Exploring Secondary Cycle School Students' Ethical and Responsible Use of AI in Lebanon

Wafika Al-Gibawi

Lebanese University, Faculty of Education Deanery, Beirut, Lebanon,
wafikagibawi@hotmail.com

Abstract

The widespread adoption of artificial intelligence (AI) technology has transformed various aspects of our lives, including the realm of education. While AI tools can provide students with quick access to information, they also present a number of dangers and ethical concerns. To mitigate AI's risks, it's essential for it to be used responsibly and ethically. So, to what extent do Lebanese secondary cycle students consider ethical concerns like academic honesty, data privacy, accuracy, and bias when using AI tools for completing academic tasks responsibly? In order to provide educators and policymakers with practical insights for fostering a culture of responsible technology usage and ethical awareness in educational settings, this research aims to investigate responsible use of AI among Lebanese secondary level students. This study is quantitative in which a sample of 177 secondary cycle students from Lebanon, Beirut filled a questionnaire with 5point Likert scale items regarding their behavior and behavioral intentions while using AI in academic contexts. The data was analyzed using descriptive statistics. Anonymity and confidentiality of respondents were ensured. The data analysis revealed that the majority of respondents showed responsible use of AI regarding academic honesty as well as caution regarding privacy and bias however there is lack of consistency in verifying the accuracy of AI generated content. Additionally, there was no significant difference in the responses between males and females as well as students from private and public schools. These results highlight the necessity of focused interventions meant to improve students' understanding of responsible AI use.

Keywords

AI tools, accuracy, bias, data privacy, responsible use, ethical use

Résumé

L’intégration généralisée de la technologie de l'intelligence artificielle (IA) a profondément modifié divers aspects de notre quotidien, notamment dans l'éducation. Si les outils d'IA offrent un accès rapide à l'information, ils soulèvent aussi des préoccupations éthiques. Pour atténuer ces risques, une utilisation responsable et éthique de l'IA est cruciale. Les lycéens libanais sont de plus en plus sensibles à l'honnêteté académique, la protection des données, l'exactitude et les biais lorsqu'ils utilisent des outils d'IA. Cette étude vise à informer les éducateurs et décideurs sur l'importance de promouvoir une utilisation responsable de la technologie et une sensibilisation éthique dans les établissements scolaires. Menée auprès de 177 élèves du secondaire à Beyrouth, Liban, cette recherche utilise un questionnaire à échelle Likert pour évaluer les comportements et intentions des élèves en matière d'IA dans un cadre académique. L'analyse des données, garantissant l'anonymat, montre que la majorité des répondants pratiquent l'honnêteté académique et sont prudents quant à la confidentialité des données et aux préjugés. Cependant, la vérification de l'exactitude du contenu généré par l'IA présente des lacunes. Aucune différence significative n'a été observée entre les réponses selon le genre ou le type d'établissement (privé ou public). Ces résultats soulignent la nécessité d'interventions ciblées pour améliorer la compréhension éthique de l'IA chez les élèves.

Mots-clés

Outils d'IA, exactitude, préjugés, confidentialité des données, utilisation responsable, usage éthique

مستخلص

استعمال تكنولوجيا الذكاء الاصطناعي بشكل واسع في السنوات الأخيرة قد غيَّر الكثير في أوجه حياتنا، ومن ضمن ذلك مجال التعليم. تمنح أدوات الذكاء الاصطناعي التلاميذ وصولاً سريعاً للمعلومات، لكن لاستعمالها عدد من المخاطر الأخلاقية. من الضروري استعمال الذكاء الاصطناعي بمسؤولية وأخلاقية لتجنب تلك المخاطر. فلأي درجةٍ يراعي تلاميذ المرحلة الثانوية هذه الاعتبارات الأخلاقية كالصدق الأكاديمي وخصوصية البيانات والدقة والتحيّز عند استعمالهم المسؤول لأدوات الذكاء الاصطناعي في مهامهم الأكاديمية؟ في سبيل تزويد المدرسين وصانعي القرار بأفكار عملية لتعزيز ثقافة الاستعمال المسؤول للتكنولوجيا وصراعات القيم الأخلاقية في الإطار التعليمي يهدف هذا البحث إلى درس الاستعمال المسؤول للذكاء الاصطناعي عند تلاميذ المرحلة الثانوية في لبنان. حيث قامت عينة من 177 تلاميذًا في المرحلة الثانوية في بيروت – لبنان، بملأ استبيان بخصوص تصرفاتهم ونواياهم السلوكية عند استعمالهم الذكاء الاصطناعي في المضمون التعليمي مع مراعاة السرية وعدم الكشف عن هوية التلاميذ المشاركين في الاستبيان. يكشف تحليل البيانات أن معظم المشاركين يظهرون استعمالاً مسؤولاً للذكاء الاصطناعي بخصوص الصدق الأكاديمي والحذر بشأن الخصوصية والتحيّز. لكن تجدر الإشارة إلى غياب التأكد الدائم من دقة المحتوى المعطى من قبل الذكاء الاصطناعي. بالإضافة، لا يوجد فرق معتبر في الردود بين الذكور والإناث ولا بين تلاميذ المدارس الخاصة والرسمية. هذه النتائج تسلّط الضوء على ضرورة التدخل الهادف من أجل تحسين فهم التلاميذ لمبدأ الاستعمال المسؤول للذكاء الاصطناعي.

