

How should we be using GenAI in Innovation Management Education?



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Agenda

1. **GenAI in Higher Education:** Harnessing its Potential and considering its Limitations (10min)
2. **Workshop Activity:** Using GenAI in Teaching and Learning (25min)
3. **Ideas & Discussion:** Sharing of Experiences and Activity Insights (20min)
4. **Resource Sharing & Closing:** Useful Sources of Inspiration (5min)

1. GenAI (and AI) in Higher Education

- **Intelligent Tutoring and Assistance**
 - Offering asynchronous communication to enhance student cooperation and engagement (Li & Xing, 2021; Zeb et al., 2024)
 - Facilitating remote learning and providing support for students who cannot attend classes due to mental or physical health concerns (Barber et al., 2021; Lewis, 2022; Zeb et al., 2024)
 - Answering student queries and providing timely feedback (Zeb et al., 2024)
- **Curriculum Design and Management**
 - Assisting in the development of instructional design and curriculum sequencing (Zhang, 2022; Crompton & Burke, 2023)
 - Managing student learning data to provide actionable insights and support (Ullah & Hafiz, 2022; Crompton & Burke, 2023)
 - Incorporating AI tools in digital literacy education and providing faculty training (Zeb et al., 2024)
- **Academic Integrity**
 - Providing guidance on proper citation, paraphrasing, and conducting thorough research to avoid plagiarism (Chen et al., 2022; Zeb et al., 2024)
 - Designing assessments that require critical thinking, problem-solving, and communication skills, making it challenging for students to rely on AI language models (Greenstein, 2012; Zeb et al., 2024)
- **Personalised Assessments and Evaluation**
 - Generating tailored exams or quizzes for each student considering their specific needs and abilities (Zawacki-Richter et al., 2019; Barber et al., 2021; Zeb et al., 2024)
 - Creating communicative assessments in the form of chatbots or virtual assistants using natural language interaction (Zeb et al., 2024)
 - Developing personalized questions to encourage students to showcase their abilities and knowledge, especially in language or critical thinking courses (Bommasani et al., 2021; Zeb et al., 2024)

GenAI Risks and Challenges

Environmental Impact

- Training GenAI models consumes significant computational resources and energy, contributing to carbon emissions (Patterson et al., 2021)
 - The environmental cost of training and deploying GenAI models should be considered when assessing their use in higher education (Strubell et al., 2019; Le Goff, 2024)

Bias and Discrimination

- Generative AI models like ChatGPT may perpetuate biases present in their training data, leading to discriminatory outputs (Bender et al., 2021; Zeb et al., 2024)
 - Academics must be mindful of the "destructive qualities" of GenAI. Careful engagement and review of generative AI outputs can help mitigate biases

Intellectual Property and Authorship

- The use of GenAI raises questions about intellectual property rights and the attribution of authorship (Zeb et al., 2024)
 - Institutions must develop policies to address the ethical and legal implications of using AI-generated content in academic work (Crompton & Burke, 2023)
 - Open-source, GenAI models trained on publicly available data (e.g., LLaMA), and custom-made, locally hosted solutions may provide alternatives to enterprise offerings, potentially mitigating some intellectual property concerns.

Academic Integrity

- Assessment needs to be redesigned to be authentic by focussing on the learning process (Sokhanvar et al., 2021)
- Students often are the first to ask for guidance for ethical, appropriate use of GenAI tools (Tassoti, 2023)

Generative AI Chatbots

- Generative AI (GenAI) systems can create text, images, or other media based on given prompts.
- Natural Language Processing (NLP) combines computer science and linguistics to help computers understand and process human language.
- **GenAI Chatbots** are chatbots that uses GenAI and NLP to engage in human-like conversations and assist with various tasks.

ChatGPT

Claude

Mistral

Gemini

HuggingChat

Ollama (local)

Many more...

