

Generative AI in Adventist Education:



ChatGPT burst into the public consciousness in November 2022, catching most of us off-guard. This emerging technology can generate essays on many different topics or solve a variety of problems with just minor prompting. For instance, the following prompts to ChatGPT4 generated useful responses in less than 60 seconds:

- Write a 500-word essay on the fall of the Roman Empire. <https://chat.openai.com/share/5f37237b-2cb2-493-0-9af1-319212948aec>.
- Summarize the history of God's people as revealed in the Bible. <https://chat.openai.com/share/23136939-3f08-4fc8-b8f2-90e74d148abd>.
- Pretend that you're the Mississippi River. Simulate a dialogue between yourself and your cousin, the Nile River. <https://chat.openai.com/share/48cceb5e-1e94-441e-ae01-dba37d65ea39>.
- Write a sample test for a biology module on photosynthesis. Use 15 multiple-choice questions, three fill-in-the-blank, and two essay ques-

Opportunities and Ethical Considerations

tions. (Elementary, high school, and graduate level) <https://chat.openai.com/share/388ea851-2acc-4579-8ab9-06739dc4e9f0>.

- Provide instructions for wiring and programming an Arduino to simulate a traffic light. [https://chat.open](https://chat.openai.com/share/c7c23983-252f-4c92914e3b1f2be5c721)

[ai.com/share/c7c23983-252f-4c92914e3b1f2be5c721](https://chat.openai.com/share/c7c23983-252f-4c92914e3b1f2be5c721).

Other related generative AI technologies (such as those listed on page 5) can generate images, presentations, and videos. These emerging resources excite educational technology enthusiasts, as they see the potential of these new tools. They have been tracking artificial intelligence for years, and these thrill seekers are all too eager to exploit the possibilities and the advantages of these emerging technologies. At the same time, these emerging technologies set off alarms in the minds of other educators who see the potential for cheating, plagiarism, or other abuses.

As we begin a new academic year, education faces yet another seismic shift. After navigating the initial years of the COVID pandemic, we anticipated a return to classroom normalcy.

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However, much like how the virus forced us into Emergency Remote Teaching (ERT), these new, transformative technological advancements now loom, catching educators off-guard just when a return to normalcy seemed possible. The uncertainty surrounding their use may seem threatening at first; however, the more we learn how to use these tools, the more we can maximize their benefit.

ChatGPT is the most well-known of a family of artificial intelligence tools, which are collectively known as “Generative Artificial Intelligence.” “Generative” because its main purpose is to generate creative products from existing data, and “Artificial” because the intelligence it displays is only a simulation of the human creativity that we must continue to foster and grow within the minds of our students and ourselves.

Here are a few examples of generative AI tools that educators and learners alike might want to use:

- ChatGPT (chat.openai.com)—Great for generating text on a variety of subjects. The tool is optimized to be human-like and conversational in tone. However, it is not optimized for accuracy and reliable conclusions. Those who use this tool for information-gathering purposes should validate all findings against their own knowledge or primary sources.

- Perplexity (perplexity.ai)—Similar to ChatGPT; however, this program is great for research and delving deeply into a variety of topics. Highly recommended for academic purposes. Perplexity functions somewhat like a search engine. It suggests answers to your query, provides the primary source for its answer, and provides tips for further investigation.

- SlidesAI.io (slidesai.io)—This is an add-on to Google slides that allows you to generate slide presentations along with graphical backgrounds based on an outline that you provide. It can be a real timesaver.

- Speechify (speechify.com)—This tool allows you to turn written text into speech with a natural and diverse selection of voices.

- Otter (otter.ai)—This meeting assistant can attend Zoom meetings with you. It will listen to the meeting, take notes, and capture slides. Using the information gathered, Otter can provide a summary of the meeting for your review and to distribute to other meeting attendees.

- Grammarly ([Grammarly.com](https://grammarly.com))—Yes, that’s right. You’ve been using AI for years and you didn’t even know it.

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It not only checks spelling on Microsoft Word and Google Docs, but it will also scan for grammar, punctuation, tone, and conciseness.

See <https://ditchthattextbook.com/ai-tools/> for a more comprehensive list.

For the sake of clarity and generalization, we will use the generic term “generative AI” for the duration of this article. Before we dive headfirst into the world of AI and examine its potential, we need to explain what generative AI is, what it can do, how it can help, and how it can harm.