كلمات مفتاحية

أدوات الذكاء الاصطناعي، التحيز، خصوصية البيانات، الاستعمال المسؤول، الاستعمال الأخلاقي.

1. Introduction

In recent years, the widespread adoption of artificial intelligence (AI) technology has transformed various aspects of our lives, including the realm of education. Artificial intelligence (AI) can be defined as technology that creates systems with human-like thought processes and goal-achieving abilities (Akgun and Greenhow, 2022). AI systems offer personalized support by analyzing students' learning styles and abilities, tailoring recommendations to help them reach their goals. They also enhance accessibility to education through online learning, benefiting students in remote areas and promoting equity and inclusivity in education. (Kooli, 2023). Even though AI has the ability to improve both teachers' and students' learning practices, the ethical and societal ramifications of these systems are rarely properly taken into account in K–12 educational situations (Akgun and Greenhow, 2022). However, some scholars express concerns about potential overreliance on AI, citing potential negative impacts on originality, creativity, and independent thought development (Zhu et al., 2023). A newspaper article reported on concerns about students using ChatGPT, a large language model developed by OpenAI, for cheating in schools and colleges around Hamilton, Canada. The article highlights that educators are being vigilant against such attempts, as students leverage ChatGPT's capabilities to generate essays or answer assessments, potentially compromising academic integrity **(**Hristova, 2023). The use of AI during assessments compromises the validity of results**,** granting an unfair advantage to users and eroding trust in the evaluation process. This ultimately devalues genuine learning and threatens the integrity of academic achievement (Kooli, 2023). Hence, while AI can provide students with quick and convenient access to information, it also presents a number of dangers and ethical concerns.

Based on an extensive review of the literature, Farhi et al., (2023) consider that ethical considerations regarding AI include bias, plagiarism, absence of originality, inaccurate content leading to false educational and professional narratives, limited knowledge, incorrect citations, cybersecurity susceptibilities, and the risk of spreading misinformation. Hence, responsible use of AI is characterized by transparency, credibility, accuracy, privacy, safety, and access and equity (Chauncy & McKenna 2023). Educators will have different ethical concerns and challenges depending on their students' grade and age of development. This article will focus on four sides of ethical and responsible use of AI: avoiding plagiarism, maintaining data privacy, ensuring data accuracy, and detecting bias.

1.1. Plagiarism

Plagiarism is the act of stealing another person's ideas, including but not limited to scholarly texts, research techniques, illustrations, and ideas (Gasparyan et al., 2017). A recent study revealed that ChatGPT, a large language model chatbot, is capable of generating highly original and sophisticated text outputs that can evade detection by traditional plagiarism checking software. This ability raises concerns about potential misuse in academic settings, where students could utilize ChatGPT as a shortcut to complete assignments without substantial effort (Khalil & Er, 2023). Among students who say they've used AI tools for school work, 50% use these tools for some parts but complete the majority themselves, 30% use AI for the majority of their assignment, and 17% use AI to complete an assignment with no edits (Appleby, 2023).