GenAI as a Dialogic Tool for Academics (and students)

- Superficial use of GenAI, such as providing brief, unspecific prompts, may lead to underwhelming results and missed opportunities (Carrigan, 2023)
- Engaging with GenAI as a dialogic tool, by providing context, examples, and specific expectations, can enhance the quality of academic work and support idea development (Carrigan, 2023)
- Approaching GenAI in a reflexive and accountable manner, being mindful of potential biases and ethical implications, can lead to more critical and reflective teaching and learning practices (Zeb et al., 2024)
- Investing time in understanding GenAI's capabilities and developing effective working routines can help academics harness the potential benefits of these tools while mitigating risks (Crompton & Burke, 2023)

Good Prompting for a Good Dialog

- Prompt engineering involves designing and refining the input prompts given to an AI model to maximize the quality and relevance of the output.
- The aim is to frame the question or task in a way that the AI understands correctly and responds appropriately.
- Good prompting allows GenAI chatbots to be an academic interlocuter (Carrigan, 2023)

Good Prompting for a Good Dialog

- Many prompting strategies are being proposed:
 - **Persona**: giving the AI a specific character or role to play. This can help the AI generate more contextually appropriate responses.
 - **Examples** (0-s hot, 1-shot, few-shot prompt): Asking the AI to perform a task without giving any example vs. giving one or multiple examples
 - **Chain-of-Thought** (Wei et al, 2023) / **Tree-of-Thought** (Yao et al., 2023) prompting: Instead of asking for an immediate answer, you guide the AI through the logical steps needed to arrive at the conclusion.
 - Countless frameworks e.g., BRTF / 5S / ROSES

Good Prompting for a Good Dialog

Example 1: ROSES

- **R** (Role): Define the role the AI should assume.
- **O** (Objective): Clearly state the objective of the prompt.
- **S** (Scenario): Describe the scenario or context.
- **E** (Examples): Provide examples if needed.
- **S** (Structure): Indicate the structure or format of the response.

Example 2: 5S Framework (Tassoti, 2024)



adapted from aiforeducation.io

An Example (Claude Opus) Prompt

review this bullet points for a presentation I have to give and make suggestions:

1. AI and GenAI have applications across the board in higher education.
2. Applications of AI/GenAI in higher education include
[...]

An Example (Claude Opus) Answer (abridged)

[...]

- Consider starting with a strong opening statement or question to capture the audience's attention and highlight the significance of AI and GenAI in higher education.
- **Expand on the point** about reflexive and accountable use of GenAI
- Expand on the trial and error point by **encouraging the audience to experiment with different prompting techniques** and share their experiences with colleagues.

[...]

An Example (Claude Opus) Prompt

Role: Act as an academic with expertise on generative AI and its applications to teaching and learning in higher education, but with no prior detailed knowledge of the specific content being reviewed.

Objective: Provide constructive feedback on a draft for introduction speech to a workshop on using GenAI to support learning and teaching in higher education

Scenario: I have drafted key points for my introduction speech. The introduction is meant to take about 5-7 minutes. It will be followed by an example of GenAI prompting and activities for the audience. The audience of the workshop are experienced academics. I need your feedback on the strengths and weaknesses of the draft, including timing, and suggestions for improvement.

Expected Solution: Offer an analysis highlighting the potential shortcomings, and concrete suggestions for enhancing the speech. Your feedback should consider the clarity, relevance of the content for the audience.

Steps: 1. Review the key points listed below. 2. Identify and discuss the strengths of the draft. 3. Point out any weaknesses or areas that need improvement. 4. Provide specific suggestions for enhancing the content and delivery of the speech.

Draft Key Points for Introduction Speech:

1. AI and GenAI have applications across the board in higher education.
2. Applications of AI/GenAI in higher education include: [...]

An Example (Claude Opus) Answer (abridged)

[...]

Suggestions for enhancement:

[...]

- focus on challenges that directly affect their work, such as the **potential impact on academic integrity** or the need for new assessment strategies.
- Tailor the content to the unique needs and concerns of experienced academics. Consider addressing topics such as the impact of GenAI on research practices, the need for faculty training and support, and strategies for **integrating GenAI into existing curricula**.

