

# Embedding Generative AI in Higher Education Teaching & Learning: Theory and Practice

**3<sup>rd</sup> International Conference:  
CHALLENGES AND REALITY OF THE IT- SPACE: SOFTWARE ENGINEERING  
AND CYBERSECURITY**

**24<sup>th</sup> Oct 2024**

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# Agenda

- Rationale of the Study
- Approach of the Study
- Two Case Studies



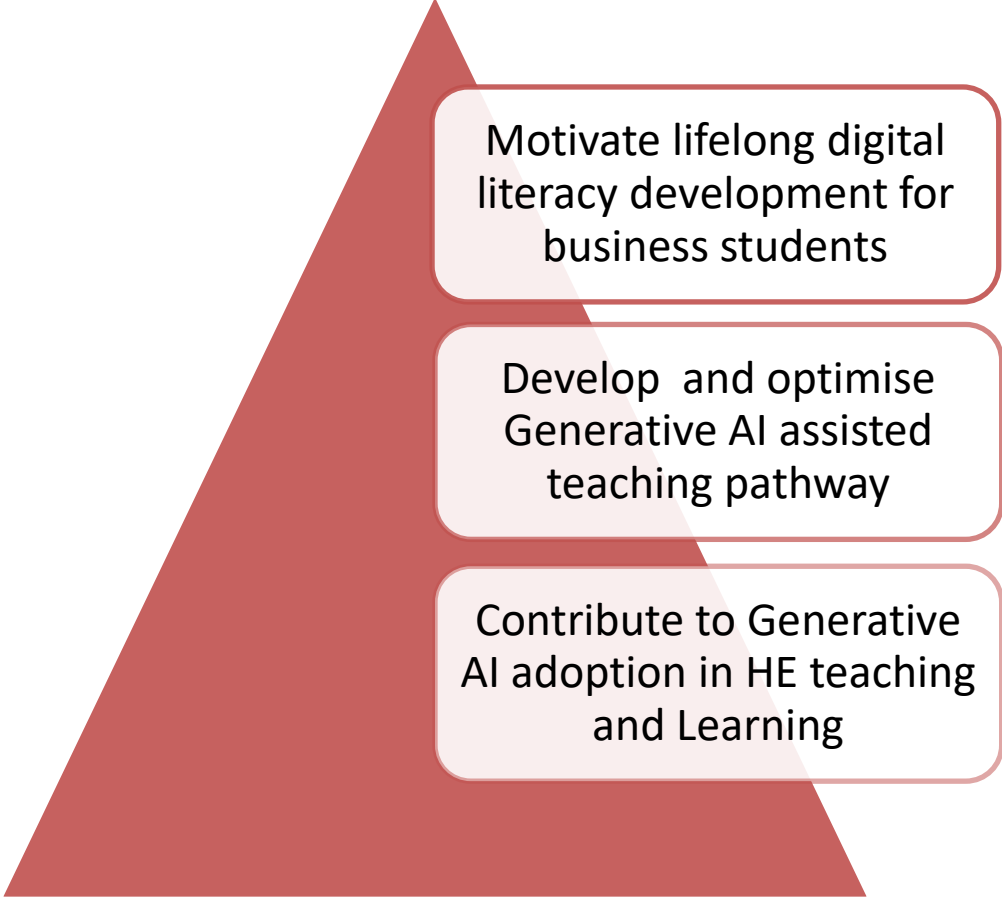
# Rationale of the Study

## Comparative analysis of 14 HEIs in the UK GenAI usage policies (Gaps)

- Specific AI Tool Guidelines
- Monitoring and Enforcement
- Training and Awareness
- Examples of Acceptable Uses
- Addressing AI Bias



