

# Generative AI & Assessment: A crisis for markers or an opportunity for HE?



School of Medicine

Hybrid Interactive  
Virtual Environments

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# Internet 'may be just a passing fad as millions give up on it'



THE Internet may be only a passing fad for many users, according to a report.

Researchers found that millions were turning their back on the world wide web, frustrated by its limitations and unwilling to pay high access charges.

By **James Chapman**  
Science Correspondent

Woodgar, director of the society, said: 'We are often presented with a picture of burgeoning Internet use, but there is evidence already of drop-off and saturation among users.'

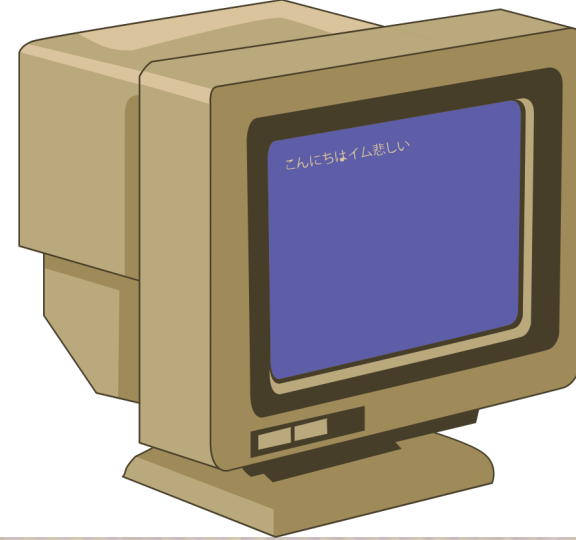
'Consumers' use of the Internet has

Net loss: Two million Britons have logged off the Internet

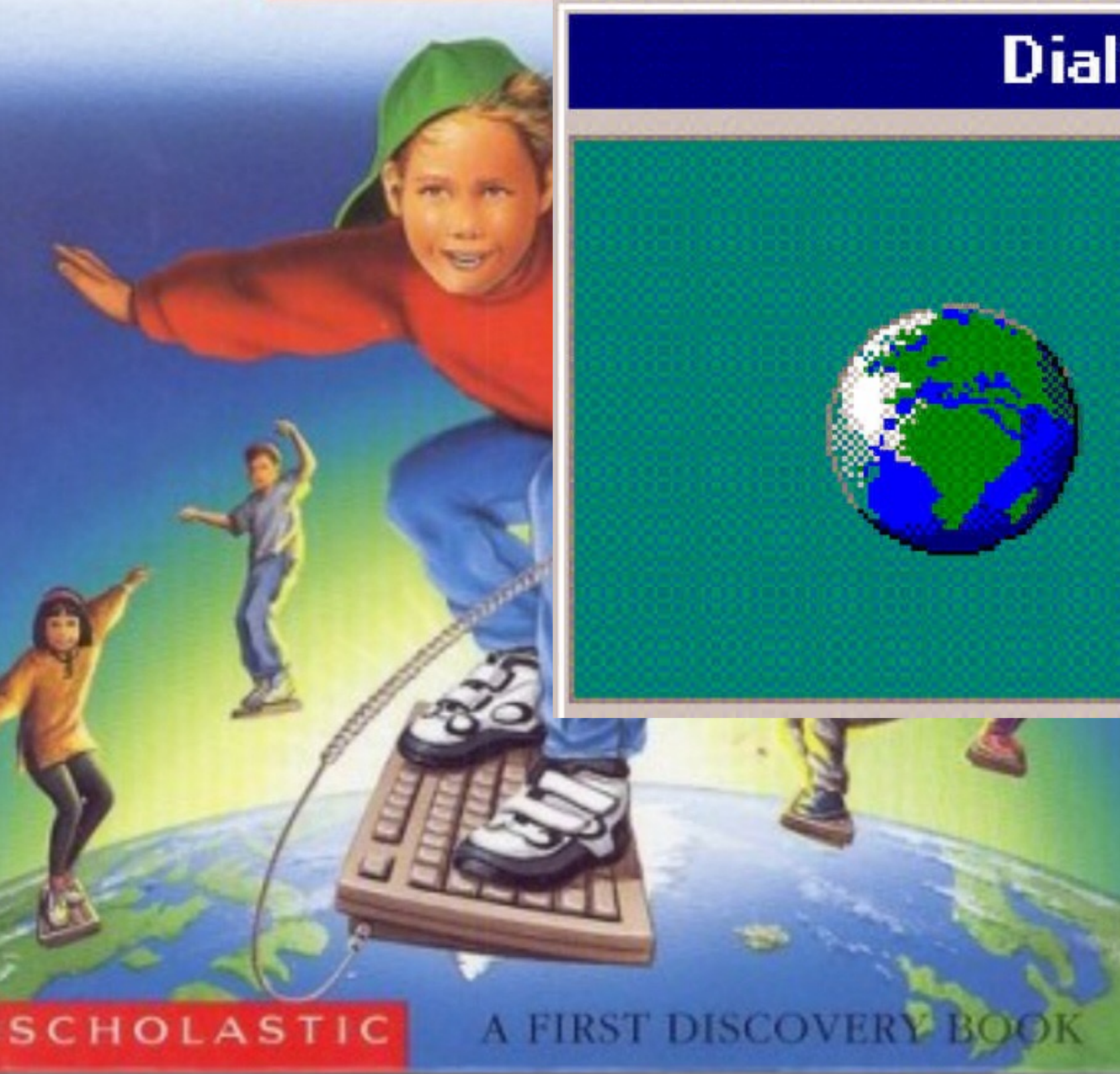




Internet



**HARD TO BELIEVE,  
I ONCE HAD A PHONE  
ATTACHED TO THE WALL.**



**WHEN IT RANG, I'D  
PICK IT UP WITHOUT  
KNOWING WHO WAS CALLING.  
AMAZING, I'M STILL ALIVE.**

imgflip.com

# DigComp

The Digital Competence Framework for Citizens (DigComp) provides a common understanding of what digital competence is.

"...the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It is defined as a combination of knowledge, skills and attitudes." ([Council Recommendation on Key Competences for Life-long Learning, 2018](#)).

Taken from the  
EU Commission's  
*EU Science Hub*

[https://joint-research-centre.ec.europa.eu/dig-comp\\_en](https://joint-research-centre.ec.europa.eu/dig-comp_en)



# Cardiff Uni AI in Education Working Group

- Staff & student guidance issued

## Artificial Intelligence (AI) in Education - Guidelines for staff

Updated 3 weeks ago (24/01/2024)

Cardiff University embraces the potential of Generative AI technology and encourages staff and students in its appropriate and ethical use to further learning and teaching without undermining our core principles of producing graduates that are independent critical thinkers.

- Group assembled & plugged into sector
  - AI Champions in each School
- Viva Engage (Yammer) AI in Education Community



# AI simulated virtual patient

Practice your neurology history taking with these AI simulated virtual patients created by SimPat:



## Neurology Simulation

(Vignette)

You are seeing Ricardo Gonzales, a 67-year-old retired mechanic who has just walked into the Emergency Department unaccompanied. He is complaining of sudden onset of headache and difficulty speaking.

### Can it deliver certain aspects of teaching? Tailored & personalised support?



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Education

## AI Will Transform Teaching and Learning. Let's Get it Right.

At the recent AI+Education Summit, Stanford researchers, students, and industry leaders discussed both the potential of AI to transform education for the better and the risks at play.



