



A Salesian look at Artificial Intelligence

SOCIAL COMMUNICATION SECTOR





A SALESIAN LOOK AT ARTIFICIAL INTELLIGENCE

PRESENTATION

At the beginning of 2024, the Salesian Congregation's Social Communication Sector established an International Commission on Artificial Intelligence (ISCAI) with the aim of collaborating in educational reflection and Salesian guidance for the use of Artificial Intelligence, in particular in the area of education and communication.

This Commission is made up of Artificial Intelligence experts linked to the fields of computer science, robotics, engineering, neuroscience, education, philosophy, mechatronics and Salesianity. All members of this Commission are familiar with Salesian pedagogy and work in our universities, schools and communication areas. During the year we held several meetings and shared reflections and studies on AI.

After this path of reflection and sharing, the Commission has prepared this first item that you are receiving, which we have entitled "A Salesian look at Artificial Intelligence".

It is important to emphasise that AI is growing enormously in many segments of society (in the economy, education, health, safety, communication sectors, etc.). Many studies have been conducted on the use of AI in various areas of human life. The Church itself, through the teaching of Pope Francis, has spoken of the importance and challenges of AI in today's world and in the future of humanity.

With the aim of awakening Salesians and lay people from Salesian works and activities to a knowledge of AI and its dialogue with Salesian pedagogy, we invite you to read this text and send suggestions to our Team to continue deepening and improving the knowledge and practice of AI in Salesian education.

We thank each member of the Committee on Artificial Intelligence:

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Enjoy your reading! If you have suggestions and new ideas to enrich this text, please send an email to comunicazionesociale@sdb.org

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1. ARTIFICIAL INTELLIGENCE, SOME PRELIMINARY NOTES

Artificial Intelligence is the ability a computer has to perform tasks commonly associated with intelligent beings. The latest generations of AI are like “super imitators” able to identify shapes, patterns and models in spoken and written language, in images, videos or other data. Subsequently, generative AI is able to reproduce and combine these shapes and models in new contexts. AI research has mainly focused on the following components of intelligence: learning, reasoning, problem solving, perception, and language use.

The idea of Artificial General Intelligence (AGI), which aims to reproduce human intellectual abilities, still remains a controversial hypothesis and beyond the reach of technical skills. It should be remembered that for the further development of AI, there is still the great challenge of significantly and qualitatively enhancing the current results of AI. Until now, recent developments in generative AI are just a combination of machine learning, natural language processing, and predictive algorithms based on neural network architecture.

In short, we could say that AI is an artificial imitation of some aspects of human intelligence and, of course, it is not an intelligence in itself, nor does it have a consciousness or self-consciousness similar to that of humans.

2. HOW DO WE UNDERSTAND AI FROM A SALESIAN PERSPECTIVE?

The integration of AI in educational environments presents both significant *opportunities* and considerable risks, especially within institutions inspired by the Salesian charism. Educators who find inspiration in the principles of loving-kindness, reason, religion, caring, family community, inclusiveness and joy, emphasise integral education and care for the moral and spiritual development of young people. Considering these educational principles, the question arises: how can AI be implemented in Salesian educational contexts to take advantage of its benefits and mitigate its risks?

Artificial Intelligence *can be useful* for education focused on the human person. Given this, AI should be used to improve education and learning, not to replace educators. It is critical to ensure that technology supports personal interactions, rather than reduces them. In Salesian education, activities and curricular processes that promote community, empathy and personal growth should take precedence over the processes of implementation of technological tools. Policies regulating the use of AI in different contexts should be encouraged, focusing



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on transparency, accountability and respect for human dignity.

There are some *crucial risks* to be noted from a Salesian educational perspective: excessive reliance on AI could reduce face-to-face interactions, weakening the relational and community aspect which is crucial for Salesian pedagogy; AI could lead to a loss of emotional connection in education, because robots cannot replicate human empathy and understanding. These relational qualities, which characterise human relationships, are vital for nourishing Salesian joy and optimism. In addition, AI's focus on efficiency and performance could overshadow the importance of moral and spiritual education.

To face the present and the future of communication and promote an educational approach which is focused on the person, at the global level of Salesian research institutions and IUS it is essential to develop an interdisciplinary dialogue from a Salesian perspective between digital and Christian anthropology; an epistemology that involves philosophy, anthropology, ethics, psychology and studies on the digital world and Artificial Intelligence. A new figure of the philosopher-information technology-educator could emerge.