[...]

2. Workshop Activity: Groups of 3-4

Follow shared link to access Draft Programme Specs

Beginner GenAI used by Students

Scenario 1: In-class Activity

Your colleague has asked you to design an in-class activity where students work in groups to create a **presentation or pitch for a radical innovation** in a chosen industry/domain using GenAI tools. The activity should give students hands-on experience with GenAI while developing their **collaboration, critical thinking, and communication skills**.

Step 1: How can you structure the in-class activity to ensure that all students actively participate and contribute to the group's presentation or pitch?

Step 2: Consider which GenAI tools could be suitable for this task.

Step 3: What challenges might students face while using GenAI tools for this activity? How can you plan to address these challenges and provide support?

Intermediate GenAI used by Students Laptop optional

Scenario 2: Authentic Assessment

As the module leader of a large introductory innovation management course for undergraduate students, you are tasked with **designing an authentic assessment** for students to demonstrate **foundational knowledge of innovation management**. In context of innovation management, the assessment should include (1) students using GenAI, and (2) a reflection on the use/output of GenAI.

Step 1: Design an authentic assessment that incorporates the use of GenAI and reflection. Feel free to use GenAI to help you.

Step 2: Reflect on the support and type of preparation that students need in order to complete the assignment successfully.

Step 3: Consider how your teaching team needs to be supported.

(not so) **Advanced** GenAI used by Staff Laptop required




Scenario 3: Programme Design

As a programme leader, you have drafted the programme specification for a new Masters programme in Innovation Management and Entrepreneurship. The programme incorporates GenAI as both a subject and as a tool for students to utilise. **Refine your draft using ChatGPT or Claude**, focusing on good practices in teaching and learning and integrating the latest GenAI developments. Once satisfied with the revised specification, **create a memorable song** to promote the programme to students.

Step 1: Craft thoughtful and precise prompts that will help refine and improve the specification document. Consider additional input, such as '[Russel Group AI principles](#)' and apply them to the programme specification.

Step 2: Take the output and ask ChatGPT/Claude to create a song.

Step 3: Enter the lyrics into Suno.