You

Can AI deliver certain aspects of teaching at university?



ChatGPT

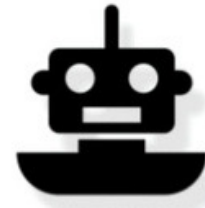
Yes, AI can play a significant role in delivering certain aspects of teaching at the university level.

Here are some ways in which AI can be utilized in education:

1. **Personalized Learning:** AI can analyze individual student performance and adapt learning materials to cater to their specific needs. This personalized approach helps students learn at their own pace, addressing their strengths and weaknesses.
2. **Automated Grading:** AI algorithms can be employed to automate the grading process for multiple-choice questions, freeing up educators' time to focus on more complex aspects of teaching and providing faster feedback to students.
3. **Tutoring and Support:** AI-powered tutoring systems can assist students in understanding concepts, solving problems, and providing additional support outside of regular classroom hours. These systems can adapt to each student's learning style and pace.
4. **Language Translation and Accessibility:** AI technologies, such as natural language processing and machine translation, can facilitate communication and learning for students whose primary language may not be the language of instruction.
5. **Data Analysis and Insights:** AI can analyze large sets of educational data to identify patterns, trends, and insights. This information can be valuable for educators to refine teaching methods, identify areas for improvement, and enhance the overall learning experience.
6. **Virtual Reality (VR) and Augmented Reality (AR):** AI-driven VR and AR applications can create immersive learning experiences, allowing students to explore complex concepts in a three-dimensional and interactive environment.
7. **Content Creation:** AI can assist in generating educational content, including quizzes, lesson plans, and even lecture materials. This can help educators save time and ensure that content is up-to-date and aligned with the latest information.

While AI can enhance certain aspects of teaching, it's important to note that it cannot fully replace the role of human educators. The human touch, empathy, and the ability to understand the unique needs of each student remain crucial in providing a well-rounded education. The ideal scenario often involves a collaborative effort where AI complements human teaching, allowing educators to focus on more interactive and creative aspects of the learning process.

# 30 AI tools to use in the classroom



- ChatGPT
- Perplexity
- Curipod
- Education Copilot
- Yippity
- Quillbot
- PowerPoint Spkr. Coach
- Grammarly
- Canva Bkgrnd. Remover
- YouTube Summary
- SlidesAI.io
- Adobe Bkgrnd. Remove
- Speechify
- DALL-E
- Canva Magic Write
- gotFeedback
- Conker
- Random Face Generator
- Bing Image Creator
- Formative AI
- summarize.tech
- Nolej
- Otter
- Parlay
- Parlay Genie
- ChartGPT
- Runway
- Hello History
- DeepL
- PDF Chatbot
- QuestionWell



30 AI tools categorized by function:

- Text & writing:** OpenAI, AI21 labs, Hugging Face, deepset, co:here, Replicate, Adept
- Image:** Notably, Capacities, Fermat, Elicit, mem
- Audio/Video:** betterdata, Replic Analytics, MOSTLY.AI, TOMIC, OCTOPIZE, SYNTEGRA, Mirry.AI
- MLOps:** replit, Codiga, tabnine, MUTABLE, Mintify, Debuild, symflower, CodePilot.ai, Amazon CodeWhisperer, BLACKBOX
- Data & decisions:** ultimate.ai, CRESTA, PolyAI, ada, KAIZAN, Stylo, mavenoid, Forethought, viable, Certainly.
- Creative organization:** gretel, MDCLONE, hazu
- Synthetic data generation:** SeMI Technologies, raft, Twelve Labs, Metaphor, DASHWORKS
- Vector search & curation:** WRITER, QuillBot, OTHERSIDE AI, LT, LanguageTool, wordtune, Correcto., Linguix, COMPOSE AI
- Code generation & documentation:** Demandwell, Jasper, Writesonic, copy.ai, regie.ai, anyword, peppercontent, LAVENDER, Creatext, SURFER, {lyne}, Scalnut, craftly.ai, DATA SKRIVE, neuroflash, INK, copysmith, Smartwriter.ai, Hypotenuse AI
- Customer support (chat/email/text):** WEAVE.AI, agolo, scholarcy, summari, TLDR this, Tome
- General writing and content editing:** PhotoRoom, Let's Enhance, Depix, Picsart, neural Jove, Autoenhance.ai, imagen, pencil, Rocketium, AdCreativeai, Simplified, OSMOSIS, SWAPP, maket, Diagram Labs, BEAUTIFUL [AI], HYPAR, uizard
- Marketing & sales copy:** BRA, ROSEBUD.AI, NightCafe, MidJourney, crayon
- Text & data summarization:** MLOps: Humanloop, mosaic, Weights & Biases, LatticeFlow, comet, slai, HUMAN INTELLIGENCE, Osterounds
- Image editing:** +2 more in full universe
- Ad collateral:** +1 more in full universe
- Design:** +5 more in full universe
- Text to image:** +9 more in full universe
- Audio Editing:** +2 more in full universe: Amberscript, VOICEMOD, PODCASTLE, krisp, Alforithmic
- Text to speech / Speech to text:** +14 more in full universe: coqui, Speechify, WELLSAID, MURFA, REPLICIA, LOVO, RESEMBLE.AI
- Music generation:** +9 more in full universe: moises, boomy, supertone, USICO, DAACI, SPLASH
- Summarization & insights:** +8 more in full universe: Fathom, xembly, hume, clearword, SEMBLY, Sybill, Magnifi, VIDEOVERSE, Hume.
- Avatars & dubbing:** +15 more in full universe: Hour One, neosapience, Synthesia, METAPHYSIC, eepDub.ai, PAPER CUP, WOMBO, Rephrase.ai, elai., Colossyan, YEPIC.AI, D-ID, CESPEECHER
- Text to image:** +9 more in full universe
- Summarization & insights:** +8 more in full universe
- Avatars & dubbing:** +15 more in full universe
- Video:**
  - Generation and Animation: +1 more in full universe: runway, lumen5, plask, PICTORY
  - Editing: +6 more in full universe: descript, invideo



# Investigating marker accuracy in differentiating between university scripts written by students and those produced using ChatGPT

RESEARCH ARTICLES

<https://doi.org/10.37074/jalt.2023.6.2.13>

Published July 24, 2023

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## Abstract

The introduction of OpenAI's ChatGPT has widely been considered a turning point for assessment in higher education. Whilst we find ourselves on the precipice of a profoundly disruptive technology, generative artificial intelligence (AI) is here to stay. At present, institutions around the world are considering how best to respond to such new and emerging tools, ranging from outright bans to re-evaluating assessment strategies. In evaluating the extent of the problem that these tools pose to the marking of assessments, a study was designed to investigate marker accuracy in differentiating between scripts prepared by students and those produced using generative AI. A survey containing undergraduate reflective writing scripts and postgraduate extended essays was administered to markers at a medical school in Wales, UK. The markers were asked to assess the scripts on writing style and content, and to indicate whether they believed the scripts to have been produced by students or ChatGPT. Of the 34 markers recruited, only 23% and 19% were able to correctly identify the ChatGPT undergraduate and postgraduate scripts, respectively. A significant effect of suspected script authorship was found for script content,  $X^2(4, n=34) = 10.41, p < 0.05$ , suggesting that written content holds clues as to how markers assign authorship. We recommend consideration be given to how generative AI can be responsibly integrated into assessment strategies and expanding our definition of what constitutes academic misconduct in light of this new technology.



