

Research project

Using AI to provide feedback in online learning

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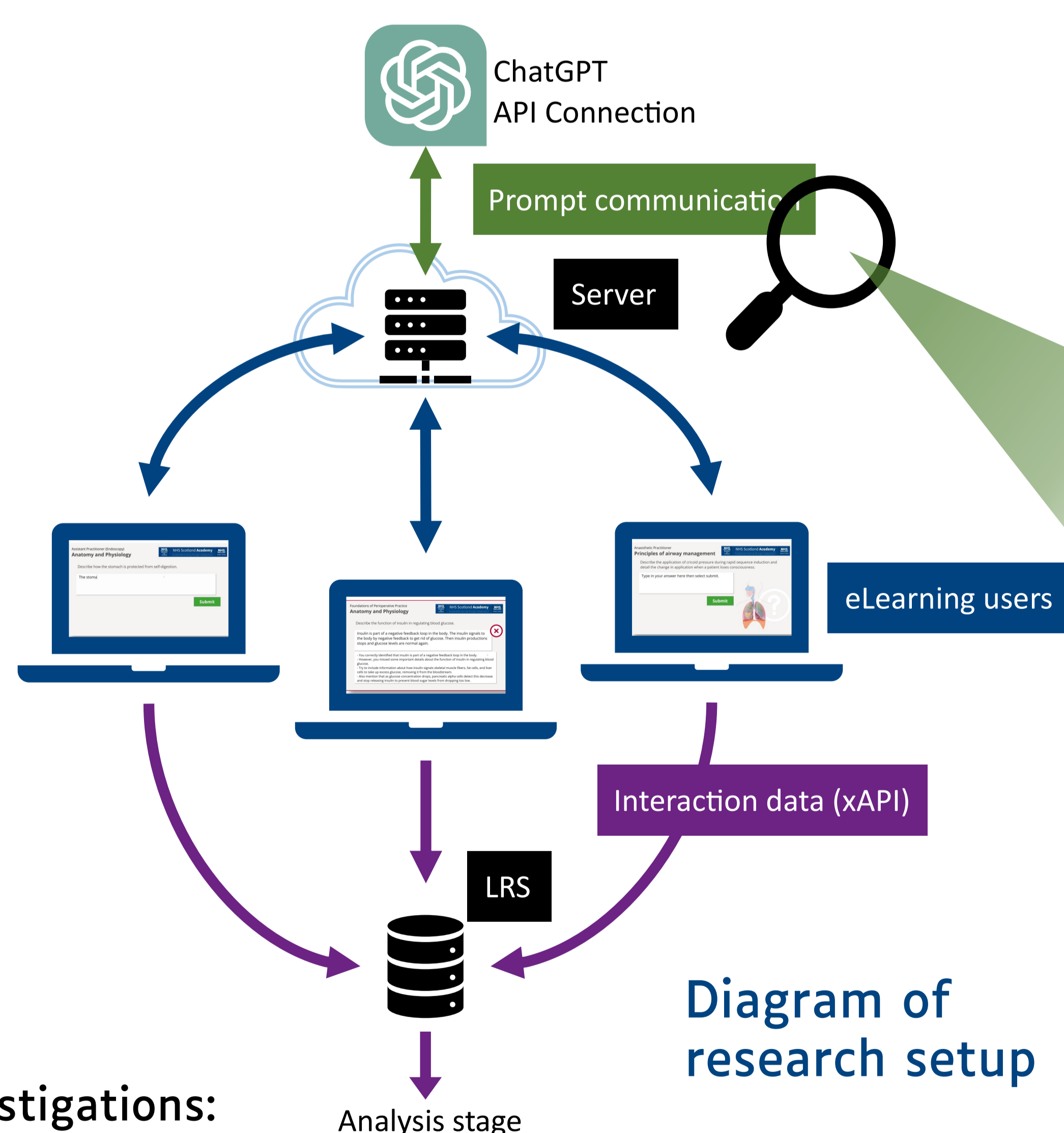
Aim

Our project, conducted as part of NHS Scotland Academy's accelerated workforce programmes, seeks to enhance the learning experience for our health and social care learners. We aim to harness the potential of AI Large Language Models (LLMs) to radically enhance online learning.

Focusing on AI-driven feedback, we aim to assess and improve the effectiveness of asynchronous online learning. Our primary objectives are to explore how AI can offer high-quality, personalized feedback to learners, moving on from the limitations of generic responses and multiple-choice questions. This poster presents our rationale, design, methodology, and progress, and explains where we will embed this new facility.

