AIID [Artificial Intelligence for Interdisciplinary Discussion]

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Executive summary

This project developed a pilot AI-driven platform for the purpose of supporting interdisciplinary, face-to-face discussion amongst postgraduate students. The underlying rationale for this approach was a concern for the loss of human-to-human conversation and social connection where students are increasingly encouraged to engage in an isolated dialogue with automated AI bots. Rather than designing a system where human users *prompt responses from an AI*, as in most other examples of Large Language Models (LLMs), this project set out to do the very opposite: design *an AI that can prompt us*.

This was achieved by developing a platform that can analyse examples of written work uploaded by users and generate a series of discussion prompts and questions that can support students to engage in face-to-face dialogue and debate. Specifically, the AI identifies potential points of commonality, agreement, or disagreement across the examples of writing uploaded by two users and produces five different discussion topics. Each topic is colour-coded to indicate ‘agreement’, ‘disagreement’, ‘open question’, or ‘research logic’, and also includes a question to stimulate conversation.

A key aspect of learning for the AIID project team related to the scope and boundaries of the initial project idea. Sticking to a project vision is challenging. Current AI presents many different and exciting opportunities to do alternative

things. Sharing insights and expertise amongst the project team, as well as collecting feedback from student-users only increases the scope of ideas and potential directions a project can develop. Learning to draw boundaries around ideas and scope was a valuable experience. This also relates to as key question about these kind of projects: are they driven primarily by ideas, or by what is available with the technology? I suspect that valuable learning from this project has been the recognition that it is both: ideas inform how we might develop or customise AI for specific purposes, but our ideas for what is possible are also curtailed and shaped by how the technology functions.

Project introduction

This project sought to develop and evaluate an AI system designed to support and enhance the most important feature of the collegiate university: interdisciplinary discussion. While more typical examples of AI for education tend to focus on individual experience - personalised assessments, customised feedback, or one-to-one conversations with a chatbot - this project will explore the potential for AI to cultivate the kind of human-to-human relationships and networks that are vital to university learning. The collegiate university has a long history of providing the space for multidisciplinary communities and the exchange of diverse ideas; however, postgraduate students often have less opportunities to benefit from such discussions.

This project therefore developed a proof-of-concept AI that can support postgraduate students to engage in interdisciplinary conversations about their studies, therefore enriching the student experience. The project made use of a custom AI platform and interface which supports 1) the uploading and analysing of examples of writing (e.g. student essays), and 2) the generation of prompts that can support students to discuss their respective work productively.

Specifically, the AI-derived prompts were designed to identify key discussion points that link two different examples of writing, specify areas of potential agreement or disagreement, and offer possible avenues for future collaboration. These prompts are intended to be used by students to support a constructive discussion that allows them to recognise similarities across diverse topics, understand different disciplinary perspectives, and engage in a dialogue that can extend understanding for both parties. This AI functioning is expected to be particularly innovative where points of constructive discussion may not be immediately obvious across essays with diverse disciplinary perspectives.

Colleagues from the Department of Education provided researched-informed insight about the use of AI in educational settings. Colleagues from the AI and

Machine Learning Competency Centre developed the AI platform and custom interface in response to agreed actions. Colleagues from the Centre for Teaching and Learning provided expertise related to the context of the Exploration Fund and the wider relevance to University teaching and learning.

Project outcomes and findings

Two rounds of feedback from students were undertaken. The first involved an in-class presentation and demonstration of the initial prototype from four members of the project team, followed by a whole-class discussion. This allowed the project to capture rich qualitative data and insight directly from intended users. This feedback can be summarised with the following points:

- Students demonstrated a strong interest in the use of AI, and in particular for the idea of discussion prompting and connecting socially.
- While there were suggestions to simplify the interface in order to enhance usability, students also expressed a desire to use such a tool as a community space for collaboration and peer learning support
- Students also raised questions about the long-term sustainability of innovative tools versus the time required to for students to invest in using such a platform.

The second stage of feedback involved individual user testing of an updated interface, the development of which attempted to take into account student comments from the first round. Importantly, this identified some useful ideas for future development. These can be summarised in the following:

- Improved interface, described by one student as ‘intuitive’
- However, more context on a ‘landing page’ would help to orient users to the purpose of the app
- Categorisation of libraries: could students create subfolders to categorise their written work into themes (this might interestingly contrast with the AI analysis)?
- More user control over discussion prompts: could students choose with prompt categories to emphasise, or perhaps suggest their own?

