

Artificial Intelligence and Business School Students' Performance

Maya Katenova¹, Karlygash Turmaganbetova²

Abstract

This study is intended to find a relationship between Artificial Intelligence and Business School Students' Performance. Data was collected from 150 Business School students at KIMEP University using questionnaires in Spring semester of 2024. Questionnaires were distributed two times: at the early beginning of the semester and at the end of the semester. During the semester, students thoroughly studied Artificial Intelligence and its functions and capacity. Additional classes on Artificial Intelligence tools were offered to students. Based on findings, the study proposes to address some positive implications of Artificial Intelligence integration in university teaching and learning globally. Artificial Intelligence has positive impact on students' learning process. However, special ethical rules and standards must be developed and introduced due to the fact that there are increasing concerns over the risks associated with Artificial Intelligence usage and how it might affect human being further.

Keywords: Digitalization, Artificial Intelligence, ChatGPT, Ethics, Assessment, Business School Students, Learning.

INTRODUCTION

In the sphere of education and interactive learning, Artificial Intelligence provides a support to students including automating instructors' daily tasks, and powering adaptive assignments Seo et al. (2021). Researchers are actively discussing the usage of Artificial Intelligence (AI) recently. One of the main issues is the fact that students may possibly use Artificial Intelligence tools to cheat or plagiarize their assignments/home works and exams.

There is also an issue that the use of Artificial Intelligence may deteriorate students' writing and critical thinking skills (Civil, 2023), because they try to become more reliant on automated tools to complete their assignments today. Some researchers argue that this could have a negative impact on the quality of education and harm the students' learning outcomes (Korn and Kelly, 2023; Oliver, 2023; Zhai, 2022). As a result, today there are some schools and universities, which strictly decided to ban Artificial Intelligence tools in their classes. Such a restrictions is quite popular today. There are many universities and business schools in the United Kingdom, which have totally restricted the employment of the Artificial Intelligence. It will be treated as total misconduct. Such a restrictions was imposed even in Oxford and Cambridge Many other universities around the world are planning to review their plagiarism policies citing concerns about academic integrity (Wood, 2023; Yau & Chan, 2023).

Artificial Intelligence has the potential to revolutionize education and enhance the learning experience for students globally. Some experts recommend that Artificial Intelligence could be employed further to provide personalized feedback and support to students in improving their skills. (Kasneci et al, 2023; Sinhaliz, Burdjaco, & Du Preez, 2023).

The main aim of this study is to investigate the effect of Artificial Intelligence on business school students' performance after learning all tools and functions of AI. Students were asked to fill in questionnaires two times: before learning Artificial Intelligence functions and after learning it. Practically, results confirm the fact that Artificial Intelligence positively affects students' performance after they learn all functions and abilities of Artificial Intelligence. In addition, we would like to analyze an education policy related to Artificial Intelligence and provide some comments and implications. As it expands its sphere of influence, there are some concerns over the risks associated with its usage and how it might affect human activities further (AI regulation, 2023; WEF, 2023). Some of the major issues that were discussed by governments around the world include

¹ Assistant Professor Bang College of Business KIMEP University, E-mail: mayak@kimep.kz

² PhD in Finance Candidate Bang College of Business KIMEP University

discrimination and bias of Artificial Intelligence, loss of privacy and confidentiality (Hogenhout, 2021). This paper adds to the literature by providing some results from business school students from the effect of Artificial Intelligence on their performance. There are 150 students in our sample aged between 18-23.

REVIEW OF RELATED LITERATURE

Background

The introduction of Artificial Intelligence into the sphere of education has a revolutionary effect in terms of the process of teaching and learning. AI has significant influence on academic performance and comprehension of students. The sphere of education or so-called educational landscape is being reshaped by technological innovation. Is it good or bad? It has a lot of advantages as well as disadvantages. AI is revolutionizing education through different ways. This topic is global one and affects all participants in the sphere of education, such as students, educators and administrators. New rules and standards must be developed for Artificial Intelligence usage in the sphere of education.

