aqpc
association québécoise
de pédagogie collégiale

Consultation Document on

The Use of Generative Artificial Intelligence Systems in Higher Education: Pedagogical and Ethical Issues

Brief presented by the the Association québécoise de pédagogie collégiale to the Conseil supérieur de l'éducation and the Commission de l'éthique en science et en technologie

This brief was presented to the Conseil supérieur de l'éducation (CSE) as part of its consultation on the use of generative artificial intelligence (AI) systems in higher education.

As a key player in the college network, the Association québécoise de pédagogie collégiale (AQPC) was keen to issue an opinion on the use of these technologies. The aim is to respond to the CSE's mandate by contributing to identifying and analyzing the pedagogical and ethical issues and challenges, benefits and risks associated with current and future uses of generative AI systems, for student education and evaluation, as well as for faculty training within Quebec higher education institutions.

The first section outlines the current and future means implemented by the AQPC to address the issues raised by the presence of generative AI systems in the college environment. The second section attempts to summarize concerns about the use of these systems in the college environment. It collates the pedagogical challenges (course and teaching content, pedagogical practices, learning assessment, professional autonomy and the development of digital skills among teaching staff) as well as the ethical issues. The final section looks at the orientations or courses of action suggested by the AQPC to help colleges meet the challenges raised above.

If you have any questions or comments about this brief, please write to dg@aqpc.qc.ca.

999, Émile-Journault Avenue East, Suite 214, Montreal (Quebec) H2M 2E2

Table of contents

State of Affairs
___

Founded in 1981, the AQPC is a non-profit organization with over 1,300 individual members and 76 associate members, mainly from the college network. The AQPC's mission is to provide "forums for pedagogical exchange" (AQPC, 2021), whether for teaching staff, professional staff, management staff or university students intending to work in higher education. In its most recent strategic plan (AQPC, 2020), the association's primary aim is to be attuned to the pedagogical needs of the college community, to create adapted pedagogical content that provides opportunities for professional development, and to give visibility to creators in order to contribute to their reach.

AI is one of the emerging topics in which the AQPC has noted a growing interest from the community in recent years. In line with its aforementioned mandate, at the outset, the association thus helped to relay existing AI initiatives, initially from a fairly general perspective. This was the case, for example, at the 39th symposium in Rimouski, which was opened by F. Guité with his address *L'intelligence artificielle et l'éducation augmentée* (Fontaine, 2019) and which reserved a prominent place for talks and workshops on digital technologies (approximately 30 out of the 125 sessions scheduled). This continued in 2021 with a webinar on the project Parcours pédagogique en IA, the result of a partnership between the Cégep de Saint-Hyacinthe's continuing education services, the Saint-Joseph school in Saint-Hyacinthe and the JACOBB Center for Applied Artificial Intelligence (webinar: *Le projet Parcours pédagogique en intelligence artificielle IA,* 2021). In the fall of 2021, again during a webinar, a toolkit developed by Collège Rosemont in partnership with the Université de Montréal was shared to help students experience a deliberative process with regard to the ethical issues of AI at college and university (webinar: *Vivre une démarche délibérative sur les enjeux éthiques de l'IA au collégial et à l'université,* 2021). The *Pédagogie collégiale* journal has also provided a tribune for the early steps in AI and pedagogy with, for example, a first publication in its Winter 2021 issue, in which David Beaulieu shares his experience of transferring AI knowledge in the educational environment (Beaulieu, 2021).

At the end of 2022, the large-scale deployment of ChatGPT, as well as its widespread media coverage, clearly led to intensified needs, reflections and productions on the subject of generative AI in the college environment. As a result, the AQPC's role in this area has also intensified, in all the forms of pedagogical content creation and sharing that it supports. **Table 1** summarizes the association's current efforts to offer a variety of discussion forums to its members, in order to disseminate or track the various issues raised by the presence of generative AI in higher education, and more specifically in the college environment.

