



UNIVERSITI
TEKNOLOGI
MARA

Voice of Academia

Academic Series of Universiti Teknologi MARA Kedah

VOLUME

22

ISSUE 1
2026

eISSN: : 2682-7840

ADVISORY BOARD MEMBER

PROFESSOR DR. ROSHIMA HAJI. SAID ASSOCIATE
PROFESSOR DR MOHD RIZAIMY SHAHRUDDIN

CHIEF EDITOR

DR. JUNAIDA ISMAIL

MANAGING EDITOR

MOHD NAZIR RABUN

COPY EDITOR

SYAHRINI SHAWALLUDIN

EDITORIAL TEAM

SAMSIAH BIDIN
ETTY HARNIZA HARUN
INTAN SYAHRIZA AZIZAN

EDITORIAL TECHNICAL TEAM

KHAIRUL WANIS AHMAD
MAZURIAH AHMAD

EDITORIAL BOARD

PROFESSOR DR. DIANA KOPEVA,

UNIVERSITY OF NATIONAL AND WORLD ECONOMY,
SOFIA, BULGARIA

PROFESSOR DR. KIYMET TUNCA CALIYURT,

FACULTY OF ACCOUNTANCY,
TRAKYA UNIVERSITY, EDIRNE, TURKEY

PROFESSOR DR. M. NAUMAN FAROOQI,

FACULTY OF BUSINESS & SOCIAL SCIENCES,
MOUNT ALLISON UNIVERSITY, NEW BRUNSWICK, CANADA

PROFESSOR DR. SIVAMURUGAN PANDIAN,

SCHOOL OF SOCIAL SCIENCE,
UNIVERSITI SAINS MALAYSIA (USM), PULAU PINANG

PROF. DR SULIKAH ASMOROWATI,

FISIP, UNIVERSITAS AIRLANGGA (UNAIR),
SURABAYA, INDONESIA

DR. IRA PATRIANI,
FISIP, UNIVERSITAS TANJUNGPURA (UNTAN),
PONTIANAK, INDONESIA

DR. RIZAL ZAMANI IDRIS,
FACULTY OF SOCIAL SCIENCE & HUMANITIES,
UNIVERSITI MALAYSIA SABAH (UMS), SABAH

DR. SIMON JACKSON,
FACULTY OF HEALTH, ARTS AND DESIGN,
SWINBURNE UNIVERSITY OF TECHNOLOGY MELBOURNE, AUST

DR. AZYYATI ANUAR,
FACULTY OF BUSINESS MANAGEMENT,
UNIVERSITI TEKNOLOGI MARA (UITM) KEDAH BRANCH, MALAYSIA

DR. FARYNA MOHD KHALIS,
COLLEGE OF CREATIVE ARTS,
UNIVERSITI TEKNOLOGI MARA (UITM) SHAH ALAM, MALAYSIA

DR IDA NORMAYA MOHD NASIR,
FACULTY COMPUTER SCIENCE AND MATHEMATICS,
UNIVERSITI TEKNOLOGI MARA (UITM) KEDAH BRANCH, MALAYSIA

DR MOHD FAIZAL JAMALUDIN,
FACULTY OF ACCOUNTANCY,
UNIVERSITI TEKNOLOGI MARA (UITM) KEDAH BRANCH, MALAYSIA

DR. MUHAMAD KHAIRUL ANUAR ZULKEPLI,
ACADEMY OF LANGUAGE STUDIES,
UNIVERSITI TEKNOLOGI MARA (UITM) KEDAH BRANCH, MALAYSIA

DR NOR ARDIYANTI AHMAD,
FACULTY OF ADMINISTRATIVE SCIENCES & POLICY STUDIES,
UNIVERSITI TEKNOLOGI MARA (UITM) KEDAH BRANCH, MALAYSIA

e-ISSN:2682-7840



Copyright © 2026 by the Universiti Teknologi MARA Press

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or any means, electronic, mechanical, photocopying, recording or otherwise, without prior permission, in writing, from the publisher.

© Voice of Academia is jointly published by the Universiti Teknologi MARA Caawangan Kedah, Malaysia and Penerbit UiTM (UiTM Press), Universiti Teknologi MARA Malaysia, Shah Alam, Selangor.

The views, opinions and technical recommendations expressed by the contributors and authors are entirely their own and do not necessarily reflect the views of the editors, the Faculty or the University.

TABLE of CONTENTS

FORECASTING THE MALAYSIAN RINGGIT (MYR) EXCHANGE RATE: ARIMA VS GARCH Rabi'atul Adawiyah Muhamad Shah & Nurul Nisa' Khairol Azmi*	1 - 16
BEHIND THE SCREEN: A SYSTEMATIC REVIEW OF CONTEMPORARY CHALLENGES IN DIGITAL LEARNING Siti Noorsiah Jamaludin ¹ , Abd Samad Hasan Basari ²	17 - 36
INVESTIGATING THE EFFECTIVENESS OF COLLABORATIVE LEARNING STRATEGIES IN MASTERING THE ARABIC LANGUAGE Abd Rahman Jamaan*	37 - 52
IMPLEMENTING CLAY SCULPTING AS AN IDEATION STRATEGY IN TEACHING PRODUCT FORM DESIGN TO FIRST-YEAR INDUSTRIAL DESIGN STUDENTS Mohd Hamidi Adha Mohd Amin ¹	53 - 68
EXPLAINING ENTREPRENEURIAL INTENTION OF MALAYSIAN PUBLIC UNIVERSITY STUDENTS: THE MEDIATION MODERATED MODEL Ahmad Nabil Mohd Zahariman ¹ , Nur Fatin Syazliana Zahar ² , Nurul Hidayana Mohd Noor ^{3*} & Syeliya Md Zaini ⁴	69 - 88
SUPPLIER SELECTION OF HALAL KOREAN RESTAURANT USING FUZZY TOPSIS Norpah Mahat ¹ , Nurul Aqilah Ahmad ²	89 - 102
RAINFALL INTENSITY CLASSIFICATION IN SUBANG Mohamad Aiman Hakim Mohamad Nizam ¹ , Isnewati Ab Malek ^{2*} & Jaida Najihah Jamidin ³	103 - 116
SYNCHRONOUS AND ASYNCHRONOUS CORRECTIVE FEEDBACK FOR GRAMMAR ACCURACY: ESL NOVICE TEACHERS' BELIEFS AND PRACTICES Aiman Zulaikha Mohd Fadzli ¹ , Sheela Faizura Nik Fauzi ^{2*} & Abdul Azim Mahda ³	117 - 130
DIGITAL SPORTS GRAPHICS AND BRAND PERSONALITY IN THE MALAYSIAN SEPAK TAKRAW LEAGUE Muhammad Asyraf Hanafi ¹ , Neesa Ameera Mohamed Salim ^{2*} & Azhar Abd Jamil ³	131 - 142
TOWARDS INCLUSIVE GAMIFIED LITERACY INTERFACES FOR MALAYSIAN STUDENTS WITH DYSLEXIA: INTEGRATING THE DELONE AND MCLEAN INFORMATION SYSTEMS SUCCESS MODEL Safura Adeela Sukiman ^{1*}	143 - 163
UNDERSTANDING RECYCLING BEHAVIOR: A STUDY ON UITM SEGAMAT STUDENTS Nur Diana Zaman ¹ , Fatin Farazh Ya'acob ^{2*} , Basri Badyalina ¹ , Muhammad Zulqarnain Hakim Bin Abd Jalal ¹ , Amir Imran Zainoddin ² & Kerk Lee Chang ¹	164 - 176
DOES FDI BENEFIT ALL? EXAMINING INCOME INEQUALITY ACROSS 10 ASEAN NATIONS Bee-Hoong Tay ^{1*} , Nurulrahwani Hamsan ² , Nurul Dhihani Md Idris ³ & Nurul Hafiizzati M Roslee ⁴	177 - 190
MESOPOTAMIAN ARCHITECTURE AS BACKGROUND DESIGN IN CONTEMPORARY ANIMATED SERIES Nureen Qistina Affandi ¹ , Siti Nur Ain Abd Rahman ^{2*}	191 - 209