# Rationale of the Study

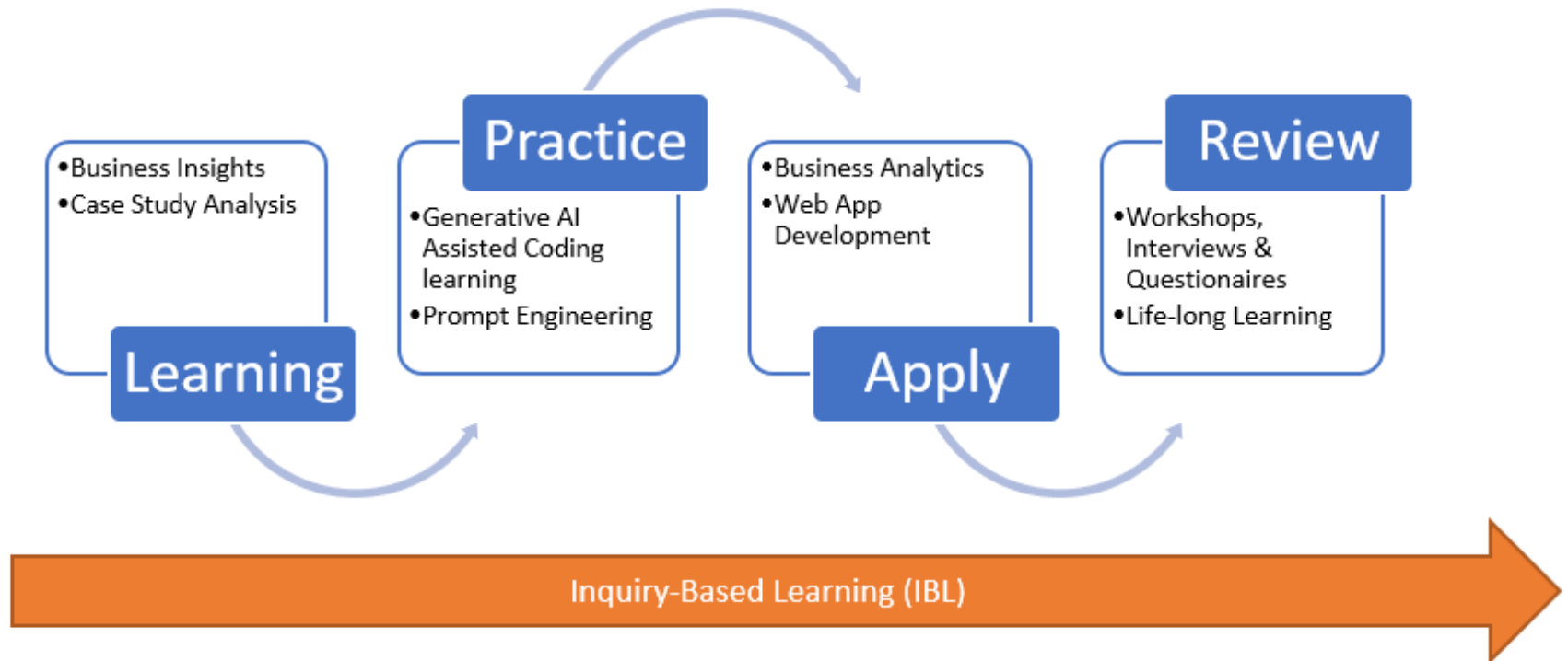


Motivate lifelong digital literacy development for business students

Develop and optimise Generative AI assisted teaching pathway

Contribute to Generative AI adoption in HE teaching and Learning

# Approach of the Study



- [Inquiry-Based Learning](#)
- Prompt Engineering

# Two Case Studies

- **Case Study 1:** GenAI to support coding learning for business students
- **Case Study 2:** GenAI to support UG students' assignment strategy

# Case Study 1: GenAI to Support Coding Learning

- Digital literacy has surged dramatically for business students in HE, e.g. data analysis and visualisation to inform business decisions.
- **However** obstacles exist that hinder business students to learn digital skills, such as time constraints, focus of academic programmes, lack of foundation in statics etc.