At the province and local levels, *the formation of educators* remains a key point for education in the digital age. It is essential to develop and deepen the guidelines for a healthy relationship between people and technology with all our people involved in education, be it in the classroom or other areas, with particular attention to caring for creation, dignity, rights, and the ethics of economics and politics. The goal is to safeguard our Common Home through fraternity, following the proposal of Pope Francis starting from his Encyclical *Laudato Si'* and the Global Educational Pact.

In concrete terms, Salesian institutions should offer educators formation on the effective, ethical and Salesian use of AI, including the development of critical thinking about AI, prejudices in its regard and the limitations of technology in general. Teaching students about the role of AI in their education should be included in the curriculum, promoting digital literacy and critical thinking about AI-generated technology and content. Salesian institutions should opt for AI solutions and platforms that share or at least respect Salesian values and can be adapted to the educational approach and ethical framework of the institution itself.



3. WHAT ARE THE MAIN ADVANTAGES AND CHALLENGES IN EDUCATION?

ADVANTAGES AND POTENTIAL OF AI:

- *Personalisation*

Artificial Intelligence proves to be a powerful tool to help the educator provide personalised accompaniment. This means that each student can receive assistance tailored to his or her needs and learning pace, resulting in a more effective and engaging comprehension experience.

- *Effectiveness of automation in administrative tasks*

Artificial Intelligence can reduce the administrative burden on teachers, allowing them to focus on accompanying young people and to gain first-hand knowledge of the status of each student's progress. Other tasks such as lesson planning, labs and workshops, homework, assessment, and data management, among others, can be automated.

- *Importance of reflective and procedural skills*

With the use of AI, computer programming or the creation of new applications will become more accessible to non-engineering experts, since AI is able to process programs with natural language instructions. The importance of non-technological skills such as creativity, reasoning, reflection, analysis, planning, evaluation, will increase. Critical reflection and procedural skills will be strategic in the future.

- *Integration of digital tools in learning*

Artificial Intelligence is used to improve the teaching skills of teachers, facilitating tasks such as the generation of content and lesson plans. Augmented Reality (AR) and Virtual Reality (VR) viewers can be used to offer immersive experiences useful for students' learning process. It is possible to virtually explore biological models, historical places and events, view astronomical models. These tools must always be framed in a pedagogical context in which human interaction and critical reflection are fundamental.



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CHALLENGES AND RISKS:

- *Intrinsic limitations of AI technology*

"Hallucination" in the current Large Language Models (LLM) technology is not a minor defect that can be easily corrected, but is rather something intrinsic to the functioning of these neural networks, which produce texts and images by approximation, without actually "understanding" the text. The same misunderstanding is visible in anatomical or architectural errors in the production of Gen AI images and videos.

- *Digital gap*

Not all students have access to AI technology, as it is usually associated with additional value which must be paid for; this can create inequality issues.

- *Excessive use of AI*

Students may use the AI tool indiscriminately for problem solving and learning, without being able to develop their personal skills, relying excessively on technology in daily life and important decisions.

- *Lack of proper formation of educators*

The lack of training and formation could lead teachers and other educators to minimise the impact of AI technologies with prohibitions and restrictive or repressive strategies, thus creating a gap between the world of adults and young people.

- *Reductive ethical views on AI*

Attention to efficiency and performance metrics could overshadow the importance of moral and spiritual education. Ethical debate is crucial in the use of AI, but the strong attention to transparency and respect for the privacy and dignity of users could cloud other ethical questions and issues such as human manipulation through AI, the growing dependence of human beings on technology, plagiarism, cultural colonisation, ethical decision-making induced by robots, the risk of a decrease in human-human interactions, the production of isolation and hikikomori-type loneliness, etc.



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4. QUESTIONS FOR SALESIANS AND LAY EDUCATORS

- a. How can Artificial Intelligence be *integrated into the educational practice* of the Province to enrich and enhance the human and relational element of Salesian pedagogy?
- b. What specific *formation programmes* can be developed to prepare Salesian educators for the effective, ethical and critical use of AI, ensuring that they understand both the potential and the limitations of this technology?
- c. What are *the main risks and opportunities* associated with the official or unofficial use of AI in the educational and communication activities of the Salesian Provinces, and how can they be managed to promote the Salesian charism?
- d. What tools and methods can be employed to *monitor and evaluate* the impact of the use of AI in Salesian Provinces, both in terms of educational outcomes and adherence to ethical values?
- e. It will be useful to read and share the Address with educators that the Holy Father Pope Francis delivered on the occasion of the G7 on Artificial Intelligence held in Borgo Egnazia (Apulia) on 14 June 2024, and then explore and share the main points, in line with education and ethics: <https://www.vatican.va/content/francesco/en/speeches/2024/june/documents/20240614-g7-intelligenza-artificiale.pdf>

5. SPECIFIC PROPOSALS

METHODOLOGIES

- Gen AI for the generation of personalised content (text, audio, images, videos), personalised *feedback*, automation of administrative tasks.
- VR and AR technologies are used to provide enhanced sensory experiences in teaching and learning.
- Retrieval Augmented Generation (RAG) systems used to reduce the risk of “hallucinations” and provide answers based on scientific and citable sources.