Understanding Generative AI

At its core, generative AI functions like an artist who, after studying countless masterpieces, gains the ability to produce original artworks. Similarly, generative AI immerses itself in diverse data, assimilating patterns, nuances, and intricate connections. This knowledge becomes the bedrock for its creative process, allowing it to craft fresh outputs that resonate with human-like quality. This holds immense potential for academia, promising the automation of routine tasks, enhancing research capabilities, and personalizing learning experiences through the intervention of AI tools.

Each member of the academic community must understand that the main purpose of generative AI tools is to be creative and simulate human creativity. Most are not knowledge systems, search engines, or expert systems. Each individual is personally and professionally responsible for all content produced and presented throughout his or her educational and professional endeavors. Additionally, the increasing power and sophistication of generative AI also raise significant ethical concerns and practical challenges, such as the potential for misuse, biased outputs, and privacy violations.

As educators, we understand that generative AI has the potential to transform the world into which our students are emerging. AI tools will become an intrinsic part of the industries and careers for which we are preparing our students. Therefore, we must understand its impact and benefits and strive to incorporate generative AI into our students’ learning experiences. Generative AI can be a powerful tool for personalization, engagement, and feedback. Given the rapid growth and potential impact of generative AI on academic institutions, it is essential to establish guidelines and guardrails that ensure the responsible and ethical use of these technologies.

Implications for Adventist Education: General Assumptions

The following statements reflect the current world in which we find ourselves and are mostly outside of the direct control of our conferences, schools, or educators.

- AI technologies will continue to advance, with transformative effects on various aspects of education, many of which we cannot yet imagine.
- Ensuring access to generative AI tools and resources will be essential in fostering innovation.
- Addressing ethical concerns and establishing guidelines for responsible use will help to uphold the academic institution's mission and values.

Guiding Principles

- Humans should ALWAYS be at the center of technological advances. AI tools should not be used to replace human knowledge, expertise, or judgment.
- AI tools should be used to support and enhance learning, not replace it.
- Educational administrators must prioritize open dialogue and collaboration about the implications, benefits, and potential risks of generative AI. This effort serves to ensure that these tools are used in a way that is consistent with the philosophy of Adventist education,¹ and the mission, vision, and values promoted by each school or university.
- Strict data protection and privacy standards should be maintained to safeguard individuals' rights and interests.

The Promise of Generative AI

AI tools can be a valuable tool for enhancing student learning in a number of different ways:

- Exploring or brainstorming topics related to course assignments;
- Enhancing students' understanding of the curriculum;
- Providing students with opportunities to practice skills;

Sidebar 1. Guidelines for Responsibly Integrating AI Into Educational Context

General Guidelines

- **Keep individuals at the center:** Shift the focus to the learner and educator roles in AI-enhanced education. AI can personalize the learning experience, adapting to individual needs and strengths. Creative use of these tools can allow educators to embody new roles as guides and facilitators.
- **Promote transparency:** It is important that teachers and students alike be transparent about how and where they use generative AI tools. This is especially true where the content is substantially generated by external tools. Since students are often innovative and imaginative in their use of these tools (including masking or denying the use of AI assistance), this transparency will help educators become familiar with a larger variety of tools as they see how the students are using them. Transparency on the part of the teacher models this value for the students.
- **Uphold academic integrity and ethics:** Everyone must realize that generally accepted rules for academic integrity still apply here. Everyone must do his or her own work. Everyone must seek and cite reliable sources. Assignments must be done as the teacher assigned them. While new technologies have emerged, the rules of academic integrity have not changed.

Guidelines for Administrators

- **Set the tone.** Each school, college, and university should create a statement addressing "Guidelines and Guardrails" in the use of generative AI. This document should encourage the appropriate use of AI, and promote the general guidelines listed above.
- **Encourage dialogue.** Administrators should encourage conversations regarding how and where different tools have been and can be useful in streamlining efforts (e.g., strategic and marketing plans by educational administrators or curriculum and instruction plans by educators), improving student outcomes, and preparing students for the next steps in their educational journey.
- **Ensure equitable educational access.** Develop an in-depth understanding of the diverse needs of your community, in order to ensure that generative AI and other educational technology tools are deployed in a way that ensures fair and equitable access for everyone.

Guidelines for Educators

- Become aware of the various emerging generative AI programs. Educators should become familiar with emerging AI tools like the ones listed above. Try some on a casual basis and in the classroom. Embrace what works, and discard the rest. Be prepared to use a tool that was discarded in the past after it's updated, when it might offer a better solution. The more you use AI tools, the more you will notice where they can be useful.
- Provide guidance to students on when and for which assignments generative AI tools can be used.
- Remember to focus on the objectives of the course/program.
- Ensure that assessments are appropriate to the objectives, considering the availability of generative AI.
- Consider contributing future articles to THE JOURNAL OF ADVENTIST EDUCATION® or other professional forums describing your experience. Visit the Calls for Manuscripts: <https://www.journalofadventisteducation.org/calls-for-manuscripts>.