To address the challenges, we started to informally gather feedback to understand students' thoughts on coding and Generate AI, which shows:

- Majority of students appreciate the usefulness of coding skill in business study.
- Nearly all students demonstrated interest in generative AI, along with concerns about its impact in HE.





## Pilot Module 1: Information System Digital Transformation (ISDT)

### Required Knowledge

- Business analysis
- Information system theory
- Data-driven Digital Transformation Strategies

Generative AI assisted content for code  
generation/debugging/explanation

- Text generator (ChatGPT)

### Evaluation

- Reflective blog





## Pilot module 2: Web App Development (WAD)

### Required Knowledge

- Web related coding (HTML, CSS, JavaScript etc.)
- UX/UI design

### Generative AI assisted content

- Image generator for multimedia content (DALL.E 3, Adobe Firefly and DreamStudio)
- Code generator for effective website framework making (Cursor and Aide)

### Evaluation

- Reflective writing in portfolio

# Pre-module Questionnaire (1)

Have you had experience with coding before this

54%  
No

41%  
Yes

3%

Do you believe that getting coding skills as a Business student could enhance your employability?

88%  
Yes

8%  
Maybe

3%  
No

# Pre-module Questionnaire (2)

Do you think Generative AI tools (for example chatGPT) could make coding practices easier?

57%  
Yes

39%  
Maybe

3%

In your opinion, do you think Generative AI tools (for example chatGPT) could have positive impact on self-learning?

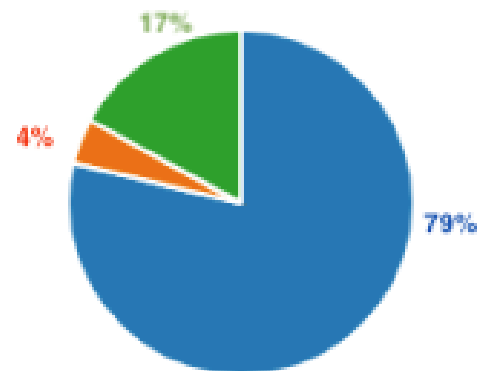
80%  
Yes

14%  
Maybe

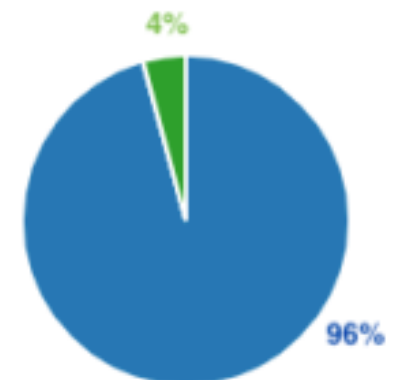
4%  
No

# Post-module Questionnaire:

Do you believe that the use of Generative AI tools has simplified coding practice following your engagement with this module?