TRANSFORMING HRM EDUCATION THROUGH VALUES-BASED PEDAGOGY: THE ADAB+ APPROACH AND CORPORATE RELEVANCE Muhammad Aiman Awalluddin ^{1*} , Anisa Safiah Maznorbalia ² & Mohd Ramlan Mohd Arshad ³	210 - 224
COMPARATIVE ANALYSIS OF PSEUDOCODE AND FLOWCHARTS IN ALGORITHM DEVELOPMENT AMONG FIRST-YEAR COMPUTER SCIENCE STUDENTS Satria Arjuna bin Julaihi ¹ , Zubaidah binti Bohari ^{2*} , Rumaizah binti Che Md Nor ³ & Abdul Hadi bin Abdul Talip ⁴	225 - 239
EXPLORING THE STUDENT PERCEPTION OF ACRONYM-BASED LEARNING APPROACH IN LEARNING ACCOUNTING PRINCIPLES AMONG NON-ACCOUNTING MAJOR STUDENTS Siti Aimi Mohamad Yasin ¹ , Corina Joseph ^{2*} & Nur Izyan Ismail ³ , Nuraisyah Fitrie Abdullah@Abd Jalil ⁴ , Azmira Abdullah ⁵	240 - 258
ZAKAT DISTRIBUTION DECISION BASED ON FUZZY EVALUATION APPROACH Zamali Tarmudi ¹ , Noor Syazana Ngarisan ^{2*} & Muhammad Yassar Yusri ³	259 - 272
LEAN PRACTICES IN CONSTRUCTION: A COMPREHENSIVE LITERATURE REVIEW ON ENHANCING PROJECT PERFORMANCE Syed Nasrul Fadzli Syed Mohamad ^{1*} , Mohd Shahnaz Bin Mahbook Ali ² & Amir Ahzlina Jasni ³	273 - 284

EXPLORING THE STUDENT PERCEPTION OF ACRONYM-BASED LEARNING APPROACH IN LEARNING ACCOUNTING PRINCIPLES AMONG NON- ACCOUNTING MAJOR STUDENTS

**Siti Aimi Mohamad Yasin¹ , Corina Joseph^{2*} & Nur Izyan Ismail³,
Nuraisyah Fitrie Abdullah@Abd Jalil⁴, Azmira Abdullah⁵**

*^{1,2,3,4,5} Faculty of Accountancy, Universiti Teknologi MARA Cawangan Sarawak,
Kampus Samarahan*

ARTICLE INFO

Article history:

Received Aug 2025
Accepted Oct 2025
Published Jan 2026

Keywords:

Acronym-based learning
approach, accounting
principle, double entry
system, mnemonic, non-
accounting students

Corresponding Author:
*corina@uitm.edu.my>

ABSTRACT

Non-accounting students often find it difficult to learn accounting and to see how it applies to their field of study, which causes them to lose interest. Therefore, an acronym-based learning approach has been introduced as an innovative teaching method. This study evaluates students' perceptions of an acronym-based learning approach in enhancing the comprehension of accounting principles among non-accounting majors at a public university in Sarawak, Malaysia, using the Theory of Planned Behaviour. Using a modified questionnaire administered during the March 2024 semester, the results indicate that over 60% of students found the approach engaging, enjoyable, and effective in simplifying the double-entry system. The method improved understanding of key accounting concepts, including terminology, formulas, and account classifications, while also increasing motivation, focus, and ease of application. More than 70% acknowledged the supportive role of lecturers and peers in reinforcing their interest through this approach. Furthermore, 64%–87% of respondents agreed that the approach is most beneficial when integrated into a holistic learning environment featuring detailed tutorials, supplementary materials, interactive teaching, and collaborative learning. The study affirms the potential of acronym-based strategies to democratize accounting education for non-specialist learners. Implications and suggestions for future research are discussed.

©2026 UiTM Kedah. All rights reserved.

1. Introduction

Accounting is a crucial subject not only for accounting students but also for those pursuing programmes outside the field. A basic understanding of accounting can be particularly beneficial for individuals interested in entrepreneurship, as it equips them with the ability to maintain simple financial records and accurately calculate profit (Amir & Shabri, 2022). Such foundational knowledge supports better financial decision-making and enhances overall business management. One of the public universities in Malaysia offers this course as an elective subject to non-accounting students from various faculties, namely business administration, computer science, and human resource management (Joseph et al., 2025). Generally, non-accounting students are unlikely to enroll in this course unless it is required as part of their programme requirements for degree completion (Malgwi et al., 2005). Through this course, students are introduced to basic accounting principles, the preparation of financial statements, and bank reconciliation tasks. Although these topics may appear straightforward for accounting students, they can be challenging for non-accounting students, who often perceive the subject as numerical and uninteresting (Tandiono et al., 2022). As a result, many non-accounting students report finding accounting unengaging (Dangi et al., 2017), which leads to anxiety and a lack of confidence when taking the subject (Hermanson & Maher, 2011).

In Malaysia, most non-accounting students do not take accounting at the Malaysian Certificate of Education level. Therefore, they require more time to understand the course content due to their limited background in the subject. This finding aligns with Muda et al. (2013), who highlighted that prior accounting knowledge contributes to better performance in university-level accounting courses. In addition to basic accounting knowledge, students also require a certain level of mathematical proficiency, as the subject involves numerous calculations (Tandiono et al., 2022). These limitations can negatively affect the learning process. At the same time, non-accounting students often struggle to understand the relevance of studying accounting within their field, potentially leading to a loss of interest. This lack of interest and motivation may further affect their academic success and future professional development (Mohammad Fadzillah et al., 2020).

Academically, these challenges may result in lower performance in the course, affecting their overall grade point average and academic confidence. To address this issue, lecturers must explore innovative strategies to engage students' interest in accounting and make practical concepts more accessible and relevant. Encouraging student involvement and conceptual understanding is imperative for achieving strong learning outcomes, even if the process is time-consuming and requires consistent commitment. Previous studies suggest various teaching and learning methods for accounting, such as Problem-Based Learning (PBL). PBL presents students with situations or problems that they must solve, thereby encouraging critical and analytical thinking (Manaf et al., 2011).

In response to technological advancements, educators have developed new teaching approaches that incorporate digital tools. Dangi et al. (2017) introduced the "learning through play" approach, using games to help students differentiate between revenues and expenses. Survey results indicated that the majority agreed that this game improved their understanding. Another method is the Competition-Based Learning (CBL) strategy. Radzi et al. (2020) applied this strategy by introducing an online quiz for non-accounting students. However, results showed mixed perceptions among participants. While these methods can help students understand accounting concepts, there remains a risk that students may forget the concepts over time or struggle to recall them during final examinations. Hence, it is beneficial to find a method that helps students both understand and remember the concepts. The mnemonic method is recommended as an effective approach for enhancing learning and long-term memory retention (Siagian et al., 2023).