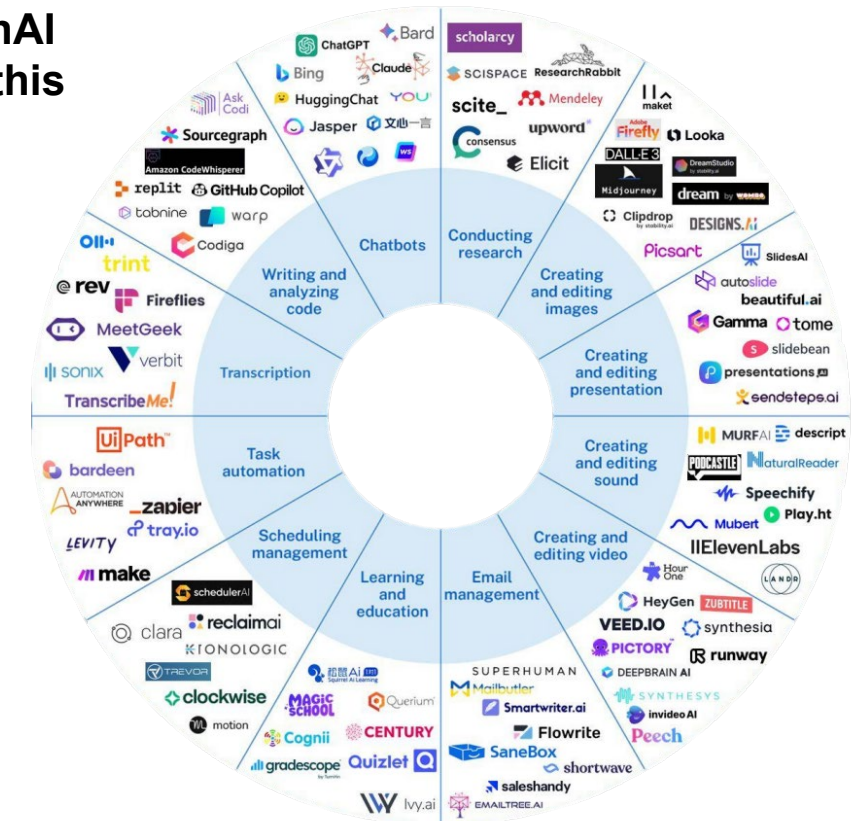




SCENARIO I

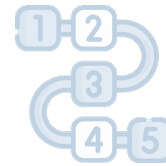
Step 1: How can you structure the in-class activity to ensure that all students actively participate and contribute to the group's presentation or pitch?



Step 2: Consider which GenAI tools could be suitable for this task.



Step 3: What challenges might students face while using GenAI tools for this activity? How can you plan to address these challenges and provide support?



SCENARIO II

Step 1: Design an authentic assessment that incorporates the use of GenAI and critical reflection.



Step 2: Reflect on the support and type of preparation that students need in order to complete the assignment successfully.



Step 3: Consider how your teaching team needs to be supported.



SCENARIO III

Step 1: Craft thoughtful and precise prompts that will help refine and improve the specification document. Consider additional input, such as 'Russel Group AI principles' and apply them to the programme specification.



<https://russellgroup.ac.uk/news/new-principles-on-use-of-ai-in-education/>

Read the principles in full below

Russell Group principles on the use of generative AI tools in education

Download (PDF, 127KB)

<https://www.mdx.ac.uk/courses/postgraduate/innovation-management-and-entrepreneurship-msc/>

LY READING: **About your course**

To find out more about this course, please [download the Innovation Management and Enterprise specification \(PDF\)](#).

MSc Innovation Management and Entrepreneurship with AI

Programme Specification MSc Innovation Management and Entrepreneurship 1, Programme Title MSc Innovation Management and Entrepreneurship 2, [Download PDF](#)

rg_ai_principles-final [Download PDF](#)

KD Redesign the MSc Innovation Management and Entrepreneurship programme integrating AI into all aspects of the pedagogy. Produce a new programme prospectus. To do so, use the Russel Group AI principles in the attached file and apply them to the MSc Innovation Management and Entrepreneurship programme (prospectus attached).

Here is a redesigned prospectus for the MSc Innovation Management and Entrepreneurship programme incorporating generative AI in alignment with the Russell Group principles:

Step 2: Take the output and ask ChatGPT/Claude to create a song.



AI-Powered Master's in Innovation Management

KD Convert this information into a song.

Verse 1:
In a world where innovation thrives,
And entrepreneurship comes alive,
We're designing a Master's programme that's grand,
With AI embedded, it's sure to expand.

Step 3: Enter the lyrics into Suno.



Suno Custom Mode v3.5

Lyrics

(Verse 1:
In a world where innovation thrives,
And entrepreneurship comes alive,
We're designing a Master's programme that's grand,
With AI embedded, it's sure to expand.
Chorus:
AI in pedagogy, that's our mission,
From curriculum to assessment, we're on a expedition,
Teaching, learning, technology too,
Generate Lyrics 1315/3000