Table 1   **Current means implemented by the AQPC to address issues raised by the presence of generative AI in higher education**
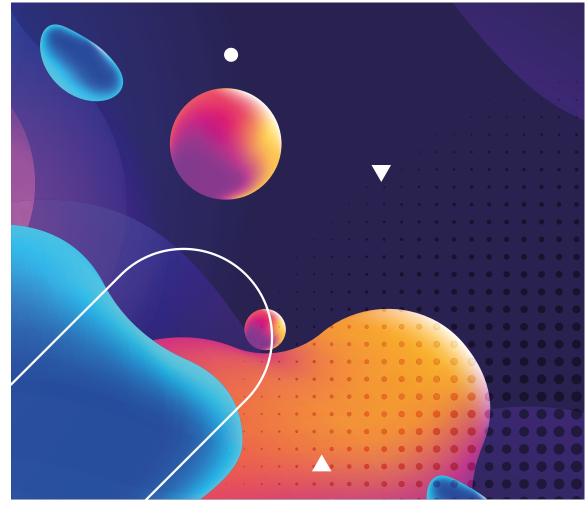
Format	Topic/Precisions
Symposium *The College Network : Bubbling and Booming* **(AQPC, 2023b).**	*L'intégration de l'IA dans le processus créatif : enjeux et perspectives*, by J. Loquet and F. Berger
	L'art de la mesure : pour une culture des données qui fait « pop ! », by C. Paquin-Boivin
	IA au quotidien : implanter un cours complémentaire transdisciplinaire pour les étudiants de tous les programmes, by F. Joussemet and M. Jean
	Intégrer les 12 dimensions de la compétence numérique dans vos activités d'apprentissages au collégial, by A. Girard and M. Fournier
	Students as explorers of the unfolding future: looking forward to the next decades of education, by O. Dyens
	Prévenir au lieu de guérir : l'utilisation pédagogique des robots conversationnels, by S. Alarie
	ChatGPT a mangé mon devoir, by M. Dugal
Honourable Mentions	Honourable mentions highlighting the pedagogical commitment of a teacher who has contributed to the evolution of teaching, particularly with regard to AI :
	• Honourable Mention 2019 to N. Walker, for his publications, conferences and reflections on IA and teaching in his discipline (English second language) (Walker, 2019);
	• Honourable Mention 2023 to D. Anctil, for his participation, among other things, in the creation of the course Penser l'intelligence artificielle, and his involvement in the collaboration between Collège Jean-de-Brébeuf and Université Laval's Observatoire international sur les impacts sociétaux de l'AI et du numérique (OBVIA) (Collège Jean-de-Brébeuf, 2023).
Webinars	March 7, 2023, webinar: *ChatGPT pour apprendre*, by P.-L. Vallée (*ChatGPT pour apprendre*, 2023)
	September 28, 2023, webinar: *Exploiter ChatGPT dans différents contextes pédagogiques*, by C. Frenette and J.-L. Trussart (*Exploiter ChatGPT dans différents contextes pédagogiques*, 2023)
Major Lectures	September 14, 2023, online major lecture with panelists D. Anctil (Collège Jean-de-Brébeuf), J. Martineau (Institut de technologie agroalimentaire du Québec), P. Beaudoin (Waverly), F. Bruneault (Cégep André-Laurendeau), S. Piché (Collège de Bois-de-Boulogne), A. Sabourin-Laflamme (Cégep André-Laurendeau) and C. Mathys (La Société des demains and Radio-Canada): *IA: prospectives pour le réseau collégial* (AQPC, 2023c).
Pédagogie collégiale **Journal**	Autumn 2022, vol. 36, n° 1: • "How to Teach AI Ethics: A Pragmatic Approach to Ethical Competence," by S. Sabourin Laflamme and F. Bruneault (Sabourin Laflamme and Bruneault, 2022).
	Spring-Summer 2023, vol. 36, n° 3, Thematic feature AI and us : • "Higher Education in the Era of Generative AI," by D. Anctil (Anctil, 2023).
	• "ChatGPT: The Response Must Be Pedagogical," by J.-P. Boucher (Boucher, 2023)
	• "Perspectives on the Place of AI in College Education," by A. Lepage and P. Marois (Lepage and Marois, 2023).
Virtual community of practice	Virtual community of practice *Intelligence artificielle et enseignement supérieur* on the Linkr platform with over a hundred members (AQPC, 2023a). All AQPC members who wish to share resources, ask questions, undertake reflections or participate in the co-construction of tools related to AI and pedagogy in higher education have access to this community.

All the initiatives presented in **Table 1** are intended to continue and adapt once again to the needs expressed by the association's members in the field. They are therefore an integral part of the means that the association will put in place over the medium and long term to provide input for its communications, not only on the issues at stake, but also on experiments, successes, failures, innovations and reflections on the use of generative AI in the college network. This is one of the core values of the AQPC's mission: make the content produced in the network visible to stimulate co-construction, and in the case of generative AI, to encourage the development of a collective response to issues that concern all college stakeholders.

