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EMBEDDING INQUIRY-BASED LEARNING IN A LARGE DATABASE COURSE VIA PAIRED ASSESSMENT

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ABSTRACT

Aim/Purpose	Given the complex and ill-structured nature of modelling problems, database education can benefit from learning approaches such as inquiry-based learning (IBL), where students are encouraged to work collaboratively on modelling, design, and querying tasks. IBL can be embedded into teaching approaches such as pair programming, which is known for its many benefits, for example, improved student collaboration, enhanced student involvement, and deep learning.
Background	Data modelling, design, and SQL are crucial parts of a database course in computing, information systems (IS), IT, and software engineering curricula. Students must analyse and model activities at high levels of abstraction before moving to the design, implementation, and data manipulation phases. This research examines the impact of using IBL via a paired assessment in combination with existing teaching methods as an effective learning technique in the practical database project assessment.
Methodology	This study implements IBL via a paired assessment strategy in a large undergraduate Database System Design course. Students were assessed in pairs to see if they could effectively complete the assessment in collaboration with their partners. Qualitative data was collected and analysed to determine if the paired approach improved learning effectiveness and performance. Furthermore, student feedback and perceptions are analysed.
Contribution	This research enhances the literature on database education and IBL by presenting a paired assessment approach for academics interested in implementing this methodology in their database courses. It demonstrates how paired assessments can facilitate collaboration in database education. The study outlines four key lessons learned and provides guidelines for effectively assigning

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	pairs, monitoring the balanced contributions of student pairs, implementing peer evaluation systems, and enforcing a strict policy on student attendance and engagement.
Findings	Findings related to student learning show that the paired assessment was an effective learning technique that improved student engagement and learning. Students strongly supported the paired assessment approach, and their overall perceptions were positive. The findings led to the identification of four lessons learned and guidelines for future implementation.
Recommendations for Practitioners	Educational implications emphasize the challenges of inquiry-based learning through paired learning for assessment, such as guidelines for assigning pairs and monitoring students' balanced contributions. They also highlight the benefits, including the development of soft skills.
Recommendations for Researchers	This study offers guidelines and recommendations for implementing IBL using paired assessment in database education. Researchers can explore the application of pair-based assessment in online and hybrid database education.
Impact on Society	Academic faculty that aims to enhance student learning in the complex and ill-structured nature of data modelling and database design, as well as in teamwork and collaboration, will benefit their students, the workforce, and society.
Future Research	Future research could adapt the proposed methodology in various contexts. Additionally, its impact on the online environment warrants further investigation.
Keywords	database education, paired assessment, paired learning, inquiry-based learning, collaborative learning

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