1.2. Privacy

The main objective of many AI systems is to make predictions and draw inferences about individuals and groups by algorithmically detecting patterns in large volumes of data. A major ethical concern with AI in K-12 education is student and teacher privacy, especially with the high potential for exposing personal information online. While existing protections like laws and standards are in place, concerns remain due to data access and security violations by AI companies. To address this, AI systems request consent, but users often unknowingly grant access to broad and sensitive data beyond their initial understanding. This lack of awareness about the extent of information shared, including things like language spoken and location, fuels privacy worries (Akgun & Greenhow, 2022). Chatbots collect and store large amounts of personal data, which raises concerns about data privacy and security.

1.3. Bias

The ethical challenges surrounding chatbots include the risk of biases and errors in the data used to train them, potentially leading to inaccurate and discriminatory responses. If chatbots are trained on biased data, they may perpetuate unfair assessment outcomes and contribute to inequality in education (Kooli, 2023). Every time an algorithm is created, a set of data representing the systemic and historical biases in society is also produced, which eventually becomes algorithmic bias. AI for language translation clearly exhibits gender bias since biases in society might be reflected in

the translations. Gender stereotypes are revealed when Google Translate, for example, renders "She/he is a doctor" in the male form in Turkish but "She/he is a nurse" in the feminine version (Akgun & Greenhow, 2022). Facial recognition AI has also been shown to exhibit racial prejudice, incorrectly classifying African Americans and Latino Americans as convicted offenders. So, AI technology has been implicated in cases where certain groups of people are treated unfairly, and some individuals are unfairly singled out based on characteristics like race or gender (USAID, 2023).

1.4. Accuracy

As AI technology becomes more widely used, it has been employed to spread doubt about the accuracy of public information. Results of a study done on AI chatbots in education showed that ChatGPT offered false information that sounded convincing (Aguilera-Hermida, 2024). Furthermore, Researchers in a study observed that although students thought ChatGPT's answers to physics questions were of similar linguistic quality as sample solutions, they consistently assessed sample solutions as being more scientifically accurate, especially for simpler problems. Students' perceived familiarity with the question topic grew the more differences there were in the evaluations between ChatGPT and the sample solutions (Dahlkemper et al., 2023) This emphasizes the significance of carefully examining ChatGPT responses for accuracy.

1.5. Research Focus

Based on what was mentioned previously it is evident that students face numerous obstacles when attempting to utilize AI for their educational goals so, we have a responsibility to educate teachers and students to recognize the ethical challenges and implications of algorithm use. Review of the literature reflects that studies done on ethical use of AI are primarily done on higher education when in fact, school students also utilize these tools. A nationwide study in Iowa revealed that Forty-six percent of students surveyed reported that they had used AI tools. Of those who reported using AI tools, 46% reported using them for school assignments (Schiel, et. al, 2023). So,

To what extent do Lebanese secondary level students consider ethical concerns like plagiarism, data privacy, accuracy, and bias when using AI tools for learning and completing academic tasks responsibly?

Hypothesis: Lebanese secondary level students will demonstrate moderate consideration and responsible application of these concerns when using AI tools for learning and completing academic tasks.

The objective of this study is to determine how ethical issues related to plagiarism, data privacy, accuracy, and bias are recognized and taken into account by Lebanese secondary school students when using AI technologies for learning and academic tasks. In particular, the goal is to evaluate how well students comprehend, value, and incorporate ethical issues into their use of AI technologies in learning environments. This information will help shape tactics for encouraging students to use AI responsibly and ethically.

2. Methodology

2.1. Research Design and Tool

Quantitative data was gathered in order to respond to the study question. Since quantitative data allows for the quantification of students' ethical considerations related to AI, it was judged relevant given the nature of the research question.

A 5-point Likert-Scale questionnaire was developed containing questions regarding the ethical and responsible use of AI specifically covering the topics of plagiarism, privacy, bias, and accuracy. It was initially written in English then translated to Arabic and back-translated to ensure linguistic precision.

2.2. Validity and Reliability

The questionnaire underwent validation by two experts in educational technology and modifications were made accordingly to guarantee content validity and relevance to research objective.

The reliability of the questionnaire was assessed using Cronbach’s alpha coefficient to obtain a value of 0.638 reflecting acceptable internal consistency among the questionnaire items.

Ten students participated in a pilot study that was carried out before the primary data collection. The pilot's objectives were to gauge how clear the questionnaire's items were and how long it

would take to complete. This phase did not reveal any substantial concerns, hence no changes to the questionnaire were considered required.