Style of Music

90s

metal guitar catchy
electric guitar rock ballad 3/20

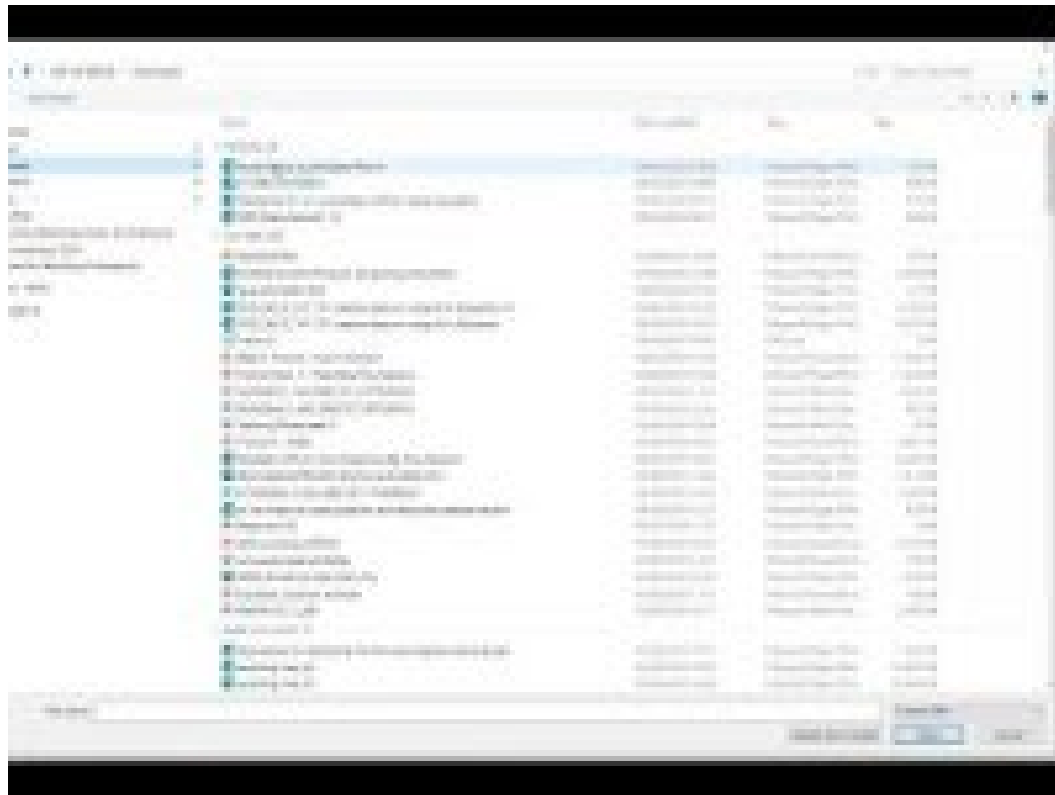
Title
Programme song

Create

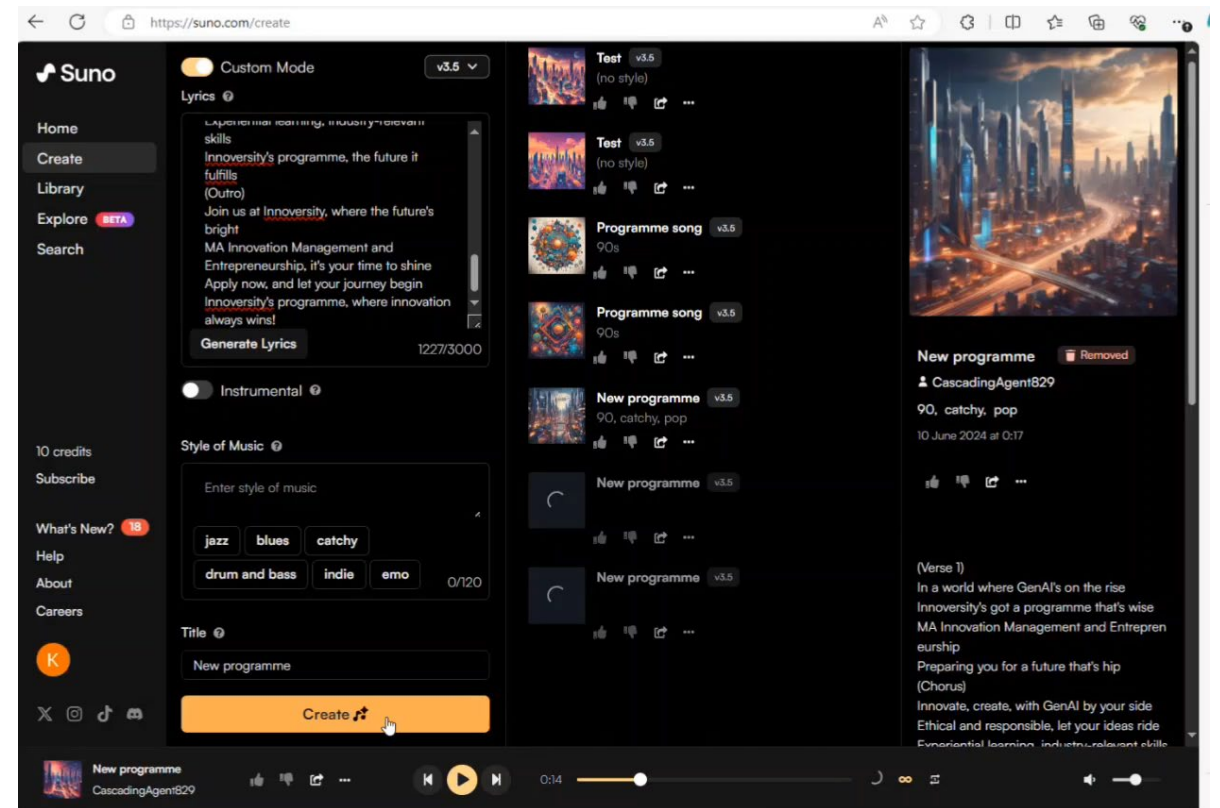


SCENARIO III

The Process



The Song