To this end, the central role of the virtual community of practice (CoP) on AI should be highlighted. In the long term, the AQPC's ambition is to provide answers to the major questions raised by the introduction of this technology in the higher education environment, first and foremost, by finding them in the field, i.e., in examples of practices, policies and initiatives that are developed within the college community. The virtual CoP would bring together material developed by the association's member institutions, to inspire, guide and suggest frameworks, pedagogical content and training.

Thus, the AQPC has begun work on designing a training on the theme of generative AI to meet the needs expressed in the literature and those that will be identified in the CoP. Deployment of the first modules is scheduled for the Winter 2024 session.

Issues

In order to provide a complete picture of the pedagogical issues experienced or anticipated by AQPC members regarding the use of generative AI in higher education contexts, several sources were consulted. First, journalistic publications dealing with generative AI in the college context, and those taken from the journal *Pédagogie collégiale,* were examined in order to synthesize the main pedagogical challenges. Subsequently, the Major Lecture held on September 14 (AQPC, 2023c), which was attended by over 500 people, was used to complete and refine the list of pedagogical issues, based on all the questions raised during the event.

With regard to course and teaching content, generative AI, based on, among other things, the analysis of teacher and student data, can make it possible to provide personalized course content (Lepage and Marois, 2023), in light of the level of a group, the needs or even the diversity of profiles that make up programs or, more precisely, class groups. This personalization is not without risk, however, since the content produced by these tools may not always be **trustworthy.** Depending on the databases on which the tool is based (variety, date, quality, etc.) and the cultural background of its designers, the tool may convey **biases** (Sénéchal, n.d.). It may also be outdated (Trust, 2023), or even simply far-fetched (while being very well structured, in the case, for example, of certain language models). On this last point, generative AI can exacerbate an issue that has been present in education for several years: misinformation. To identify this, students need to be trained to acquire the **intellectual skills** and **digital literacy** they need to use these tools responsibly. This will not be easy for some of them, fresh out of high school, where they are accustomed to more rigid models of learning (Lepage and Marois, 2023); in contrast to the indispensable critical thinking skills ("Les professeurs devront s'adapter rapidement, alerte une chercheuse," 2023), autonomy, reflection and logic that the use of these technologies requires.

As far as pedagogical practices are concerned, it quickly became apparent, as soon as ChatGPT was deployed on a large scale, for example, that they would be disrupted. Although generative AI tools may appear to be interesting pedagogical tools, many deplore, in addition to the **lack of time** to master them, the **lack of support** from the institution or colleagues to experiment (AQPC, 2023c) and the **slowness of traditional processes** to obtain funding or release time to research tools (AQPC, 2023c), the **lack of pedagogical resources** (such as guides on best practices) or the **absence of training** (Lévesque, 2023). As technology continues to evolve, so does the need for ongoing training adapted to the realities of the college environment, and for support from AI specialists to acquire a "foundation that would then allow them to become self-sufficient" (Anctil, 2023, p. 75). This is true not only of educators, but also of students, who could be trained in pedagogical methods that are very different from those widely promoted in the media (i.e., more concerned with fraud, cheating or plagiarism) (Lepage and Marois, 2023). Beyond these issues, it is clear that generative AI can **change pedagogical practices and roles**, since by making a mass of information — and therefore knowledge — rapidly accessible, teachers can focus on their role as "facilitators of the learning process [to] transmit learning and working methods to students rather than knowledge" (Lepage and Marois, 2023). And in this area, generative AI, because of its much more objective approach, will perform not quite as well as when it comes to developing interventions that require **a certain sensitivity** (Lepage and Marois, 2023) and the interpretation of a host of variables derived from the pedagogical relationship with the learner.

There are many issues involved in assessing learning and student success. Of course, the rapid correction of (mainly) objective evaluations helps to **reduce** teachers' **workloads**. The use of generative AIs, with the aim of providing **precise and personalized feedback** (a task that, realistically, a teacher cannot always accomplish for all of their groups), can also help support student learning (Couture, 2017). However, this raises questions of **accountability** and **explicability** in addition to the effectiveness of automatic correction technology**.** Indeed, human verification remains very important, and the grade awarded to a student should be explicable by the teacher, particularly for **complex evaluations** for which there are several correct answers, and which sometimes require information from the learning context as a whole to be taken into account (Lepage and Marois, 2023).