2.3. Sample

Online distribution of the completed survey questionnaire was done to Beirut secondary level school students who use AI. The target sample found the online distribution strategy to be convenient and easily accessible. Snowball sampling was used in this study to choose participants from Beirut secondary schools. Initially, a particular group of students who were known to the researcher were given the questionnaire. Following that, the students were urged to distribute the questionnaire to their peers who also satisfied the requirements for study participation. The participant referral process was carried out repeatedly, enabling the sample size to be gradually increased. The selection of snowball sampling was based on its ability to effectively contact a wide variety of participants within a population that may be difficult to reach through traditional sample techniques.

177 students from different schools in Beirut made up the target sample. Due to their possible exposure to artificial intelligence (AI) technology and their relevance to the study's focus on educational contexts, secondary level school students were chosen as the target demographic.

2.4. Data Analysis

With the aid of the Statistical Package for the Social Sciences (SPSS), descriptive statistics were used to analyze the data that was gathered. Frequencies, percentages, means, and standard deviations were among the descriptive statistics that were computed in order to summarize and interpret the answers that the students gave to the questionnaire items. Inferential statistics (Independent sample t-test, One way Anova) were used to determine if there are any significant differences in the responses between the demographic groups. This analysis made it possible to investigate trends and patterns in the behavior of the students as well as their intentions regarding the ethical and responsible use of AI.

2.5. Ethics

The participants were informed that their participation in the study is voluntary and were provided with a brief overview of the purpose of the questionnaire, what information will be collected and how it will be used. Anonymity of the participants was ensured as they were not asked to provide any identifying information like name, address, or contact details which encourages honest and unbiased responses.

3. Results

At the end of data collection, the total number of students that filled the questionnaire was 177 (N = 177). 115 of the students were females (65% of the total) and 62 were males (35% of the total). 166 participants (93.8% of the total) were from private schools while 11 (6.2% of the total) were from public schools. The participants were distributed by grade level as follows: 59 (33.3% of the total) were in grade 10, 42 (23.7%) were in grade 11 scientific section, 3 (1.7% of the total) were in grade 11 humanities section, 56 (31.6% of the total) were in grade 12 life sciences section, 5 (2.8% of the total) were in grade 12 general sciences section, and 12 (6.8% of the total) were in grade 12 economics and sociology section. Consequently, the age distribution was as follows: 36 (20.3% of the total) were 15 years old, 56 (31.6% of the total) were 16 years old, 61 (34.5% of the total) were 17 years old, 18 (10.2% of the total) were 18 years old, and 6 (3.4% of the total) were 19 years old. Figure 1 displays the results in pie charts.

The majority of respondents indicated that they sometimes (42.9%) or often (22%) rephrase the information in their own words when using AI tools. The mean score for this item is 3.36, suggesting a moderate tendency to rephrase information. A significant portion of respondents indicated that they never (65.5%) or rarely (13.6%) seek permission from their teachers before using AI tools. The mean score for this item is 1.68, indicating a low level of responsibility in seeking permission. Responses are more evenly distributed across the options, with a substantial proportion indicating that they sometimes (28.2%) or often (23.2%) verify the accuracy of information provided by AI tools. The mean score for this item is 3.11, suggesting a low to moderate tendency to verify the accuracy of information. A majority of respondents agreed (33.9%) or strongly agreed (22%) that they are confident in their ability to use AI tools responsibly for academic honesty. The mean score for this item is 3.62, indicating a moderate to high level of

confidence in using AI tools responsibly. The majority of respondents agreed (27.1%) or strongly agreed (37.3%) that they take responsibility for their own learning and avoid solely relying on AI tools. The mean score for this item is 3.89, suggesting a high level of responsibility in avoiding sole reliance on AI tools. A significant majority of respondents agreed (28.2%) or strongly agreed (50.3%) that they are cautious about sharing personal information when using AI technologies. The mean score for this item is 4.18, indicating a high level of caution regarding personal information sharing. The majority of respondents agreed (31.1%) or strongly agreed (24.3%) that they are able to recognize unfair recommendations or decisions made by AI tools. The mean score for this item is 3.51, suggesting a moderate to high ability to recognize unfairness in AI recommendations.