Guidelines Teachers Can Provide for Students

- Follow your teacher's guidance on when and where generative AI tools can be used.
- Explore the emerging AI tools and share your findings with your teacher. Explore with your teacher the appropriate and inappropriate use for each assignment.

- Helping students to develop critical thinking and problem-solving skills;
- Critiquing writing and expanding ideas;
- Providing a personalized tutoring environment.

However, it is important to use these tools responsibly and ethically (see Sidebar 1). Teachers and students must educate themselves about the limitations of AI tools and to use them in ways that do not compromise the integrity of the learning experience.

Limitations of Generative AI Tools

The following is a list of current limitations on generative AI tools. These limitations must be understood and acknowledged by learners and educators alike.

- **They don't think or reason.** It is important to realize that ChatGPT and its related tools do not possess real intelligence. That's why it is called *artificial* intelligence. It uses the Large Language Model (LLM)² to identify patterns and establish links between multiple concepts. This pattern linking allows it to generate text that mirrors human-like writing or conversations. However, this isn't the product of any personal understanding or creative thought process. Rather, it is a result of complex calculations and probability-based decisions.

- **They are dependent on trained content.** ChatGPT generative ability, for instance, is drawn from a Large Language Model (LLM) derived from the text it was trained on before September 2021.³ This means it doesn't have any context for events that have occurred since this date.

- **They cannot learn in real time.** Because of the current complexity of generating these large language models, substantial time is necessary to process new information. Given the rapid rate at which new data is being produced, these AI tools struggle to stay current.

- **They lack contextual understanding.** In attempting to answer

Sidebar 2. Additional Reading

- James Spencer, "How Should Christians Respond to AI? Bias, Decision-Making, and Data Processing" (July 28, 2023): <https://www.christianity.com/wiki/christian-life/how-should-christians-respond-to-ai-bias-decision-making-and-data-processing.html>.

- Department of Education, General Conference of Seventh-day Adventists, "Statement of Seventh-day Adventist Educational Philosophy" (2001): https://www.adventist.education/wp-content/uploads/2017/10/A_Statement_of_Seventh-day_Adventist_Educational_Philosophy_2001.pdf.

- Office of Educational Technology, *Artificial Intelligence and Future of Teaching and Learning: Insights and Recommendations* (Washington, D.C.: U.S. Department of Education, 2023). This report is available at <https://tech.ed.gov> and downloadable at <https://tech.ed.gov/ai-future-of-teaching-and-learning/>.

- World Health Organization, *Ethics and Governance of Artificial Intelligence for Health: WHO Guidance* (Geneva: World Health Organization, 2021). License: CC BY-NC-SA 3.0 IGO: <https://www.who.int/publications/i/item/9789240029200>.

- European Commission, Directorate-General for Education, Youth, Sport and Culture, *Ethical Guidelines on the Use of Artificial Intelligence (AI) and Data in Teaching and Learning for Educators* (Publication Office of the European Union, 2022): <https://data.europa.eu/doi/10.2766/153756>.

any question, it is important to understand the context behind it. Unless specifically prompted with contextual understanding, AI tools will generate content based on the context that they have inferred from related content in their data model. This is likely to be only superficially related to the context of a specific query. This is notably problematic when addressing specialized or complex topics, as the content generated might seem relevant superficially but fail to truly engage with the depth of the context. For instance, a generative AI may produce plausible-sounding explanations on medical matters, but without true comprehension, the accuracy and appropriateness of these responses remain questionable.

- **They have no opinions, beliefs, or emotions.** Especially within the context of Adventism and Adventist education, much of what we promote and teach is based on a specific set of beliefs and a specific understanding

of Jesus and the Scriptures.⁴ ChatGPT and other generative AI engines have access to all of the words of the Bible, and all of the writings of Ellen G. White; however, they don't "believe" these writings. They merely reflect what other people have written about their beliefs. This can be a powerful resource for study and biblical exploration, but not a replacement for true education. "It is the work of true education . . . to train young people to be thinkers and not mere reflectors of other people's thought. Let students be directed to the sources of truth, to the vast fields opened for research in nature and revelation. Let them contemplate the great facts of duty and destiny, and the mind will expand and strengthen."⁵

- **They have no social, ethical, or moral compass.** Although AI responses may reflect certain ethical guidelines, these are determined by design principles and biases of the software designer, not any inherent AI values or consciousness. Generative AI's seeming creativity and compre-

hension stem purely from its pattern-recognition capabilities, and not from any true consciousness or intent. None of the current generative AI tools was designed within the context of Seventh-day Adventist beliefs or the values of Adventist education. Consequently, the responsibility falls on both educators and learners to infuse the content produced with our specific belief system. This underscores the vital role humans play in shaping the ethical and moral fabric of the generated material. (See Sidebar 2.)

