Module Management AI Agents: A Targeted Approach to Study Support in Higher Education

International Business School Suzhou, Global Cultures and Languages Hub

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1. Background

The integration of Artificial Intelligence into higher education is reshaping how institutions operate teaching, student support, and administrative processes. AI’s potential for personalization, efficiency, and scalability aligns with modern educational demands. Globally, universities are leveraging AI to create dynamic learning environments.

XJTLU has responded proactively, emphasizing human-digital intelligence synergy through its 2025-2028 Education + AI Strategic Framework (XJTLU, 2025). Administrative AI tools like the LibAI Chatbot, E-Support AI Chatbot, and AI-driven graduation project allocation systems demonstrate this commitment.

The Year 1 English for Academic Purposes (EAP) programme in the Language Centre serves over 5,000 students through a blended learning

model. Managing numerous exam projects, complex requirements, and high-frequency student inquiries creates significant administrative pressure. AI agents offer a scalable solution—providing instant, accurate responses to student queries, acting as always-available "teachers," and ensuring efficient access to critical information. This reduces staff burden while providing timely student support.

2. Solutions

The Year 1 EAP team developed three customized AI agents on XJTLU's XIPU AI platform using Retrieval-Augmented Generation (RAG): Year 1 EAP Module Guide, Online Lesson AI Assistant, and Year 1 EAP Resit Helper.

Development Process:

1、**Prompt Authoring:** Defining agent roles and scope (e.g., "professional yet friendly guide for Year 1 EAP students"). Responses must be structured and supportive for non-native speakers. RAG-enabled agents retrieve from knowledge bases, with low temperature (<0.1) for deterministic answers. When information is unavailable, agents politely suggest contacting EAP teachers or module leaders.

2、**Standardization**: Creating standardized templates to unify language, tone, and response structure across agents, ensuring consistent user experience (e.g., concise responses with key information bolded).

3、**Collaborative Testing**: Teachers test agents from student perspectives, evaluating accuracy, clarity, tone, and alignment with learning objectives. Feedback identifies issues like unclear language or inconsistencies.

4、**Optimization**: Refining prompt design and knowledge base content based on teacher feedback to ensure accurate, standards-compliant responses.

Three Agents:

- **Year 1 EAP Module Guide**: Handles queries on exams, offline materials, and policies, integrating 30+ commonly used knowledge base entries.
- **Online Lesson AI Assistant**: Helps students maximize blended learning resources, providing precise course information, unit topics, weekly schedules, and skill focus analysis, with one-click links to LM pages.
- **Year 1 EAP Resit Helper**: Designed for resit students, addressing three core needs: clarifying exam details, interpreting administrative procedures, and connecting to learning resources.

Technical Parameters:

- RAG framework for retrieving relevant knowledge base documents
- Temperature set to 0.1 or below for high determinism and accuracy

3. Outcomes and Benefits

Implementation Approach:

Dual-track access design on LM module pages: "Information Section" and "Quick Access Section." A dedicated "English Language Centre AI Agents" portal provides centralized access with concise functional descriptions. A persistent sidebar menu on every course page enables one-click agent access.

Core Functions:

- **Module Guide:** Provides precise course content information, summarizes policies and learning objectives, and directs users to specific documents.
- **Online Assistant:** Accurately locates requested topics/skills, provides direct LM page links, and encourages immediate review.

- **Resit Helper:** Offers accurate, up-to-date resit process information, explains university policies clearly, and encourages proactive preparation.

Educational Value:

Automating high-frequency inquiries enhances student awareness of procedures, reduces anxiety, and promotes active preparation while significantly reducing staff workload, allowing focus on personalized teaching support. Agents provide 24/7 support, improving student confidence in information verification.

4. Replicability and Promotion Value

Methodological Value:

This case demonstrates an innovative paradigm for student support and administrative efficiency in higher education through a precise, iterative implementation path. The four-stage closed-loop development process (prompt authoring, standardization, collaborative testing, optimization) builds a rigorous methodology ensuring continuous improvement.

Technical Architecture Universality:

The RAG framework with low-temperature configuration ensures information accuracy and consistency. This architecture suits any educational scenario requiring precise answers from official documents. Temperature adjustment enhances response determinism, crucial for building user trust.

Scalability:

The model particularly suits large-scale foundational courses (e.g., EAP serving 5,000+ students), effectively addressing information asymmetry, repetitive inquiries, and administrative inefficiency. Centralizing key documents and providing efficient content parsing boosts student confidence while freeing teachers from repetitive Q&A.

Cross-Module Transferability:

The Year 1 EAP team successfully developed three agents for different needs, validating scalability. Standardized prompt templates and collaborative testing mechanisms ensure consistent user experience across agents—transferable to other faculties and courses.

Strategic Alignment:

The case aligns closely with XJTLU ' s Education + AI 2025-2028 Strategic Framework, providing a practical exemplar for "enhancing educational quality and operational efficiency through targeted AI

solutions."