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The StatBot: An AI-Assisted Chatbot for Enhancing Learning and Teaching Efficiency of Large Subjects

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Abstract

Artificial Intelligence (AI) provides an opportunity for a transformative shift towards a more personalised and efficient learning environment in the contemporary education landscape (FitzGerald, 2018; Perez et al., 2020; Yang and Evans, 2019; Yin et al., 2021). This landscape is characterised by globalisation and universal education trends, which often necessitate being mindful of the challenges of managing large enrolments and diversity within student bodies. This presentation outlines the implementation and experiences of a generative AI-supported chatbot (StatBot) introduced to two cohorts of quantitative methods classes in the Faculty of Business and Economics, targeting over 2,500 students annually. Attending this presentation, participants will gain valuable insight into the effective use of AI in teaching and learning in subjects with large enrolments.

The initiative aimed to enhance students' learning experience by offering personalised, subject-specific support by converting IBM Watson Assistant, renowned for its ability to process and interpret natural language queries, into an educational chatbot. The primary purpose of this AI tool was to improve student's educational experience by providing them with instant, tailored assistance that directly related to the material taught within the subject and at a time that suited the student. Recognising students' diverse needs and learning pace in a large class, the chatbot was designed to offer both administrative and conceptual support, facilitating a more inclusive and accessible learning environment. It addressed a wide range of queries, from course logistics and administrative procedures to in-depth explanations of complex concepts. It provided a comprehensive bank of practice questions and feedback process, specifically curated to reinforce learning and aid in consolidating knowledge. This repository enabled students to engage in self-directed learning, assess their understanding, and identify areas requiring further exploration, thus promoting a proactive and reflective learning approach.

The benefits of implementing this AI tool were multifaceted. For educators, it alleviated the burden of addressing repetitive administrative and basic conceptual queries, freeing up valuable time to focus on more complex teaching and research activities. For students, the immediate and personalised nature of the support enhanced their learning experience, enabling them to navigate the course content more confidently and efficiently. The chatbot also fostered an environment of continuous learning, encouraging students to engage with the material and practice independently and actively. Integrating the chatbot into the curriculum offered a strategic educational intervention aimed at enhancing student learning and support, particularly in large undergraduate subjects. The platform's robust AI capabilities allowed the delivery of personalised learning experiences at scale, which is difficult through traditional teaching methods. Its ability to process student queries and provide immediate, accurate (verified) responses ensured that students received the support they needed when needed, without the constraints of office hours or limited teaching staff availability.

The student feedback following the introduction of the AI-supported chatbot was overwhelmingly positive. The tool's ability to provide instant, relevant, and personalised support was particularly appreciated, as it directly contributed to a more supportive and responsive learning environment. Moreover, the availability of a practice question bank was highlighted as a critical resource that enabled students to test their knowledge and prepare more effectively for assessments.

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