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Artificial Intelligence Content Generators in Education for Schools and Universities A GOOD PRACTICE GUIDE

Purpose of the guideline

This guideline has been developed in consultation with international experts in the field of Artificial Intelligence (AI) and Academic Integrity for teachers, faculty, researchers, management, and policymakers. The guide is meant to be a quick, easy reference point to help the reader develop understanding and increase awareness of AI content generator tools, their opportunities and threats, discover how best to mitigate risks and recognise the benefits to better enhance students' learning journey that will make them future ready.

Document authorship

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Artificial Intelligence Content Generators in Education for Schools and Universities

A GOOD PRACTICE GUIDE

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Abbreviations

AI	Artificial Intelligence
ENAI	European Network for Academic Integrity
WG	Working Group
E-CAIU	ENAI WG Centre for Academic Integrity in the UAE
UOWD	University of Wollongong in Dubai
UAE	United Arab Emirates
UNESCO	United Nations Educational, Scientific and Cultural Organization
NLP	Natural Language Processing
NLG	Natural Language Generation
AICG	AI Content Generators
AITG	AI Text Generator

1. Introduction

Artificial intelligence (AI) has gained considerable momentum in education, with tremendous focus and support from the United Arab Emirates (UAE) government, its National Programme for Artificial Intelligence that has launched the ‘Learn AI Platform’ [1] and a variety of resources, grants and funding schemes made available in the country for public and private sectors to research, incorporate and work on AI [2].

Use of AI in education is a promising area, with great opportunities and potential in enhancing student’s learning journeys and making them future ready.

This guideline is a snapshot attempt at identifying opportunities and recognizing threats from AI in education, particularly AI content generators and how educators and policymakers may address them.

2. AI in Education

Using technology in education is nothing new. A bridge between classrooms and real-world experiences, technological advances have helped reshape education in the twenty-first century, changing the roles of faculty and students. Be it the early days of instructional television and radio, or the days of computers and the internet, to the fourth industrial revolution, era of big data, machine learning and AI, technology has been a tremendous boon to education [3].

Artificial Intelligence (AI) is the ability of computer programmed with large training data set to perform tasks that may be associated with human-characteristics and/or intelligence such as reasoning, learning, and so on, that can lead to complex decision making in specific areas such as medicine, search engines, facial recognition, voice to text conversations and others [4].

Education is one field where AI has been integrated to benefit both students and teachers in the classroom. For instance, United Nations Educational, Scientific and Cultural Organization (UNESCO) has released a mandate to use AI in education positively to address issues surrounding accessibility and inclusiveness in learning, knowledge and beyond [3].

AI takes many forms that are important to understand. The figure below describes the four main forms of AI.

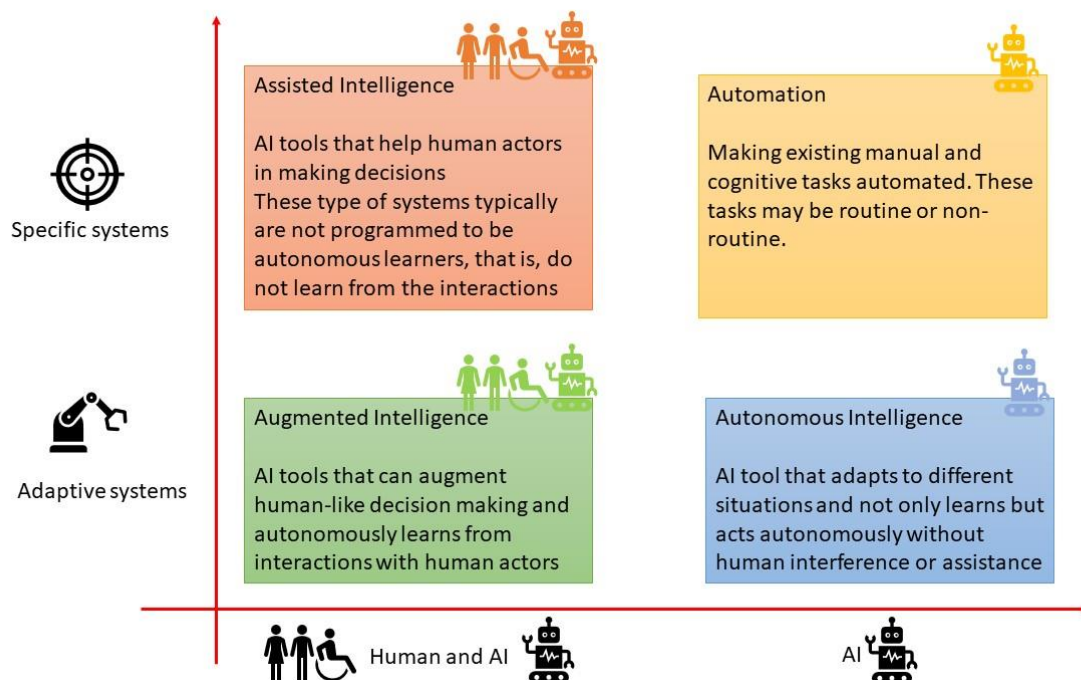


Figure 1: AI Forms (Adapted from Pricewaterhouse Coopers PwC Report [5])