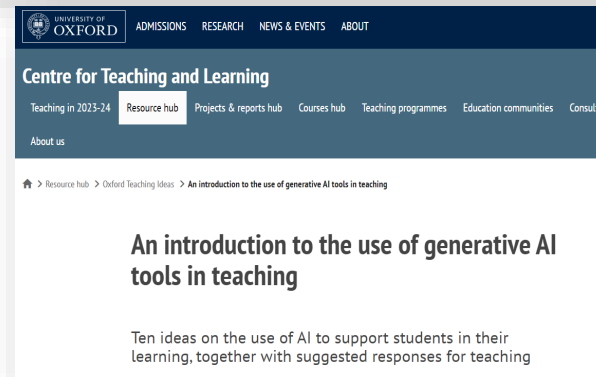
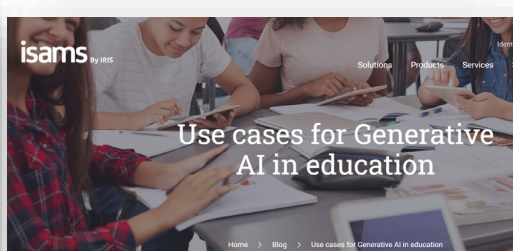
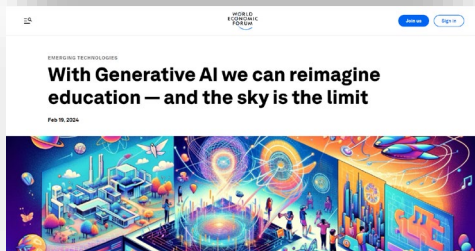
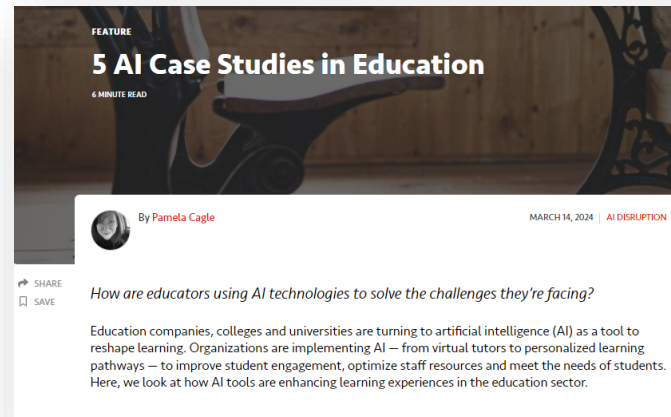
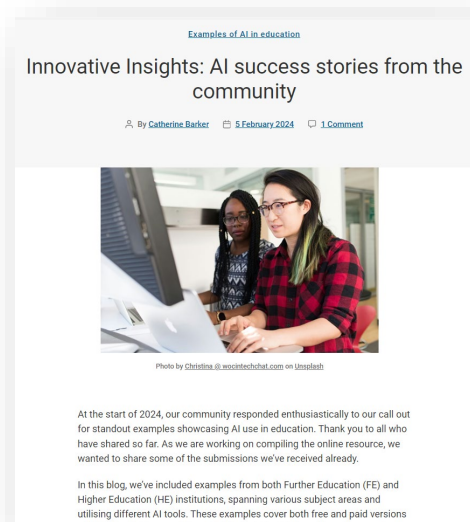
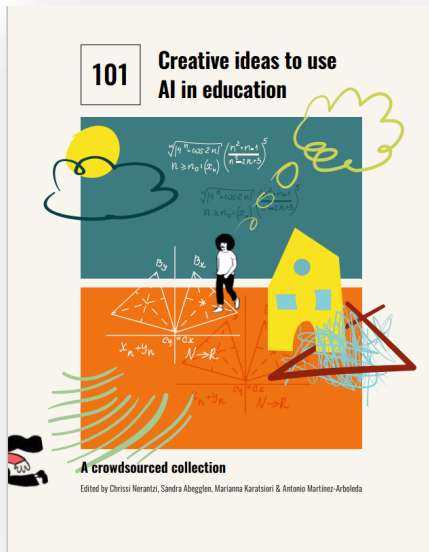
3. Ideas & Discussion

