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STL AI Working Group recommendations to STL

Preamble

Generative Al or Large Language Models (LLMs) are systems that can be used to create new content, including audio, code, images, text, simulations, speech, and videos (McKinsey & Company, 2023). Although tools using these models

November 2022, generative AI tools have for some time been supporting and enhancing existing ways of doing tasks in society as well as extending human capabilities and opening new possibilities. The ready access of generative AI tools presents a societal disruption with far-reaching implications. Given the magnitude and potential of the technology in all aspects of our lives, these implications naturally include the academy. Given the diversity of the academy, it is not surprising that there is a continuum of opinions from experts and thought leaders as to their potential impact on teaching and learning in higher education.

While Chat GPT has become shorthand for a wide range of tools, the STL Al Working Group (STL Al WG) recommends using the term generative Al to encompass the technology in all its forms. For a clear and concise overview of the potential uses of generative Al tools in higher education, see the UNESCO-Quick Start Guide , published in April 2023, which

includes a consideration of their accompanying challenges and ethical implications.

Some early comments and questions from McGill instructors indicated a desire to make the University a Given the potentially negative implications of integrating generative Al into the classroom, and indeed into the University culture itself, this desire may be understandable. However, even if this were a shared desire, it would be an extremely difficult vision to implement. Al detection tools like GPT-Zero are probabilistic and cannot reliably determine if content is Al generated, resulting in both false positive and negative reports, with the former having a potentially harmful impact on students. As more tools become available (such as Google Bard), detection will become yet more difficult because GPT-Zero is specifically geared to detect content generated by OpenAl. Human inspection, especially with practice, may be able to flag content that is likely generated by Al by identifying

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How the STL AI WG proceeded

The initial discussion, held at the January 18, 2023, meeting of the Subcommittee on Teaching and Learning (STL), resulted in the identification of two avenues to follow. The first, requiring attention in the short-term, is how generative Al tools may impact the disciplinary framework that is based on the concepts of plagiarism and cheating. The Office of the Dean of Students, responsible for academic integrity and the student disciplinary process, will manage this aspect. The Office has commented that the Code of Student Conduct requires that work submitted for evaluation by students is their original work unless clearly indicated otherwise. Software that flags submitted work for potential plagiarism or cheating has been available for many years, but this is not sufficient evidence alone for a finding that the Code has been violated. The Code of Student Conduct requires that evidence is clear, convincing, and reliable, and this must be evaluated by a disciplinary officer. As mentioned, the likelihood of false positives with generative Al tools is higher than with previous text matching software, but the process of assessing a potential violation is the same.

generative AI use will increasingly influence how we define academic integrity. Importantly, as generative AI evolves in the coming months and years, its use will become more difficult to discern k. Given these conditions, the disciplinary

route is not privileged. Rather

strengths and weaknesses, augment approaches to instruction that incorporate meaningful interactions between the students and the instructor, and build assessment practices that take the use of generative Al into account. Explicit discussion of when and how generative Al can be used is part of that education. If an instructor becomes aware that generative Al has been used to complete an assignment, exam, or other assessment on which the instructor has explicitly prohibited its use, instructors are encouraged to

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The discussions on ethics led the STL Al WG to adopt the 2018 Montréal Declaration for a Responsible Development of Artificial Intelligence as our reference point. The ten principles they articulate are:

1) Well-being, 2) Respect for autonomy, 3) Protection of privacy and intimacy, 4) Solidarity,
5) Democratic participation, 6) Equity, 7) Diversity inclusion, 8) Caution, 9) Responsibility, and
10) Sustainable development. Note that the UNESCO Recommendation on the Ethics of Artificial Intelligence, adopted by UNESCO on November 2021, is wider-reaching in scope and provides an additional guide to inform reflections on the integration of generative Al in education in general.

During the course of the STL AI WG meetings, the question emerged about the potential utility of McGill issuing a clear set of learning outcomes for our graduates. In other words, what are the skills, knowledge, and values that are targeted by a McGill education? Such a discussion goes far beyond the mandate of this working group, but the members did want to signal that the time may be right for such a discussion at the University level. Specifically, to what extent is the development of both original thought and critical thinking

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Appendix I

Terms of reference STL Al Working Group

Mandate and duration

The STLAI WG will provide recommendations for supporting instructors, students, and academic administrators regarding the appropriate use of Al-generative tools in teaching and learning at McGill. These will include:

- Informing the community about the current capabilities of Al-generative tools.
- Provide guidance on using such tools as part of instructional strategies.
- Provide guidance on using such tools in assessments of student learning.
- A proposed plan of activities for such support, including informational and community building. These may include:
 - Publishing documentation (e.g., Teaching and Learning Knowledge Base articles); blog posts
 - o Producing instructional videos.
 - Offering consultations (e.g., review course outlines; design rubrics/rating scales).

For individual instructors

For departments/units/Faculties.