Dexe and Franke (2020) discussed the AI strategy documents recently from Nordic countries and authors found out different ethical principles as a fundament for further developing policies. The official Artificial Intelligence governance framework from Singapore also recognized the “explainable, transparent and fair usage of Artificial Intelligence in decision-making process” and “human-centric Artificial Intelligence solutions” as the main principles of ethical usage of Artificial Intelligence nowadays (IMDA and PDPC, 2020). Nowadays, it is important that we already start thinking about the legal and ethical implications, and develop measures for supervision, regulation, and governance of the design and deployment of Artificial Intelligence. Artificial Intelligence has certain advantages and it can easily become a beneficial technology with positive applications today (Farooq et al., 2010). It simply must be handled properly. At the same time, there are certain disadvantages and threats associated with Artificial Intelligence. In order to minimize those threats, we should develop ethical standards and rules as well as some ethical guidance on it. There were some steps to do it already. For instance, UNESCO has developed its own standards on the ethical use of Artificial Intelligence technologies by emphasizing the key idea of “human-centeredness” in this case. Human rights and values laid out in the Universal Declaration of Human Rights (UDHR) were adopted as the necessary foundation to promote beneficial use of Artificial Intelligence technologies (UNESCO, 2021b; 2023). Renda (2020) mentioned that his analysis focused only on business ethics and highlighted a human-centric approach to Artificial Intelligence as well. Human centric approach will help us to avoid all risks of AI technologies today. In addition, European Union proposed its own three pillars (legal compliance, ethical alignment and sociotechnical robustness) in order to establish a specific AI expert group to work on specific policy recommendations and rules.

Artificial Intelligence and Business Ethics

Business ethics deals with “the standards and rules of what is right and wrong, acceptable and not acceptable” (Hogenhout, 2021). There are five basic principles presented by Floridi (2021). Those main principles are: “beneficence, non-maleficence, autonomy, justice and explicability”. It is referred to by most national policies on Artificial Intelligence as a basic fundament. The strongest focus that these national and regional policies have placed on ethics simply demonstrates the fact they are very limited in implementation of Artificial Intelligence technologies today. At the same time, a difficulty to lay down a universal definition on ethical principles becomes an obstacle for certain countries in formulating policies on the proper usage of Artificial Intelligence (Dexe & Franke, 2020). On the other hand, as Artificial Intelligence can weave into the fabrics of routine human activities, the resulting wide coverage of policy areas ranging from governance to education makes it a bit difficult task for government to establish specific universal rules and policies on Artificial Intelligence usage (UNESCO, 2021b). Therefore, as the Singaporean Artificial Intelligence governance framework defined, model framework or ethical guidelines were in themselves directional, and AI practitioners need to consider them with flexibility and according to the suitability of particular cases (IMDA and PDPC, 2020). Especially, rules and standards in the sphere of education must be prepared in accordance with the needs.

The ongoing efforts of national and international entities to ensure the positive implementation of Artificial Intelligence technologies will continue to prioritize discussions and the formulation of legal and ethical

principles (AI regulation, 2023; UNESCO, 2023). However, until these principles are validated by real-time implementation of AI technologies, they will remain predictive and at the same time, prescriptive in their nature (Chatterjee, 2020). In future, it may become necessary for countries to establish institutional support systems in order to manage AI practices in accordance with validated legal and ethical guidelines (Renda, 2020).

Artificial Intelligence and Education

When it comes to the sphere of education, main issues are primarily focused on such problems as what changes can AI bring to the design of assessment and curriculum, availability of these technologies and the poor infrastructure for emerging countries (Pelletier et al., 2022; TEQSA, 2023; UNESCO, 2021a). Based on these concerns, Artificial Intelligence policies in education focused their attention on solving a number of issues such as literacy education to prevent inequalities in the use of digital technologies (UNESCO, 2021b); essential values of traditional forms of teaching and learning such as teacher-student and student-student relationships (UNESCO, 2021b); inclusiveness in the use of AI technologies (UNESCO, 2021a); and training and enhancement of skills or “micro-credentials” for students that are important and necessary for harnessing technologies (Pelletier et al., 2022; UNESCO, 2021a). The roles of literacy education and skills training are having particular implications for the wider society today. Overall, the population needs to be prepared for the implementation of AI technologies in different spheres. Despite identifying many different problematic issues in the educational contexts, policies on Artificial Intelligence in education are mostly generic and implicit because of the lack of evidence of implementing them (UNESCO, 2021a).