Each group presents their activity output (2-3 minutes per group).

Discussion

- How can we encourage *students to critically analyse and refine* the outputs from GenAI tools?
- What *criteria should be used to evaluate student work* that incorporates GenAI-generated content?
- What *training or guidance* should be provided to students to ensure they can effectively and responsibly utilise GenAI tools for their academic assignments and projects?
- What new *skills or competencies will educators* need to develop to effectively teach with GenAI tools?
- How do you think the integration of GenAI will impact the *role of educators* in the future?
- What *new programmes or modules* do we need introduce to address AI-related topics and address job market trends?

4. Useful Resources



www.bit.ly/ISPIM2024Resources

Thank you

for participating in our workshop.

Join the ISPIM Teaching and Coaching Innovation Special Interest Group workshops.

Tuesday, 11 June 2024

- **Who are we teaching?** *Led by Benoit Gailly (Session 5.8, 8.25 – 9.25)*
- **What should we be teaching: From Buzzwords to Innovation Competencies.** *Led by Bill Russel, Magnus Karlson, Tausif Bordoloi & Aknur Zhydebekkyzy (Session 6.8, 09.35 – 10.35)*
- **Teaching Showcase: How should we be teaching?** *Led by John Bessant and Katharina De Vita (Session 7.8, 11.00 – 12.00)*
- **Where should we be learning?** *Led by Carina Leue-Bensch, Johanna Lienerth & Sandra Debo Scholz (Session 8.8, 12.10 – 13.10)*
- **Meet and Greet Session:** *13.10-14.00 in the Atrium (Floor 1)*
- **How should we be using GenAI in Innovation Management Education?** *Led by Katharina De Vita & Guido Conaldi (Session 9.8, 14.00 – 15.00)*
- **Musification – bringing a breath of (musical) fresh air to your design and delivery.** *Led by Brian Allan & John Bessant (Session 10.7, 15.10 – 16.10)*
- **Impro-vation: Improv games for Teaching Innovation Management.** *Led by Christian Thurnes (Session 11.7, 16.35 – 17.35)*

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