Zhang and Kong (2024) noted that innovation in teaching remains insufficient, highlighting the need for further research into effective teaching methods for non-accounting students. Motivated by this gap, this study investigates non-accounting students' perceptions of the Acronym-Based Learning Approach (ABLA) in learning the Fundamental Financial Accounting subject for beginners, which includes fundamental topics on basic accounting concepts, principles, and double-entry techniques. Based on the authors' observations at University A, a public university in Sarawak, Malaysia, many non-accounting students struggled to understand double-entry techniques, particularly in determining which figures should be debited and which should be credited. To address this concern, the teaching lecturer introduced ABLA as an alternative strategy to strengthen students' understanding and retention of double-entry concepts. Drawing from evidence by Mohd Rodzi et al. (2021), which demonstrated the effectiveness of mnemonic methods in accounting education, this study examines whether ABLA can serve as a viable instructional aid for non-accounting students.

To achieve the study's objectives, a survey was conducted among non-accounting students who had utilized ABLA during their coursework and assessments. Participants were given open-ended questions, and all responses were collected in class. The goal was to determine whether acronyms could aid in the understanding and retention of accounting concepts. Extending the work of Joseph et al. (2025), this study evaluates the effectiveness of an acronym-based learning approach in enhancing the comprehension of accounting principles among non-accounting majors at a public university in Sarawak, Malaysia specifically, whether teaching double-entry accounting using acronyms makes learning more interesting, enjoyable, applicable, and easier to understand for non-accounting students.

Therefore, the purpose of this study is:

- to examine students' perceptions of an acronym-based learning approach in improving the comprehension of accounting principles among non-accounting majors at a public university in Sarawak, Malaysia, using the Theory of Planned Behaviour.

This paper contributes to the existing literature by addressing the gap in the use of ABLA among non-accounting students. While several studies have focused on teaching methods such as game-based learning (Hsbollah & Rosli, 2022; Tandiono et al., 2022; Silva et al., 2021), problem-based learning (Hsu et al., 2016), and competition-based learning (Radzi et al., 2020), it is equally important for students to memorize the material they learn. Therefore, this study emphasizes a memorization method specifically ABLA. The subsequent sections present a review of the literature, methodology, findings and discussion, followed by the conclusion, recommendations for future research, and limitations.

2. Literature Review

The Importance of Innovative Teaching Approaches for Non-Accounting Students

Students without an accounting background often find accounting subjects particularly challenging due to the reliance on numerical data and technical terminology. Numerous studies have explored students' perceptions of accounting, consistently underscoring that many find the subject intimidating, dull, and overly complex (Zhang & Kong, 2024). Similarly, Joseph et al. (2025) found that over 60% of non-accounting students struggle with applying accounting concepts and formulas, perceiving the subject as complex and prone to errors, especially without prior exposure. Gümüş (2024) highlighted that international students often face complications in accounting courses, emphasizing the need for mathematical proficiency and clear language from instructors. In addition, Umar and Olowo (2023) discovered that limited English proficiency affects students' understanding of basic accounting concepts, leading to a reliance on memorization rather than comprehension. Goh and Scerri (2016) noted that hospitality students, despite requiring

accounting knowledge, often perform poorly due to negative attitudes and inadequate numerical skills. Tucker (2017) further pointed out that the complex language used in accounting can be intimidating and suggested that analogies may help demystify the subject matter.

Research also indicates that students' perceptions of accounting can significantly impact their academic performance. Negative perceptions typically lead to poorer performance, whereas positive perceptions at the end of a course tend to enhance outcomes (Ferreira & Santoso, 2008). For non-accounting students specifically, prior academic performance and year of study positively influence results, while surface learning approaches are often associated with weaker performance (Ismail & Kasim, 2011). Students' perceptions shape their learning approaches: positive perceptions promote deep learning, while negative perceptions lead to surface learning (Marzuki et al., 2019). However, factors such as programme structure and assessment methods generally do not significantly influence non-accounting students' perceptions of introductory accounting courses, although some students report challenges related to exam language and question structure (Abu Bakar et al., 2020). These findings suggest that addressing negative perceptions and promoting positive attitudes towards accounting could improve both engagement and academic performance among non-accounting students.

Higher education institutions have implemented innovative teaching strategies to improve the learning environment, particularly in subjects involving accounting. Research suggests that students from other disciplines benefit from interdisciplinary learning approaches that foster engagement and understanding (Zhang & Kong, 2024). In South Africa, educators have adapted teaching methods such as using reflexive praxis to bridge the gap between secondary and tertiary education (Makhathini & Akpa-Inyang, 2024). One strategy increasingly implemented is acronym-based learning which simplifies complex concepts and supports non-accounting students by making the learning process more engaging. Therefore, this study investigates whether learning through acronyms improves numeracy, reduces errors, and increases motivation and focus among students.

Studies on Teaching Approaches for Non-Accounting Students

The challenges are particularly significant for non-accounting students with limited exposure to financial terminology and basic accounting principles (Zhang & Kong, 2024; Joseph et al., 2025). Traditional teaching methods have been shown to be ineffective in engaging non-accounting students (Dangi et al., 2017). Therefore, exploring new teaching strategies is essential to support a more attainable and comprehensive learning process. To address this concern, various strategies have been implemented to facilitate learning for students who are not specifically pursuing accounting degrees. Research suggests that mnemonic techniques can significantly enhance student performance in introductory accounting courses, especially in learning and recalling accounting concepts (Laing, 2010; Mohd Rodzi et al., 2021). When combined with other active learning strategies such as supplemental instruction, collaborative exercises, and blended learning approaches mnemonic techniques can further strengthen student engagement and academic outcomes.

The literature on the use of acronyms in accounting education indicates that acronyms are useful tools for facilitating learning. Laing (2010) reported that mnemonic devices led to a marked improvement in the performance of first-year accounting students. Likewise, Wailoo and John (2013) emphasized that acronyms are essential in teaching business students, including accounting majors, when solving accounting problems. The Memory Aid Kit (MAK) introduced by Syed Abdullah et al. (2019), which combines acronyms with pictorial learning approaches, has been proven effective in helping students memorize and understand abstract accounting theories and principles. By transforming complex terminology into simple, memorable acronyms and graphics,

students are better able to internalize and apply their knowledge. Abd Rahim (2018) also investigated the use of mnemonic tools in learning double-entry accounting, demonstrating their usefulness in helping students understand and remember different groups of accounts.

Problem-Based Learning (PBL) in accounting education has also shown promising results in developing critical thinking, problem-solving, and communication skills among students (Barut et al., 2016). Studies have demonstrated that PBL can lead to improved learning outcomes in accounting courses, particularly for male students and for those who performed well in preliminary exams, showing significant improvement (Hsu et al., 2016). Manaf et al. (2011) explored the use of PBL in teaching a Financial Accounting Principles course and found that PBL students scored significantly better than those learning in traditional lecture-based classes. These students not only performed better academically but also exhibited stronger problem-solving skills. Furthermore, PBL is widely supported in the literature for its effectiveness in promoting deeper learning, as it emphasizes student-driven, inquiry-based learning that requires students to explore real-life financial challenges and develop solutions through team collaboration and independent inquiry.