Overall, the data analysis shows that majority of the respondents rephrase the information in their own words when using AI in their schoolwork. Also, the majority of respondents feel confident in their ability to use AI tools responsibly to maintain academic honesty in assignments as well as take responsibility for their own learning and avoid solely relying on AI tools to complete assignments. Majority of respondents are cautious about sharing personal information, including their own and others when using AI technologies and are able to recognize when AI tools might make unfair recommendations or decisions based on factors like race, gender, or socioeconomic status. On the other hand, majority of the participants do not seek permission from their teachers before using AI tools to help with assignments nor verify the accuracy of information provided by AI tools before using it. Tables 1 and 2 summarize the results.

There was no significant difference in the responses between males and females, between students from private and public schools, and between different grade levels as all resulted in p-value < 0.05 upon applying independent sample t-Test and One Way Anova.

Figure 1. Demographic Data (1: private school , 2: public school)

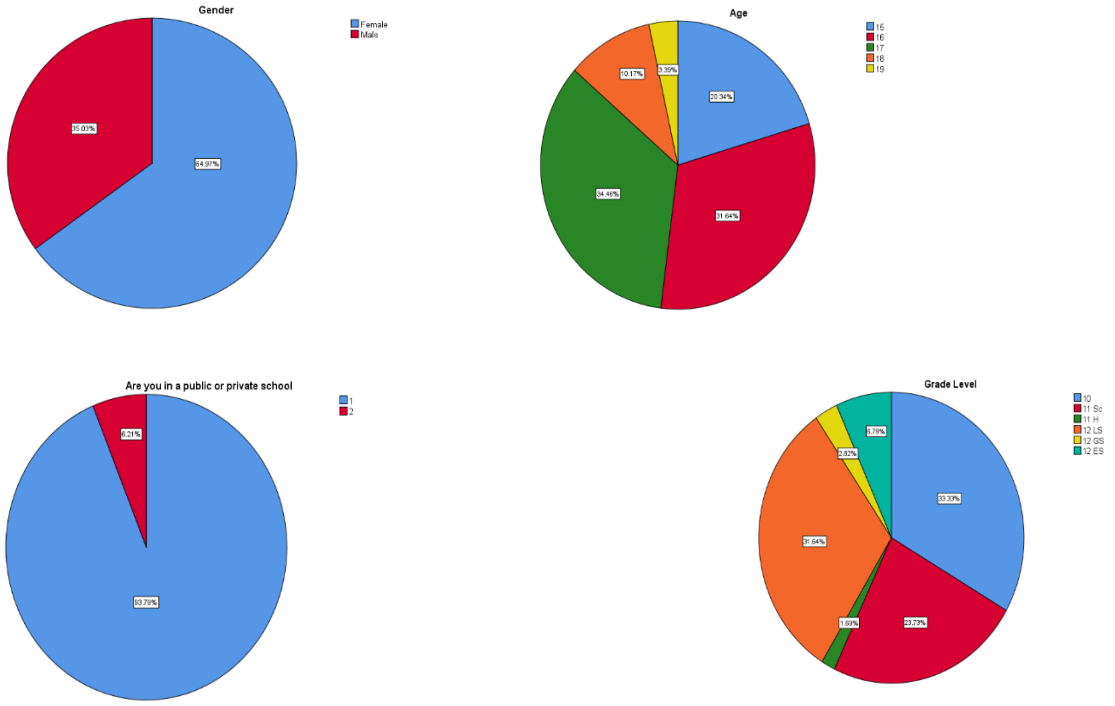

Table 1. Students' ethical behaviors when using AI for school work

Items	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Always (%)	Mean	SD	Decision
When using AI tools to help with school assignments, I rephrase the information in my own words.	9 (5.1%)	21 (11.9%)	72 (42.9%)	39 (22%)	32 (18.1%)	3.36	1.068	High responsibility
I seek permission from my teachers before using AI tools to help with assignments.	116 (65.5%)	24 (13.6%)	23 (13%)	6 (3.4%)	8 (4.5%)	1.68	1.109	Low responsibility
I verify the accuracy of information provided by AI tools before using it.	30 (16.9%)	29 (16.4%)	50 (28.2%)	27 (15.3 %)	41 (23.2%)	3.11	1.385	Low responsibility

Table 2. Students' behavioral intentions when using AI for school work.