2.1. Opportunities with AI in Education

AI in education has already shown great potential in the following areas:

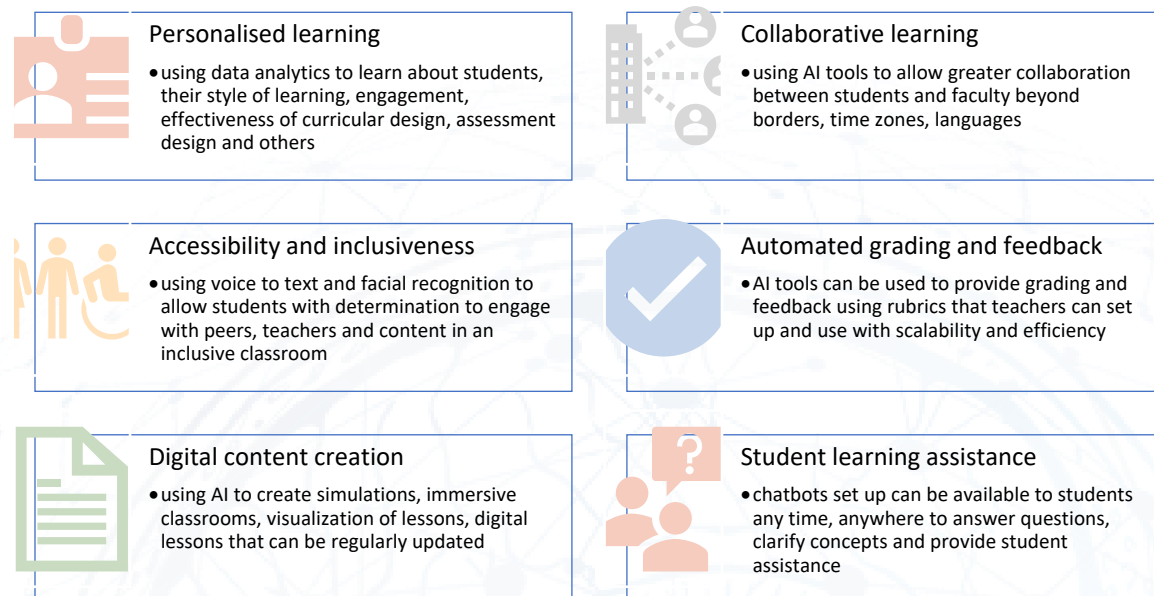


Figure 2: Opportunities of using AI in Education

2.2. Concerns over AI in Education

While AI is a great support to the learning community, like any technology, it has its own share of risks and threats, particularly surrounding the issue of ethics of AI. While UNESCO calls for human-centered approach to AI, there remains significant concerns around:

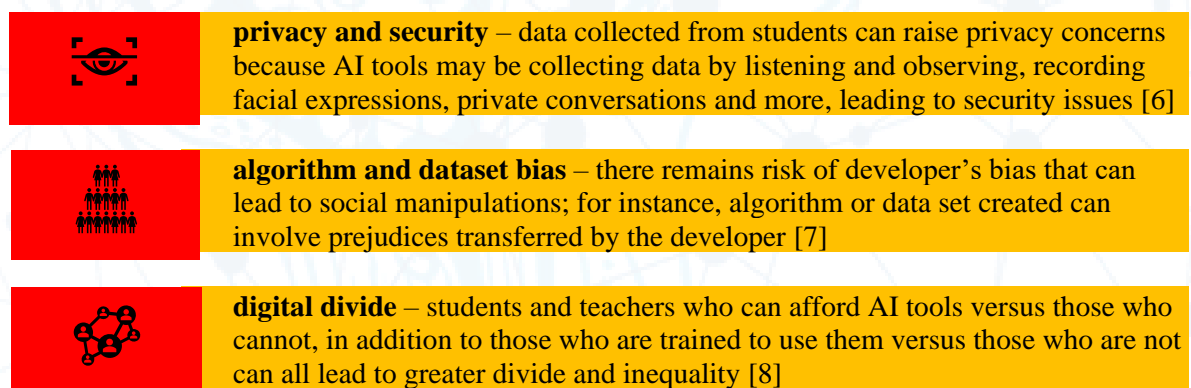


Figure 3: Concerns over AI use in Education

3. AI Content Generators (AICG) and Education

AI content generators have been gaining tremendous traction in the workplace, particularly in industries that need content creation at scale. Businesses have been using AI content generators to increase efficiency and effectiveness, especially where repetitive or mundane tasks are concerned. AICG are used in many industries such as music and entertainment, art, media, medicine, and others. AICG work by using natural language processing (NLP) and natural language generation (NLG) methods [9]. AICG is typically trained using a large data set, where the language transformer model learns autonomously and that is geared towards the person or industry it targets [10].