Mnemonic-Based Learning, Active Learning and Its Effectiveness

Mnemonic-based learning has gained recognition as an effective instructional strategy in accounting education, offering an alternative to traditional rote memorization. Numerous studies have found that mnemonic techniques such as acronyms, keywords, visualization methods, and structured memory aids have a positive effect on retaining and recalling knowledge (Siagian et al., 2023). These techniques help students better organize complex information, making it more accessible during assessments while reducing cognitive load (Mohd Rodzi et al., 2021). In accounting, where many students struggle with technical terminology and the classification of various elements, mnemonic-based learning provides a structured pattern for understanding complex concepts.

Mnemonic strategies have been proven effective across various disciplines. Siagian et al. (2023) reported that long-term memory improved significantly through the use of rhymes, peg-word systems, and acrostics, demonstrating their value as educational tools. Their findings further support the idea that mnemonic-based learning, particularly through acronyms, can enhance students' understanding. This reinforces the notion that using mnemonics helps students better grasp and elaborate on accounting concepts and classifications.

Furthermore, mnemonic-based learning transforms traditional memorization into a more non-linear and interactive approach. Students become active participants in their learning rather than passive receivers of information, strengthening connections between theory and practice. Zhao et al. (2023) emphasized the importance of contextualizing accounting education within real-world scenarios to increase student motivation and engagement. Their findings indicate that students are more likely to remember and apply the material when it is taught through meaningful contexts, reducing the cognitive disconnect that often occurs in abstract learning.

In accounting, mnemonic strategies align with modern teaching philosophies that promote active learning. Formalized mnemonic structures support cognitive processes and improve long-term retention by providing scaffolding that simplifies accounting complexity. These strategies help students develop a clearer understanding and guide them in locating relevant information, enabling them to address accounting challenges with greater confidence and accuracy. Although mnemonics are often given secondary consideration, research suggests that this teaching strategy is well-suited for long-term application and presents a promising opportunity for enhancing accounting education for non-accounting students.

This study is particularly relevant because it integrates mnemonic and active learning approaches to determine whether mnemonic learning can help students retain and classify accounting formulas and financial elements, while also increasing student engagement. It contributes to existing literature by examining acronym-based learning among non-accounting students and assessing its impact on the effectiveness of financial education.

Theory of Planned Behaviour and Mnemonics in Accounting Education

Ajzen's Theory of Planned Behaviour (TPB) is a psychological framework that explains how an individual's intention leads to their behaviour (Figure 1). TPB proposes three key elements that shape a person's intention to perform a behaviour: attitudes toward the behaviour, subjective norms, and perceived behavioural control (Ajzen, 1991). The first element is attitude toward the behaviour arises from a person's beliefs about its potential outcomes. These behavioural beliefs determine whether an individual views the behaviour positively or negatively, and the expected consequences ultimately influence their overall attitude (Ajzen, 2020). Based on TPB, perceived behavioural control refers to an individual's beliefs about the presence of factors that may enable or hinder the performance of a behaviour (Bosnjak et al., 2020). Control beliefs include confidence, skills, opportunities, and resources as factors that make a behaviour easier or more challenging to carry out (Ajzen, 2020).

Subjective norms, according to Ajzen (1991), refer to the perceived social pressures that influence an individual's intention to perform a behaviour. In a university setting, these norms may be shaped by lecturers, peers, and the broader academic environment. Several studies have found that parental influence is a strong predictor of students' intentions to pursue accounting careers (Darmasaputra et al., 2022; Sirejeki et al., 2019). Teachers and academic advisors also play important roles in shaping students' self-efficacy and attitudes toward accounting (Darmasaputra et al., 2022). Understanding these influences can help educators, professional bodies, and policymakers develop strategies to attract more students to accounting programmes (Sirejeki et al., 2019).

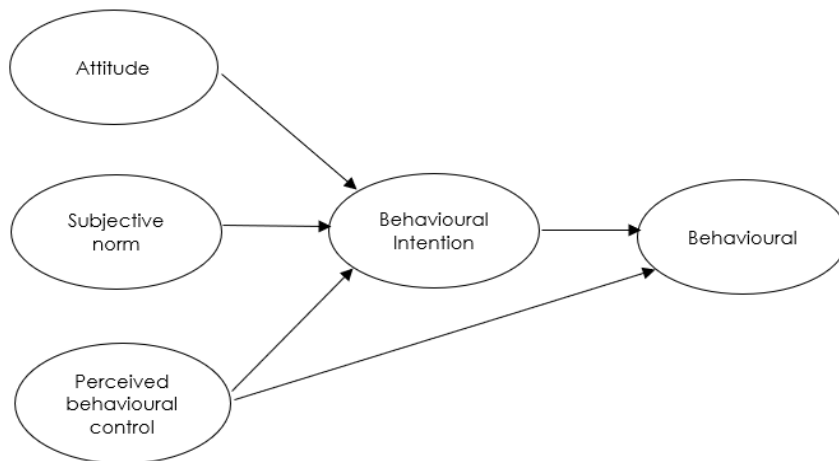


Figure 1. Theory of Planned Behaviour (Ajzen, 1991)

Several research studies highlight the effectiveness of mnemonics in accounting education, demonstrating improved student performance and enhanced understanding of accounting concepts (Mohd Rodzi et al., 2021; Laing, 2010). Joseph et al. (2025) found that students' attitudes

toward learning accounting were closely tied to social influences. Non-accounting majors were more likely to engage with difficult content when encouraged by instructors or motivated by peers. When instructors explicitly promote the use of tools such as mnemonics and when high-performing students model their use, others are more inclined to adopt them as well. However, low subjective norms may correlate with higher academic dishonesty, especially among male students in public universities (Dewanti et al., 2021).

The impact of mnemonic use is further strengthened when learning occurs within a socially supportive environment. Brundage et al. (2023) highlighted that peer collaboration encourages the co-construction of knowledge, leading to deeper understanding. Joseph and Rahmat (2019) similarly found that CBL activities in accounting education fostered peer interaction and increased motivation. These activities are often involving collaborative problem-solving and the sharing of study tools such as mnemonics help normalize effective learning strategies within the classroom. When students participate in group discussions, competitions, or peer teaching, mnemonics become embedded in the social fabric of learning, thereby promoting both their use and long-term retention.

3. Methodology

This study was conducted among non-accounting major students enrolled in an introductory accounting course across multiple diploma programmes at University X, a public higher education institution in Sarawak, Malaysia. The programmes involved included the Diploma in Public Administration, Diploma in Office Management and Technology, Diploma in Computer Science, and Diploma in Tourism Management. Each of these academic pathways incorporates the introductory accounting course as a core component of its curriculum, with a standardised syllabus applied across all programmes. A total of four programmes offering the course during the semester formed the sampling frame. All students enrolled in these sections ($n = 156$) were invited to participate using a census sampling approach, as the number of students was manageable and aligned with the study's intention to capture the entire population for that semester. Of the 156 students invited, 125 students completed the survey, yielding a valid response rate of 80% included in the final analysis.

Data were collected using a structured questionnaire comprising five sections: (i) Section A – demographic information of respondents; (ii) Section B – students' attitudes toward learning double-entry using the acronym-based learning approach; (iii) Section C – perceived difficulties faced in learning double-entry using the acronym-based learning approach; (iv) Section D – subjective norms influencing learning double-entry using the acronym-based learning approach; and (v) Section E – perceived strategies for improving accounting learning.

Responses were captured using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Items were adapted from Joseph et al. (2025), who developed a scale to assess students' confidence and behavioural factors in accounting learning. For this study, the items were contextualised and simplified to suit non-accounting diploma students. Adaptation involved modifying technical terminology, aligning item descriptions with the introductory accounting syllabus, and rephrasing statements to ensure clarity and relevance for beginners.