Lessons learned

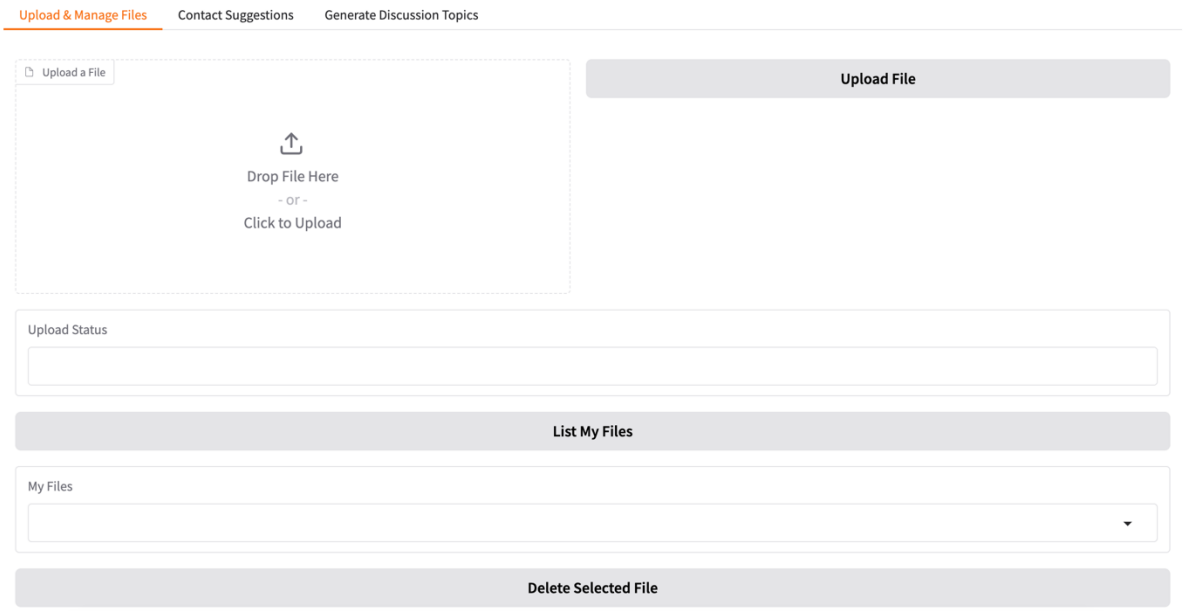
This project adopted a slightly unusual approach to the use of AI. This meant that ‘out of the box’ or previously developed AI applications were not necessarily relevant. While a relatively straightforward instance of a AI LLM was used to underpin the generation of discussion prompts, the uploading of examples of writing and the presentation of outputs required a bespoke

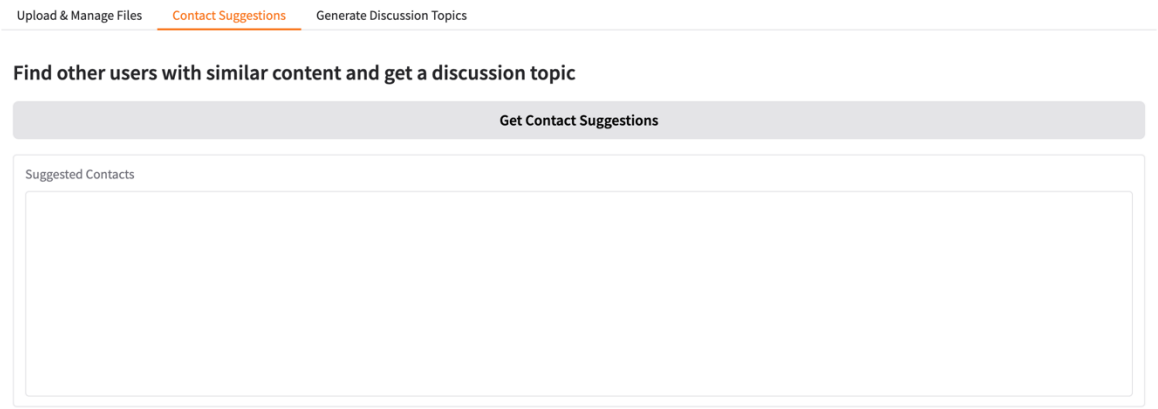
interface. This was, therefore, the key challenge of the project. Bespoke interfaces require additional time and labour. Future projects in this area should be conscious of the balance between ‘bespoke’ and ‘off-the-shelf’ aspects of AI and consider the trade-offs and compromises that might allow an application to be developed quicker, but without customised features.