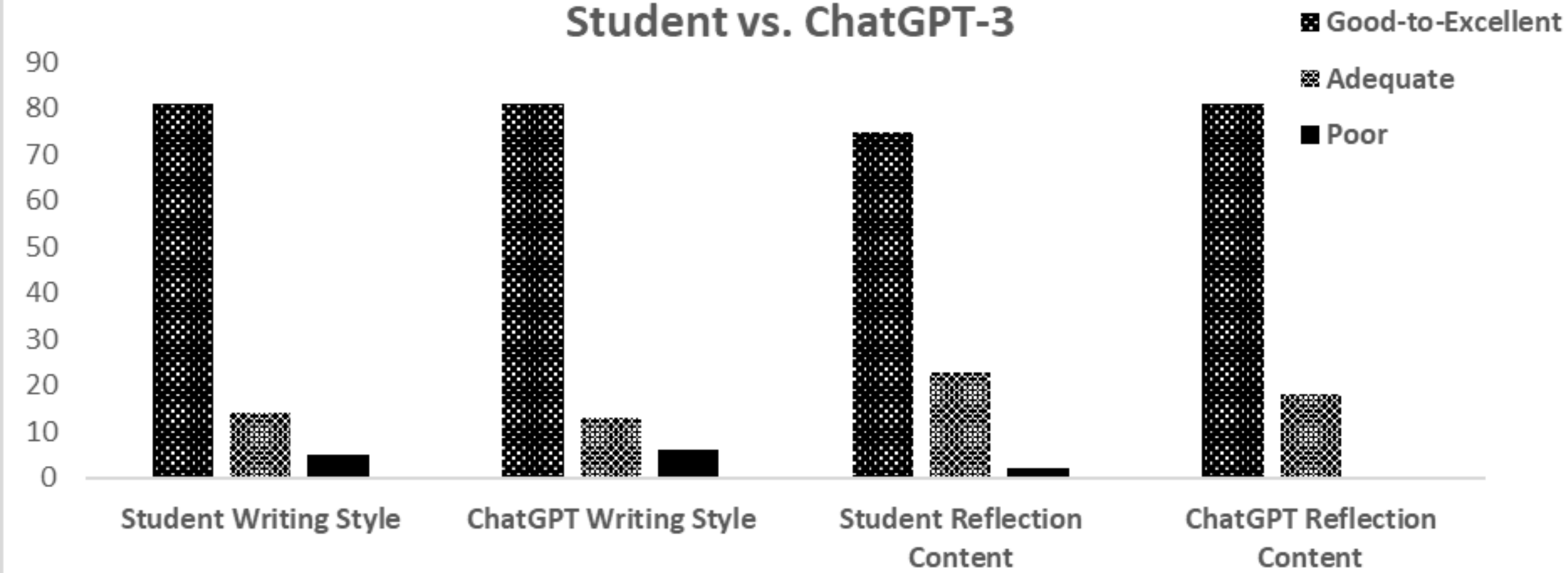
	Student	Bot	Don't know
Accuracy - UG Student	50	22	28
Accuracy - Bot	59	23	18



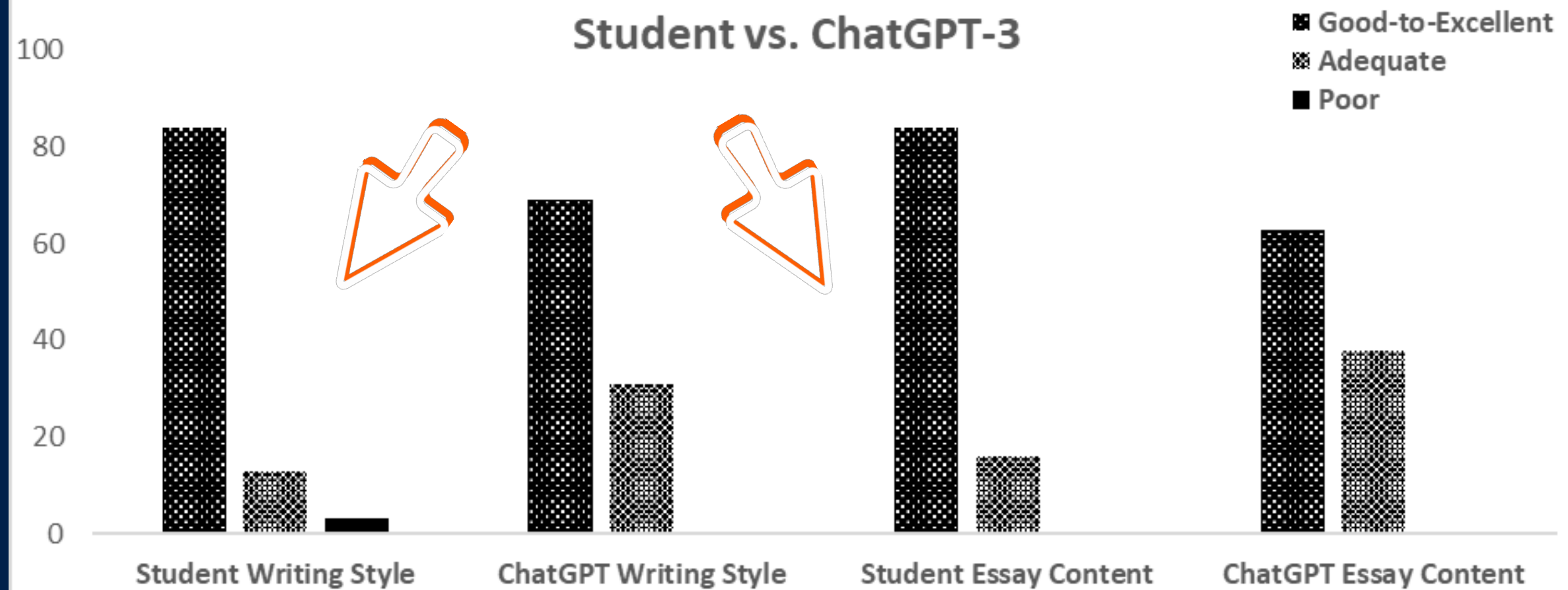
	Student	Bot	Don't know
Accuracy - PG Student	50	31	19
Accuracy - Bot	44	19	37



## Undergraduate Reflective Writing Marker Scoring - Student vs. ChatGPT-3



## Postgraduate Essay Marker Scoring - Student vs. ChatGPT-3



# Content analysis frequency table - undergraduate student scripts

	<b>Use of Language</b>	<b>Personal &amp; reflective</b>	<b>Structure and writing style</b>	<b>Referencing</b>
<b>Total Frequency (%)</b>	<b>56</b>	<b>24</b>	<b>15</b>	<b>5</b>
<b>Student Identified</b>	<b>29</b>	<b>12</b>	<b>7</b>	<b>2.5</b>
<b>ChatGPT Identified</b>	<b>17</b>	<b>7</b>	<b>2.5</b>	<b>0</b>
<b>Authorship Uncertain</b>	<b>10</b>	<b>5</b>	<b>5</b>	<b>2.5</b>