The STLAI WG will be expected to work until May 2023, with monthly reports to STLat meetings or by email.

Composition

The STLAI WG is designed to be a core team that will contribute their own expertise as well as consult with different stakeholders, as appropriate.

Chair: Laura Winer, Chair of STL and Director of TLS

Membership:

Dorian Bandy, Schulich School of Music

Lindsay Holmgren, Desautels Faculty of Management

Jocelyn Madure, Faculty of Arts

Catherine-Anne Miller, Ingram School of Nursing

Tina Piper, Faculty of Law

Robin Beech, Dean of Students

Sandy Hervieux, Libraries

Carolyn Samuel, Associate Director, Faculty Teaching and Development, TLS

Scott Patterson, Graduate student

Kerry Yang, Undergraduate student

Secretary: Nancy St-Pierre, TLS

Resource person: Adam Finkelstein, Associate Director, Learning Environments, TLS

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Appendix III

Report on Student Opinions and Usage Regarding Generative Al

Kerry Yang

-President University Affairs

April 2023

Executive Summary

This report summarizes the finding of a survey conducted from March 6th, 2023, to April 26th, 2023, to gauge student opinions and usage of generative Al technologies such as ChatGPT. This report is intended to shed light on current student usage of generative Al and provide an overall view of the different uses of these rapidly developing technologies at McGill University.

Context

With the rapid rise in the usage of generative AI, a working group was established to create a framework around its usage in an academic context at McGill. This report seeks to provide the working group with an overview of how students currently use generative AI, and their opinions surrounding its usage.

Methodology

A survey was created on March 5th, 2023, to ask undergraduate students about their thoughts regarding generative Al. It consisted of 9 questions divided into three sections. The first section was to collect demographic data of the respondents. The second set of questions pertained to usage rates and opinions, while the third section asked for direct examples of generative Al usage. The survey was open from March 6th, 2023, to April 26th, 2023 and was distributed using Student Society of McGill University (SSMU) email blasts to all students, along with email blasts from student-faculty associations, student promotion, and word of mouth.

Results

A total of 162 individuals responded to the survey. 98.1% (n=159) of the respondents were

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Respondent Demographics

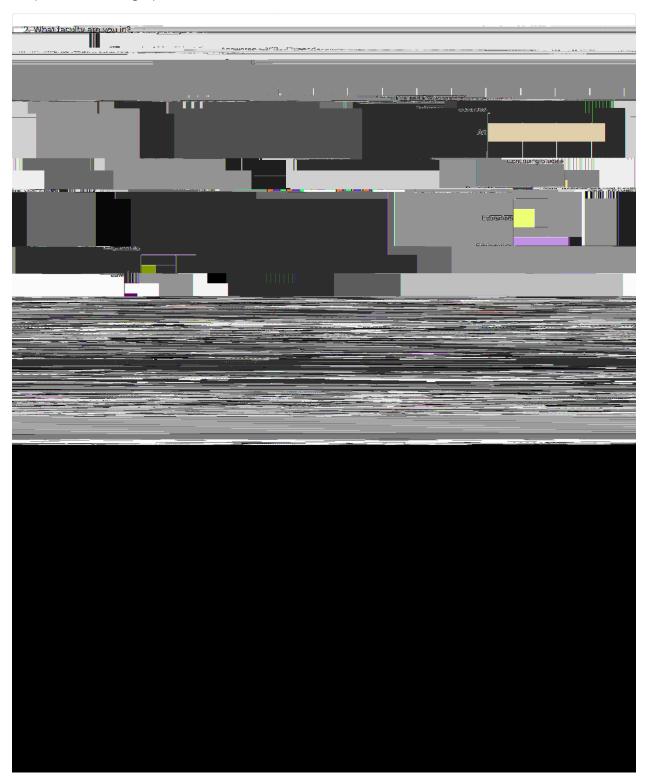


Figure 1.1 Students by ct ulty of the respondents

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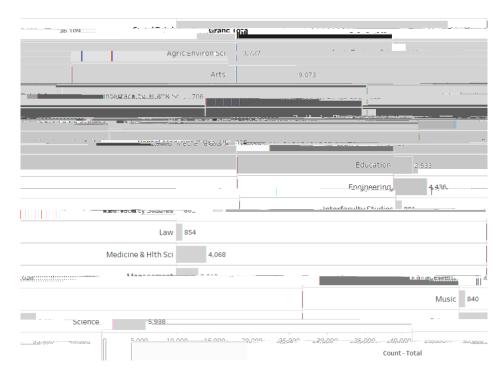


Figure 1.2 Students by faculty at McGill (taken from the Student Census Report of Biennial Data to Senate – April 2023)



Figure 1.3 Students by year of the respondents

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Comparing the response to the current student faculty demographics at McGill as of April 2023, there are over- and under-representations of student respondents in the survey data. Science represents 30.2% of respondents, although it represents 16.4% of the student population. Several of the smaller faculties are underrepresented. This has influenced the examples provided by students, which should be noted.

