

Mehmet Aydin

Application of AI in Blending Learning : Experience form UK Universities

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Research Interests and areas of Expertise:

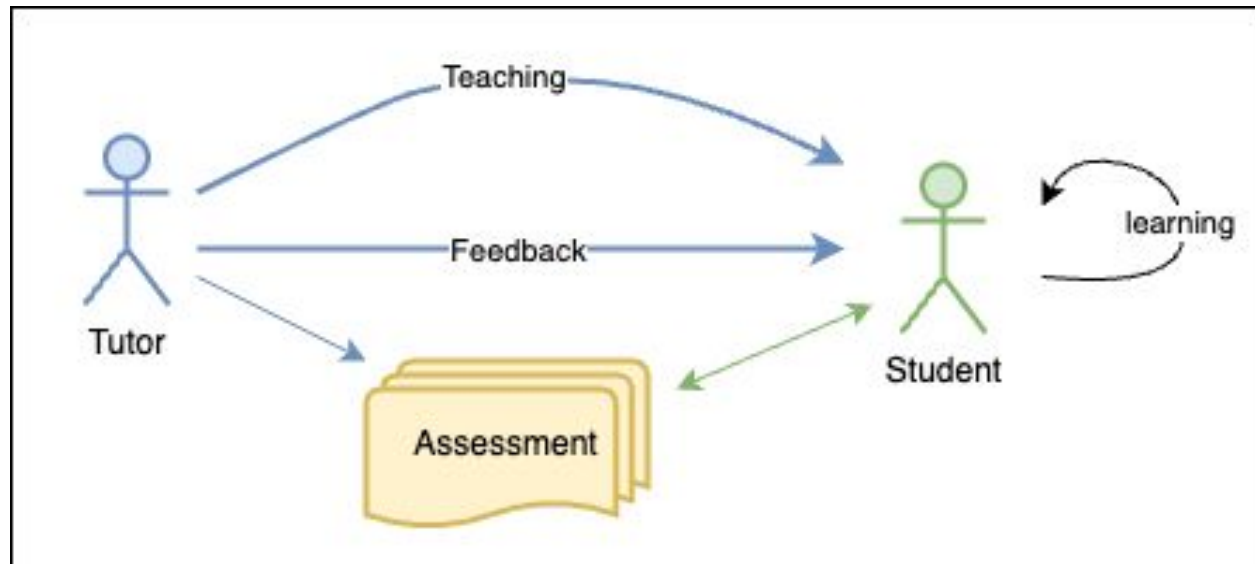
- ✓ Artificial Intelligence: Machine Learning, Evolutionary Computation
 - ✓ Parallel & Distributed Computing
 - ✓ Resource Planning and Scheduling
-
- Phung, K., Ogunshile, E., and Aydin, M. E. (2025). Domain-specific implications of error-type metrics in risk-based software fault prediction. *Software Quality Journal*, 33(1), 1-41.
 - Aydin, M.E., Durgut, R., Rakib, A. *et al.* (2024) “Feature-based search space characterisation for data-driven adaptive operator selection”. *Evolving Systems* **15**, 99–114
 - Gülmez, E., Koruca, H. I., Aydin, M. E., and Urganci, K. B. (2024). “Heuristic and swarm intelligence algorithms for work-life balance problem”. *Computers & Industrial Engineering*, 187, 109857.

Artificial Intelligence vs Generative AI

- Artificial intelligence (AI) is a rather mature field of computing that helps solve real-world problems with a span of new non-traditional techniques.
 - It covers knowledge-based systems, fuzzy systems, machine learning, heuristic optimisation
 - Traditional AI solutions are crafted with limited amount of data using relevant techniques
 - They rather help produce single point data as a sub-solution
- Generative AI (Gen-AI) is rather a recent area of AI with which complete solutions are generated.
 - Its history goes back to genetic programming days, where generative tools were optimised.
 - A complete solution rather than a sub-solution is generated
 - The Gen-AI models are trained with huge amount of data with very high variety.