# Content analysis frequency table - undergraduate ChatGPT scripts

	<b>Use of Language</b>	<b>Personal vs. formulaic</b>	<b>Structure and writing style</b>	<b>Referencing</b>
<b>Total Frequency (%)</b>	<b>46</b>	<b>32</b>	<b>18</b>	<b>4</b>
<b>Student Identified</b>	<b>28</b>	<b>9</b>	<b>18</b>	<b>0</b>
<b>ChatGPT Identified</b>	<b>4</b>	<b>14</b>	<b>0</b>	<b>0</b>
<b>Authorship Uncertain</b>	<b>14</b>	<b>9</b>	<b>0</b>	<b>4</b>


# Content analysis frequency table - postgraduate student scripts

	<b>Structure and Layout</b>	<b>Use of Language</b>	<b>Knowledge &amp; Appraisal</b>	<b>Referencing</b>	<b>Construction and style</b>
<b>Total Frequency (%)</b>	<b>30</b>	<b>19</b>	<b>19</b>	<b>19</b>	<b>14</b>
<b>Student Identified</b>	<b>19</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>
<b>ChatGPT Identified</b>	<b>5.5</b>	<b>3</b>	<b>8</b>	<b>3</b>	<b>3</b>
<b>Authorship Uncertain</b>	<b>5.5</b>	<b>5</b>	<b>0</b>	<b>5</b>	<b>0</b>


# Content analysis frequency table - postgraduate ChatGPT scripts

	<b>Use of Language</b>	<b>Knowledge &amp; Appraisal</b>	<b>Structure &amp; Layout</b>	<b>Referencing</b>
<b>Total Frequency (%)</b>	<b>47</b>	<b>27</b>	<b>13</b>	<b>13</b>
<b>Student Identified</b>	<b>33</b>	<b>20</b>	<b>13</b>	<b>0</b>
<b>ChatGPT Identified</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6.5</b>
<b>Authorship Uncertain</b>	<b>14</b>	<b>7</b>	<b>0</b>	<b>6.5</b>

# Now what....



Your Text is AI/GPT Generated



63.98%  
AI GPT\*

{1:1} In the beginning God created the heaven and the earth. {1:2} And the earth was without form, and void; and darkness [was] upon the face of the deep. And the Spirit of God moved upon the face of the waters.

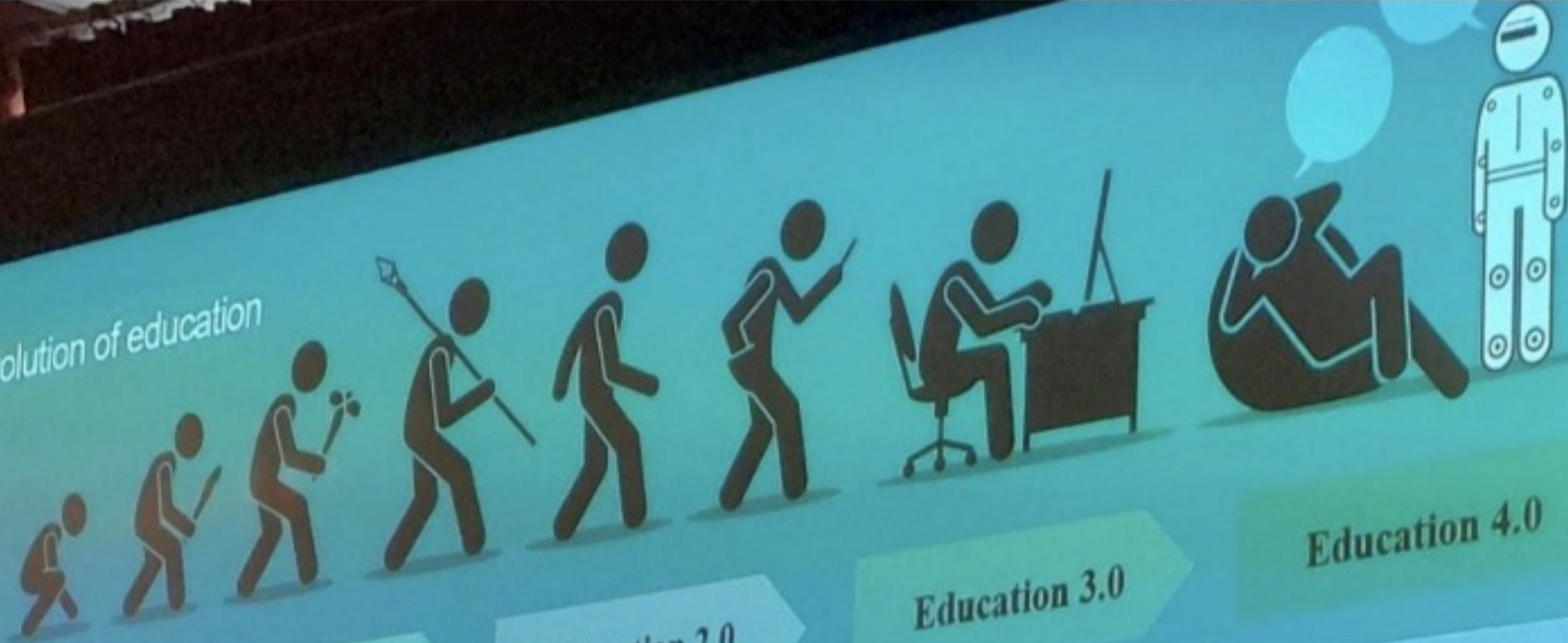
{1:3} And God said, Let there be light: and there was light. {1:4} And God saw the light, that [it was] good: and God divided the light from the darkness. {1:5} And God called the light Day, and the darkness he called Night. And the evening and the morning were the first day.

{1:6} And God said, Let there be a firmament in the midst of the waters, and let it divide the waters from the waters.