Generative Al Usage Rates

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Respondent Opinions and Usage of Generative Al

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read large amounts of text. It helps them keep focus and read the course material in digestible chunks. Students have used generative AI to summarize scientific articles when doing research or writing papers. Another way they used these technologies was to summarize readings in an assignment instead of reading them. After getting the summaries, they picked their favourite article to do their assignment on.

Another widespread use of generative AI is to explain concepts, ideas, and definitions that are complex or hard to grasp. It allows students to get explanations while studying in an easy-to-digest manner, making learning more personalized and efficient. This is particularly useful when readings get technical and use much complex academic jargon, shortening the time needed for a student to grasp an idea and improving retention. Not all instructors are adept at explaining complex topics, and generative AI, like Chat GPT, can help cover gaps in understanding. Generative AI can also improve understanding of different concepts by generating examples or explaining ideas from different perspectives and lenses, including in visual forms, allowing students to have a more holistic understanding. For students who are more introverted and less active in class, AI can aid comprehension, explain assignments, and answer simple questions.

Generative AI has played an important role in helping students approach essays and assignments. They have proven to be useful for students in creating templates or starting points for brainstorming.

Generative AL can be used to create prompts or generate ideas and mind maps that can then be used as the basis for writing assignments. Many students need help finding an initial direction or approach to an essay or assignment, and AI is a valuable tool to help them start and bounce ideas. It can streamline thought processes and be used as a search engine to provide ideas quickly and efficiently. It can also suggest academic sources and articles that help with researching for an assignment. It can also provide insight into the links between readings and assignment prompts or suggest academic sources, providing students with a direction to explore further. Its usefulness is wider than just word-based tasks. Students have also used it to provide a starting direction for calculation-based assignments. For respondents who tutor or teach, AI has aided in generating ideas for lesson plans. It has also been a useful tool for those who struggle with executive function and can help organize thoughts clearly and coherently.

Along with brainstorming ideas and creating outlines, generative Al can be used to provide feedback on writing. It can help find areas of improvement, brainstorm new ideas, suggest better vocabulary, and help make more coherent arguments. Many students who have English as a Second Language find the feedback from generative Al particularly useful in the writing process. It greatly aids in theh03.799(cre7b.suETa3(t)7(o)-(cre7b.

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such as Git Hub copilot and AOC, can also recommend functions and syntax that students can learn more about, promoting active learning compared to more passive forms of knowledge, such as reading code or textbooks. Students have found generative AP to improve recall and comprehension due to its ability to provide suggestions, advice, and real-world examples while coding.

All has proven to be a very useful tool for active learning. It does an excellent job at creating practice questions with their corresponding solutions. It can take a set of notes and turn them into a quiz that students can go through or scan pdfs and create appropriate exam questions based on the readings assigned in class. Students can use it for active recall and personalize their learning by seeing what concepts they are confused about. Although it struggles to answer more complex questions and has caused students confusion due to its hallucinations, many students like that it can provide solutions. Students strongly prefer practice questions with answer keys so that they can determine whether they are solving problems correctly. Generative Al can provide students with the solutions and feedback they need to enhance their understanding of the material.

Some students enjoy using generative AI to increase their knowledge base and understanding of various topics they are interested in that are outside their fields of study. Generative AI can help break down topics into smaller, more digestible bits, and can also be used to generate stimuli for laboratory research.

The usefulness of generative AI extends beyond the academic realm. Several respondents have mentioned using generative AI to draft emails or build a basic template for cover letters. Some students find cover letter and email writing difficult, so generative AI is useful for improving the written communication abilities of students and can help students save time on these activities. Students have also used it to write reference letters for themselves that professors have asked them to write for them and have also used generative AI to create interview questions for guest speakers during panel events.

Although generative AI has many usages, some respondents have raised concerns about its ability to hallucinate. Some students have tried using generative AI before discovering it provides inaccurate information. Some students found that they had to go back and verify all the information generative AI had told them, causing it to be more time-consuming to use rather than not using it. It has made some students unwilling to use these technologies in the future. When deciding on a framework around generative AI, it is essential that students are provided with proper education and awareness of its potential pitfalls and drawbacks so students know well in advance what to expect when using these technologies.

When respondents were asked about how their friends and classmates used generative AI technologies to aid their learning, 59 responses were received. Many answers were quite like the uses provided by the respondents themselves. Students use generative AI to help explain different concepts in class, improve writing skills, provide summaries of class presentations and notes, and provide feedback on their writing. Respondents also said their friends and classmates found it helpful to reduce the time it takes to make teaching plans, plot and image generation, and connect different readings. Other people have also used generative AI to explain mathematical proofs to them, work on hackathon projects, develop ideas for assignments, and generate responses with different styles to help with brainstormq0.00000912 0 612 7