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PILOT PROJECTS

- Pontifical Salesian University, Rome – “*Salesian AI*” is an ecosystem of personalised and interconnected GPT applications that focuses on the Salesian charism in its different aspects. It includes a RAG system that consults the fundamental Salesian Sources for response and assistance criteria. “Salesian AI” provides and cites an extensive database of thousands of Salesian resources in different areas of interest: the life of Don Bosco and other personalities, the history of the Salesians of Don Bosco and the Daughters of Mary Help of Christians and the growth of the Salesian Family, the Salesian educational system and pedagogy in its developments over the centuries, Salesian spirituality inspired by Saint Francis de Sales and Saint John Bosco, contemporary Salesian youth ministry, Salesian educative and pastoral planning in different cultural and linguistic contexts, etc.
- Salesian Polytechnic University, Ecuador – The “*AI-EduResearch: Platform to support Research and Learning powered by Artificial Intelligence and Machine Learning Models*” project proposes an innovative way to integrate AI into education from a Salesian perspective. This approach sees AI not only as a technological tool, but also as a means to strengthen human development and promote values such as respect and solidarity. The platform is designed to personalise learning and support educational research, aligning with the principles of accompaniment in the formation process.
- Edebé publishing house: “*Educational Artificial Intelligence*”. The Edebé team focuses on the concept of Educational Artificial Intelligence (EAI), a powerful tool in which the “educational” objective prevails over the “artificial” one. The EAI platform personalises learning, optimises teaching time by allowing teachers to spend more time with their students, promotes ethics and security by guaranteeing *privacy*, connects with emotions by motivating meaningful learning.
- Pontifical Salesian University, Rome – “*Vulgate - AI-powered library platform*” has been developed and customised for the needs of Salesian studies. The Library uses several AI technologies such as Gen AI, Computer Vision and Natural Language Processing, to provide the Salesian Library with the following features: neural semantic search, multilingual search, search for keywords within books, AI text summaries, machine translation, personal library with *editing* options.



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TRIALS:

- Salesian Polytechnic University, Ecuador – *“Generative Artificial Intelligence in Software Development Education”*: It is proposed to conduct experiments with computer science students from various universities, in order to explore the use of generative Artificial Intelligence in education, in particular in *software* development, and its impact on teaching, learning and evaluation processes from a constructivist perspective.
- Salesian Polytechnic University, Ecuador – *“Integration of digital tools and AI in student formation”*: In this project AI is not used to replace the teacher, but to improve teaching skills. The project emphasises the fact that AI can facilitate tasks such as the generation of content and schemes. In addition, emerging technologies such as augmented reality (AR) and virtual reality (VR) glasses have been introduced, which allow students to live immersive experiences, such as exploring biological models, or travelling to historical places in a virtual way.

VARIOUS OPERATIONAL PROPOSALS

“Salesian Award for AI in Human-Centred Education”: The Award aims to recognise and promote innovative practices by educators who incorporate AI into teaching, research and pastoral care in order to enhance distinctly human characteristics such as creativity, critical thinking, social interaction and spirituality. This initiative aims to clarify the role of AI as a powerful imitator of human intelligence and to emphasise that its development offers a unique opportunity for Salesian educators to focus on the promotion of intrinsically human qualities.

“Artificial Intelligence training course”: Build a multilingual model for a basic Artificial Intelligence course that can be adapted and replicated in different Salesian institutions.

“Financing AI research and development”: Establish a global invitation to select and finance teaching, research, technological development and dissemination projects by emerging and established Salesian groups working in the field of AI applied to education. Funding for the invitation may come from business partners interested in advancing this sector, including large technology companies.



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"Tool for evaluating the use of AI": Develop a tool to monitor the evolution of the development and use of AI in Salesian institutions, with clear, diverse and complete metrics that allow quantitative statistical analysis and qualitative analysis to help decision-making at the global or regional level.