{1:7} And God made the firmament, and divided the waters



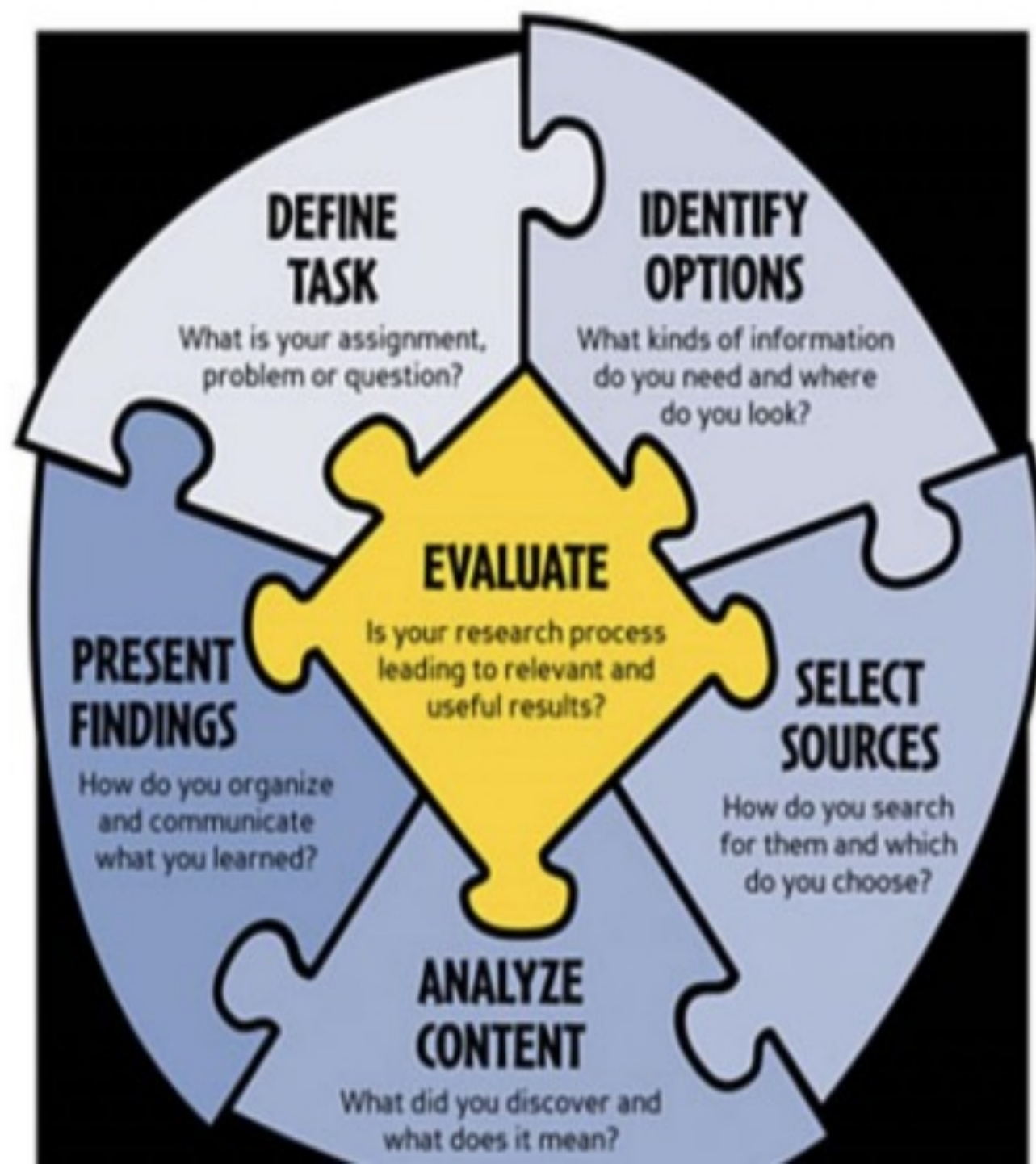
## Evolution of education



	Education 1.0	Education 2.0	Education 3.0	Education 4.0
Period	Late 18 <sup>th</sup> Century	Early 20 <sup>th</sup> Century	Late 20 <sup>th</sup> Century	Present
Philosophy	Essentialism, behaviorism, and instructivism	Andragogical, constructivist	Heutagogical, connectivist	Heutagogical, peeragogical and cybergogical
Educator role	Sage	Guide, information source	Orchestrator, curator and collaborator	Mentor, coach, collaborator, reference
Student role	Largely passive	Emerging active "owning of the knowledge"	Active, "Knowledge ownership", initial independence	Active, high independence, trajectory designer

# Information Literacy & Academic Integrity

## REFLECT • LEARN • CONNECT



## Information Literacy

- Generative AI is simply another information tool
- AI is subject to the same Information Literacy principles as every other information tool and resource:
  - Critical thinking
  - Source evaluation
  - Ethical use of information resources



# SUMMARY



- Markers currently unable to consistently differentiate between student scripts & generative AI produced text
- Significant effect of content on suspected authorship BUT further analysis revealed marker uncertainty
- Whilst ChatGPT outputs may seem impressive, important to remember that the tool makes use of a sophisticated model in responding to instructions and learning from prior responses
- Imperative that HE assessment strategies adapt to the increasing presence of such tools & that faculty work with students as partners in negotiating responsible use of such new innovations

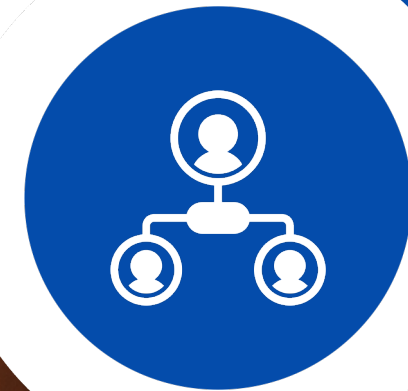
**SCAN THE QR CODE**



[Padlet](#)

# LOOKING AHEAD

The future of Higher Education



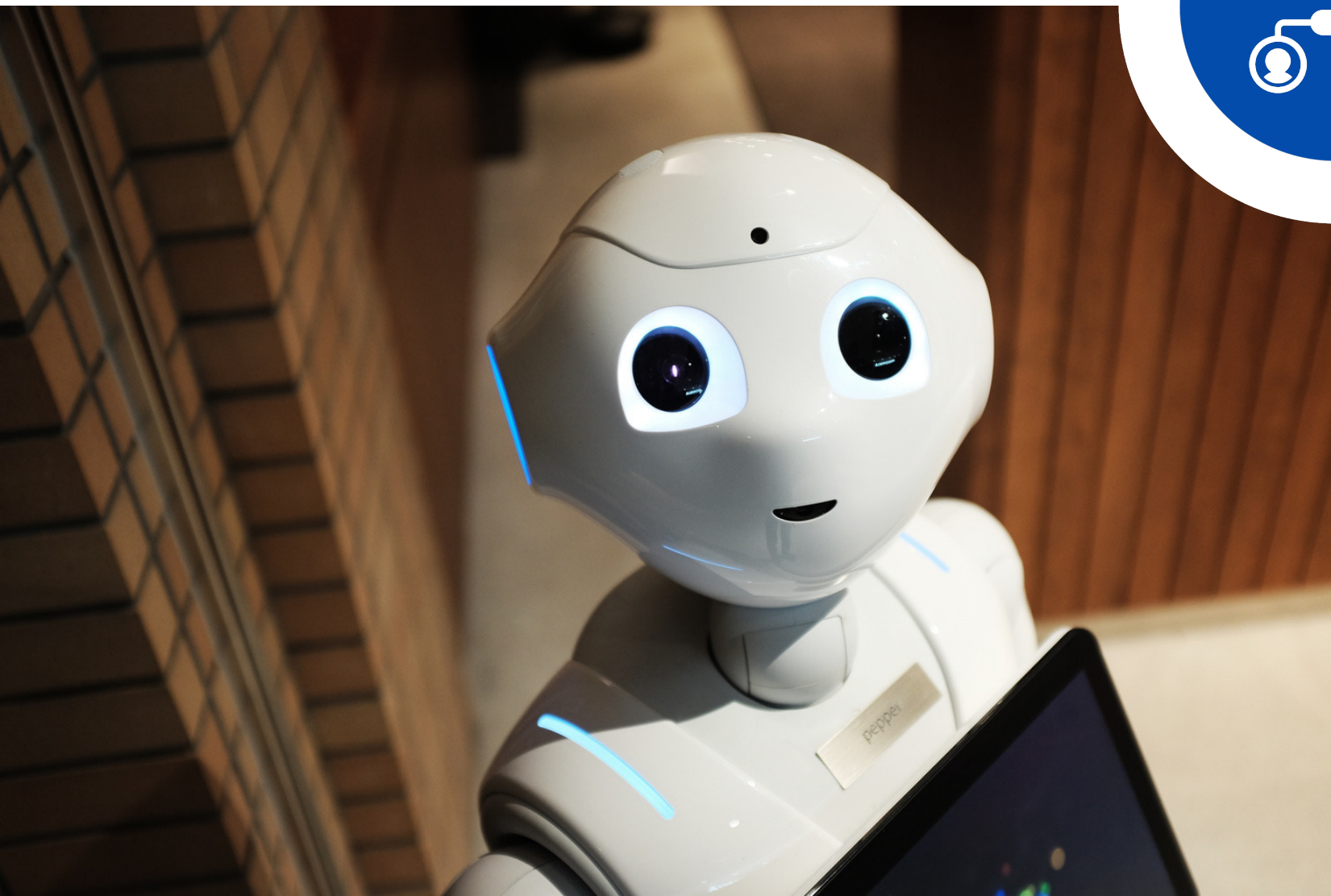
## What next for MedEd?