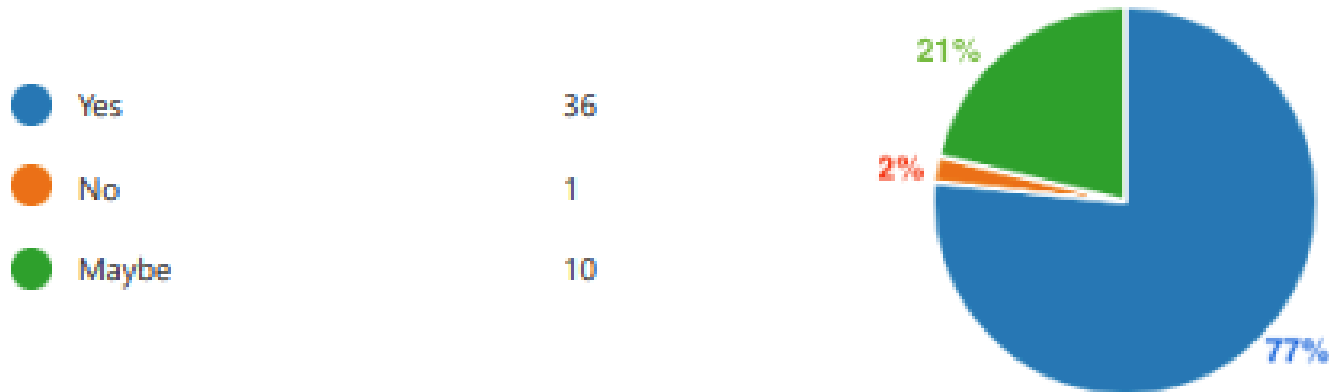


Do you believe that Generative AI tools could have a beneficial influence on self-directed learning following your participation in this module?



## Post-questionnaire (2)

Would you want to learn more coding as a business student in the future?



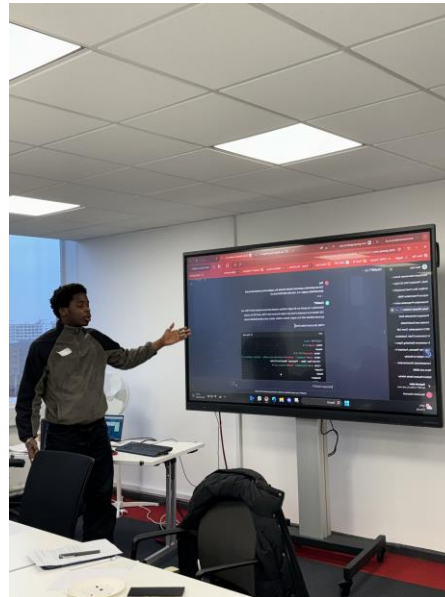
- Students' concerns are limited learning time and lack of programming concepts;
- IBL in class works well with prompt engineering for self—directed learning after class, with support of online resources, such as Kaggle.
- Generative AI assisted coding study is productive by providing step-by-step guidance, explain code and help debugging.

# Post-module Feedback

No. of comment	Thoughts on Generative AI assisted Python study
1	Very productive
2	It is great to start with step by step basics of python coding
3	I was expecting some more lectures on python
4	I would love the learning duration to be increased in the future
5	I feel the python coding module should have been carried out over the period of 6 weeks as opposed to just week 1 and week 2
6	It would be great to have Python coding integrated to the ISDT module.
7	More time should be assigned to coding on the program
8	More time should be allotted for coding practice
9	It was quite helpful throughout the session
10	Am okay with explanation and I will like to make more research on it
11	the time frame for teaching such a wide program is so how small. i think the python programming should be allocated more time.
12	I hope it becomes a core part of the syllabus so students can spend up to 3-4 seminars understanding the Introduction to Python Programming Language. we had a very short time with it, hence, the confusion.
13	This module is beneficial for remind to get code and uses of that in very effective way.
14	I suggest we spend more time on learning python coding using generative AI tools

# Post-module Workshop

Workshop hosted to discuss learning curve in coding practice, hinderance on prompt engineering & Generative AI in employability and workplace:





# 3 Focus Groups

Yun Chen • 7mo

## Focus Group 1

Share your ideas and comments here

Yun Chen 7mo

### Registration

Please write your name and study programme in the reply. (and share anything you want to share!)

