



AccountIQ: A GAMIFIED DIAGNOSTIC LEARNING APPLICATION BASED ON THE D.E.T.E.C.T FRAMEWORK FOR ANALYSING ACCOUNTING ERRORS

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ABSTRACT

The topic of suspense accounts and correction of errors is widely recognised as one of the most challenging areas in financial accounting. Students are required to determine whether accounting errors affect the trial balance, identify the type of error involved, and prepare appropriate correcting journal entries. However, the topic is often taught procedurally, leading students to rely on memorisation rather than developing the diagnostic reasoning necessary to analyse accounting discrepancies. This innovation introduces *AccountIQ*, a conceptual mobile learning application designed to support structured diagnostic learning. The application integrates the D.E.T.E.C.T framework, which guides students through six analytical stages: Detect, Examine, Type, Entry, Check and Test. A key feature is the trial balance diagnostic gateway, which enables students to distinguish between errors revealed and not revealed by the trial balance and determine whether a suspense account is required. Through interactive scenarios, guided problem-solving and gamified feedback, *AccountIQ* promotes a systematic approach to learning accounting errors.

KEYWORDS: Accounting Education; Accounting Error Analysis; Diagnostic Learning; Educational Technology; Gamified Learning.

PROBLEM AND OBJECTIVE

Financial accounting is widely recognised as a challenging subject for students (Jackling, 2005; Byrne & Flood, 2008), particularly in topics that require both conceptual understanding and procedural accuracy. Among these, suspense accounts and correction of errors present notable learning difficulties. Students must determine whether errors affect the trial balance, classify the type of error and prepare appropriate correcting journal entries. However, these topics are often taught procedurally, leading students to rely on memorisation rather than developing the diagnostic reasoning needed to analyse accounting discrepancies. Consequently, many students struggle to connect concepts, identify errors accurately and apply appropriate corrections systematically. In addition, students frequently face difficulty distinguishing between errors revealed and not revealed by the trial balance, particularly when determining the need for a suspense account. This reflects a gap between procedural knowledge and conceptual understanding. The primary objective of this innovation is to develop a structured

learning solution that supports students in analysing accounting errors through a systematic diagnostic process. Specifically, it aims to guide students step-by-step in identifying, classifying and correcting errors, while enhancing their conceptual understanding, accuracy and confidence. Ultimately, the innovation promotes diagnostic thinking and reduces reliance on memorisation in accounting learning.

DESIGN DESCRIPTION

AccountIQ is a conceptual mobile learning application designed to support students in learning correction of errors and suspense accounts through a structured diagnostic approach. The application is centred on the D.E.T.E.C.T framework, which guides students through six stages: Detect, Examine, Type, Entry, Check, and Test, providing a clear and systematic pathway for analysing accounting errors. A key feature is the trial balance diagnostic gateway, which enables students to determine whether an error affects the trial balance and whether a suspense account is required. This supports differentiation between errors revealed and not revealed by the trial balance, addressing a common area of confusion. The application incorporates interactive case scenarios, guided problem-solving steps, and gamified feedback to support active learning (Crompton & Burke, 2020; Dicheva et al., 2015). Students receive immediate feedback and reinforce their understanding through embedded quizzes. By integrating conceptual explanation, procedural guidance, and real-time feedback, AccountIQ provides a structured and engaging learning experience that promotes deeper understanding of accounting errors and supports the development of systematic thinking.

VISUALS

The D.E.T.E.C.T framework operationalises the process of analysing accounting errors into six structured stages as illustrated in Figure 1.

D – Detect

At the *Detect* stage, students identify whether an accounting error exists. This involves examining the trial balance and determining if it balances. If the trial balance does not balance, students recognise that an error affecting the totals has occurred. This stage builds awareness and initiates the diagnostic process by prompting students to question the accuracy of recorded transactions.

E – Examine

In the *Examine* stage, students analyse the details of the transaction and identify the accounts involved. They evaluate how each account is affected, being whether it is overstated, understated or omitted. This stage encourages students to move beyond surface-level recognition and understand the nature and impact of the error on specific accounts.