Methods

Following work done by the development company Discover eLearning, we have successfully connected an LLM to Articulate Storyline (an eLearning authoring tool) and can pass learner answers, question information, a model answer and feedback instructions to the LLM. This allows the AI to evaluate learner responses against model answers and provide dynamic feedback.



Further investigations:

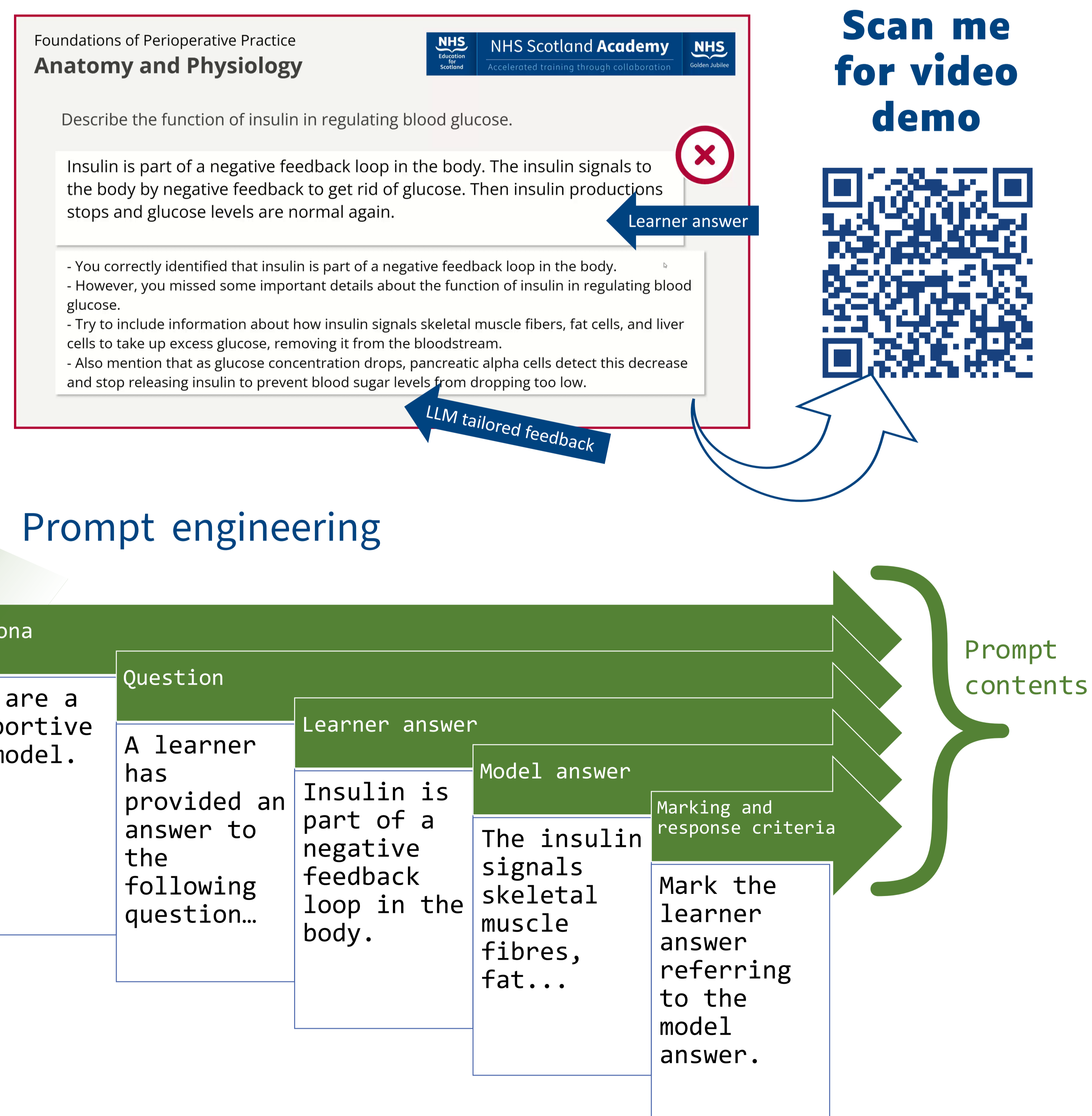
- Experimenting with prompt authoring
- Design tests to measure learning
- Investigate eLearning distribution and data collection (xAPI data via Learning Record Store (LRS))
- Ethical approval
- Select a suitable Academy programme to embed and test this technology