4

- Anonymous 7mo  
Prinka Bai from MSc Managing innovation and Information Technology
- Anonymous 7mo  
Abdullahi Arebi MIT Group 1
- Anonymous 7mo  
Dolapo
- Anonymous 7mo  
AFOKEOGHENE BAZUNU

+ Add comment

Yun Chen 7mo

### Group Discussion 1: What are your learning obstacles of Coding in your T1 module?

3

- Anonymous 7mo  
- To understand the code generated in order to make customizations as per the requirements.
- Anonymous 7mo  
To look for specific code snippets with the output
- Anonymous 7mo  
Understanding the technical terms required to direct the AI system to generate the appropriate code. The process required me to also have some understanding of coding to properly request what type of code I needed to generate

+ Add comment

Yun Chen 7mo

### Group Discussion 2: What are your learning obstacles of Prompt Engineering in your T1 module?

3

- Anonymous 7mo  
To ask the specific questions for prompt with the use of right words. Basically, usage of right words in the prompt was a challenge.
- Anonymous 7mo  
To ask the simple and specific questions
- Anonymous 7mo  
To know the right words to use while putting prompts

+ Add comment

Yun Chen 7mo

### Group Activity 1: How can Generative AI be used in learning and working?

3

- Anonymous 7mo  
Generative AI can be used to breakdown complex tasks and also reduce the amount of time or steps needed to onboard new students or employees to learn to complete new tasks
- Anonymous 7mo  
Instant access and summary to specific topic areas student may lack understanding in.
- Anonymous 7mo  
It's a time saving technique as it produces instant outputs.

+ Add comment

Yun Chen 7mo

### Group Activity 2: What is your concerns to use Generative AI in learning and working?

5

- Anonymous 7mo  
Data protection and privacy
- Anonymous 7mo  
Ethical usage of Generative AI tools is also a concern
- Anonymous 7mo  
Current versions of generative AI are very broad. Schools and workplaces should have custom systems that are built specifically for the purpose of the class or tasks to be completed
- Anonymous 7mo  
Could restrict the amount of knowledge and skills needed to work in certain sector. Due to the reason that those courses knowledge and skills could be learn using AI and are excluded in learning trough classes.
- Anonymous 7mo  
Revolution,

+ Add comment

Yun Chen 7mo

### Closing Discussion: What support you would like to get from the University Tutors in the future?

6

- Anonymous 7mo  
To arrange more learning seminars
- Anonymous 7mo  
To make students understand how Generative AI tools can help them in their future regardless of what background they come from
- Anonymous 7mo  
About Different jobs being created from the development of AI. Out of the box thinking. Future of AI
- Anonymous 7mo  
Privacy Breach, reduction of Human Resources and socialisations, high risk in social media space, increased solo dependency in technology
- Anonymous 7mo  
Create more complex and practical projects that we can participate in. Especially ones that solve real-world problems
- Anonymous 7mo  
Increase in production and lower risk factors

+ Add comment

# Case Study 2: GenAI to Support Assignment Strategy

Research indicates that assessments are a primary source of stress for students, particularly for international students who often face additional challenges such as cultural differences, language barriers, and unfamiliar academic expectations (Smith & Khawaja, 2011; Andrade, 2006).

One key obstacle for students is the difficulty in developing effective assignment strategies (Cao et al., 2016). This is especially pronounced for those unfamiliar with specific academic standards and practices.

Can GenAI be useful to support the knowledge building? E.g. helping clarify complex concepts, suggestions for structuring assignments and providing personalised feedback?

# Pilot Study

## **University of Salford Summer Research Programme**

- July 2024
- Level 5 Student
- ILOs:
  - GenAI facilitated Learning for Assessment Analysis and Strategy
  - Project Management using Microsoft 365 tool
  - Data Collection and Visualisation using Power BI

# The Project Timeline

<b>Week</b>	<b>Task</b>
Week 1	Identify key words within the assessment brief.
Week 2	Conduct prompt engineering training Produce a series of prompts within the chosen generative AI tools
Week 3	Take part in interviews with senior academics to discuss the validity of the AI responses. Refine prompts based on feedback
Week 4	Report on the results of the projects.