Business ethics was presented as a strategically plausible starting point for further discourse and researchers were especially encouraged to engage further with policymakers through their work on ethics in the use of Artificial Intelligence in education (Schiff, 2022). Policymakers and educators were highly recommended to fund projects that test the usage and employment of Artificial Intelligence tools in specific educational contexts or with specific populations. It was recommended for policymakers to encourage the development of local innovations in Artificial Intelligence for education in order to ensure that it meets the specific needs of their local communities. For example, policymakers are recommended to provide funding to local startups or research institutions working on developing new AI tools or applications specifically designed for their region's needs. Chan (2023)

METHODOLOGY, DISCUSSION AND RESULTS

There are 150 respondents from Bang College of Business, KIMEP University, Kazakhstan. There are only bachelor students in a sample. The age of respondents is between 18 and 23. Sixty two percent of respondents are female and another thirty eight percent are male respondents. Questionnaires were distributed to students when they were absolutely free, after the class. All students in a sample were taking finance courses in Spring 2024 semester. Majority of students (71%) are majoring in Finance. Bang College of Business has four specializations, which are Finance, Accounting, Management, Marketing and Information technologies in Business. As it was mentioned, questionnaires were distributed at the beginning of the semester first time and at the end of the semester second time.

In the meantime, students were presented an opportunity to learn all functions of Artificial Intelligence and its applicability. Students studied Artificial Intelligence in their finance courses. Results below present comparison of the results of two questionnaires. Table 1 demonstrates the results of questionnaires at the beginning of the semester. Table 2 demonstrates students' answers after they learned Artificial intelligence functions. We expected students to feel optimistic about Artificial Intelligence tools and we expected them to find it helpful in their learning process. We focus our attention on students and their needs. The main focus of the study is the fact that students learned Artificial Intelligence functions and tools in their classes and were asked to fill in their questionnaires again. Questionnaires were absolutely the same as it was the first time. The results are discussed below.

Artificial Intelligence tools will positively affect teaching and learning in the long run. Majority of respondents agree with this statement. And, the results of second time questionnaires support this answer stronger. However, smaller percentage of respondents are concerned with risks associated with Artificial Intelligence. It

even decreased after students had their learning experience of Artificial Intelligence. After learning thoroughly all functions of Artificial Intelligence, students became more motivated to use it. According to the results, students are too optimistic and enthusiastic about AI and its functions. The results were up to expectations and they motivate professors to incorporate Artificial Intelligence into their learning process especially in business classes. The results are useful for educators and students. It should be recommended to focus our attention on Artificial Intelligence as a part of our class. Artificial Intelligence for their future career.

Table 1. Questionnaires results before learning AI functions.

Item	N	KIMEP U		
		Mean	Median	SD
I actively used Artificial Intelligence in my classes.	150	8.54	8.49	0.09
As a student, I think the employment of AI in business schools and Universities will have a positive impact on learning.	150	9.04	8.99	0.24
Business schools need to develop a policy on AI in order to minimize risks.	150	5.2	8.56	0.61
I will use Artificial Intelligence in my practices in the future.	150	8.34	8.41	0.46
I will use Artificial Intelligence in my future job.	150	6.81	8.78	0.23
AI technologies will replace educators in future.	150	8.57	8.62	0.19
Students should study how to use AI for their career in the future, especially in finance.	150	8.82	8.63	0.36
Professors can easily identify whether a student employed AI to complete an assignment.	150	8.93	9.03	0.28
AI can serve as a perfect guidance on any task.	150	8.08	9.02	0.14

Table 2. Questionnaire after learning Artificial Intelligence functions.

Item	N	KIMEP U		
		Mean	Median	SD
I actively used Artificial Intelligence in my classes.	150	7.69	8.03	0.94
As a student, I think that the employment of AI in schools and Universities will have a positive impact on learning.	150	7.65	8.54	0.75
Business schools need to develop a policy on AI in order to minimize its risks.	150	6.54	5.98	0.81
I will use Artificial Intelligence in my learning practices in the future.	150	5.98	5.02	0.76
I will definitely use Artificial Intelligence in my future job.	150	4.67	4.84	0.65
AI technologies will replace educators in future.	150	8.47	4.03	0.89
Students should study how to use AI for their career in the future, especially in finance.	150	8.89	8.95	0.56
Professors can easily identify whether a student employed AI to complete an assignment.	150	6.76	7.87	0.76
AI can serve as a perfect guidance on any task.	150	8.06	8.09	0.64