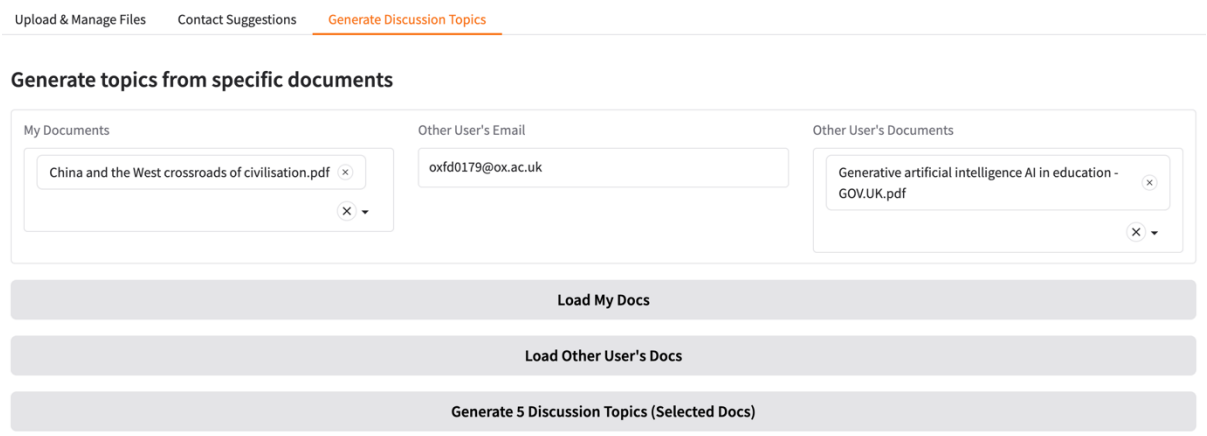
The idea at the foundational of this project - prompting discussion – spurred a range of other related ideas, particularly around networking and other forms of connecting students and staff across the University. It is notable that this sense of the value of networking and finding other people with which to connect was also identified by student testers. Nevertheless, while some features were developed in this regard, they were ultimately paused for this stage of the project, principally due to their underdevelopment, but also because they widened the scope of what the pilot was trying to achieve. In particular, the project also developed a ‘concept mapping’ feature to visualise a specific user’s research interested based on their uploaded examples of writing, as well as a search function to find other ‘scholars’ for potential connection. These are valuable features with potential to develop further in the future.

Appendices

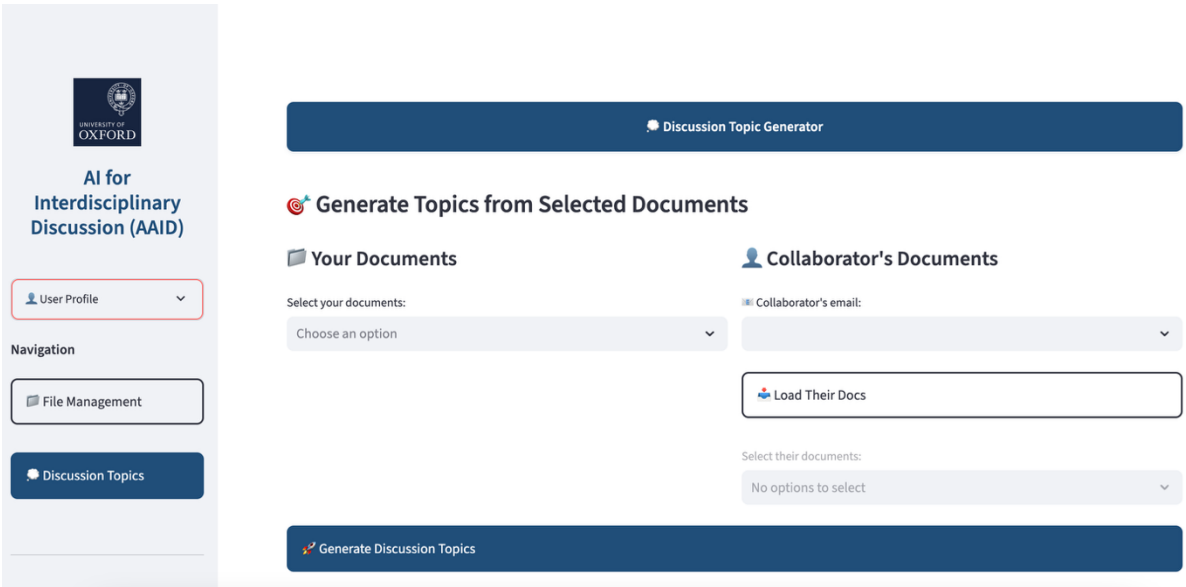
Early version of the interface:

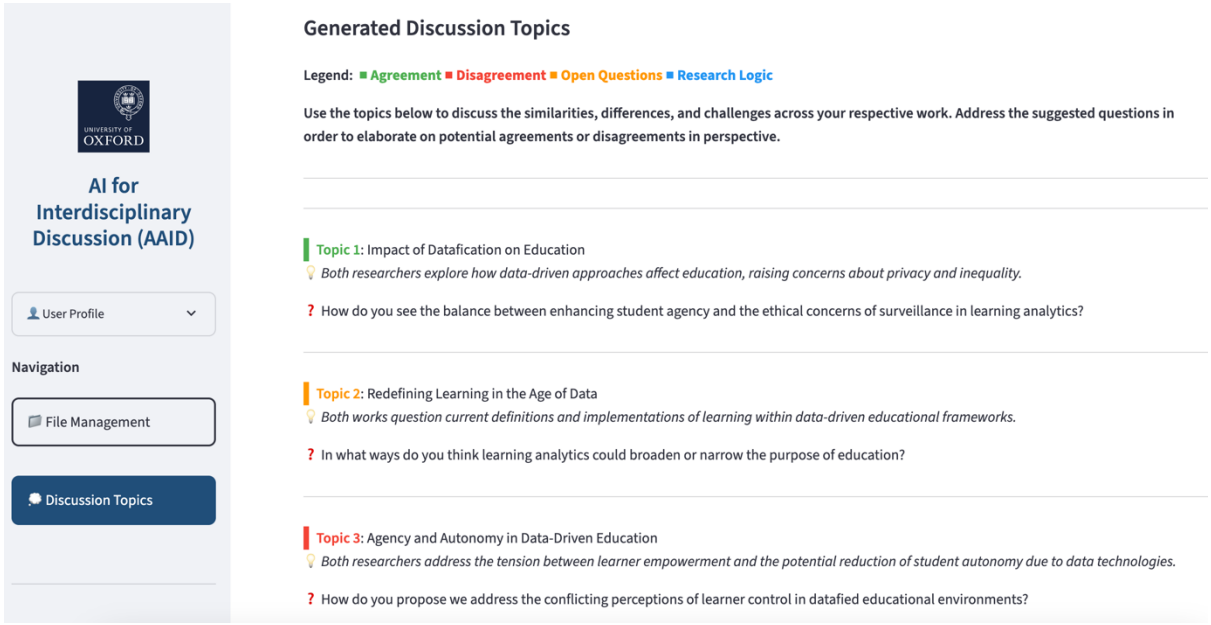






Later version of the interface:




AI for Interdisciplinary Discussion (AAID)
User Profile
Navigation
File Management
Discussion Topics
Generated Discussion Topics
Legend: Agreement Disagreement Open Questions Research Logic
Use the topics below to discuss the similarities, differences, and challenges across your respective work. Address the suggested questions in order to elaborate on potential agreements or disagreements in perspective.
Topic 1: Impact of Datafication on Education
Both researchers explore how data-driven approaches affect education, raising concerns about privacy and inequality.
How do you see the balance between enhancing student agency and the ethical concerns of surveillance in learning analytics?
Topic 2: Redefining Learning in the Age of Data
Both works question current definitions and implementations of learning within data-driven educational frameworks.
In what ways do you think learning analytics could broaden or narrow the purpose of education?
Topic 3: Agency and Autonomy in Data-Driven Education
Both researchers address the tension between learner empowerment and the potential reduction of student autonomy due to data technologies.
How do you propose we address the conflicting perceptions of learner control in datafied educational environments?