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD	Decision
I am confident in my ability to use AI tools responsibly to maintain academic honesty in my assignments	5 (2.8%)	18 (10.2 %)	55 (31.1%)	60 (33.9%)	39 (22%)	3.62	1.027	High responsibility
I take responsibility for my own learning and avoid solely relying on AI tools to complete assignments	6 (3.4%)	11 (6.2%)	46 (26%)	48 (27.1%)	66 (37.3%)	3.89	1.086	High responsibility
I am cautious about sharing personal information, including my own and others when using AI technologies.	4 (2.3%)	11 (6.2%)	23 (13%)	50 (28.2%)	89 (50.3%)	4.18	1.029	High responsibility
I am able to recognize when AI tools might make unfair recommendations or decisions based on factors like race, gender, or socioeconomic status.	13 (7.3%)	18 (10.2%)	55 (31.1%)	48 (27.1%)	43 (24.3%)	3.51	1.178	High responsibility

4. Discussion

The results of the study reveal several key insights into secondary ethical and responsible use of AI tools in their academic work. These findings offer valuable implications for educators, policymakers, and technology developers aiming to promote responsible AI usage among young learners. First, while using AI tools, most respondents showed a moderate inclination to rewrite material in their own terms. This suggests that users engage actively with the content rather than relying solely on language created by AI. This research emphasizes how crucial it is to support critical thinking and creativity in addition to integrating AI into educational environments. Teachers can help students develop these abilities by creating tasks that ask them to synthesize data from multiple sources—including content created by artificial intelligence—and explain it in their own terms. But there's a worrying trend emerging about students needing to ask teachers for permission before using AI tools. The majority of respondents reported never or very infrequently seeking approval, which suggests that this practice is not followed with much regularity. This research emphasizes how important it is for instructors and students to have open lines of

communication and clear boundaries when it comes to the moral and practical implications of using AI tools. Teachers ought to stress the significance of getting consent and offer advice on when and how to use AI tools in scholarly settings. The moral and responsible application of AI should be the subject of frequent workshops and conversations. Transparency entails teaching educators and students alike how artificial intelligence generates answers and processes data. Pupils must be taught how to evaluate AI-generated answers critically and be made aware of the biases present in AI systems. By enabling students to use ChatGPT properly and ensuring its ethical use, transparency helps to enhance rather than replace traditional teaching techniques (Mhlanga, 2023). The findings also show that students have a low to moderate propensity to double-check the accuracy of the data that artificial intelligence applications present. Although a considerable number of students stated that they did not routinely verify information, some did report doing so on occasion. In the era of artificial intelligence (AI), where biased algorithms and disinformation can spread incorrect or misleading content, this study emphasizes the value of media literacy and fact-checking abilities. To enable students to distinguish trustworthy sources from untrustworthy ones, educators should include courses on information literacy and critical assessment of AI-generated content in their curricula. In education, accuracy of information is paramount to ensure trustworthiness and credibility. In subjects like science, inaccurate information can lead to misunderstandings and misconceptions, hindering learning (Mhlanga, 2023). Positively, the statistics indicate that students have a high degree of confidence in their capacity to use AI technologies for academic honesty in a responsible manner. Most of the respondents said they were confident in their ability to use AI resources in their assignments without sacrificing integrity. This result indicates that students have a positive attitude toward moral behavior and are open to the idea of using AI ethically. By encouraging conversations about moral conundrums in AI and offering advice on moral decision-making in academic settings, educators may build on this basis. Additionally, a growing awareness of privacy risks related with AI applications is indicated by the majority of respondents' high level of caution regarding disclosing personal information while utilizing AI technologies. This research emphasizes how crucial it is to teach youngsters about digital citizenship and privacy so they can safeguard their personal information in an increasingly digitalized society. Mhlanga (2023) considers that before using ChatGPT in the classroom, educators should inform students about how their data is gathered, used, and kept and acquire their consent. In addition, students should be aware of the security measures that are in place to protect

their data. When students, teachers, and other individuals participating in education have faith that the confidentiality of their personal information will be maintained, they are more likely to give their full attention and participation to the learning process. On the other side, if a person's right to privacy is violated in any way, the trust may be broken, which may have a detrimental effect not only on the outcomes of learning but also on overall contentment. Finally, the findings point to students having a moderate to high ability to identify unfair suggestions or decisions made by AI systems, especially when it comes to elements like socioeconomic position, gender, or race. This result emphasizes how crucial equality and justice factors are when developing and implementing AI. It is recommended that educators and policymakers support AI algorithms that are transparent and accountable in order to reduce the possibility of prejudices being reinforced.