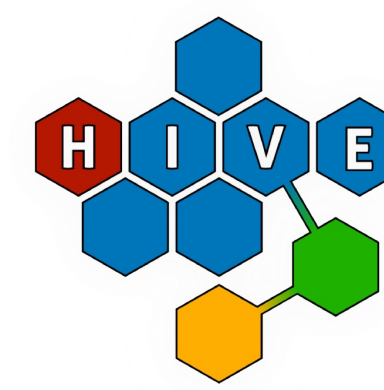
Digital Competency training: 1 of 8 key life skills (alongside communication, mathematical competence, etc.)

EU Commission's Digital Competence Framework for Citizens (DigComp) emphasizes 5 key areas, relevant to staff as well as students

Integration of AI into curricula? What might that look like?

Will assessment strategies require major review in light of generative AI?





**Does the curriculum include Applications in Medical Practice such as:  
(Select all that apply)**

- AI's role in medical research
- AI tools for the continuous revision of medical knowledge
- AI's application in quality improvement initiatives
- Discussions on AI's implications for equality and inclusion in healthcare
- The use of AI in improving global health outcomes, including in low-resource settings

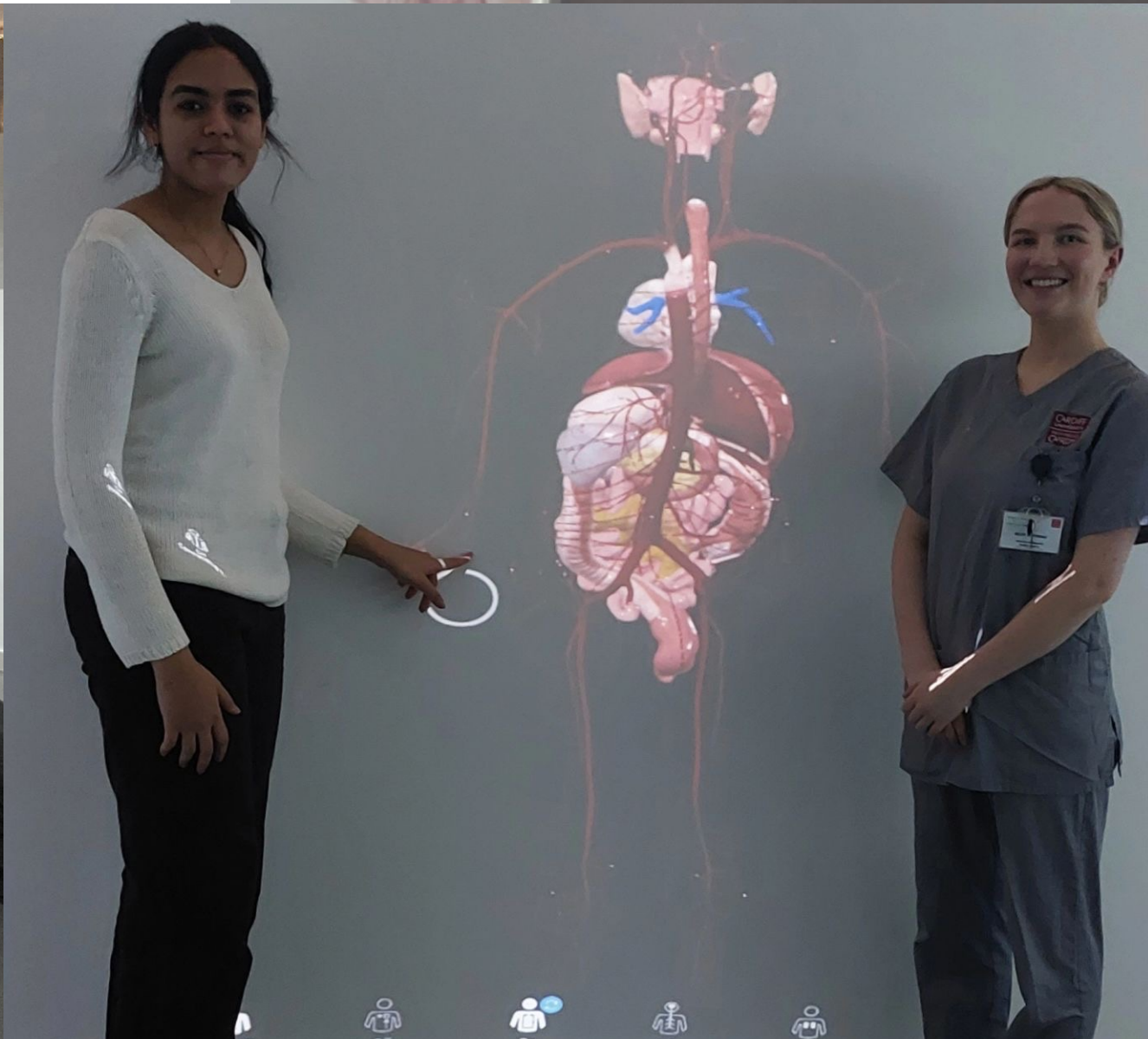
**Which specific AI topics are covered? (Check all that apply)**

- Machine Learning
- Natural Language Processing,
- Robotics
- Ethics of AI
- Data analysis/ science
- Other: \_\_\_\_\_

**Which of the following AI competencies do you believe are critical for  
medical students? (Multiple choices allowed)**