Still in the same category, it's clear that **plagiarism** issues have rapidly become a major concern in the community (Côté, 2023). Even if these issues are not specific to the integration of generative AI, but rather date back to the development of digital

pedagogy (Anctil, 2023), AI has accelerated these concerns and quickly exposed the **limits of integrity and plagiarism policies in higher education institutions**. While plagiarism detectors may have seemed like a solution at first, they soon revealed their limitations in offering predictions beyond reasonable doubt (Anctil, 2023), given the variable reliability rates (Côté, 2023). The strong preoccupation with this particular issue has important implications for the pedagogical relationship between teacher and student. Indeed, the feeling of mutual trust is being shaken, and could be replaced by a climate of permanent suspicion and doubt as to the provenance of the work submitted (Sénéchal, n.d.).

To conclude this aspect, it is worth mentioning that **predictions of student success**, as well as the **detection of** student **difficulties** through these tools, can be double-edged. While effective when they enable early detection and lead to rapid intervention to support student success, the more pessimistic predictions of generative AIs can increase student **anxiety** by making them believe that success is simply impossible. These predictions can also lead to **misunderstanding** if they turn out to be incorrect (Lepage and Marois, 2023). In the absence of a clear framework specifying the responsibilities arising from such predictions, they can also be used for less scrupulous purposes, such as increasing graduation and success rates through the detection of students in difficulty, followed by their **discreet exclusion** from the educational environment (AQPC, 2023d; Lepage and Marois, 2023).

The previous point is linked to the development of digital competency among teachers and students. Whatever use is made of the data produced and presented to stakeholders (Lepage and Marois, 2023), **training in the interpretation** and **use** of this data (and more broadly in generative AI tools) remains essential to encourage responsible, ethical and pedagogical use. In addition, the availability of qualified **technological** and **human resources** remains essential (Lafleur, 2022). As mentioned above, the "extremely rapid progression" (Anctil, 2023, p. 71) of these tools requires **ongoing training** and **support** to ensure that the digital competency of teachers and students alike enables the proper integration of new forms of generative AI into teaching, pedagogy and evaluation (Anctil, 2023).

This integration must not, however, be to the detriment of teachers' **professional autonomy**, which will be increasingly called into question as generative AI becomes involved in "instructional design, content delivery, learning assessment, and even student support" (Lepage and Marois, 2023, p. 90). In this context, training, rather than **prescription and guidance** by the Ministry, seems an interesting avenue of preserving this autonomy (Lévesque, 2023), as long as it does not lead to **excessive pressure to adapt**, in defiance of professional autonomy and the educational goals of institutions serving the common good of society (Anctil, 2023, p. 75). Whether or not they embrace the transformations brought on by the integration of generative AI into higher education, it's clear that many teachers will have to **question their role** and functions. Their **sense of dignity and competency** may also be affected.

Finally, a number of ethical issues underpin the aforementioned elements. However, much broader ethical issues can be raised, such as those related to the development of applications and tools by **private companies**, primarily motivated by commercial interests, often far removed from the humanistic values that characterize Quebec's education system (Anctil, 2023). In this context, the issue of **collecting, analyzing, commercializing and preserving data** on educators and their learners arises (AQPC, 2023d; Lepage and Marois, 2023). Similarly, the concentration of all this data in the hands of a small number of industry players could lead to the definition of their own rules, neglecting the stages of public debate and democratic consultation of all stakeholders (AQPC, 2023d). Furthermore, most of these technologies must be paid for, which raises questions of **accessibility** and accentuates **digital inequalities**, at both the institutional and individual levels (AQPC, 2023c).

In conclusion, it's impossible to ignore the **environmental impact** of these tools. At a time when the number of CEGEPs certified as *Cégep Vert* has increased tenfold in less than 15 years (ENvironnement JEUnesse, 2023), concerns about water consumption (AQPC, 2023d; O'Brian and Fingerhut, 2023) and CO_2 production (McLean, 2023) by generative AIs are legitimate.
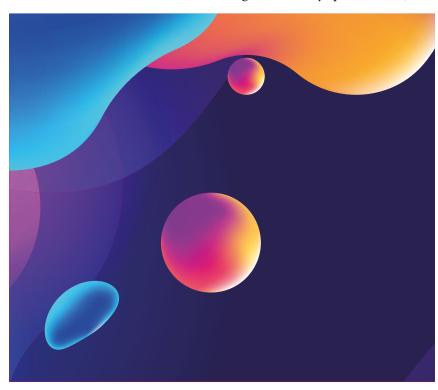
Orientations

As mentioned above, generative AI has great pedagogical potential, but the fears, issues and challenges it raises can easily overshadow that potential. In the course of reviewing the literature and discussions produced by and for the college community, a number of possible solutions and orientations emerge. These are grouped into three main themes.