It is imperative to recognize several constraints that are intrinsic to the methodology employed. First of all, it's possible that participants were swayed by the social desirability bias, which made them give answers that were more likely to be regarded as socially acceptable than as totally accurate. This could have led to an overestimation of the responsible use of AI. Furthermore, the results' generalizability is hampered by the sample's weak representativeness. The participants most likely originate from particular geographical areas or educational environments, which might not adequately represent the range of experiences and viewpoints among secondary students. Furthermore, using self-report measures only increases the risk of recall bias and raises the possibility that the results do not fairly represent the behaviors of the students. Furthermore, despite its meticulous design, it's possible that the questionnaire did not adequately reflect the complexity of students' behaviors about AI tools. The validity of the results may have been impacted by subtleties or contextual elements that were missed. The integration of qualitative interviews or observations with quantitative data using mixed-methods approaches may yield a deeper understanding of students' experiences with AI tools. To improve the external validity of the results, diverse sampling techniques should be used to guarantee representation across a range of socioeconomic origins, cultural identities, and academic ability. Furthermore, experimental studies might be carried out to evaluate the efficacy of programs designed to encourage students to use AI responsibly. This will help shape the creation of evidence-based treatments for use in educational settings.

To create a future generation where an inclusive and diverse citizenry can participate in the development of the future of AI, we need to develop opportunities for K-12 students and teachers to learn about AI via AI- and ethics-based curricula and professional development. These ethical concerns highlight how urgently educators and students need to be made aware of the moral dilemmas raised by AI applications in K–12 learning environments and how to resolve them. Numerous open-access resources based on AI and ethics are provided by various research teams and nonprofit groups to address this demand (Akgun and Greenhow, 2022). Notable campaigns have surfaced in the field of ethical AI applications to address the necessity of educating the next generation. A thorough curriculum created by the MIT Media Lab is one such instance. Designed with middle school kids in mind (about fifth through eighth grade), this curriculum includes a variety of activities, teacher aids, evaluations, and supplies. Its main goals are to increase students' knowledge of artificial intelligence, its social ramifications, and their ability to think about how they may influence AI in the future. Through the incorporation of these efforts into educational frameworks, we enable young people to develop the critical thinking abilities required to negotiate the ethical implications of artificial intelligence (AI), so fostering a more knowledgeable and responsible generation of AI users and creators (Payne, 2019). Additionally, A secondary school AI ethics program was created to raise teens' understanding and awareness of AI and its social ramifications. As part of the program of study, students created digital projects that expressed their opinions on AI ethics issues, participated in interactive sessions with AI media and simulations, and had conversations on stories that featured ethical dilemmas related to AI. It was found that students actively interacted with AI narratives and showed a significant interest in learning about AI and its societal consequences via four iterations, conducted in both formal and informal settings. Short tales were a successful tool for bringing up important issues, encouraging in-depth conversations, and helping students gain a deeper comprehension of AI ethical subjects including privacy, bias, and fairness (Forsyth et. al, 2021). Finally, another study highlights the importance of integrating AI education into K-12 curricula, emphasizing both understanding and proactive engagement. Through the computational action process, students not only increased their awareness of AI's ethical dimensions but also demonstrated the ability to critically assess its societal impacts. Particularly notable was the heightened awareness among female students. These findings underscore the value of empowering young learners with tools to evaluate and create

socially responsible AI solutions, aligning with global initiatives advocated by organizations like UNICEF, OECD, Elements of AI, and AI4K12 (Pang et.al, 2023).

5. Conclusion

In conclusion, this study sheds light on the responsible use of AI among Lebanese secondary cycle students, focusing on key ethical concerns such as plagirism, data privacy, accuracy, and bias. The findings reveal a generally positive trend towards responsible AI usage, with students demonstrating awareness of ethical considerations, particularly regarding academic honesty and privacy. However, the lack of consistency in verifying the accuracy of AI-generated content underscores a crucial area for improvement.

Moreover, the absence of significant differences in responses between genders and school types suggests that responsible AI usage is a universal concern among Lebanese secondary level students, transcending demographic boundaries. These results emphasize the need for targeted interventions aimed at enhancing students' understanding of responsible AI use.

Furthermore, while much attention has been devoted to addressing ethical considerations in AI design and development, this research underscores the importance of incorporating ethical education into secondary level curricula. Educating students on how to use AI ethically and responsibly within existing policies and algorithms is vital for shaping a generation of digitally literate individuals who can navigate the complexities of AI technology with integrity.