To ensure content appropriateness, the adapted items underwent content validation through expert judgment. Two accounting lecturers and one educational methodology specialist independently reviewed each item for clarity, relevance, and alignment with the study's constructs. Minor wording adjustments were made based on their suggestions to enhance readability and reduce ambiguity. No pilot testing was conducted; instead, expert review served as the primary method for establishing content validity.

Descriptive frequency analysis was employed to address the research objective, aiming to provide an overview of students' learning confidence and perceptions in an introductory accounting course. Accordingly, the analysis focuses on descriptive statistics (means, frequencies, and standard deviations), which are appropriate for summarising overall patterns in the data. As the purpose of the study did not involve hypothesis testing or group comparisons, inferential statistics were not required. The use of descriptive analysis is consistent with prior exploratory educational research, where the emphasis is on understanding baseline trends rather than establishing causal relationships or group-level differences.

4. Results and Discussions

Demographic Profile

Table 1 presents the demographic profile of non-accounting students enrolled in the accounting course. The largest group is from the Diploma in Public Administration, with 57 students representing 45.6% of the total. This is followed by students from the Diploma in Office Management and Technology (21.6%), the Diploma in Tourism Management (17.6%), and the Diploma in Computer Science (15.2%). There are more female students than male students, with women comprising 81.6% of the sample, while men account for 18.4%.

Most students belong to two main ethnic groups. Malay students form the majority at 56%, while Bumiputera Sarawak students make up the remaining 44%, indicating a relatively balanced ethnic representation. In terms of educational background, most students (88%) had completed Sijil Pelajaran Malaysia (SPM), while a smaller proportion (12%) held a Pre-Diploma qualification. This suggests that the majority followed the standard secondary education pathway before entering their respective diploma programmes. Students also came from families with varying financial backgrounds. The largest proportion (39.2%) reported a monthly household income between RM2,000 and RM5,000. Another 31.2% came from families earning below RM2,000. Meanwhile, 20.8% of students came from households earning between RM5,001 and RM10,000, and a smaller number reported higher-income backgrounds.

Table 1
Demographic Profile

Profile	Item	Frequency	Percentage (%)
Program Name	Diploma in Public Administration	57	45.60
	Diploma in Office Management and Technology	27	21.6
	Diploma In Computer Science	19	15.2
	Diploma in Tourism Management	22	17.6
Gender	Male	23	18.4
	Female	102	81.6
Ethnicity	Malay	70	56
	Bumiputera Sarawak	55	44
Previous Education	Sijil Pelajaran Malaysia (SPM)	110	88
	Pre-Diploma	15	12
Parents Income Per Month	Less than RM2,000	39	31.2
	RM2,000 - RM5,000	49	39.2
	RM5,001 - RM10,000	26	20.8
	RM10,001 - RM15,000	9	7.2
	RM15,001 - RM20,000	2	1.6

Reliability Analysis

Table 2 summarizes the reliability analysis of the four elements examined in this study. Cronbach's alpha is a measure of internal consistency that assesses how closely related a set of items is as a group (Chua, 2006). As shown in Table 2, all four elements in the study demonstrate acceptable to excellent internal consistency, with Cronbach's alpha values ranging from 0.850 to 0.952. This indicates that the measurement scales used to assess students' attitudes, perceptions, subjective norms, and proposed strategies for improvement are reliable and consistent.

Table 2
Reliability Analysis

Element	Cronbach's Alpha	No of Item
Students' Attitude using the Acronym-Based Learning Approach	.952	8
Subjective Norms Influencing Learning Double entry using the Acronym-Based Learning Approach	.850	6
Students' Perceived Behavioural Control in Learning Double Entry using the ABLA	.922	8
Ways for Improvement in using the Acronym-Based Learning Approach	.922	8

Students' Attitude in Learning Double Entry using the ABLA

Table 3 displays descriptive analysis of the non-accounting students' attitudes in learning double entry using the ABLA.

Table 3
Descriptive Analysis of Students' Attitude in Learning Double Entry using the ABLA.

No.	Items	Scale (%)				
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	The double entry is interesting to learn using the acronym-based learning approach.	0.00	1.60	23.20	54.40	20.80
2.	The double entry is fun to learn using the acronym-based learning approach.	0.00	2.40	23.20	51.20	23.20
3.	The double entry is highly relevant to learn using the acronym-based learning approach.	0.00	2.40	24.00	48.80	24.80
4.	The double entry is enjoyable to learn using the acronym-based learning approach.	0.80	2.40	26.40	47.20	23.20
5.	The double entry is stimulating to learn using the acronym-based learning approach.	0.00	1.60	29.60	46.40	22.40
6.	The double entry is not hard to learn using the acronym-based learning approach.	0.80	4.00	29.60	40.00	25.60

7.	The double entry is not confusing using the acronym-based learning approach.	0.00	8.80	28.00	42.40	20.80
8.	I can understand better if I can understand and cope with the concepts using the acronym-based learning approach.	0.00	2.40	21.60	48.80	27.20

Based on Table 3, across all attitude elements, 63% to 76% of students indicated strong and consistent positive involvement toward the ABLA. The majority agreed that the method made double-entry concepts more understandable, enjoyable, interesting, fun, and relevant. These positive discoveries show that ABLA improves emotional engagement, a key determinant of behavioural attitude in Ajzen's Theory of Planned Behaviour (TPB). According to TPB, positive attitudes directly strengthen students' intention to engage in a behaviour, in this case participation in double-entry learning. The interest displayed by students indicates that mnemonic-based learning increases their willingness to engage with and persist in accounting tasks. These positive attitudes also align with previous mnemonic-based studies, which show that acronyms help transform complex concepts into meaningful and memorable forms (Syed Abdullah et al., 2019; Abd Rahim, 2018). Students' agreement that ABLA enhanced their comprehension suggests that the approach acts as an incentive that makes accounting less intimidating.

Despite the generally high engagement levels, around 25% of students indicated neutral or disagreeing views on learning double-entry using ABLA. These mixed responses suggest that although ABLA enhances emotional engagement, it may not entirely overcome students' existing anxieties toward accounting. This reflects the idea that while mnemonics improve attention and memory (Siagian et al., 2023), they may not be sufficient to fully shift learners' attitudes toward numerically intensive subjects.

Subjective Norms Influencing Learning Double Entry using the ABLA

This section presents the subjective norms that influence non-accounting students' interest in learning accounting principles using the ABLA. This is important because the social environment and peer influence can significantly affect students' learning engagement, particularly for those without an accounting background.

Table 5
Descriptive Analysis of Subjective Norms Influencing Accounting Studies using the ABLA

No.	Items	Scale (%)				
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	Classmates influence my interest in double-entry using the acronym-based learning approach.	0	6.4	22.4	55.2	16
2.	The lecturer influences my interest in double-entry using the acronym-based learning approach.	0	1.6	12	48.8	37.6
3.	The family members influence my interest in double-entry using the	9.6	14.4	41.6	28.8	5.6

	acronym-based approach.	learning				
4.	The industry representative influences my interest in double-entry using the acronym-based learning approach.	5.6	10.4	39.2	38.4	6.4
5.	My past teachers influence my interest in double-entry using the acronym-based learning approach.	11.2	15.2	36.8	28	8.8
6.	My seniors influence my interest in double-entry using the acronym-based learning approach.	10.4	12	39.2	30.4	8

In this study, subjective norms were shaped primarily by lecturers and classmates. This indicates that students feel more motivated and engaged when the influence comes from individuals who are directly involved in the same learning environment. More than 80% of students agreed that lecturers strongly influenced their willingness and interest to use ABLA during the accounting learning process. This supports Ajzen's theory, which suggests that social pressure can increase individuals' motivation to engage in a particular behaviour (Ajzen, 1991). Lecturers emerged as the most influential group in shaping students' attitudes toward technical subjects such as accounting (Joseph et al., 2025). As role models in promoting and implementing ABLA, lecturers play a significant role in guiding students' attitudes and supporting comprehension when using acronym-based methods, particularly for complex topics such as double entry.

