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The inevitability of AI: a study of undergraduate students' perceptions of AI tools in their future careers

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Abstract

Introduction. Artificial intelligence (AI) tools garner more attention every day, questions have arisen regarding their possible negative impacts in future job markets. Some predict a potential for massive job losses, especially in high-skilled jobs. This study seeks to explore undergraduate students' perceptions of how these tools might affect their future careers.

Method. This study follows a case study design, employing phenomenological interviews as a research method. The data set was made up of interviews with 17 undergraduate students.

Analysis. Data were analysed by employing constant comparative analysis, with various rounds of coding including the creation of open, axial, and structural codes.

Results. Students saw AI tools as an inevitable part of their future work. Participants expressed their intention to learn how to optimize their use of various tools, which they see as having the potential to positively benefit them in their future careers. They do not perceive AI to be a viable substitute for their skills, especially in terms of identifying misinformation and emotions.

Conclusions. Academic institutions must provide curricular spaces which allow students to harness the power of AI tools. While employers should also make efforts to train employees to make the most of AI tools.

Introduction

A recent article published in *Fortune* described the advent of AI technologies' effect on the tech industry as '*corporate Ozempic*' (Confino, 2024). This metaphor refers to the diabetes drug's secondary use as a weight loss drug which allows those who use it to shed weight without admitting its use. According to Scott Galloway, the rash of tech sector layoffs were due to companies using AI tools which reduced the need for certain positions and made many tech employees' work redundant (Confino, 2024). This meant that by early 2024 around 26,000 jobs in the usually high paying, technology sector had vanished (Allyn, 2024).

What made these layoffs even more alarming than their sheer magnitude was that they affected workers in corporate giants like Meta, Amazon, Microsoft, Google, TikTok and Salesforce and were almost exclusively high skilled workers (Allyn, 2024). Although the initial causes of these layoffs have been attributed as an effort by organizations to return to pre-COVID pandemic numbers after a rush of pandemic hiring (Allyn, 2024) there are some, like Galloway, who do not find it coincidental that the massive layoffs in what used to be considered a '*safe*' industry coincided with the advent of generative AI tools such as ChatGPT-4.

Abbreviated literature review

The issue of the effects of automation, specifically AI systems, reshaping the nature of work and causing mass job losses is not new (Duchessi et al., 1993). However, the topic has been revisited in recent years after the unveiling of ChatGPT-4 and advances in related technologies such as cloud computing, virtualization, and the Internet of Things (Morandini, 2023). With the renewed interest in AI and its possible effects on the global economy come questions regarding how these technologies will affect specific employment sectors. The International Monetary Fund (IMF) predicts that up to 40% of jobs around the world will be affected in one way or another by AI, especially high-skilled jobs (Georgieva, 2024). The effects of AI technologies in the workplace are expected to be felt within the next few years, causing disruption in many workers' lives with those who can successfully harness AI applications seeing increases in their wages and productivity, while those who can't may be out of the job market completely (Georgieva, 2024).

In the near future it is likely that many organizations will be adapting new operation models which will require a reconsideration of employees' skills as the effects of AI automation will require the development of new skills and the further development of others (Morandini et al., 2023). There appears to be a generalized agreement that so-called '*soft skills*,' such as critical thinking, problem-solving, and self-management will become more important as workers incorporate AI systems into their day-to-day work (Morandini et al., 2023; World Economic Forum, 2020).

In terms of the type of occupations most affected by AI automation, some predict that it will be those employing high skilled workers, including sectors such as postsecondary education in areas like English, foreign language, history, law, and social sciences (Felten, 2023). This anticipated AI-induced destabilization is expected to affect higher education, as institutions of higher learning are both the main trainers of highly skilled workers and employers of highly skilled workers.

Explorations relating to the early adaptation of AI tools in higher education have found that the best strategy for higher education is to adapt these tools into the academic context rather than fighting against them (Neumann et al., 2023; Rasul et al., 2023). Many of these early studies have focused on providing faculty and administrators in higher education guidance into how to best incorporate and adapt to these tools.

A rising number of works have begun to explore students' experiences and perceptions of AI. Most of these studies have focused on students' adoption of AI for use in higher education. Results of these studies have been similar, with most showing students have a general awareness of AI (Dabirian & Swarat, 2024), but relatively low to mid-level use of AI for academic purposes (Chen et

al., 2024; Dabirian & Swarat, 2024; Marshik et al., 2024), though they do see value in AI for academic purposes (Al-Abdullatif & Alsubaie, 2024; Chen et al., 2024). What has not been explored is students' perceptions of the impact of AI on their future careers and work, especially the perception of those who are at the cusp of their academic career and going into the job market in the near future.

