

Skills and attitudes towards using AI based chatbots

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Abstract. The results of a survey conducted in 2023 on skills and attitudes towards the use of Artificial Intelligence are presented. The study included employees working in the public administration in the Republic of Bulgaria and students from the Cybersecurity specialty. The aim was to find out to what extent and area of interest the two target groups work with or are willing to start using ChatGPT or similar chatbots. The questions asked in chatbots, as well as the listed by both groups advantages and disadvantages can be used as one of the indicators when creating the teaching materials for school or university courses, as well as for the updating of already ongoing training programs.

Keywords: Artificial Intelligence, ChatGPT, digital competence, public administration, employees, students

I. INTRODUCTION

One of the five specific goals of the "Digital Europe" program for the period 2021-2027 is goal No. 2. Artificial intelligence, Art. 5, b) "the provision of these resources to all enterprises and public administrations" [1]. The need for measures to help the transition to new technological knowledge and skills, as a result of the economic changes from the introduction of AI, is also reflected in [2] - [5]. According to [6], the network of IPA lecturers note "Digitalization, Artificial Intelligence, Cybersecurity" as one of the "most important problems, areas, changes/trends that justify the need for training civil servants on them". The need for support for work with AI is also key for other sectors in the country [7] - [9]. As of 02.2024, the Ministry of Education and Science has prepared a document with examples and key terms to support the use of AI in education [10].

Here, the results of a survey conducted on the skills and attitudes towards the use of AI among public

administration employees and learners in the field of cyber security will be considered. The aim was to find out to what extent and area the two target groups work with or are willing to start using ChatGPT or similar chatbots.

II. MATERIALS AND METHODS

The survey was conducted in the period 01.10-31.12.2023. The research involved 59 employees of the public administration in the Republic of Bulgaria and 18 students of the OCS "Bachelor", part-time study, motivational course, first semester, first year. The survey was voluntary and anonymous, available online through Google Forms. The survey included the next questions:

- You are: Male; Female; I prefer not to specify.
- Your age is: up to 25; from 26 to 30; from 31 to 35; from 36 to 40; from 41 to 45; from 46 to 50; from 51 to 55; from 55 to 60; over 60.
- You work in: Sofia; Regional centre; Municipal center; Small town; A village; other.
- How many times have you logged into your ChatGPT or similar chatbot?: I don't have a profile; 0; 1-10; 11-20; 21-30; over 30.
- Do you need help using ChatGPT or similar chatbot?: Yes; No.
- Write down questions you've asked ChatGPT or a similar chatbot: Long answer text.
- Write down benefits (opportunities) when using ChatGPT: Long answer text.
- Write down disadvantages (dangers) of using ChatGPT: Long answer text.

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The analysis based on the received answers is presented according to the sequence of the asked questions.

III. RESULTS AND DISCUSSION

The gender distribution of the respondents from the public administration includes 65% female and 33% male. The students' data are opposite - 33% are female and 67% male "Fig. 1".

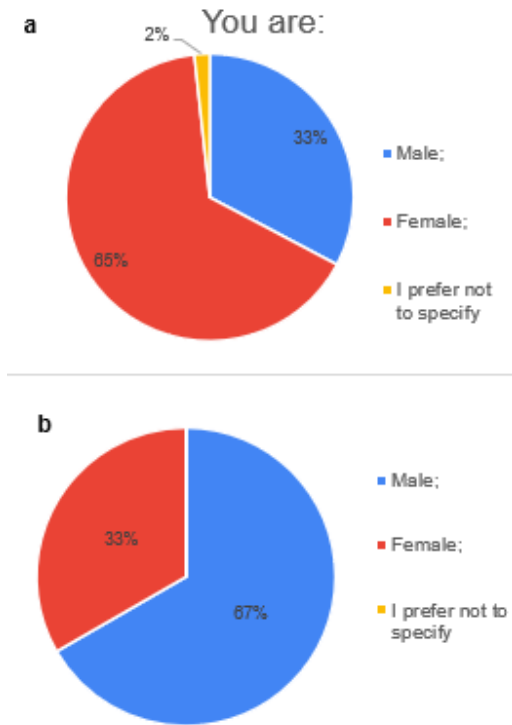


Fig. 1 Gender distribution of participants from public administration (a) and students (b).