The first is **training**. This has already been mentioned in the previous section, but the need for training seems fundamental and is unanimously called for. Whether it's a question of training to use and integrate generative AI tools in teaching, or training to understand how these same tools work so as to better circumvent them during evaluation, the fact remains that CEGEP teachers are calling for training (Lévesque, 2023). And above all, continuing professional development, provided by specialists in the field, but also backed by evidence-based research (Anctil, 2023; AQPC, 2023d). Training should also be offered to the entire college community (professionals, stu-

dents, etc.), as low levels of literacy, digital literacy, AI literacy and mathematical literacy only increase aversion, uncertainty, and fear of these tools, or even their problematic or dangerous use (AQPC, 2023c). Conversely, a lack of training could also lead to a rushed implementation of tools, without first ensuring their pedagogical alignment with the competencies to be attained (Sénéchal, n.d.). Last but not least, training should be paired with a reflection on the competencies that students should retain or develop. This reflection should be in line with the competencies required in their future work environments (Del Degan *et al.*, 2020), and particularly in harmony with the objectives of college education.

In connection with the first mark, the funding of **research** and its dissemination in the community also remain essential. Here, it will be especially important to facilitate rapid access to this funding — which must come from independent sources (AQPC, 2023c) — in order to conduct research on technologies that are emerging and evolving at an extremely rapid pace (AQPC, 2023c). Research should provide opportunities not only for teachers, but also for students to experiment. Indeed, the students' point of view is as important as it is interesting, since they are the ones who adopt these tools and outline their future uses (AQPC, 2023c). Finally, this research should not be confined to the use of these tools, but should address broader multidisciplinary issues (pedagogy, ethics, digital, sociological, legal, psychological, etc.) (AQPC, 2023c).

What's more, the development and integration of generative AI tools in higher-education environments will have to be done after an **independent verification process** of their effectiveness, benefits, risks and safety (Anctil, 2023). All stakeholders should be involved in this process, from the Ministry of Higher Education to students (AQPC, 2023c). These technologies — which are a reflection of our societies — can be biased and can thus crystallize various forms of discrimination (AQPC, 2023c). It is therefore essential that their integration into teaching environments is not driven by any particular market interest, but rather by a transparent, collaborative and democratic process of evaluation and discussion (AQPC, 2023c). In short, like many other pedagogical innovations before them, generative AI tools should be considered as part of a classic pedagogical design process: starting with their analysis and ending with their evaluation (Basque, 2017).

Just as it has been pointed out that the issues discussed in the Issues section are not new but have been amplified by the emergence of generative AI, so too are the orientations suggested above. Many of these recommendations had already been made in various reports or action plans. For example, the *Digital Action Plan for Education and Higher Education,* published in 2018 (Ministry of Education and Higher Education, 2018), already set ambitious goals. These included supporting the development of digital skills of young people and adults (Axis 1), making use of digital technologies to enhance teaching and learning practices (Axis 2), as well as creating an environment conducive to the development of digital technologies in the education system (Axis 3). The *Rapport sur l'état et les besoins de l'éducation 2018-2020,* drafted by the Conseil supérieur de l'éducation, then emphasized, in 2020, the importance of guiding educational designers' decisions by prioritizing respect for human rights. The report also stressed the need to develop digital literacy, encourage ethical reflection and highlight the responsibilities of teachers as guides in the acquisition of these new competencies (Conseil supérieur de l'éducation, 2020).

All these avenues seem relevant to meeting the challenges posed by generative AI, but they need to be sustained. In conclusion, it is essential to emphasize the need for a **continuous and concerted** approach to implementing solutions in the field. Given the rapid pace of innovation,

isolated and ad hoc solutions will not suffice to adequately support higher education institutions, and more specifically colleges, in building a desirable future for the use of generative AI for educational purposes. Moreover, higher education should not be seen in isolation, but rather as a step in an educational continuum. A collective and coherent response is expected, based on **collaboration** between different levels of teaching and the **commitment** of all players in the field.