When accounting content is delivered using acronym techniques, students tend to feel more confident, improve long-term memory retention, and demonstrate greater engagement (Siagian et al., 2023). For non-accounting students, who may struggle with technical accounting terms, using acronyms such as IDEA ICROL (Increase: Debit Expenses, Assets; Increase: Credit Revenue, Owner's Equity, Liability) helps simplify double-entry rules and reduces fear or confusion. This aligns with findings by Mohd Rodzi et al. (2021), who reported that students showed better understanding of accounting theories when mnemonic methods including acronyms were employed.

Classmates also emerged as a positive influence on the use of ABLA, with more than 70% of students agreeing that the approach was beneficial to their learning. Peer influence enhances engagement by creating a collaborative and supportive learning environment that encourages the adoption of new strategies and helps students address complex problems more effectively (Brundage et al., 2023). In contrast, influences from family, industry representatives, or past teachers were weak or neutral, suggesting that the application of ABLA is driven mainly by the classroom environment. The minimal influence from external parties shows that ABLA is closely connected to interactions within the learning setting rather than influences outside the academic context.

Students' Perceived Behavioural Control in Learning Double Entry using the ABLA

This section discloses a descriptive analysis of non-accounting students' perception on the ease or difficulties they experienced in learning double entry when using ABLA.

Table 4

Descriptive Analysis of Students' Perceived Behavioural Control in Using the ABLA

No.	Items	Scale (%)				
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	The terminology and jargon in double entry are easy using the acronym-based learning approach.	0.00	4.80	34.40	49.60	11.20
2.	Several formulas and calculations in double-entry are easy to remember using the acronym-based learning approach.	0.00	4.80	29.60	49.60	16.00
3.	There are less challenges in applying concepts, calculations, and formulas using the acronym-based learning approach.	0.80	5.60	32.00	52.80	8.80
4.	It is not prone to making mistakes in the accounting course using the acronym-based learning approach.	0.00	9.60	36.00	46.40	8.00
5.	I have better numeracy skills using the acronym-based learning approach.	0.00	5.60	38.40	44.80	11.20
6.	I have better motivation and focus using the acronym-based learning approach.	0.00	2.40	28.80	48.00	20.80
7.	I can decide whether to debit or credit an account using the acronym-based learning approach.	0.00	2.40	25.60	41.60	30.40
8.	I can understand the classification of accounts (Asset, Liability, Revenue etc.) using the acronym-based learning approach.	0.00	2.40	22.40	42.40	32.80

More than 60% of the students reported a lower perceived cognitive load when learning double-entry accounting using ABLA, particularly in understanding terminologies, remembering formulas, and determining whether entries should be debited or credited (Table 4). This suggests that acronyms function as cognitive guidance tools, reducing the mental effort required to process complex transactions. Students also perceived fewer difficulties when applying accounting concepts and indicated that they made fewer mistakes when completing double-entry tasks using ABLA. These findings align with existing studies that highlight the usefulness of mnemonic strategies in improving memory retention and understanding of accounting concepts. For example, Mohd Rodzi et al. (2021) found that students who participated in acronym-based learning scored higher in assessments of conceptual accounting knowledge. Students in this study also expressed better focus and motivation, suggesting that simplifying complicated content may actually encourage stronger engagement in learning activities. Overall, these results indicate that ABLA helps students grasp and recall accounting techniques more efficiently while reducing the cognitive pressure typically associated with introductory accounting learning.

Conversely, around 40% of the students were uncertain about whether ABLA reduced mistakes or improved numeracy skills. Many responses were neutral regarding the method's role in error reduction and mathematical accuracy. This pattern suggests that although ABLA facilitates classification, memorisation, and understanding of accounting concepts, it may be perceived as less effective in directly influencing numerical accuracy or reducing computational errors. These findings are consistent with the notion that mnemonic strategies are particularly useful for memorisation but are most effective when combined with other teaching methods that address the diverse capabilities of students (Padernal, 2023; Akinsola & Odeyemi, 2014). From a TPB perspective, this theme relates to perceived behavioural control: learners may feel more capable and confident in understanding double-entry concepts but not necessarily more proficient in performing calculations. Therefore, although ABLA offers meaningful benefits, it is not sufficient on its own and should be supplemented with additional instructional strategies.

Improvement Strategies complementing ABLA

This section highlights the students' perceptions of various strategies that could complement the usefulness of ABLA in understanding double-entry accounting.

Table 6

Descriptive Analysis of Improvement Strategies complementing ABLA

No.	Items	Strongly Disagree	Scale (%)			
			Disagree	Neutral	Agree	Strongly Agree
1.	The use of detailed working solutions to tutorial activities	0	1.6	20.8	48	29.6
2.	Additional learning support material	0	1.6	16.8	46.4	35.2
3.	Online discussion forums	0.8	5.6	29.6	48	16
4.	Interesting videos to explain accounting concepts	0	2.4	16	48.8	32.8
5.	Working with classmates during independent study time	0	0.8	15.2	47.2	36.8
6.	Practicing revision questions independently	0	1.6	14.4	48	36
7.	Correct revision questions	0	1.6	12	48.8	37.6
8.	Lecturers consider more creativity and innovative ways in their teaching approach	0	1.6	17.6	41.6	39.2

Based on the descriptive analysis in Table 6, non-accounting students perceived ABLA as more useful when it is integrated within a broader learning system. This is evidenced by 64% to 87% of students expressing strong preference for detailed worked solutions, supplementary learning materials, engaging instructional videos, interaction with classmates, creative and innovative teaching methods, and opportunities for repeated practice. These elements complement ABLA by providing external support that strengthens perceived behavioural control (Ajzen, 1991). The findings suggest that while ABLA provides a useful anchor for memorisation, students still require guided explanations and structured practice to develop deeper understanding.

Although ABLA can serve as an useful cognitive tool for simplifying and memorising complex accounting concepts, students continue to rely on structured guidance from lecturers to reinforce conceptual clarity. The use of well-structured questions and illustrative examples helps students associate theoretical knowledge with practical application, supporting long-term memory retention (Dunlosky et al., 2013). Collaborative learning with classmates also enhances comprehension by enabling peer explanation and shared problem-solving.

Creativity and innovation in teaching such as video-based learning, gamification, and competition which further contributed to student engagement and enjoyment, particularly for challenging topics like the double-entry principle. Incorporating acronyms into these approaches made learning more fun and easier to visualise (Dangi et al., 2023). However, online discussion forums were perceived as less beneficial, with only 64% of students agreeing on their usefulness. This implies that students preferred direct interaction with lecturers and peers for clearer, immediate explanations. Additionally, some students lacked confidence in using online platforms due to poor internet connectivity or discomfort expressing their thoughts in English or public settings.

