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An introduction to inclusive, responsible use of AI in education

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Responsible use of AI – Equity & Fairness

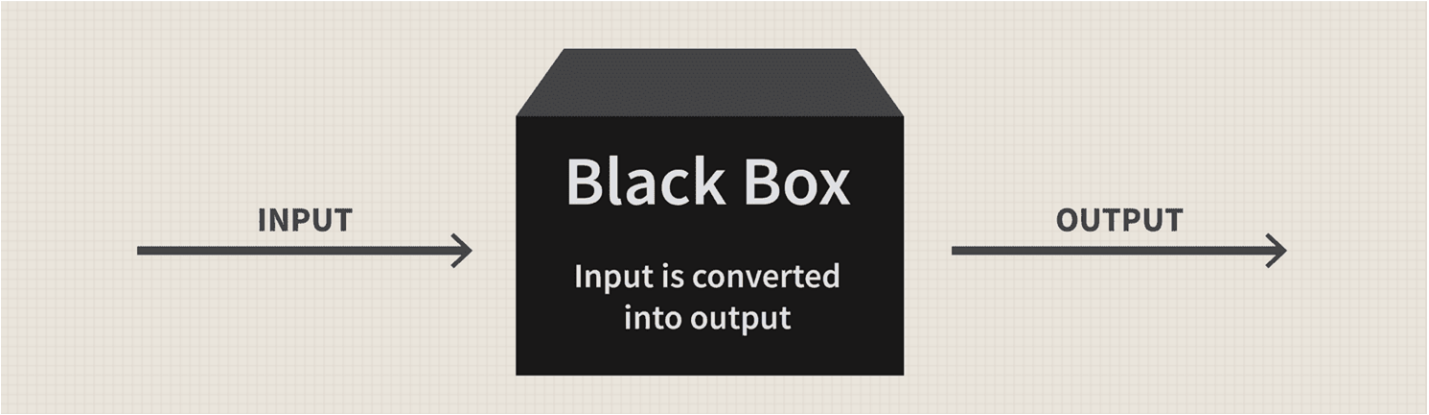
AI can do “incredible things” including opening up new opportunities for children “in education and learning, and entertainment and having fun”.
Dr Mhairi Aitken, an expert on AI and children’s rights in TES June 2024 AI could create ‘new inequities in learning’, warns expert | Tes

For instance, in education, AI can convert text to speech for children with visual impairments or speech into text for the hearing impaired.
However, AI - could also open up “new inequities in learning”, given the best systems are likely to come at a premium.

Responsible use of AI – Transparency & Bias

The model, algorithms and training data enable the AI technology to behave and produce outputs in certain ways

AI systems can inherit and even amplify biases due to biases in its model, algorithms and data



Tell me about important scientists in 20th Century

The 20th century was a period of unprecedented scientific advancement, marked by groundbreaking discoveries that fundamentally reshaped our understanding of the universe, life, and technology. Here are some of the most important scientists and their contributions:

Physics:

- **Albert Einstein (1879-1955):** Revolutionized physics with his **theories of relativity**.
  - **Special Relativity (1905):** Introduced the famous equation $E = mc^2$, showing the equivalence of mass and energy, and redefined concepts of space and time.
  - **General Relativity (1915):** Explained gravity as the curvature of spacetime, leading to a new understanding of the universe, black holes, and cosmology.
- **Max Planck (1858-1947):** Pioneered **quantum theory** (1900) by proposing that energy is emitted and absorbed in discrete packets called "quanta." This laid the foundation for modern physics.
- **Niels Bohr (1885-1962):** Developed a model of the atom (1913) where electrons occupy specific energy levels, which was crucial for understanding atomic structure and leading to quantum mechanics.
- **Werner Heisenberg (1901-1976):** Formulated the **Uncertainty Principle** (1927), stating that certain pairs of physical properties, like position and momentum, cannot both be known precisely. He also contributed to quantum mechanics.
- **Erwin Schrödinger (1887-1961):** Developed the **Schrödinger equation** (1926), a fundamental equation of quantum mechanics that describes how the quantum state of a physical system changes over time.
- **Ernest Rutherford (1871-1937):** Through his gold foil experiment (1911), he discovered the **atomic nucleus**, showing that atoms have a small, dense, positively charged core. He also discovered the proton and, with James Chadwick, the neutron.
- **Enrico Fermi (1901-1954):** A key figure in the development of the **first nuclear reactor** and a major contributor to the **Manhattan Project** (atomic bomb). He also made significant contributions to quantum theory and particle physics.
- **Richard Feynman (1918-1988):** Developed the **path integral formulation of quantum mechanics** and quantum electrodynamics, which earned him a Nobel Prize. He was also a charismatic educator and author.
- **Stephen Hawking (1942-2018):** While much of his major work extended into the 21st century, his foundational contributions to **cosmology and black holes**, including **Hawking radiation**, began in the late 20th century.