3.1. GPT-3/4 and Academia

GPT-3 is the third generation of generative pre-trained text generating model that was built by OpenAI and stands out from other predecessors, more for the size of the parameters and data sets used to train the system, eg. ChatGPT has been trained on 175 billion parameters and some 570GB of data from books, articles, news sites, text on the web from various other sources [11]. AI text generators work with pre-trained data sets when prompted with a question to look for and make links to texts and generate responses. GPT 4, that was launched a few months after GPT-3.5 and has multimodal capabilities, which means it can process text, images, and videos. It is better able to understand context which helps in more accurate responses. In addition, GPT-4 can accept up to 25,000 words, compared to previous version's 3124 words [12]

Benefits and opportunities of AI text generation tools [9] [10] [13] include:

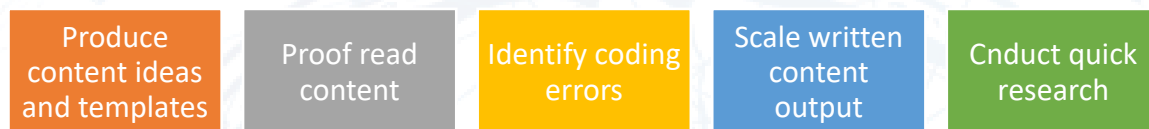


Figure 4: Opportunities for AI text generator tools in education

3.2. Concern over AI text generation in classrooms

There are concerns over the implications of having AI text generators like ChatGPT and Google's Bard which give human-like responses in a chat conversation with the user. These are [14]:

- Consideration that student content submitted for grading is partially or wholly generated by AI text generator (AITG) tool
- Same question prompt made multiple times can generate different outputs
- Text generated by AITG is authentic so will not be flagged by existing text-matching software such as Turnitin
- Text generated by AITG is not considered third party content because AI has not been given sentient status of existence as it has no consciousness of its own existence or of what it writes; and therefore cannot be considered a person or entity but a tool, therefore may not be categorized as contract cheating
- Content generated by AITG seemingly gives answers, which cannot be verified always as the tools themselves give disclaimers to the correctness of information or facts provided and is known to give incorrect information
- Lack of understanding of context that can lead students to misinformation and misunderstanding of content
- Copyright concerns over the data sets used to train the systems that have led to artists in certain industries suing the developers of such tools
- Content is wordy but lacks insights, so may sound intelligent as an answer, but will not necessarily add value to the output
- Authors/researchers may generate content for academic papers that will raise questions on authorship and originality of ideas, objectives in research

4. Going Forward with Integrity

Institutions, academics, researchers, student communities need to work together to ensure that AICG such as AITG are used as tools to enhance student learning experiences, and not pose a threat to the integrity of assessments set and the learning outcomes of the courses taught.

To maintain integrity, schools and universities should:

Revisit policies on academic integrity and misconduct to clarify expectations from students, faculty and researchers on the use of AI generated content which can be text, image, videos, or others.

- Like calculator-use, AICG tools must be pre-defined to students and faculty before they can be incorporated or used in classrooms or in research.
- If AICG tools are used, proper acknowledgement guidelines should be given if and where they are allowed, how they should be acknowledged and distinguished from student/researcher content

Raise awareness among students, faculty and staff on AICG, their benefits and threats

- Host innovative events (open mic days, debates, etc) to provide opportunities for stakeholders to attend, listen, watch, participate and engage in conversations

Create an atmosphere of open conversation to allow for student and staff to engage in dialogue on the scope and opportunities of use with industry experts and workplaces

- Ensure the message is very clear that the conversations are taking place in safe spaces

Set up sub-committees to revisit assessment design to make them more authentic and work-integrated

- The expectations of output should align with learning outcomes
- They should oblige students to provide their own outputs rather than relying on AICG

Make students co-partners in the journey to ensure uptake of the integrity messages by all stakeholders

- Involve student representatives in discussions around policy, assessment review, expectations

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Extra-resources

- ❑ What is Artificial Intelligence – IBM. Available URL - <https://www.ibm.com/topics/artificial-intelligence>
- ❑ QAA AI Guidelines. Available URL - <https://www.qaa.ac.uk/news-events/news/qaa-briefs-members-on-artificial-intelligence-threat-to-academic-integrity>
- ❑ QQI What to do about AI txt generators? Available URL <https://www.qqi.ie/events/what-to-do-about-ai-text-generators-next-steps-for-educators>
- ❑ How to improve coding skills with ChatPT. Available URL - <https://cointelegraph.com/news/how-to-improve-your-coding-skills-using-chatgpt>
- ❑ ChatGPT – Five priorities for research. Available URL - <https://www.nature.com/articles/d41586-023-00288-7>
- ❑ Disadvantages of ChatGPT content. Available UL - <https://www.searchenginejournal.com/disadvantages-chatgpt-content/477416/#close>
- ❑ ChatGPT failure archives with examples. Available URL - <https://github.com/giuvn95/chatgpt-failures>
- ❑ Five professions at risk from ChatGPT. Available URL - <https://www.dailymail.co.uk/health/us-health-weekend-features-project/article-11710217/Will-ChatGPT-job-Experts-reveal-five-professions-risk-AI.html>