Conclusions

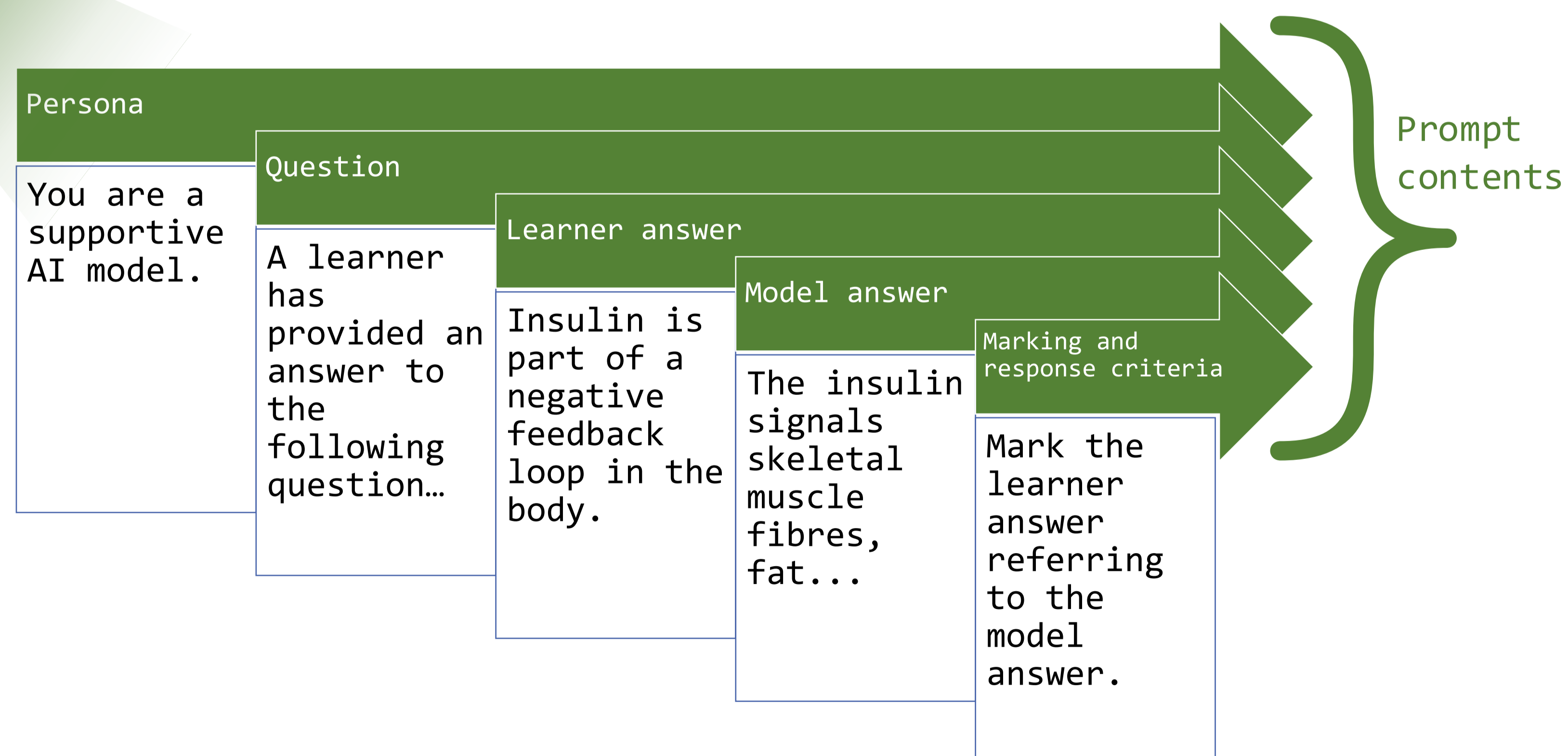
Our early tests demonstrate that LLMs are able to provide effective feedback to user inputs, and that this feedback can be controlled by providing the LLM with a model answer. Our research will go on to compare the efficacy of different LLMs and whether both learner task motivation and educator attitudes change when presented with these features.

We have also been able to demonstrate the use of LLMs to analyse learner inputs and choose the most suitable feedback from a range of pre-written examples. This may be a way of using AI to respond to learner inputs while setting up guardrails against free generation.

The potential improvements to online learning means learner testing is no longer limited to simple knowledge recall. The learner can use natural language input, which will allow us to test them on complex knowledge and higher-order skills such as analysis or evaluation.



Prompt engineering



Next stages

The next stages of the project are being planned in partnership with Strathclyde University. A PhD studentship has been confirmed, with work commencing in October 2026.