Following the iConference theme, '*living in an AI-gorithmic world*,' this short paper explores undergraduate students' perceptions of generative AI tools in the context of higher education as it pertains to their expectations of its influence on their future careers. In this research, the perspective of college students about to enter the new job market which has been heavily influenced by AI tools is explored. This population is important since it allows us to further our understanding of the perceived challenges and advantages these technologies will present to new employees who are entering the job market immediately after what some are referring to as the advent of the 4th industrial revolution, or industry 4.0. (IBM, n.d.). This study will offer the opportunity to explore the ways in which students expect AI technologies to affect their prospective careers and which strategies they are incorporating to help position themselves favourably in the upcoming job market. The main research question driving this project is: What are students' perceptions of how AI tools will influence their future careers?

Method

Research design

This research is part of a larger scale research project which uses an embedded case study design. As presented by Robert Yin (2018), an embedded case study is a type of single case study in which a single organization serves as the primary unit of analysis; however, data is gathered from various elements, or 'embedded' units of analysis, within that organization. In this case The University is the primary unit of analysis. Although data is being gathered from various populations at The University, including faculty and librarians, this work focuses on the findings related to undergraduate students. The University is the flagship campus of a system in the southern region of the United States and classified by the Carnegie Classification of Institutions of Higher Education as a public, very high research activity university.

The University has not prohibited the use of AI tools for academic purposes but has warned students that its use in coursework is left to their instructor's discretion, and that the unauthorized use of such technologies may be classified as cheating according to the institution's honour code. Data for this study are being gathered through one-on-one interviews. The question protocol used with students gathered information regarding their general educational experiences, experience with AI tools, and their perceptions regarding applications of these tools to various professional scenarios, including future career and occupational expectations.

Sampling

Permission was obtained from the institutional IRB of the lead researcher prior to the start of data collection. Students were recruited through the candidate pool available through one of the academic units and offered the opportunity to join a raffle for one of three $50-dollar online retailer gift cards as a participation incentive. A total of 17 students participated in interviews conducted using an online video call platform. The interviews produced eight hours and 20 minutes of recordings which were captured digitally on the platform, which was also used to produce automatically generated transcripts. Transcripts were reviewed by the lead researcher to ensure accuracy. All participants were assigned pseudonyms which were presented and approved at the time their interview took place.

Description of the study sample

The use of a recruitment tool meant that the students in the sample were all affiliated with one of the colleges at The University. This college specializes in areas of communication and information studies. The areas are closely related to the socio behavioral sciences and represent to occupations which depend on creating close social connections to clients and audiences, as well as a great deal of creativity, with the goal of advancing social causes by understanding and explaining behavioral and social phenomena (Gerstein, et al., 1988).

Participants' average age was 20 years old. Ten of the participants were seniors, while four were juniors, and three were sophomores. There were no freshmen in the sample. When asked to identify themselves, 12 identified as female, three as male, while two did not specify any gender.

Data analysis

The data were analysed inductively and went through several rounds of coding, starting with open coding which allowed for the identification of initial codes. Several rounds of axial coding followed, allowing for the collapsing of several codes to form more abstract code categories. Further coding was performed using structural coding, a technique that focuses on coding and creating initial categories on a data corpus which allows for comparisons between specific segments to be established in relation to their commonalities, differences, and relationships (Saldaña, 2016). This type of coding is appropriate for qualitative data sets employing multiple participants and where semi structured instruments are used (Saldaña, 2016). All coding categories used in the analysis were chosen by mutual agreement between the researchers.

This research methodology allowed the researchers to ascertain the contextual nature of the participants' awareness, use, and perceived application and value of AI tools. The findings presented here stem from the preliminary categories created for the specific question related to the participants' perception of the influence that AI tools will have in their careers.

Results

The general perception among participants in this study was that AI tools will change or deeply affect their future careers and the occupations which they are planning to enter upon graduation. Overall, students based their value judgments regarding AI tools and their possible professional uses on the notion of the inevitability of AI. This term expresses how most students saw AI as a new fact of life, which is shaping their academic experiences and will shape their professional experiences into the future. Due to the perception among students that AI is the new sine qua non of the workplace, most expressed the need to work with and master AI tools to improve their future career prospects.