Face-to-face social interaction remains effective in the learning process, as it allows for immediate feedback, encourages active participation, fosters critical thinking, and builds a sense of community among learners, all of which contribute to greater motivation and academic success (Tripathy & Pradhan, 2024). Overall, these findings indicate that ABLA is most beneficial when integrated with other teaching approaches that reduce cognitive load, provide step-by-step guidance, and maintain engagement through collaborative and visually supported learning experiences.

Conceptual Model of Students' Perception of ABLA in Learning Double Entry Principle

This conceptual model (Figure 2) developed from this study aligns with Ajzen's Theory of Planned Behaviour (Ajzen, 1991), which suggests that a person's behaviour is influenced by three determinants: attitude, subjective norms, and perceived behavioural control. In this study, students demonstrated positive attitudes toward ABLA, describing it as interesting, enjoyable, and helpful for understanding double-entry principles. These favourable attitudes contribute to a positive perception of using ABLA in learning accounting concepts and techniques.

Next, lecturers and classmates represent the subjective norms component, as they serve as significant drivers encouraging students to apply ABLA. This indicates that students' perceptions of ABLA are formed primarily within the educational environment. When lecturers consistently expose students to ABLA and peers engage positively with the approach, students are more likely to develop positive perceptions of ABLA because they receive reinforcement from a supportive learning community.

In this study, perceived cognitive load functions as a parallel to perceived behavioural control under Ajzen's theory. Students felt that ABLA reduced confusion and made terminology and debit-credit rules easier to manage, thereby increasing their perceived capability in handling accounting concepts.

Lastly, improvement strategies are not a direct component of Ajzen's theory. However, the model illustrates that they play a complementary role by strengthening all three determinants, making ABLA more beneficial when embedded within a holistic learning environment. Strategies such as worked examples, engaging videos, practice questions, and collaborative learning enhance students' interest (supporting attitude), encourage peer interaction (supporting subjective norms), and provide clearer guidance that improves confidence (enhancing perceived behavioural control).

In conclusion, this model reflects Ajzen's perspective by demonstrating that a combination of positive attitudes, supportive social norms, and strengthened perceived behavioural control contributes to students' acceptance and effective use of ABLA.

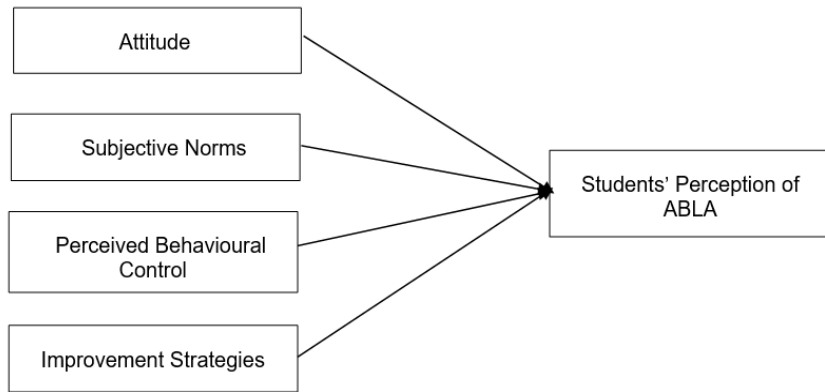


Figure 2 Model of Students' Perception of ABLA in Learning Double Entry Principle

5. Conclusion

This paper highlights students' perceptions of the Acronym-Based Learning Approach (ABLA) as a teaching strategy for non-accounting students learning accounting principles. The findings reveal that more than 60% of respondents expressed a positive attitude, agreeing that learning double entry using ABLA is interesting, fun, enjoyable, and stimulating. With regard to subjective norms, more than 70% of non-accounting students acknowledged that lecturers and classmates influenced their interest in learning accounting principles through ABLA.

Additionally, students believed that the approach reduced the difficulty and confusion associated with the topic by helping them better grasp and cope with the concepts. More than 60% of respondents agreed that ABLA simplified double-entry learning by making terminology and formulas easier to understand and remember, indicating a favourable perception of the method. ABLA also reduced challenges in applying concepts, enhanced motivation and focus, and improved students' ability to classify accounts and determine appropriate debit or credit entries.

To improve their learning experience, more than 60% of students indicated that detailed tutorial solutions, additional learning materials, engaging videos, peer interaction, creative teaching strategies, practice opportunities, and corrective revision contributed to clearer understanding and improved learning outcomes.

The implications of this study suggest that ABLA is an effective strategy for improving understanding, retention, and interest in double-entry principles among non-accounting students. Educators are therefore encouraged to incorporate ABLA to support the teaching of core accounting concepts and increase student engagement in class. The strong influence of lecturers also indicates that such strategies are most effective when guided through direct classroom instruction. ABLA supports diverse learning styles and may help bridge the gap between technical accounting content and students' ability to apply it effectively in assessments and real-life contexts.

Future research is encouraged to investigate the long-term impact of ABLA by examining students' academic performance and knowledge retention over multiple semesters or academic years. Comparative studies across different institutions, academic programmes, or learning environments (e.g., face-to-face versus online learning) would also help determine the broader applicability of the method. Additionally, future studies could explore the integration of acronym-based learning with other active learning strategies, such as gamification or problem-based learning, to evaluate their combined effects on student engagement and academic achievement.

Acknowledgments

We thank the anonymous reviewers for their useful suggestions.

Funding Details

This work was not supported by any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Authors Contributions

All authors contributed equally to this publication.

Conflict of Interest

There is no conflict of interest associated with this publication.

References

- Abd Rahim, M. (2018). Another way of learning double entry in accounting: The mnemonic approach. *Accounting Bulletin*, 13–18.
- Abu Bakar, M. A. A., Amirul, S. M., Ripain, N., Ab Fatah, N. S., & Bosi, M. K. (2020). A preliminary analysis of non-accounting students perception towards introductory accounting course among private institution in Sabah. *Malaysian Journal of Business and Economics (MJBE)*, (2), 1 - 11.
- Akinsola, M. K., & Odeyemi, E. O. (2014). Effects of mnemonic and prior knowledge instructional strategies on students achievements in mathematics. *International Journal of Education and Research*, 2(7), 675 - 688.
- Amir, A. S. A. B., & Shabri, S. M. (2022). Accounting for non-accounting students: Determinants and academic performance. *Jurnal Akuntansi dan Bisnis: Jurnal Program Studi Akuntansi*, 8(2), 104 - 113.
- Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human behavior and emerging technologies*, 2(4), 314-324.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179 - 211.
- Barut, M., Soares, M. A., Araujo, A. M., & Kanet, J. J. (2016). Problem-based learning in accounting: An empirical study. *IOSR Journal of Research & Method in Education*, 6(6), 50 - 58.
- Bosnjak, M., Ajzen, I., & Schmidt, P. (2020). The theory of planned behavior: Selected recent advances and applications. *Europe's journal of psychology*, 16(3), 352.