References

Anctil, D. (2023). "Higher Education in the Era of Generative AI." *Pédagogie collégiale*, vol. 36, n⁰ 3, p. 66-76.

AQPC (2020). *La planification stratégique 2020-2023 en un coup d'oeil.*

AQPC (2021). "About the AQPC," AQPC.

AQPC (2023a). "Intelligence artificielle et enseignement supérieur," Linkr.

AQPC (2023b). "The College Network : Bubbling and Booming," 2023 AQPC Symposium.

AQPC (2023c, September 14). *IA : prospective pour le milieu collégial*, Major Lecture Series.

Basque, J. (2017, May 8). *Quelques critiques adressées aux méthodes classiques de design pédagogique et implications pour une nouvelle ingénierie pédagogique*, Paper presented at the 85th ACFAS Conference, McGill University.

Beaulieu, D. (2021). "Former une relève en intelligence artificielle en contexte de pandémie,"*Pédagogie collégiale*, vol. 34, n⁰ 2, p. 13-19.

Boucher, J.-P. (2023). "ChatGPT : The Response Must Be Pedagogical," *Pédagogie collégiale,* vol. 36, n⁰ 3, p. 77-83.

Collège Jean-de-Brébeuf (2023, June 8). "Honourable mention for Dave Anctil," *Brébeuf*.

Higher Education Council (2020). *Éduquer au numérique. Report on the state and needs of education 2018-2020*, Quebec: Le Conseil.

Côté, J. (2023, June 1). "ChatGPT inquiète le milieu de l'enseignement à Trois-Rivières," *Radio-Canada*.

Couture, M. (2017, April 22). Les mégadonnées et l'intelligence artificielle en soutien à la rétroaction sur les apprentissages des étudiants," *L'Éveilleur*.

De Bernardy de Sigoyer, A., Nantel, B. and C. Boisvert (2021, May 7). *Le projet Parcours pédagogique en intelligence artificielle IA. Le projet parcours pédagogique en intelligence artificielle (IA)*, AQPC Webinars, Youtube.

Del Degan, B. et al. (2020). *Place de l'intelligence artificielle dans les professions: Enjeux pour la formation collégiale*, Ministère de l'Éducation et de l'Enseignement supérieur.

Environnement Jeunesse (2023). "Cégep Vert du Québec," *Environnement Jeunesse.*

Fontaine, M. (2019, April 8). "Educational Horizons: The Course on Diversity! – 30th annual AQPC Symposium," *Eductive*.

Lafleur, T. (2022, March 28). "Intelligence artificielle et réussite étudiante, une alliance complexe," *Portail du réseau collégial du Québec.*

Lepage, A. and P. Marois (2023). "Perspectives on the Place of AI in College Education," *Pédagogie collégiale*, vol. 36, n⁰. 3, p. 84-91.

"Les professeurs devront s'adapter rapidement, alerte une chercheuse," (2023, May 16). *La Presse.*

Lévesque, L. (2023, August 15). "Les profs de cégep réclament de la formation," *La Presse.*

McLean, S. (2023, April 28). "The Environmental Impact of ChatGPT: A Call for Sustainable Practices In AI Development," *Earth.org*.

Ministère de l'Éducation et de l'Enseignement supérieur (2018). *Digital Action Plan for Education and Higher Education*, Quebec.

Normand, L. and Noiseau, P. (2021). *Vivre une démarche délibérative sur les enjeux éthiques de l'IA au collégial et à l'université*, AQPC Webinars, Youtube.

O'Brian, M. and H. Fingerhut (2023, September 10).

"La technologie de ChatGPT consomme beaucoup d'eau dans l'Iowa," *La Presse.*

Sabourin Laflamme, A. and F. Bruneault (2022). "How to Educate on the Ethics of Artificial Intelligence? A Pragmatic Approach to Ethical Competence," *Pédagogie collégiale*, vol. 36, n⁰·1, p. 60-67.

Sénéchal, J.-F. (n.d.). *IA Café-Enquête au cœur de la recherche sur l'intelligence artificielle.*

Trussart, J.-L. and C. Frenette (2023, September 28). *Exploiter ChatGPT dans différents contextes pédagogiques*,Youtube.

Trust, T. (2023, April). "ChatGPT & Education [Google slide]," University of Massachussets Amherst.

Vallée, P.-L. (2023, March 7). *ChatGPT pour apprendre*, Youtube.

Walker, N. (2019, April 12). "AQPC Honourable Mention 2019," *Virtual Writing Tutor.*