For example, Morgan, a senior with a mass communication concentration, indicated that AI tools will be ubiquitous in their field, therefore the imperative will be to learn how to use it: '*I feel like it's a matter of working with ChatGPT and not fighting it*', '*cause inevitably everyone's gonna use it…*' This sentiment was echoed by Gerry, a senior majoring in advertising, who saw AI as a helpful tool they plan to use in their future career:

> *Like I said, time efficiency, so it'll like help me get stuff done quicker. I also think it could add to like my portfolio as I get better at using it…but I think it will make it [their future job] easier, it'll make most things easier.*

While many saw AI as the latest technological change to which they must adapt if they want to be competitive in the workplace, others saw it as a threat - one they must learn to grapple with. For example, Ozzie, a senior mass communication major, explained:

> *I definitely think I've heard a lot of buzz about certain jobs being impacted because of the abilities of AI. Like we don't necessarily need as many people doing certain things. I think in my career, if anything, it'll be a tool just for writing quick documents or creating presentations faster or better.*

This same feeling was expressed by Pax, a junior public relations major:

> *I think it'll get rid of a lot of jobs just because like a lot of these things, they don't need to pay people to do it. If you can just have a computer, do it. But I think also like, it'll make it more convenient, and I mean, I think that's really it. Like it'll just, it'll get rid of a lot of jobs, especially in the field that I wanna go into because a lot of that can just be done by a computer.*

Participants in the study also expressed concerns about the advent of AI in the professional arena, especially in terms of fear for what will happen if AI tools go unchecked. Some of the most pressing areas of concern related to the capacity of spreading and generating misinformation using AI, and the perception that AI has the potential to dehumanize human communication. The students interviewed shared that these perceived AI shortcomings are the areas where they have the most to contribute to the professional arena. As Clarice, a sophomore mass communication major, expressed:

> *like we're gonna have a lot of things like quantity wise, but not necessarily quality. We were not actually checking to see if these things are, you know, necessarily relevant or correct. And so that kind of scares me as to what that looks like, especially in my realm of us putting out information where we have to be quick and like inform people about different things that are going on in the world. And you would hate to like inform somebody and create misinformation and then it leads to some type of hysteria or negative impact.*

Similarly, Nia, a junior information science major, shared her fear that AI will replace people in jobs and how the perceived weakness of AI's lack of emotion can serve as the competitive edge she will have when she joins the workforce:

> *so, as people do say that AI is gonna take over and especially with my major in tech, I feel like people are most scared about that. But I feel like there's just some things that AI, like I said, lacks that emotional connect[ion] with information science. That's something that we like emphasize a lot is learning the soft skills and yeah. Privacy. And I feel like AI...just cannot understand that.*

Despite a generalized feeling that AI is not a replacement to humans in the work environment due to its inability to understand and react to human emotions, the need to harness AI's power during their college preparation is still in the participants' minds. Some even expressed how they are thinking of adapting or reconsidering the courses they take or their college major selections and their current programs of study to help position themselves favorably in the future job market. This is exemplified by Iggy, a sophomore information science major:

> *...I wanna be like a data scientist, or 'cause in my job search I have seen a lot of emerging jobs, for like AI scientists and AI specialist. And see that's sort of like the thing I'm stuck at right now. Like, I don't know, should I be focusing on AI? Or like, yeah, it's big, it keeps growing, but...10 years from now, is it all gonna be illegal or regulated in some way? And the same with the data scientist route. I go down that, within five years from now, are they just gonna have robots doing all that? So, like, yeah, I'm kind of stuck at a crossroads.*

Conclusions

As demonstrated by the findings in this study, participants want to acquire and develop skills and knowledge which will help them feel safe from being replaced by AI tools in their chosen careers. The general sentiment expressed by study participants is that AI is an inevitable aspect of their future job prospects. This leads the participants to take an attitude more accommodating towards learning how to best use AI tools and incorporate them into their current course of study in a way that best positions them with the skills needed in the job market. This attitude is accompanied by the generalized belief among participants that AI is not a panacea or infallible, leaving room for their skills, as human actors, to best position themselves in the future job market. This is reflected in the attitude that AI tools can't do everything that humans can, including identifying misinformation, and providing the emotional connection that their socio-behavioral disciplines require.

In positioning themselves as humans with better capabilities for identify misinformation, human emotions, and being able to take specific actions to curtail these shortcomings, participants expressed their confidence in terms of being competitive in the future job market. It is important to highlight here that they do see the advantages of employing AI in their future careers but see it as yet another technological tool which can help them become better at their jobs, and not as a replacement for their skills and human essence in the future occupations.

In general, the students in this sample perceived AI tools as useful additions to their professional toolkit, but not as a replacement for their talents as employees or even as students. This finding has implications for multiple stakeholders in academia and beyond. For academic institutions, it highlights the importance of creating a curriculum which adopts AI tools instead of shunning or prohibiting it, as has already been highlighted in the literature (Neumann et al., 2023; Rasul et al., 2023). Adapting instead of resisting new AI technologies will help bring about a new generation of technologically literate, well-rounded professionals who can harness the power of AI and future technologies to optimize the work they do across all industrial sectors. But the onus of providing training and learning to adapt to the changes brought on by AI do not fall squarely on the shoulders of academia. It is also essential for employers across industries to help train and develop their employees so that they can utilize this and any upcoming technologies to their full potential. This has the potential to benefit not only organizations but also society.

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