# Outcome and Reflection

Presentation | Data updated 7/25/24

Pages

- Home
- Development
- Outcomes
- Reflection

## Salford Library Database

20  
Searches
20  
No Papers

### No. Paper by Theme

Theme	No. Paper
Digital Marketing and E...	3
Benefits and Challenges...	1
Consumer Behavior and...	1
Impact of COVID-19	1
Risk Management and S...	1

Search	No of results	Date
"B2C sales through their webpages"	11	3/8/2024
"faced bankruptcy due to COVID-19"	421	3/7/2024
"B2B trading environment was dampened by the COVID-19 pandemic"	120	3/7/2024
"digital marketing to support the success of this new business model"	180	3/8/2024
"emerging techs"	663	3/6/2024
"importance of data analysis"	83	3/6/2024
"innovative application of information systems"	1	3/7/2024
"potential benefits and risk of the transformation"	84868	3/7/2024
"retail landscapes in the UK kept changing"	547	3/7/2024
"transform their business model"	110	3/6/2024

References

Nicoletti, B. (2021). Insurance 4.0: benefits and challenges of digital transformation. (1st ed. 2021). Springer International Publishing. <https://doi.org/10.1007/978-3-030-58426-9>

Ponce Oliva, R. D., Vasquez-Lavin, F., San Martin, V. A., Hernández, J. L., Vargas, C. A., Gonzalez, P. S., & Gelicich, S. (2019). Consumer Behavior and Market Adaptation

Azeisio, A. (2018). World wide data : the future of digital marketing, e-commerce, and big data (First edition). Business Expert Press. Digital Marketing and E-commerce

Boden, T. W. (2019). A History Lesson on Insurance and the Importance of Data Analysis. The Journal of Medical Practice Management, 35(1), 55–56. Digital Marketing and E-commerce

Hugh, P. (2018). <https://www.linkedin.com/in/narayanamurthi>

Benefits and Challenges of Digital Transformation

Consumer Behavior and Market Adaptation

Digital Marketing and E-commerce

Digital Marketing and E-commerce

Pages

- Home
- Development
- Outcomes
- Reflection

Presentation | Data updated 7/25/24


Pages

- Home
- Development
- Outcomes
- Reflection

## Assessment Strategies

All

ChatGPT

Gemini

Strategy

Six-Week Assignment Strategy: Digital Transformation for Ivy League UK Limited

Introduction

To successfully advise Ivy League UK Limited on their digital transformation journey towards a B2C business model, a well-structured assignment strategy is essential. This strategy involves understanding the project requirements, identifying key knowledge areas, addressing potential challenges, and adhering to a clear timeline. This document outlines the strategy, including the literature review (LR) table, assessment strategy with visual aids, and a detailed timeline to ensure timely completion of the assignment within six weeks.

Key Knowledge Areas

Before proceeding with the assignment, it is crucial to have a strong understanding of the following areas:

Digital Transformation involves understanding digital transformation concepts and frameworks, and awareness of how digital transformation impacts business models, operations, and customer engagement.

Information systems (IS) require familiarity with diverse types of information systems such as AI, big data, CRM systems, and e-commerce platforms, as well as knowledge of how these systems can be integrated into business processes to improve efficiency and drive growth.

Digital marketing encompasses an understanding of digital marketing strategies, including SEO, PPC, social media marketing, and content marketing, and the ability to analyze and implement effective digital marketing campaigns. Analytics involves skills in data collection, analysis, and interpretation using tools like Google Analytics, Tableau, and others, along with knowledge of how to leverage data insights for business decision-making.

Customer Relationship Management (CRM) entails understanding CRM functionalities and best practices for customer segmentation, retention, and engagement, as well as the ability to integrate CRM systems into the business process to enhance customer interactions.

Potential Challenges

To ensure successful completion, it is important to address the following challenges:

Technological Integration: Integrating innovative technologies with existing systems can be complex and time-consuming. Conducting thorough research on best practices for system integration and seeking expert consultation if needed can mitigate this.

# Future Research



Research- informed Teaching:  
Support EDI in Education



Fill the gap of employability skills  
for Digital Business Students.

# Any Questions?