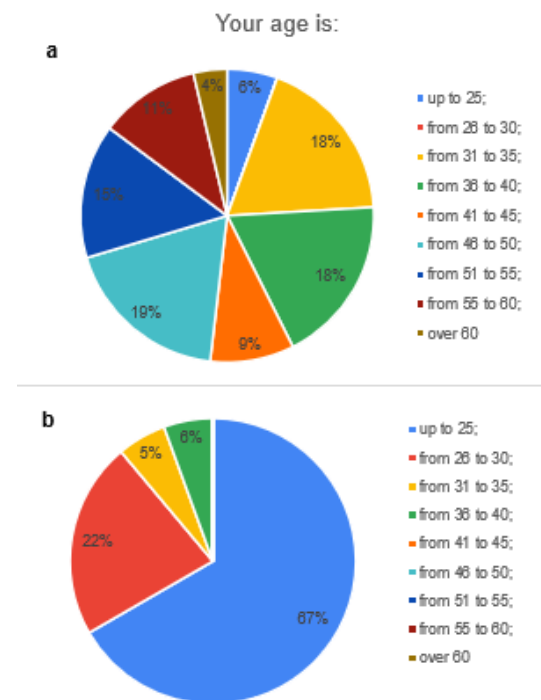


Fig. 2 Age distribution of participants from public administration (a) and students (b).

There is a diversity in the age of respondents from the public administration "Fig. 2". The largest group is the "from 46 to 50" year olds, which are 19% of the participants. 18% are the persons from the next two most covered groups - "from 35 to 40" and "from 31 to 35" years old. Of those working in public administration, representatives are missing only in the "from 26 to 30" range, while 22% of the surveyed students were in this range. On the part of students, 67% are under 25 years of age, and of the remaining 5% are persons "from 31 to 35" and 6% are "from 36 to 40" years old.

The workplace of 78% of the persons in the public administration is in Sofia city. Of the students, 88% also specify that their employment is in the capital. In both groups, there are no representatives from villages. The representatives from small towns are 2% from public administration and 5% from students "Fig. 3".

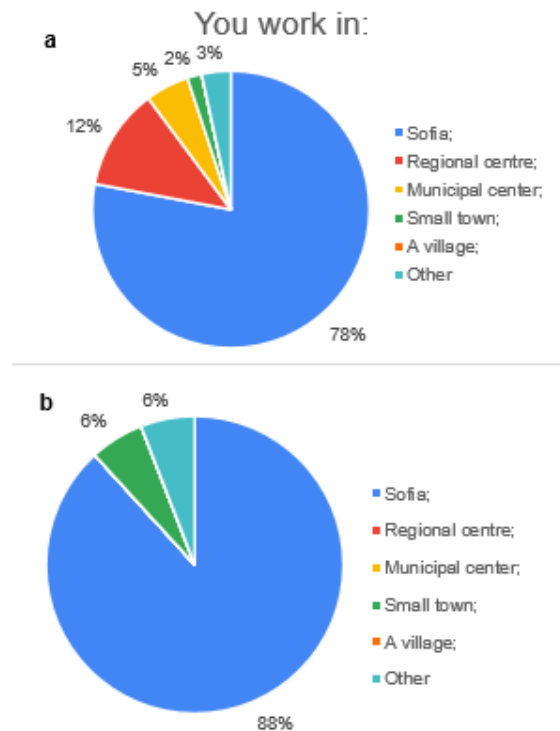


Fig. 3 Workplace of participants from public administration (a) and students (b).

Over 50% of the respondents in both target groups said that they do not have a ChatGPT profile or in a similar chatbot "Fig. 4".

Adding to this data and the percentage of those who answered "0" number of logins to such chatbots, in summary 64% of those working in public administration and 55% of students have not used such AI based systems. Looking at participants who did use AI, the most reported logins were 1 to 10 times. Presented in percentages, the frequency of entries "1-10" times for public administration is 25%, and for students - 28%. 17% of students and 5% of those working in public administration scored more than 30 logins.