Conclusion

Generative AI has ushered in a transformative era in Adventist education, presenting a unique blend of opportunities and ethical considerations. While these AI tools contain the potential to revolutionize learning experiences, personalization, and accessibility, their application requires careful navigation. Educators must remember that generative AI serves as a creative augmentation, not a replacement for human knowledge and judgment. By fostering open dialogues, adhering to established guidelines, and prioritizing ethical usage, the educational community can harness the power of generative AI to empower students while upholding the values and integrity of Adventist education. As we navigate this uncharted territory, the responsible integration of AI tools is paramount in shaping a future where technology enhances, rather than supplants, the rich and diverse tapestry of learning.

What's Next

Let's share. As Adventist educators, we become stronger by sharing. We plan to have future articles in THE JOURNAL OF ADVENTIST EDUCATION® (JAE) where different educators will discuss which tools they have used in the classroom. We would like to share what has worked well, and what issues you have found that are left to be addressed.

Sidebar 3. Additional Reading on Ethical and Moral Considerations of AI

A growing body of commentary and research points to several ethical and moral concepts that deserve reflection when creating policy and informing practice. Below are several resources that directly address these issues.

Alicia de Manuel Lozano, Stefano Masneri, and Adil Moujahid, *Ethical Considerations for Generative AI* NTT Data Group Corporation, 2023 (see specifically chapter 2, pages 10-33). Summarizes the work of the European Commission in outlining aspects of accountability, oversight, safety, privacy, bias, and societal and environmental considerations of generative AI. Available at https://www.nttdata.com/global/en/-/media/nttdata_global/1_files/services/data-and-intelligence/ethical_considerations_of_generative_ai.pdf?rev=c9b22c2626664710a1f0382d962fc3b7#:~:text=Generative%20AI%20presents%20numerous%20ethical,and%20environmental%20impact%2C%20among%20others.

Miguel A. Cardona, Roberto J. Rodriguez, and Kristina Ishmael, *Artificial Intelligence and the Future of Teaching and Learning: Insights and Recommendations* (specifically chapter 2, pages 6-10). United States Department of Education, Office of Educational Technology, May 2023. This document from the U. S. Department of Education provides questions to consider when building ethical and equitable policies; it addresses opportunities and risks and how policies should elicit trust, safeguard students, and promote use of quality AI products. Available at <https://tech.ed.gov/files/2023/05/ai-future-of-teaching-and-learning-report.pdf>.

Rebecca Tan and Regine Cabato, "Behind the AI Boom, an Army of Overseas Workers in 'Digital Sweatshops,'" *Washington Post* (August 28, 2023): <https://www.washingtonpost.com/world/2023/08/28/scale-ai-remotasks-philippines-artificial-intelligence/>. This article is one of many that explores the underside of generative AI, the working conditions of the human labor force that powers it, and the economic, environmental, social, and psychological effects on countries such as India, Kenya, the Philippines, and Venezuela to which much of this work is outsourced. Labor conditions are often unregulated, human rights are violated, and workers are often exploited. Considerations about how we engage and utilize resources that are created in environments that harm are essential as part of our ethical and moral responsibilities. Additional articles on this topic can be found online; here are a few: Nanjala Nyabola, "ChatGPT and the Sweatshops Powering the Digital Age," *Al Jazeera* (January 23, 2023): <https://www.aljazeera.com/opinions/2023/1/23/sweatshops-are-making-our-digital-age-work>; Niamh Rowe, "It's Destroyed Me Completely": Kenyan Moderators Decry Toll of Training of AI Models," *The Guardian* (August 2, 2023): <https://www.theguardian.com/technology/2023/aug/02/ai-chatbot-training-human-toll-content-moderator-meta-openai>.

Scott Clark, "Generative AI: Exploring Ethics, Copyright, and Regulation," *CMS Wire* (April 10, 2023): <https://www.cmswire.com/digital-experience/generative-ai-exploring-ethics-copyright-and-regulation/>; Atoosa Kasirzadeh, "The Socio-ethical Challenges of Generative AI," *ReSource Newsletter of The Royal Society of Edinburgh* 71 (Winter 2022): <https://rse.org.uk/resources/resource/blog/the-socio-ethical-challenges-of-generative-ai/>. These blog posts address critical issues such as bias, copyright, intellectual property, data privacy, and others that must be considered when shaping policy and practice.