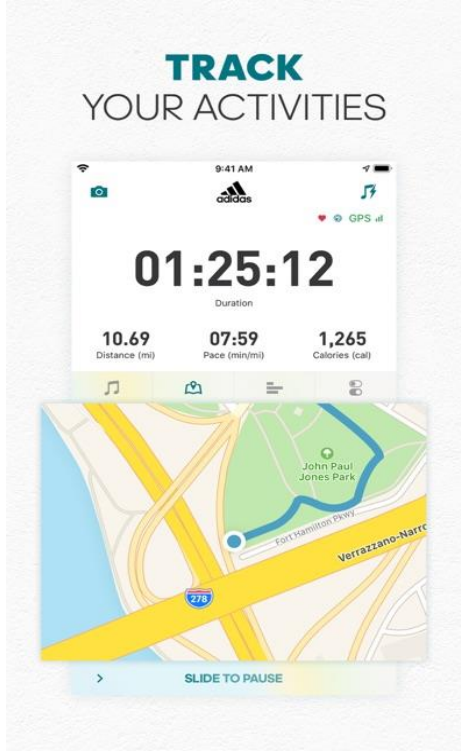
Google Gemini when prompted to give examples of important scientists in 20th Century, it only listed Western, male physicists in its output.

Responsible use of AI – Privacy

The risks when using personal data (your own or other people's) when using AI tools

AI tools can 'learn' from the information we input, and overtime, it can start to develop a picture about you (and your students if you upload their work)

Some very simple, everyday use of AI can lead to sharing of very personal information




bbcsport
15 minutes ago
BBC SPORT
The Swedish PM's private address was revealed by his bodyguards' Strava runs
SWIPE


bbcsport
15 minutes ago
BBC SPORT
It's alleged Ulf Kristersson's security team have had their workouts publicly available for years.
STRAVA
They could have inadvertently revealed his location – including details of hotels and private addresses.
Newspaper Dagens Nyheter found 35 examples of public data directly linking to the Prime Minister.

Responsible use of AI – Copyrights & Ownership

Copyrights relate to several issues when it comes to the use of AI.

Currently, the debate is ongoing.

While teachers have limited influence over how an AI is trained, we can be mindful about how we upload materials and what content we create using AI.

Another important aspect to consider here is fake information.

Business News / Trending / Explained: Why AI's 'Ghibli-Style' Art Trend Has Sparked A Major Debate

Explained: Why AI's 'Ghibli-Style' art trend has sparked a major debate

Studio Ghibli-style AI art sparks backlash over copyright and ethics

Written by Shubham Chhabra

March 29, 2025 15:33 IST

A viral trend of generating Studio Ghibli-inspired AI art using OpenAI's GPT-4o has sparked controversy, with fans and critics raising concerns over copyright infringement and the ethical use of artificial intelligence.

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Responsible use of AI – Academic Integrity

For example: Birmingham City University definition:

Academic integrity is the attitude of approaching your academic work honestly, by completing and submitting your own original assessments, attributing and acknowledging your sources (BCU 2024)

How will the use of AI potentially impact on it?

BỘ GIÁO DỤC VÀ ĐÀO TẠO
TRƯỜNG ĐẠI HỌC SƯ PHẠM HÀ NỘI
Số: 3077/QĐ-ĐHSPHN

CỘNG HOÀ XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

Hà Nội, ngày 15 tháng 8 năm 2024

QUYẾT ĐỊNH

Về việc ban hành Quy định về liêm chính học thuật của Trường Đại học Sư phạm Hà Nội

Điều 2. Giải thích từ ngữ

Trong quy định này, các từ ngữ dưới đây được hiểu như sau:

1. Liêm chính học thuật (Scientific integrity) là cách hành xử trung thực, minh bạch, công bằng và có trách nhiệm trong hoạt động đào tạo, KH&CN.

2. Hành vi vi phạm liêm chính học thuật (Integrity violations, Misconduct) là hành vi không trung thực, không công bằng trong hoạt động đào tạo, KH&CN để nhằm trục lợi cho bản thân hay cho người khác.

3. Đạo văn (Plagiarism) là việc sử dụng các ý tưởng, đoạn văn, số liệu hoặc tài sản trí tuệ của người khác nói chung mà không trích dẫn.

Responsible use of AI
Environmental impact

- Each server farm needs to be cooled
- For training:
  - GPT-3 used approx. 700,000 litres of freshwater
- This is equivalent of:
  - Enough water for 350,000 people for one day (2 litres)
- For everyday use:
  - 20-50 questions asked uses 500ml of water
- If all ChatGPT users ask 20-50 questions each, this is 90 million litres
- This is equivalent of:
  - Enough water for 45 million people for one day (2 litres)

Note: these figures are only for ChatGPT, many other LLMs are out there (Meta, Google, etc.)

Responsible use of AI
Environmental impact

- Current ‘massive’ AI technologies, such as ChatGPT, require massive amounts of electricity to power
- For training:
  - 405 years on 1x V100 GPUs (many are used)
  - Approx. 1064 MWh
- This is equivalent of:
  - Powering approx. 322 UK households for 1 year

- Each server farm is producing carbon emissions
- ChatGPT emits approx. 8.4 tons of CO_2 per year
- Equivalent of:
  - 5.25 flights from London to New York

Note: these figures are only for ChatGPT, many other LLMs are out there (Meta, Google, etc.)

Conclusion

- Critically evaluating AI technologies before, during and after using it is very important to ensure students' and teachers' rights are protected.
- It should focus on the safety, ethics and responsible use of AI technologies.
- Teachers need to consider the impact of AI in relation to the equity and fairness of AI use and outcomes, be mindful of biases and inaccuracies in AI outputs, be careful about AI technologies' use and impact on data and copy rights, understand and discuss with students how AI can influence and impact on learning, and be mindful of the impact AI has on environment and animals.
- AI is still developing in the public domain, so holding on responsible, ethical use of AI principles is crucial to ensure teachers and students are limit the risks of AI while benefiting from using AI.