Majority of respondents think that Artificial Intelligence will replace an instructor in the future. In terms of this question, both questionnaires have pretty similar results. AI can serve as a guidance for the coursework as effectively as human teachers. Students agree with this statement. The results are pretty the same for both questionnaires in this case as well. Majority of students think that instructors can already identify a student’s usage of AI technologies. The results of the second questionnaire are stronger. Students’ perception of AI technologies demonstrates the fact that they mostly see only advantages of Artificial Intelligence technologies. Their attitude towards Artificial Intelligence is overall optimistic. Overall, business school students are optimistic about Artificial Intelligence. However, respondents are not concerned about potential risks of Artificial Intelligence. And, they do not support Universities to manage those potential risks associated with Artificial Intelligence. The results of both questionnaires demonstrate this fact. Students agree that they must use Artificial Intelligence for their future. In addition, respondents believe that Artificial Intelligence can provide guidance for coursework as effectively as human instructors. The main limitation of this study is that only 150 respondents participated. Another limitation is their age; there are only young people employed in the study. The age of respondents is between 18 and 23. Further research may employ greater number of respondents. Moreover, the age of respondents may include both young and older people.

CONCLUSION AND FURTHER RECOMMENDATIONS

The results of the study confirm the fact that Artificial Intelligence has certain advantages. It has positive impact on learning, and students are interested and motivated to use it further. Business school students think that Artificial Intelligence will not replace instructors in the future. Artificial Intelligence can help and guide students as effectively as educators. Business school students are not concerned with potential risks associated with

Artificial Intelligence. The study can be extended further and other Universities/Business Schools may employ it. Practically, the results confirm the fact that Artificial Intelligence has greater number of advantages rather than disadvantages. Artificial Intelligence helps and guides students. However, there is a need to create rules and standards as well as ethical principles for AI usage at Universities and Business Schools. Based on our findings, the study proposes to address the employment and usage of Artificial Intelligence in university teaching and learning. Special ethical rules and standards must be developed and introduced due to the fact that there are increasing risks associated with Artificial Intelligence usage and its effect on human being. The learning sessions dedicated to Artificial Intelligence should actively take place in business schools around the world. Artificial Intelligence capacity should be studied and incorporated by professors in their business courses, especially in finance classes. It helps students to identify advantages of Artificial Intelligence and use it in their job. In addition, AI is becoming popular worldwide and should be studied as a new phenomenon. Business school students worldwide should be inspired and motivated to study all tools and functions of Artificial Intelligence today.