- Brundage, M. J., Malespina, A., & Singh, C. (2023). Peer interaction facilitates co-construction of knowledge in quantum mechanics. *Physical Review Physics Education Research*, 19(2), 1 - 15.
- Chua, Y. P. (2006). *Methods and statistics research: Book 1 research methods*. Kuala Lumpur: McGraw Hill.
- Dangi, M. R. M., Adnan, M. F., & Rashid, M. Z. A. (2017). An innovation in teaching and learning of accounting concept using AccRoBa® game approach. *Jurnal Pendidikan Malaysia* 42(1), 21 - 32.
- Dangi, M. R. M., Saat, M. M., & Saad, S. (2023). Teaching and learning using 21st century educational technology in accounting education: Evidence and conceptualisation of usage behaviour. *Australasian Journal of Educational Technology*, 39(1), 19 - 38.
- Darmasaputra, A., Hatane, S. E., Lieantono, M. E. C., Sonbay, S. S., & Putra, Y. T. E. (2023). The impact of attitudes, self-efficacy, and subjective norms toward z-generation's intention to choose the accounting major. *International Journal of Financial and Investment Studies (IJFIS)*, 3(2), 119 - 130.
- Dewanti, P. W., Purnama, I. A., & Parthasarathy, K. (2021). Subjective norms and academic dishonesty: A decision tree algorithm analysis. *JOIV: International Journal on Informatics Visualization*, 5(1), 46-50.
- Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest*, 14(1), 4 - 58.
- Ferreira, A., & Santoso, A.G. (2008). Do students perceptions matter? A study of the effect of students perceptions on academic performance labor. *Accounting & Finance*, 48(2), 209 - 231.
- Goh, E., & Scerri, M. A. (2016). "I study accounting because I have to": An exploratory study of hospitality students' attitudes toward accounting education. *Journal of Hospitality & Tourism Education*, 28(2), 85 - 94.
- Gümüş, A. (2024). Problems encountered by international students in Turkey in accounting education and solution suggestions: A qualitative study. *Cumhuriyet Üniversitesi İktisadi Ve İdari Bilimler Dergisi*, 26(1), 143 - 155.
- Hermanson, E. & Maher. (2011). *Accounting principles: A business perspective, financial accounting (chapters 1 – 8)*. New York: A Textbook Equity Open College Textbook.
- Hsbollah, H. M., & Rosli, K. (2022). Creating meaningful learning and improving students' knowledge using game-based learning in higher education. *World Journal of English Language*, 12(2), 257 - 257.
- Hsu, C., Yen, S., & Lai, W. (2016). The effect of problem-based learning on learning outcomes of accounting students. *Asian Journal of Finance and Accounting*, 8(2), 135 - 154.

- Ismail, S., & Kasim, N. M. (2011). Accounting for non-accounting students: What affects their performance? *Journal of Technical education and training*, 3(2). 19-31.
- Joseph, C., Yasin, S. A. M., Ismail, N. I., Ahmad, A., & Zulkfli, N. (2025). Exploring attitude, difficulty and subjective norms of non-major undergraduates in learning accounting principles: Ways forward. *International Journal of Research and Innovation in Social Science*, 9(2), 2119 - 2135.
- Joseph, C., & Rahmat, M. (2019). Factors influencing the effectiveness of the competition-based learning (CBL) activity among accounting undergraduates. *International Business Education Journal*, 12(1), 1 – 14.
- Laing, G. (2010). An empirical test of mnemonic devices to improve learning Elementary Accounting. *Journal of Education for Business*, 85(6), 349-358.
- Makhathini, L., & Akpa-Inyang, F. F. (2024). Enhancing pedagogy and learning outcomes in financial accounting: A case study of higher education institutions in South Africa. *Journal of Culture and Values in Education*, 7(4), 305 - 323.
- Malgwi, C. A., Howe, M. A., & Burnaby, P. A. (2005). Influences on students' choice of college major. *Journal of Education for Business*, 80(5), 275 - 282.
- Manaf, N. A. A., Ishak, Z., & Hussin, W. N. W. (2011). Application of problem-based learning (pbl) in a course on financial accounting principles. *Malaysian Journal of Learning and Instruction*, 8, 21 - 47.
- Marzuki, M. M., Majid, W. Z., Salwani, R., Zawawi, M. Z., & Bakar, H.A. (2019). Students' perceptions and learning approaches in accounting subject: The role of mobile apps technology. *Management & Accounting Review (MAR)*, 18(3), 1 - 30.
- Mohammad Fadzillah, N. S., Jamaluddin, J., Ahmad, M. A. N., Mohd Din, N., & Abdul Jabar, F. (2020). Factors affecting student performance in accounting subject: A case of pre-diploma students. *Gading Journal for Social Sciences*, 23(1), 60 - 64.
- Mohd Rodzi, N. K., Abdul Rahman, N., Naiimi, N., Ayob, S., & Selamat, S. (2021). Mnemonics: An alternative memory enhancement technique in teaching accounting theories. *Jurnal Intelek*, 16(1), 83 - 90
- Muda, S., Hussin, A. H., Johari, H., Sapari, J. M., & Jamil, N. (2013). The key contributing factors of non-accounting students' failure in the introduction to financial accounting course. *Procedia-Social and Behavioral Sciences*, 90 (2013), 712 - 719.
- Radzi, A. I. N., Drahman, D. N. A., Joseph, C., Rahmat, M., & Suria, K. (2020). Competition-based learning strategy of the online Introductory Accounting quiz for non-accounting majors. *International Business Education Journal*, 13(1), 83 - 94.
- Padernal, R. (2023). Effect of mnemonic-aided instruction on academic performance of maritime students in calculus. *Pure and Applied Mathematics Journal*, 12(1), 16-22.

- Siagian, D. T., Maida, N., Irianto, D. M., & Sukardi, R. R. (2023). The effectiveness of mnemonic device techniques in improving long-term memory in learning in elementary schools: A literature review. *Equator Science Journal*, 1(1), 24 - 30.
- Silva, R., Rodrigues, R. G., & Leal, C. (2021). Games based learning in accounting education – which dimensions are the most relevant? *Accounting Education*, 30(2), 159 - 187.
- Srirejeki, K., Supeno, S., & Faturokhman, A. (2019). Understanding the intentions of accounting students to pursue career as a professional accountant. *S Binus Business Review*, 10(1), 11 - 19.
- Syed Abdullah, S. L., Mohd Rodzi, N. K., Shaffee, N. S., Arus, J., Abd Rahim, M., & Abdul Rahman, N. (2019). A qualitative study on memory aid kit (mak) in enhancing students' comprehension of accounting theories. *Proceedings of the Second International Conference on the Future of ASEAN (ICoFA) 2017-1*, 419 - 426.
- Tandiono, R., Tohang, V., & Hutagaol-Martowidjojo, Y. (2022). Non-accounting students' perceptions on the usefulness of gamification in supporting cognitive development. *Jurnal ASET (Akuntansi Riset)*, 14(2), 377 – 390.
- Tripathy A. B., & Pradhan, N. (2024). Impact of social interaction and group dynamics on student's learning – An analysis. *International Journal of Research in all Subjects in Multi Languages*, 12(8), 15 - 20.
- Tucker, B.P. (2017). Figuratively speaking: Analogies in the accounting classroom. *Accounting Education*, 26(2), 166 - 190.
- Umar, M. A., & Olowo, R. (2023). Issues in teaching and learning accounting among students who use English as a second language. *Accounting Education*, 33(4), 473 - 496.
- Wailoo, B., & John, S. (2013). Educating the next generation of business students, *American Journal of Business Education*, 6(3), 321 - 332.
- Zhang, H., & Kong, L. (2024). Exploration on teaching reform of non-accounting major "Accounting" under the background of new liberal arts. *SHS Web of Conferences*, 187(02027), 1 -5.
- Zhao, X., Zhang, B., & Wei, L. (2023). Research on ideological and political construction of basic accounting course for non-accounting majors. *International Journal of Learning and Teaching*, 9(1), 42 – 48.



الجامعة الإسلامية
UNIVERSITI
TEKNOLOGI
MARA



eISSN: : 2682-7840