A STUDY ON THE NEGATIVE IMPACT OF USING ARTIFICIAL INTELLIGENCE TECHNOLOGIES BY STUDENTS

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Annotation: Artificial intelligence technologies (hereinafter AI) have been developing at a breakneck pace lately. Thus, texts generated by chatbots, GPT in particular, although they have some stylistic flaws, can already be given by students as answers to written assignments in schools and universities. In this paper, we will try to study the impact of such actions on the part of students on their understanding of the topic, the level of assimilation of the material, as well as motivation.

Keywords: GPT, Learning, Artificial Intelligence

Target: To investigate the impact of students' use of AI on the quality of their learning.

Tasks:
1. To identify the main problems caused by the use of AI by students.
2. Conduct an analysis of research materials related to this topic.
3. To test the validity of qualitative research on the topic.
4. Develop recommendations to reduce negative impacts.

Methods:
1. Analysis of scientific articles on the topic
2. Replication of qualitative research from one research article

Main part

As a first study, consider the study Generative AI can harm LearningThe Wharton School Research Paper.In this study, the authors divided 3 groups of students from a Turkish school into 3 groups. The first group used an interface based on GPT 4 during math classes part of the time. The second group used a modified version of the GPT chat, which the researchers called the "tutor." The

third   group   did   not   use   GPT   at   all..

	Dependent variable:	
	Practice Perf	Exam Perf
	(1)	(2)
GPT Base	0.137***	−0.054**
	(0.031)	(0.022)
GPT Tutor	0.361***	−0.004
	(0.032)	(0.013)
Prev GPA	0.802***	1.334***
	(0.076)	(0.069)
Control Arm Mean	0.284	0.321
Control Arm SD	0.287	0.277
Observations	2,848	2,848
R^2	0.389	0.386
Adjusted R^2	0.382	0.379

Figure 1. Results obtained during the study

The researchers made a rather interesting observation. In general, the use of chat significantly increased the quality of students' performance of practical tasks. For the regular version, the increase in productivity was 48%, for the group with a chat tutor, the increase was 127%. However, 2 extremely negative consequences of using chatbots were also discovered.

First, on the final test, which tested the ability to solve problems with similar ideas to those problems that were conducted during the practice, the group of students who used the GPT chat got results 17% worse than the control group. The group with the chat tutor got similar results to the control group, but no increase in results was found.

Secondly, students' confidence in their own competence in both the regular chat group and the chat-tutor group was significantly higher than in the control group, despite the non-superior results.

The authors conclude that educational institutions should use tutor bots with great caution, and that technologies similar to GPT chat, although they can make it easier for a person to complete some tasks, but due to this, people lose the very skills that they would have acquired if they spent time on an independent solution. It is also not entirely correct to compare chat bots with technologies that were invented earlier to make tasks easier, such as calculators or printed input, due to the significantly greater intelligence of the new system and the unreliability of the answers it returns. In general, our team agrees with the authors' conclusions, but we would like to note that, all other things being equal, students would rather use not a tutor bot, but a GPT chat that will return a ready-made answer, thereby losing their understanding of the basic principles

underlying the solution to the problem. Also, the problem of excessive self-confidence cannot be ignored.

Second study

"Is it harmful or helpful? Examining the causes and consequences of generative AI usage among university students "

Table 6 Indirect effects via use of ChatGPT (Study 2)

Hypothesis	Path	Coefficient	T Statistics	P-value	Status
H8	Workload -> Use of ChatGPT -> Procrastination	0.041	2.384	0.017	Supported
H8	Workload -> Use of ChatGPT -> Memory Loss	0.036	2.333	0.020	Supported
H8	Workload -> Use of ChatGPT -> Academic Performance	− 0.014	1.657	0.098	Supported
H9	Time Pressure -> Use of ChatGPT -> Procrastination	0.050	2.607	0.009	Supported
H9	Time Pressure -> Use of ChatGPT -> Memory Loss	0.045	2.574	0.010	Supported
H9	Time Pressure -> Use of ChatGPT -> Academic Performance	− 0.017	1.680	0.093	Supported
H10	Sensitivity to Rewards -> Use of ChatGPT -> Procrastination	− 0.032	1.676	0.094	Supported
H10	Sensitivity to Rewards -> Use of ChatGPT -> Memory Loss	− 0.028	1.668	0.095	Supported
H10	Sensitivity to Rewards -> Use of ChatGPT -> Academic Performance	0.011	1.380	0.168	Not supported
H11	Sensitivity to Quality -> Use of ChatGPT -> Procrastination	0.010	0.582	0.561	Not supported
H11	Sensitivity to Quality -> Use of ChatGPT -> Memory Loss	0.009	0.582	0.561	Not supported
H11	Sensitivity to Quality -> Use of ChatGPT -> Academic Performance	− 0.003	0.535	0.593	Not supported

Figure 2 Hypotheses and their testing

In this study, the authors put forward many hypotheses about the impact of AI use by students. In particular, such hypotheses as the relationship between GPT use and academic performance, as well as the use of GPT chat and memory impairment were put forward. These hypotheses are confirmed by the study. At the same time, the authors make several important observations that will help to form a policy for the use of GPT chat in educational institutions. The main factors for the use of GPT chat by students were lack of time and excessive workload - these are the main motivators for more frequent use of ChatGPT.

The author also emphasized that the lack of understanding of the harm of AI can lead to negative effects that will be extremely difficult to get rid of.

Neural networks, like a coin, have two sides: heads means increased productivity, and tails means problems of decreased independence and cognitive abilities.

Third study

"Impact of ChatGPT on Learning Motivation: Teachers and Students' Voices"

The third study we will use will be an analysis of the impact of using neural networks on learning motivation. In this study, the authors conduct a qualitative analysis of the opinion of a small sample of students on the problem of motivation in connection with its use. The survey was chosen as the research method. The authors conclude that the use of chatGPTAccording to respondents, it reduces their cognitive skills and sometimes produces either erroneous answers or answers that are not relevant to the topic of the question.

Conclusion

In conclusion, I would like to conclude that frequent use of AI-based chatbots by students can have an extremely negative impact on understanding the fundamental concepts underlying theories and cause excessive confidence that is not supported by knowledge. This is even associated with the risks of memory impairment and decreased motivation to independently solve problems. However, it is incorrect to deny the benefits of neural networks in the context of universal human activity. This technology allows you to solve problems that are not related to the area of obtaining key knowledge. At the same time, the use of chatGPTin education has a lot of negative hidden factors that require further study.

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