Learning, teaching, assessments

- Academic processes use the key building-blocks of “learning”, “teaching” and “assessments”
 - Learning is the activity of students, while teaching is done by tutors and assessments involve both role players.



Principles for using generative artificial intelligence (AI) implemented by UWE Bristol

Providing guidance for AI use in learning, teaching and assessments

Enhancing student experience

- Ambition in use of Gen-AI to enrich personalised learning and sharpen critical thinking
- Leveraging Gen-AI to make inclusive learning environments more accessible, creating opportunities for diverse communities to co-create
- Empower students and staff to use AI in enterprising yet ethical ways, encouraging creativity and collaboration
- Recognising potential disparities in AI literacy, proactively address the un-equal access and skill gaps
- Offering opportunities to all students to meaningfully engage with Gen-AI during their studies.

Source:

<https://www.uwe.ac.uk/study/academic-information/artificial-intelligence-principles>

Developing assessments and curricula

- Students will be advised when and how it is permissible to use Gen-AI ad assignments and assessments
- It is an academic offence to download material from the web and submit it as you own work or submit work created by using AI tools without appropriate acknowledgement
- Students guided to use AI should consult the relevant documents for referencing and study skills resources
- We recognise there will be diverse approaches to AI across our communities and at the level of specific assessments. Teams will be supported to agree an approach the the programme level.

Source:

<https://www.uwe.ac.uk/study/academic-information/artificial-intelligence-principles>

Developing assessments and curricula

- Teaching teams are empowered to develop innovative curricula and assessment that authentically integrate AI skills for their subjects
- To uphold ethical principles, protect privacy and respect intellectual property rights, we will not submit student work to platforms unapproved by the University without the student's consent
- Policies, guidelines and detection tools will be regularly reviewed, considering Gen-AI's impact on teaching, learning and assessment.

Source:

<https://www.uwe.ac.uk/study/academic-in-formation/artificial-intelligence-principles>

Developing AI Literacy

Source:

<https://www.uwe.ac.uk/study/academic-information/artificial-intelligence-principles>

- We are committed to upskilling the community to develop confidence and AI literacy through tailored training and resources focused on ethical use
- We will facilitate collaborative project enabling staff and students to engage with AI, share best practice, and co-create literacy resources
- We acknowledge that outputs from Gen-AI can be of poor quality, contain false information and fault citations. We will equip staff and students to critically analyse content and understand limitations
- We will provide development opportunities for staff to effectively evaluate and integrate AI tools into their work
- We will empower staff and students to recognise AI risks, biases against groups and challenge
- We will collaborate with partners to exchange ideas and develop best practices around emerging AI technologies within teaching and learning

How Gen-AI can be used?

Text, image and video generation for given scenarios through ***prompts***

- The tools may include:
 - ChatGPT, Gemini etc
 - DALL-E, Adobe Firefly
- Ethical considerations:
 - Originality and copyright
 - Bias
 - Authenticity,
 - Job Disruptions
 - Accountability.

Strength and limitations of Gen-AI

Strengths

- Productivity
- Flexibility
- Interactivity:
- Knowledge
- Personalisation
- Accessibility

Key limitations

- Factual accuracy
- Lack of understanding
- Bias
- Plagiarism
- Formulaic outputs
- Ethical risks
- Oversimplification
- Output quality

Gen-AI for learning, teaching, assessment

- Tutors may:
 - Take help generate :
 - teaching material including presentations, handouts, variations of practical cases, teaching activities,
 - search for most up-do-date state-of-art-knowledge in the filed
 - assessment use cases, test cases for V&V
 - May use Gen-AI for mock assessments,
 - Be assisted to generate feedback for students
 - Etc ...

Gen-AI for learning, teaching, assessment

- Students may:
 - Receive help from Gen-AI:
 - to look for efficient study plan
 - to enrich revision materials
 - to search for more relevant examples
 - to generate visual tools to disseminate results
 - to proof-read the textual
 - to receive help for better

Questions?