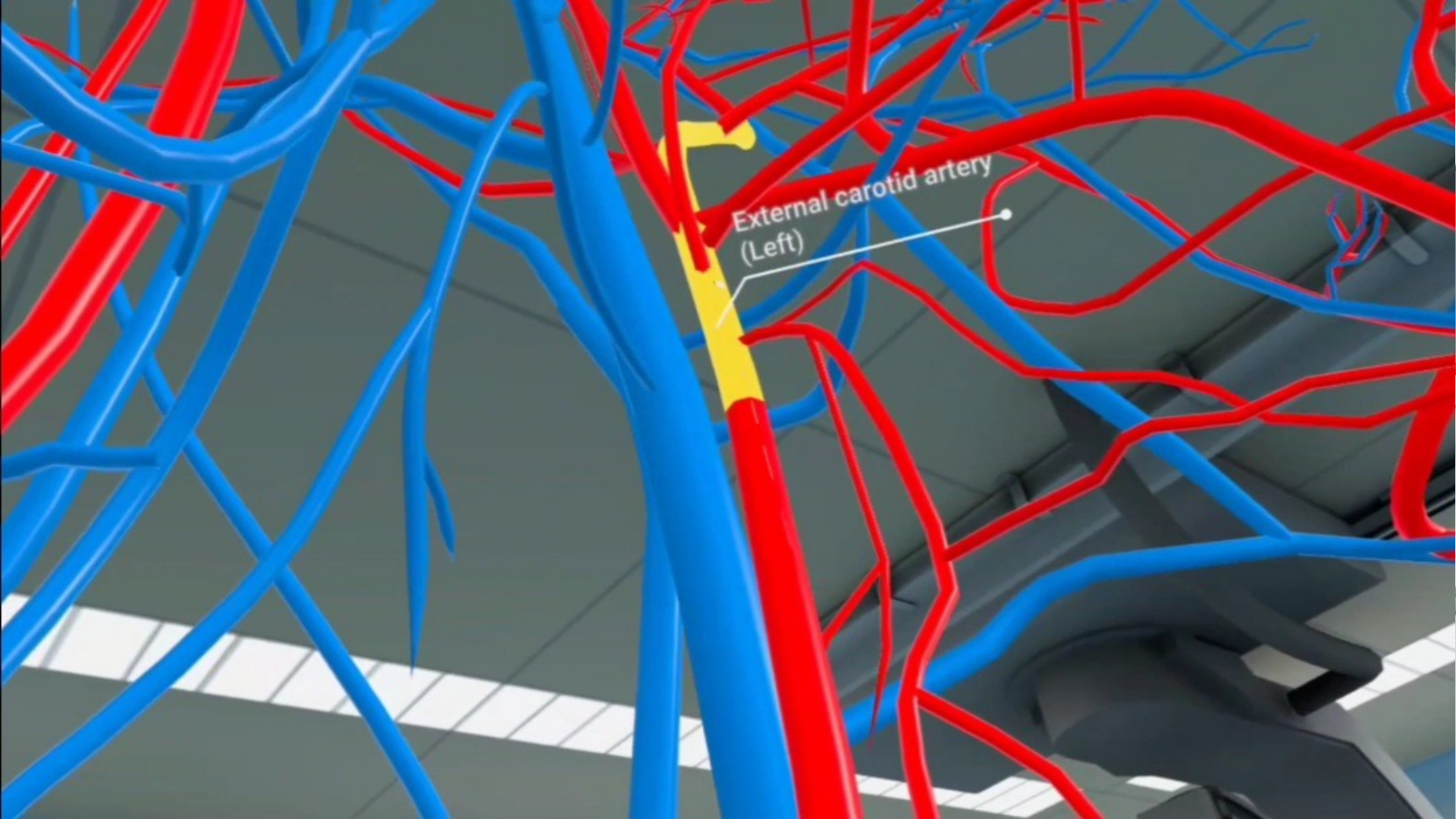
- Understanding AI technologies
- Ethical considerations
- Data privacy
- Interpreting AI-driven analyses
- Collaborating with AI in clinical settings

# Tech-enhanced Case Based Learning: Pilot





the key things you need to consider before entering the laboratory?  
Read and click on 3 items you think are relevant.



# Digital Productivity Including AI in the Workplace

● Updated 6 days ago (02/02/2024)

An introduction to Artificial Intelligence in the Workplace.

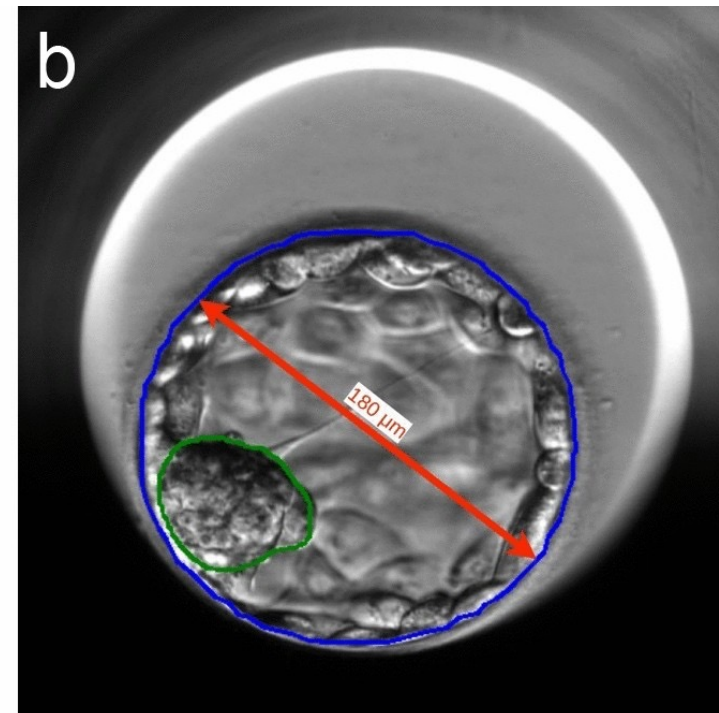
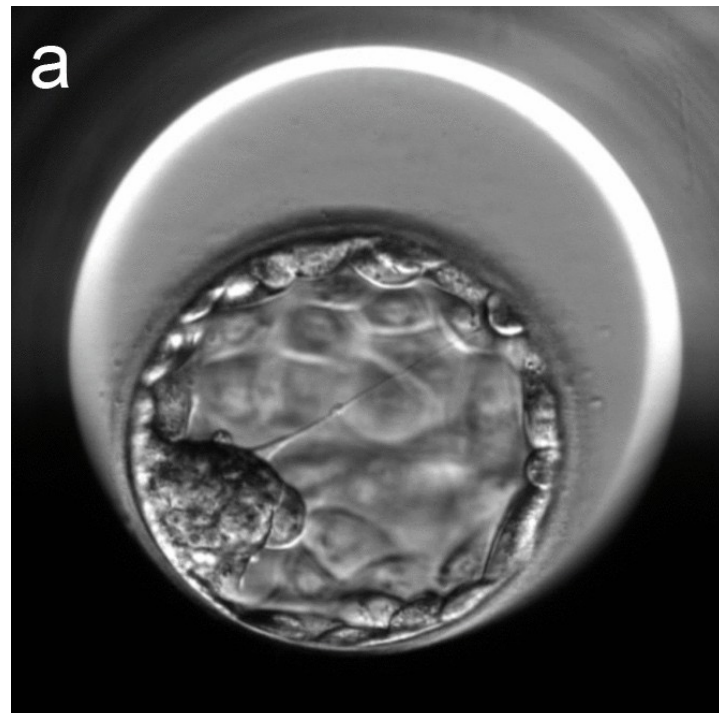
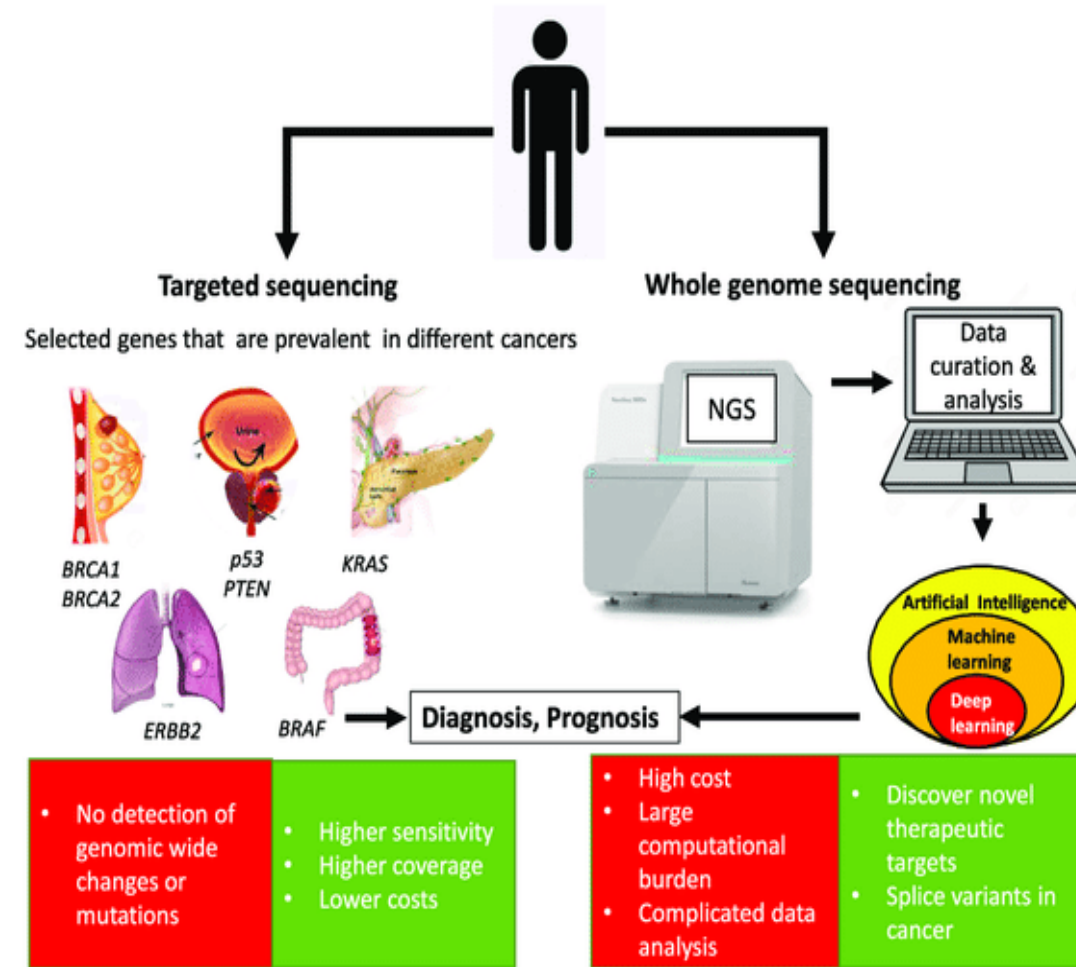
This pilot course demonstrates how time is one of our most important resources.