Moving forward, educators and policymakers should prioritize the integration of ethics-focused AI education into school curricula, providing students with the necessary tools and knowledge to engage with AI technology responsibly. By empowering students to critically assess and navigate AI systems, we can foster a culture of responsible technology usage and ethical awareness in educational settings and beyond.

References

Aguilera-Hermida, A. P. (2024, January). AI Chatbots in Education: The Importance of Accuracy. In *International Forum of Teaching & Studies* (Vol. 20, No. 1).

Akgun, S., & Greenhow, C. (2022). Artificial intelligence in education: Addressing ethical challenges in K-12 settings. *AI and Ethics*, *2*(3), 431-440.

Appleby, C. (2023). Will colleges ban ChatGPT?| BestColleges.

https://www.bestcollege s.com/news/will-colleges-ban-chatgpt/.

Chauncey, S. A., & McKenna, H. P. (2023). A framework and exemplars for ethical and responsible use of AI Chatbot technology to support teaching and learning. *Computers and Education: Artificial Intelligence*, *5*, 100182.

Dahlkemper, M. N., Lahme, S. Z., & Klein, P. (2023). How do physics students evaluate artificial intelligence responses on comprehension questions? A study on the perceived scientific accuracy and linguistic quality of ChatGPT. *Physical Review Physics Education Research*, *19*(1), 010142.

Farhi, F., Jeljeli, R., Aburezeq, I., Dweikat, F. F., Al-shami, S. A., & Slamene, R. (2023). Analyzing the students' views, concerns, and perceived ethics about chat GPT usage. *Computers and Education: Artificial Intelligence*, 100180.

Forsyth, S., Dalton, B., Foster, E. H., Walsh, B., Smilack, J., & Yeh, T. (2021, May). Imagine a More Ethical AI: Using Stories to Develop Teens' Awareness and Understanding of Artificial Intelligence and its Societal Impacts. In *2021 Conference on Research in Equitable and Sustained Participation in Engineering, Computing, and Technology (RESPECT)* (pp. 1-2). IEEE.

Gasparyan, A. Y., Nurmashev, B., Seksenbayev, B., Trukhachev, V. I., Kostyukova, E. I., & Kitas, G. D. (2017). Plagiarism in the context of education and evolving detection strategies. Journal of Korean medical science, 32(8), 1220-1227.

Hristova, B. (2023, February 2). *Some students are using ChatGPT to cheat — here's how schools are trying to stop it. CBC.*

Khalil, M & Er, E. (2023). Will ChatGPT get you caught? Rethinking of plagiarism detection. *The proceedings of Learning and Collaboration Technologies* (LCT 2015), 475-487.

Kooli, C. (2023). Chatbots in education and research: A critical examination of ethical implications and solutions. Sustainability, 15(7), 5614.

Mhlanga, D. (2023). Open AI in education, the responsible and ethical use of ChatGPT towards lifelong learning. In *FinTech and Artificial Intelligence for Sustainable Development: The Role of Smart Technologies in Achieving Development Goals* (pp. 387-409). Cham: Springer Nature Switzerland.

Nguyen, A., Ngo, H. N., Hong, Y., Dang, B., & Nguyen, B. P. T. (2023). Ethical principles for artificial intelligence in education. *Education and Information Technologies*, *28*(4), 4221-4241.

Pang, H. N., Parks, R., Breazeal, C., & Abelson, H. (2023, June). "How Can I Code AI Responsibly?": The Effect of Computational Action on K-12 Students Learning and Creating Socially Responsible AI. In *Proceedings of the AAAI Conference on Artificial Intelligence* (Vol. 37, No. 13, pp. 16017-16024).

Payne, B. H. (2019). An ethics of artificial intelligence curriculum for middle school students. *MIT Media Lab Personal Robots Group. Retrieved Oct*, *10*, 2019.

Schiel, J., Bobek, B. L., & Schnieders, J. Z. (2023). High School Students' Use and Impressions of AI Tools. ACT Research. *ACT, Inc.*

U.S. Agency for International Development (USAID). (2023, August). Artificial Intelligence Ethics Guide.

Zhu, C., Sun, M., Luo, J., Li, T., & Wang, M. (2023). How to harness the potential of ChatGPT in education? *Knowledge Management & E-Learning*, *15*(2), 133.