REFERENCES

- Artificial Intelligence (2023). Legal and Ethical Aspects of Chat GPT: EU Parliament's Amendment, French Experts' Opinion on Ethical Issues and Other Useful Resources
- Bhatnagar, S.; Alexandrova, A.; Avin, S.; Cave, S.; Cheke, L.; Crosby, M.; Feyereisl, J.; Halina, M.; Loe, B. S.; h' Eigearthaigh, S. O.; Martnez-Plumed, F.; Price, H.; Shevlin, H.; Weller, A.; Winfield, A.; and Hernandez-Orallo, J. (2018) Mapping Intelligence: Requirements and Possibilities. In Muller, V. C., ed., *Philosophy and Theory of Artificial Intelligence*. Berlin: Springer.
- Chatterjee, S. (2020). AI strategy of India: policy framework, adoption challenges and actions for government. *Transforming Government*, 14(5), 757–775.
- Chan C.K. (2023) A comprehensive AI policy education framework for university teaching and learning, *International Journal of Educational Technology in Higher Education*, (38)32.
- Chan, C.K. (under review). Student Partnership on Assessment in Higher Education: A systematic review.
- Civil, B. (2023). ChatGPT can hinder students' critical thinking skills: Artificial intelligence is changing how students learn to write. *The Queen's Journal*.
- ., De Spiegeleire (2017) **Artificial Intelligence and the Future of Defense: Strategic Implications for Small- and Medium-Sized Force Providers**, Stephan; Maas, Matthijs Michiel; Sweijs, Tim. The Hague: The Hague Centre for Strategic Studies, 140.
- Dexe, J., & Franke, U. (2020). Nordic lights? National AI policies for doing well by doing good. *Journal of Cyber Policy*, 5(3), 332–349.
- Floridi, L. (2021). A Unified Framework of Five Principles for AI in Society. In *Ethics, Governance, and Policies in Artificial Intelligence* 144, 5–17.
- Hogenhout, L. (2021). A Framework for Ethical AI at the United Nations.
- IMDA and PDPC (2020). Model Artificial Intelligence Governance Framework.
- Jam, F.A., Khan, T.I., Zaidi, B., & Muzaffar, S.M. (2011). Political Skills Moderates the Relationship between Perception of Organizational Politics and Job Outcomes.
- Kasneci, E., Sebler, K., Kuchemann, S., Bannert, M., Dementieva, D., Fisher, F., Gasser, U., and Kasneci, G. (2023). Chat GPT for good? On opportunities and challenges of large language model for education. *Learning and Individual Differences*, 103.
- Korn, J. & Kelly, S. (2023). New York City public schools ban access to AI tool that could help students cheat. C
- Ashraf, S., Raza, A., & Khan, T. I. (2023). IMPACT OF EDUCATIONAL EXPENDITURE ON ECONOMIC GROWTH IN ASIAN COUNTRIES. *International Journal of Contemporary Issues in Social Sciences*. ISSN (E) 2959-2461 (P) 2959-3808, 2(4), 819-826.
- Monett, D., and Lewis, C. W. P. 2018. Getting clarity by defining Artificial Intelligence- A Survey. In Muller, V. C., ed., *Philosophy and Theory of Artificial Intelligence 2017*. Berlin: Springer. 212–214.
- Nilsson, N. J. (2009) *The Quest for Artificial Intelligence: A History of Ideas and Achievements*. Cambridge: Cambridge University Press.
- Oliver, J. (2023). John Oliver on new AI programs: The potential and the peril here are huge. *The Guardian*.
- Papachristou, L., and Deutsch, J. (2023). ChatGPT Advances Are Moving So Fast Regulators Can't Keep Up. *Bloomberg*.
- Pelletier, K., McCormack, M., Reeves, J., Robert, J., Arbino, N., Al-Freih, M., Dickson-Deane, C., Guevara, C., Koster, L., Sánchez-Mendiola, M., Bessette, L. S. & Stine, J. (2022). *Educase Horizon Report, Teaching and Learning Edition*. Boulder, Co: Educase.
- Jam, F. A., Akhtar, S., Haq, I. U., Ahmad-U-Rehman, M., & Hijazi, S. T. (2010). Impact of leader behavior on employee job stress: evidence from Pakistan. *European Journal of Economics, Finance and Administrative Sciences*, (21), 172-179.

- Renda, A. (2020). Europe: Toward a Policy Framework for Trustworthy AI. In M. D. Dubber, F. Pasquale & S. Das (Eds.), *The Oxford Handbook of Ethics of AI*, 650-666.
- Schiff, D. (2022). Education for AI, not AI for Education: The Role of Education and Ethics in National AI Policy Strategies. *International Journal of Artificial Intelligence in Education*, 32(3), 527–563.
- Seo, K., Fels, S., Kang, M., Jung, C., & Ryu, H. (2020). Goldilocks conditions for workplace gamification: How narrative persuasion helps manufacturing workers create self-directed behaviors. *Human–Computer Interaction*. 1–38.
- Seo, K., Fels, S., Yoon, D., Roll, I., Dodson, S., & Fong, M. (2020b). Artificial intelligence for video-based learning at scale. In *Proceedings of the Seventh ACM Conference on Learning and Scale*, 215–217.
- Seo, K., Dodson, S., Harandi, N. M., Roberson, N., Fels, S., & Roll, I. (2021). Active learning with online video: The impact of learning context on engagement. *Computers and Education*, 165.
- Sinhaliz, S., Burdjaco, Z., & Du Preez, J. (2023). How ChatGPT Could Revolutionize Academia. *IEEE Spectrum*.
- TEQSA (2023). Artificial Intelligence: advice for students. Retrieved from <https://www.teqsa.gov.au/students/artificial-intelligence-advice-students>
- UNESCO (2021a). AI and education: Guidance for policy-makers. France, UNESCO.
- UNESCO (2021). Recommendations on the Ethics of Artificial Intelligence. France, UNESCO.
- UNESCO (2023). Ethics of Artificial Intelligence.
- Wood, P. (2023). Oxford and Cambridge ban AI language tool GPT-3 over fears of plagiarism.
- Yau, C., & Chan, K. (2023). University of Hong Kong temporarily bans students from using ChatGPT, other AI-based tools in coursework. *South China Morning Post*.
- Zhai, X. (2022). ChatGPT user experience: Implications for education. Available at SSRN 4312418.