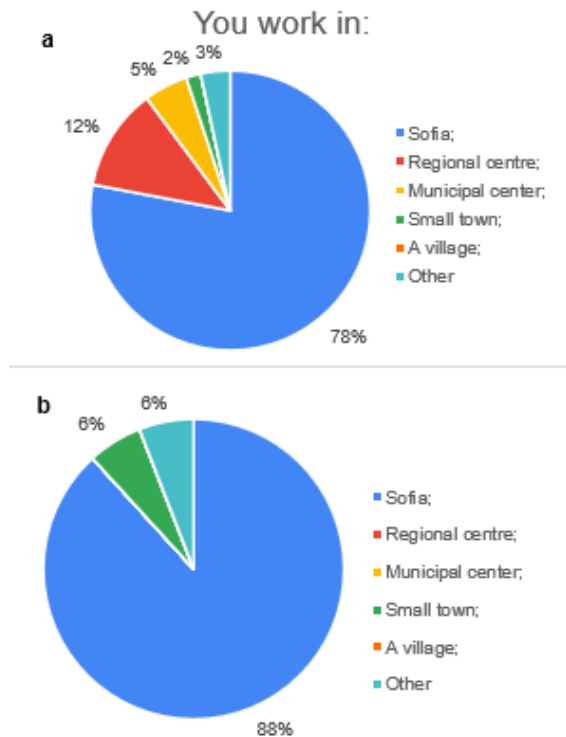


Fig. 4 How many times have you logged into your ChatGPT or similar chatbot? Public administration (a) and students (b).

Total of 33% of public employees need help using ChatGPT or a similar chatbot, of which only two have used such chatbots so far, "1-10" and "11-20" times, respectively, 27% of students also need assistance, and all of them specified that they do not have a profile in similar spaces according to the same data "Fig. 5"

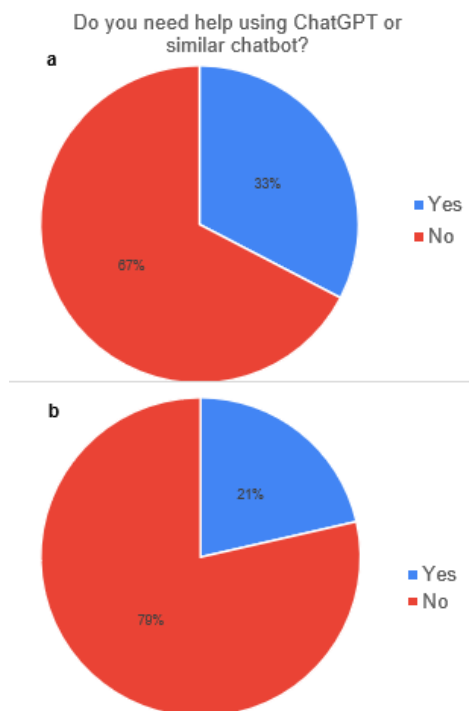


Fig. 5 Do you need help using ChatGPT or similar chatbot? Public administration (a) and students (b).

For the purposes of the study, participants listed the type of questions they asked ChatGPT or a similar chatbot and what they thought were the advantages and disadvantages of such type of AI based systems.

Of the nine responding students, six listed topics of questions asked about specific digital processes that are directly related to their professional direction at the university: "Questions related to my work in software development", "Primarily for help with programming, mathematical formulas, summaries of major topics", "Questions related to writing scripts, solving mathematical equations, creating a network topology with set parameters and requirements, writing greeting cards, etc.", "What are the 2 types of VPN? What is the CISCO way of subnetting? Convert hex code into decimal and show me how", "Debugging code", "Questions related to the implementation of software with a clearly described purpose as well as for a set of information".

The questions described by two other students are based on personal interests, requiring a narrative response or scenario: "English literature, German literature"; "Issues related to communism and world history in general. Space, various quantum physics issues and the like. To create some kind of scenarios or story". One student shared that he "Have not" ask questions, while also sharing that he didn't have a profile on such chatbots.

Creating a text on a given topic is also part of the questions asked among the representatives of the public administration. Five of the sixteen respondents listed the following questions: "Write an essay on a different topic," "Make a story about a mysterious ship and a lonely man on an island. Summarize the following document", "Too much, social media content creation, historical facts, astrology, etc", "Scripts, drawing", "Who is the actress who plays in LP video; Can you write me a short synopsis for an episode of Love, Logic, Revenge, a question about a sample script, and a question about transportation to get to another city."

Another four of the respondents from the public administration asked questions related to digital skills and their work processes: "Questions related to the functions of the Excel program. For example, which formula should I apply", "What is artificial intelligence", "Questions were related to solving math problems from competitions. Questions related to programming in any language. Questions related to sample laws. Get me a program code at assigning tasks. To write me a children's story. To suggest a program for viewing medical information", "Questions related to programming".

The questions of a free nature asked by three representatives of the public administration are the following: "What is the purpose of life?", "Compare models of electric cars", "Reliability tests". One respondent specified "Classified" as the answer.