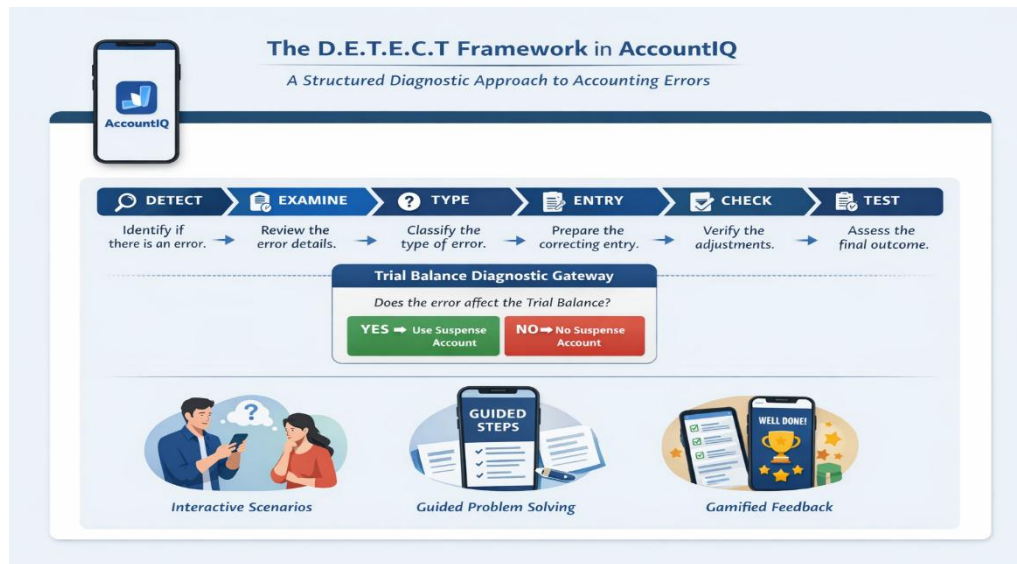


Figure 1: The D.E.T.E.C.T Framework implementation in AccountIQ

T – Type

At the *Type* stage, students classify the error according to its category, such as error of omission, error of commission, error of principle or error of original entry. Correct classification is crucial as it determines the appropriate method of correction. This stage reinforces conceptual understanding and helps students differentiate between various types of accounting errors.

E – Entry

In the *Entry* stage, students prepare the correcting journal entry based on their analysis. They apply the appropriate debit and credit entries to rectify the error. Where applicable, students determine whether a suspense account is required, particularly for errors that affect the trial balance. This stage focuses on procedural accuracy and application of accounting rules.

C – Check

At the *Check* stage, students verify that the correction has been applied accurately. They review the accounts and ensure that the trial balance is now correct and balanced. This stage reinforces the importance of accuracy and encourages students to validate their work systematically.

T – Test

In the *Test* stage, students assess their understanding through quizzes or practice scenarios. They receive immediate feedback on their responses, allowing them to identify mistakes and reinforce correct reasoning. This stage supports retention, mastery and confidence in applying the concepts independently.

NOVELTY AND UNIQUENESS

The novelty of AccountIQ lies in its integration of a structured diagnostic learning framework within a mobile learning environment to support the teaching and learning of accounting errors. Unlike traditional approaches that emphasise procedural steps and memorisation, AccountIQ introduces the



D.E.T.E.C.T framework, which guides students in identifying, analysing and correcting errors through a systematic process. A key feature is the trial balance diagnostic gateway, which enables students to determine whether errors are revealed by the trial balance and whether a suspense account is required, addressing common conceptual difficulties. By integrating conceptual understanding, procedural application and immediate feedback, AccountIQ promotes systematic thinking and conceptual mastery (Biggs & Tang, 2011), supporting deeper learning and reducing reliance on memorisation.

BENEFITS TO MANKIND

AccountIQ enhances accounting education by transforming learning from memorisation to structured diagnostic reasoning. It helps students develop systematic thinking, improve accuracy in solving accounting errors and build confidence in complex topics. By supporting educators with a guided teaching tool, it contributes to more effective and engaging learning environments. The mobile-based design promotes accessible and flexible learning, enabling students to learn anytime and anywhere. As a scalable educational technology, AccountIQ supports digital learning initiatives and contributes to improving the overall quality of accounting education.

COMMERCIAL POTENTIAL

AccountIQ demonstrates strong market potential within the education sector, particularly in secondary schools, universities and professional accounting training programmes. Its competitive advantage lies in the integration of a domain-specific diagnostic framework with interactive mobile learning, distinguishing it from conventional accounting resources. The application can be scaled across institutions through a subscription-based or institutional licensing model, allowing flexible adoption. With relatively low development and distribution costs, AccountIQ offers a cost-effective digital solution that supports technology-enhanced learning and aligns with the growing demand for scalable educational tools.

CONCLUSION

This innovation introduces AccountIQ as a structured mobile learning solution to address challenges in learning suspense accounts and correction of errors. By integrating the D.E.T.E.C.T framework, the application supports students in developing diagnostic reasoning through a step-by-step analytical process. It combines conceptual understanding, procedural application and immediate feedback to enhance learning effectiveness and engagement. AccountIQ has strong potential to improve students' accuracy, confidence and systematic thinking in accounting. Future development may include full application implementation, empirical evaluation of learning outcomes and expansion to other topics. Overall, the innovation advances digital learning in accounting education by promoting deeper understanding beyond memorisation.

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