Selin Akgun and Christine Greenhow, "AI in Education: Addressing Ethical Challenges in K-12 Settings," *AI and Ethics* 2 (September 2021): 431-440: <https://doi.org/10.1007/s43681-021-00096-7>. The authors describe ethical challenges faced by educators when integrating AI in K-12 educational environments and how these problems can be leveraged to enhance learning. The authors point readers to more resources from the Massachusetts Institute of Technology's Media Lab (<https://www.media.mit.edu/groups/ethics-and-governance/overview/>) and Code.org (<https://www.youtube.com/@codeorg>).

Acknowledgment by Authors of AI Assistance

- Perused the many articles listed in the reference section of the ChatGPT prompt thread.
- Consulted with colleagues on topics.
 - Requested ChatGPT to write the outline and article. (Content produced rejected by authors and not used in this article.) <https://chat.openai.com/share/4e77f431-ab3b-4c93-90fb-fdf77e953dec>.
- Many of the references included in this thread were either non-existent or unreachable.
 - Prompted ChatGPT4 to reflect on the statement: “ChatGPT is an excellent research tool for experts in a given field, but a dangerous tool for the uninformed.” <https://chat.openai.com/share/81e5e910-79dd-4bec-9d31-5dc5d3810d8b>.
 - Prompted ChatGPT4: “AI’s limited understanding.” <https://chat.openai.com/share/ebb003f9-46af-435c-9031-d7f171230aaa>.
 - Prompted ChatGPT3.5: “What are appropriate uses for ChatGPT in higher education?” <https://chat.openai.com/share/826d92dd-6a5c-43c2-a04f-3f7c7818f314>.
 - Finally, I (D.P.H.) wrote the article myself, based on my reading and understanding.
 - I submitted it to ChatGPT for critique.
 - I asked ChatGPT to help me organize my thoughts better.
 - I asked ChatGPT 4 to use my existing words to rewrite each section.
 - Here is the thread: <https://chat.openai.com/share/9c434c82-4f7d-4673-842f-8ba93c7f2ad7>.
 - We (D.P.H. and F.A.) made liberal use of Microsoft Word’s spell-check “AI” and Grammarly’s style-checking AI.
 - So, consider the following: Who wrote this article? David P. Harris, Fred Armstrong, ChatGPT, or all of the above? ✍️

This article has been peer reviewed.



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ence of Seventh-day Adventists, as principal of the Adventist Christian Academy of Charlotte (Charlotte, North Carolina, U.S.A.), and as the Chair of the Music Department at Forest Lake Academy (Apopka, Florida, U.S.A.).

Recommended citation:

David P. Harris and Fred Armstrong, “Generative AI in Adventist Education: Opportunities and Ethical Considerations,” *The Journal of Adventist Education* 85:2 (2023): 4-9. <https://doi.org/10.55668/jae0043>.

NOTES AND REFERENCES

1. Adventist education prepares people for useful and joy-filled lives, fostering friendship with God, whole-person development, Bible-based values, and selfless service in accordance with the Seventh-day Adventist mission to the world. For more, see “A Statement of Seventh-day Adventist Educational Philosophy” (2001): https://www.adventist.education/wp-content/uploads/2017/10/A_Statement_of_Seventh-day_Adventist_Educational_Philosophy_2001.pdf; and John Wesley Taylor V, “Philosophy of Adventist Education” (December 15, 2022): <https://encyclopedia.adventist.org/article?id=HJKE>.
2. For more, see Sean Michael Kerner, “Large Learning Model Definition” (April 2023): <https://www.techtargt.com/whatis/definition/large-language-model-LLM>.
3. See David Nield, “How ChatGPT and Other LLMs Work—and Where They Could Go Next,” *Wired* (April 30, 2023): <https://www.wired.com/story/how-chatgpt-works-large-language-model/OpenAI>, “Introducing ChatGPT” (2023): <https://openai.com/blog/chatgpt>; See also the Research Index for more articles: <https://openai.com/research>.
4. See General Conference of Seventh-day Adventists, “Official Beliefs of the Seventh-day Adventist Church” (2023): <https://www.adventist.org/beliefs/>.
5. Ellen G. White, *True Education* (Nampa, Idaho: Pacific Press, 2000), 12.