inequalities.

One of the concerns educators may have in relation to the frequent use of AITG is the possibility of affecting the development of verbal ability, which may have been the case already with the use of grammar and spelling auto-correctors. If the comparison may be made, in 1642 when Blaise Pascal invented the first calculator, and then in the middle of the twentieth century when it became accessible for the general population, the same concern regarding numerical ability could have been a preoccupation for teachers. Saving time using technology is also something the current generations have experienced as the use of spreadsheets and statistical software allow anybody to do an infinite number of complex calculations simultaneously. A potential mitigating factor for this concern could be the consideration of when to introduce AITG in the curricula, and how to continue to reinforce learning opportunities in which the analogous use of language is required, while the use of AI is also part of the curricula. In other words, they are not mutually exclusive, and instructors can become ambidextrous in using and requiring both.

Finally, a significant pedagogical disruption that should be considered regards evaluation. At least for a while, it would become quite complex (and would it be the right approach?) to forbid and to detect the use of AITG for students' assignments, essays, and exams (especially if done remotely). The shift of paradigm should probably focus on promoting the students' ability to ask questions rather than providing answers, or the ability to evaluate the "quality" and the reliability of an answer. These skills are probably the most important ones that should be developed when redesigning the training and educational programmes of our universities, focusing on experiential learning and practical activities.

ChatGPT in the post-graduate phase

Finally, looking at the potential impacts that AI could have on universities and students after they graduate, we could examine the impact on placement and the alumni life. The job market seems to be accelerating the introduction of AI in business especially for "repeated operations" and activities, including writing emails, social media posts, and text messages, preparing presentations, sending invitations, summarising content, etc... One potential significant impact could be the replacement of internships and *stagiaire* with AI. Traditionally, interns and apprentices are - at least initially - assigned operational tasks, more repetitive, that could be easily and more efficiently replaced by AI. The adverse effect of this is that we will lose the benefit and the learning experience of internships. ChatGPT, which was released on November 30th, already reached millions of users around the world and its use is expected to increase in the coming months and years, especially with the introduction of GPT-4 and other AI systems still under development. With this in mind,

enabling talent that graduates from universities and business schools to know how to use this type of AI tools is not only desirable but required. Digital literacy is expected by companies and recruiters and may be part of the talent selection processes.

This is the opinion of ChatGPT itself on how newly graduated students could benefit from ChatGPT:

For newly graduated students, ChatGPT can assist in identifying relevant job opportunities that match their skillset and experience. By parsing job postings and identifying relevant keywords, ChatGPT can suggest job openings that align with a student's qualifications. Additionally, it can assist in refining resumes, cover letters, and personal statements by providing feedback on grammar, sentence structure, and word choice.

For alumni seeking to expand their professional networks, ChatGPT can suggest industry events, professional associations, and networking opportunities. By analysing past job searches and LinkedIn activity, ChatGPT can suggest relevant networking events and opportunities that align with an alumnus's industry and interests.

In both cases, ChatGPT's ability to process natural language provides job seekers with a personalised and tailored approach to the job search process. By leveraging ChatGPT's capabilities, job seekers can save time and effort, while increasing their chances of finding the perfect job or expanding their professional network.

Conclusion

Generative AI tools such as ChatGPT can be used in higher education for many things, by both students and educators. In this paper some examples of potential applications and the related challenges have been presented, classified according to the three different macro-phases of a student journey in a higher education institution: before the admission, during the curricular phase, and after the graduation.

Students may use it for their cover letters and admission essays in the pre-enrollment stage; then in their studies it might be an ally in assignments, projects and even in writing their thesis; and finally, again for cover letters and selection processes post-graduation when looking for a job in their dream position/company. Educators, from their part, can rely on ChatGPT to accelerate the production of educational material and even to incorporate experiments and in-class exercise that encourage students to have an hands-on experience in using generative AI tools, to train them in asking the right questions and openly discussing in-class the opportunities and perils of generative technologies, as the ability of ChatGPT to provide accurate and nuanced answers is still yet to be proven. Also, the treatment of intellectual property regarding the rights of the information entered in the prompt is not clear, among other debatable concerns on crediting the data sources.

Opinion is split on whether the use of ChatGPT (and similar tools) should be allowed or restricted. Positivists encourage the incorporation of AI generative tools in HE to better prepare students for the future workplace, organisations and society, which will inevitably be characterised by human-AI interactions. Whilst those calling to restrict the use ChatGPT in HE assimilate it to cheating, thus stressing the ethical dimension alongside the potential knowledge risk of loosing basic skills, such as text structuring and grammar.

In the following table, a quick summary of the major points tackled in the paper are reported and summarised:

Phases	Opportunities	Challenges
<i>Pre-curricular</i>	• Promotional material, content marketing, SEO, social media posting, brochures, websites texts, and other promotional material • Academic advisors and informative chats • Support to universities in the selection of prospective students	• Acceptability and detectability of GenAI written essay • Relevance of “traditional” admission tools (such as motivational essay)
<i>Curricular</i>	• Support professors in admin and routine tasks (develop syllabus, prepare content and rubrics, generate test questions, summarise materials and proof-read instructions, develop cases, grading, giving feedback...) • Support pedagogy in class with more interactive sessions • Generate ideas, provide different points of view to promote discussions and learning... • Motivate in-class interaction that promotes peer-learning • Support for more inclusive classes • Develop new skills such as prompting engineering	• Unethical uses • Significant and relevance of “traditional” evaluation methods and grading • Lack of development of some skills that are still relevant • Awareness of the reliability of the information • Necessity of verifying the reliability and truthfulness of the information and the data provided • Increase in the “digital divide” and more inequalities
<i>Post-curricular</i>	• Support students for placement • Job seeker • Alumni networking	• Disrupt the activities of internships

Universities should quickly rethink their models, their pedagogy, focusing more on offering their students' high-quality experiences rather than transferring knowledge, and redefining which skills that are really needed, redesigning also their evaluations systems. An important focus should be on equipping professors and staff with training on these latest technologies, and providing room for best practices sharing to rapidly diffuse their use in the higher education institution.

Nevertheless, the disruption caused by technology requires and will continue requiring new skills and higher education institutions must be ready to equip students for a world powered by generative AI tools. The advent of ChatGPT could be an opportunity to facilitate learning, stressing the fact that the easier the knowledge production, the stronger the need for critical and independent thinking of students and educators alike.

One thing is certain: we have to act quickly. The news of the huge disrupting impact of AI on Chegg and many other education companies' shares (from Pearson to Duolingo to Udemy¹) in May 2023 is the evidence of the impact of such a disruption.

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