Digital Productivity refers to the efficient and effective use of digital technologies to streamline tasks, enhance collaboration and achieve goals. Using a workshop-based style with practical exercises we will discuss small steps you can take to be more productive for example by applying email strategies, avoiding digital distractions and taking your first steps to apply AI-based tools to improve productivity,

# Welsh Government visit – Department of Industry & Trade



# Why do medical curricula need to include AI?





## Risk Evaluation Community Group

### Perspectives & Recommendations on the Development of Safe AI in Sensitive Healthcare Data

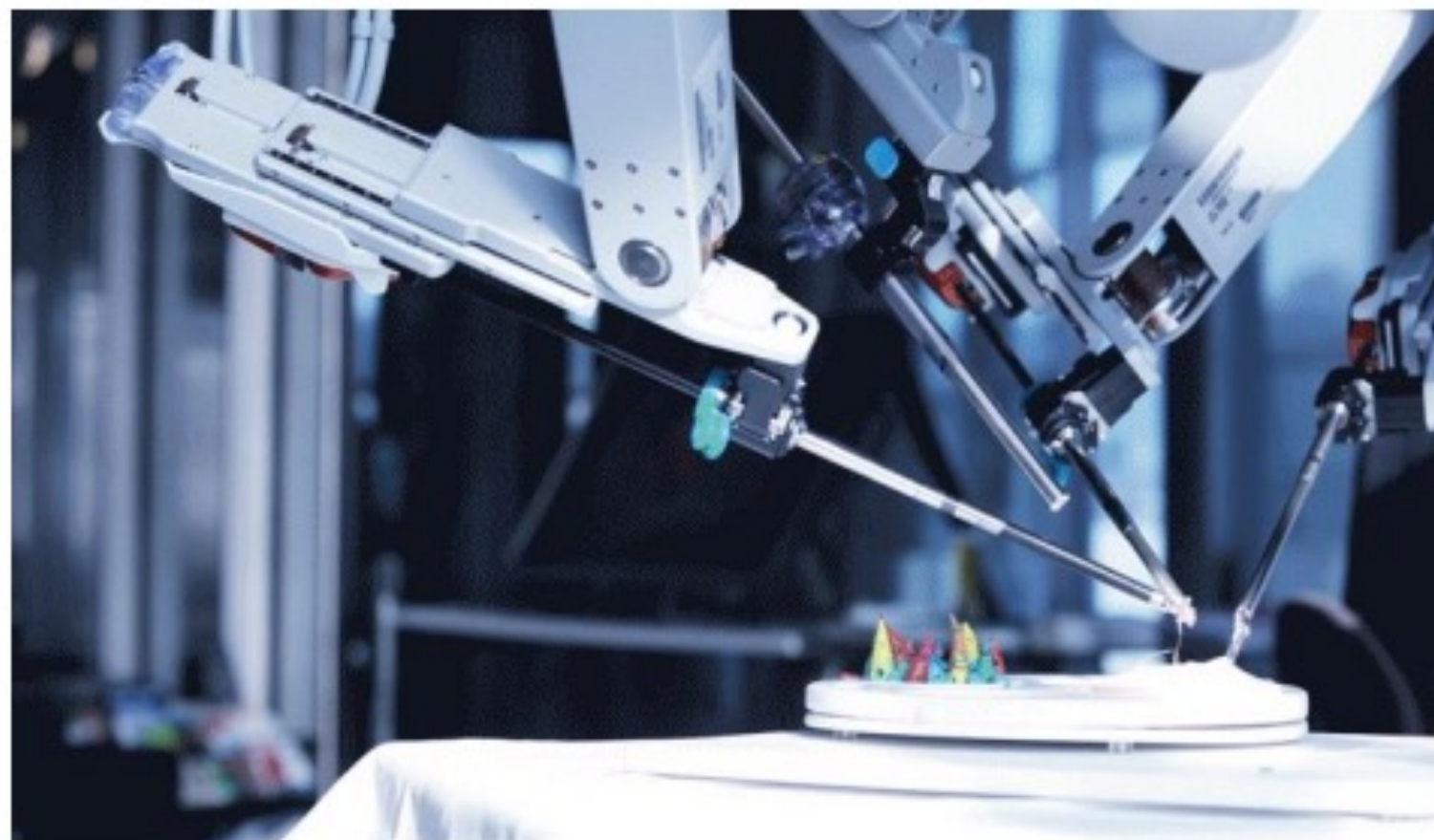
Lewis Hotchkiss, Emma Squires, Kafayat Adeoye, Alieyeh Sarabandi,  
Sharon Heys, Elen Golightly, Catrin Morris, Timothy Rittman, John  
Gallacher, Simon Thompson

**DARE UK**



## Will AI replace university staff?

**Probably not, but those who use it will replace those who won't**



*“This is not a race against the machines. If we race against them, we will lose. This is a race with the machines. You’ll be paid in the future based on how well you work with robots. Ninety percent of your coworkers will be unseen machines”*

– Kevin Kelly