Students share the advantages of using ChatGPT as the speed of synthesis and access to information of a different nature: "Quick, easy and convenient", "It has an interesting approach to problems and gives interesting analogies and many possible solutions", "Summarizing texts, structuring topics, easy access to any kind of specific information", "Access to information", "As long

as it is used wisely, ChatGPT can be a powerful learning time saver. ChatGPT can be our 24/7 mentor/teacher/professor", "Extremely good search engine as well as translator considering the way ChatGPT works", "Accessibility", "Saves time searching for information".

Similar advantages were described by the representatives of the public administration: "Technical assistance", "Processing vast amounts of information in a short time", "Gives concrete steps how to perform the action", "quickly creates narrative texts to be the basis for further expansion. Summarizes large texts quickly", "To prepare theses on a given subject", "Synthesizes information quickly. Search in many different sources. The answers are synthesized, but can be expanded. It also handles asking questions in Bulgarian", "It is fast and accurate for mathematical and logical questions", "Shows a summary of characteristics of compared products, which would take a lot of time to search and compare", "Ability to add things, that you already know, speed of systematizing information that you would spend hours searching for", "Fast and complex".

TABLE I DISADVANTAGES (DANGERS) WHEN USING CHATGPT ACCORDING TO RESPONDENTS FROM PUBLIC ADMINISTRATION AND STUDENTS

	Public administration	Students
Credibility of information	"Incorrect information"	"May give false information"
Accuracy of information	"The summary doesn't always get the point across." The questions must be asked very precisely. It may return incorrect or unverified information"; "Expresses it quite incorrectly"	"Many times he gives inaccurate answers and one needs to specify the question in several ways and still have an adequate judgment"
Timeliness of information	"The date to which its database is updated is not frequently updated and accordingly responses may not be relevant at the date of the question"; "No data before 2020. Avoids providing subjective opinions"	
AI vs human	"It is not particularly creative and flexible like the human brain, yet there is a set framework that the human mind can overcome"; "Interferes with people's thought process"; "Using non-original ideas"	"With us learners, there is a danger of increased laziness in the analysis of information"
Trust. Privacy of personal data and search history	"Users should not trust each other, it is not yet developed enough"; "Unidentified Opportunities"	"Threat to privacy (by registering with personal data)"; "Every request we've had to the language model is kept in a history, which may contain information critical to us (personal/corporate). Such information, when hacking our profile, becomes easily accessible"

The ability to use AI based chatbots as a vehicle for ideas and creativity was noted by public administration respondents: "facilitates with ideas", "Initially offers basic things, but subsequently gives creative ideas", "Gives answers/opportunities for which it may not you got it", "Creating content. Giving ideas".

Only one respondent from the public administration said that he could not yet distinguish specific advantages - "Not yet discovered".

As disadvantages, the students and respondents from the public administration indicated similar disadvantages, which are summarized in Table 1.

Both surveyed groups use AI with great criticality. From the indicated shortcomings, it is clear that all respondents are aware of the possibility that the credibility, accuracy and timeliness of the information received is not reliable. Trust in the overall access and maintenance of profiles in AI based chatbots is also important to them. This includes the privacy of the "search" history.

CONCLUSION

Different strategies at European and national levels are used to combine high-quality digital infrastructure with strengths in science and technology [11] - [12]. To achieve this goal, significant efforts are being made to promote an inclusive digital transformation in each Member State. This requires an emphasis on investment in human capital training, starting with the public administration. Knowledge of technology not only includes the skills to use it, but also requires an understanding of the potential dilemmas associated with technology and how they can be effectively managed.

In recent weeks and months, artificial intelligence has occupied an important place on the public agenda. The implementation of artificial intelligence represents radical innovation that covers not only the technological aspect, but also aspects such as culture, processes and workforce. The presented research shows an understanding on the part of both survey groups that AI type systems continue to develop, therefore they apply great criticality when using such chatbots. Although the use of artificial intelligence provides significant benefits, the risks of its impact on society impose the need for evaluation, critical approach and development of reliable, honest and responsible approaches.

The results from the research showed that even though half of the participants don't have profile in ChatGPT, or similar chatbots, they are aware of the credibility and accuracy of the information in a given answers form those kind of spaces. The amount of surveyed people needing help with AI based chatbots, the listed advantages and disadvantages, can be used for the creating of school or university courses as well as the updating of already ongoing training programs. The questions asked in chatbots from both groups indicate that is appropriate to separate individual consumer groups, as well as ones based on professional employment when creating the teaching materials.

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