

The Relationship Between Behaviour and Academic Achievement among Students with Special Needs: A PRISMA-Based Scoping Review.

Mary Jane Lambert Tangkim¹, Khairul Farhah Khairuddin², Hasnah Toran³

¹ Faculty of Education, Universiti Kebangsaan Malaysia, Bangi, Malaysia

Email: maryjaneltangkim@gmail.com

² Doctor of Philosophy, Universiti Kebangsaan Malaysia, Bangi, Malaysia

Email: kfk@ukm.edu.my

³ Doctor of Philosophy, Universiti Kebangsaan Malaysia, Bangi, Malaysia

Email: hasnahto@ukm.edu.my

Corresponding Author:

Mary Jane Lambert Tangkim

Email: maryjaneltangkim@gmail.com

Abstract

This study examined the relationship between behaviour and academic achievement among students with special educational needs through a PRISMA-Based scoping review. Fifteen empirical articles published between 2021 and 2025 were analysed using thematic synthesis. Findings revealed that inattention was the most consistent predictor of poor academic achievement, followed by challenging behaviour and off-task behaviour. These behaviours negatively affected classroom engagement, focus, and effective learning time. Cognitive factors such as working memory and information processing speed also mediated the relationship between behavior and academic achievement. The review further identified that systematic behavioural interventions improved student engagement and academic performance. Malaysian studies were found to focus primarily on behavioural management rather than direct academic measurement, indicating a significant local research gap. The findings highlight the importance of integrating behavioural management, cognitive support, and academic assessment within special education.

Keywords: Behaviour, academic achievement, special educational needs, scoping review, PRISMA

INTRODUCTION

Special education represents an important domain within the global education system, particularly in ensuring access to quality education for students with special educational needs (SEN). As the field of education continues to develop, research has increasingly focused on the relationship between students' behaviour and academic achievement.

Behaviours such as inattention, hyperactivity, impulsivity, and challenging behaviour, and self-management difficulties are frequently reported as factors influencing the effectiveness of teaching and learning in the classroom (Flores et al., 2022; Condo et al., 2023). Among students with special educational needs, including those with Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (aSD), Specific Learning Disabilities (ID), unique behavioural patterns are closely associated with their learning challenges.

Studies conducted globally have shown that certain behaviours, particularly inattention and off-task behaviour, are major contributors to poor academic achievement (Hulsbosch et al., 2025; Kent et al., 2023). In addition, students who exhibit challenging behaviours such as aggression or non-compliance often experience difficulties maintaining focus and achieving optimal academic outcomes (Flores et al., 2022). In the context of students with ASD and ASD-ID, limitations in language, social, and cognitive functioning place them at a higher risk of experiencing academic deficits (Di Blasi et al., 2023).

Within the Malaysian context, local studies tend to focus more on classroom behaviour management by teachers and intervention strategies aimed at improving students' classroom engagement. However, most studies conducted in Malaysia do not directly measure the relationship between behaviour and academic achievement. Instead, these studies primarily emphasise improvements in teaching and learning engagement, particularly students' participation during classroom activities, as indicators of learning outcomes (Lee & Wong, 2023).

Consequently, a research gap exists within the Malaysian literature regarding the empirical measurement of the effects of behaviour on academic outcomes. Therefore, this study was conducted to synthesise existing evidence from both global and local literature concerning the relationship between behaviour and academic achievement.

2. Problem Statement



The relationship between behaviour and academic achievement among students with special educational needs (SEN) remains an underexplored topic within the Malaysian context. Research findings indicate that the strength of this relationship varies according to the type of behaviour and the type of disability. Global studies have shown that behavioural issues contribute to poor academic achievement (Flores et al., 2022), while challenging behaviour has negative implications for academic focus.

However, findings within the Malaysian context remain largely limited to behaviour management and student engagement without directly measuring academic achievement. This limitation has resulted in a lack of comprehensive understanding regarding how behaviour empirically influences the learning outcomes of students in special education. Therefore, this study is important in synthesising both global and local research findings to establish a stronger knowledge base to identify research gaps that require further attention in further studies.

3. Research Questions

This study addresses the following research questions:

What types of behaviours are most frequently studied within the context of special education?

What variables and academic domains are used in the studies?

How does behaviour influence the academic achievement of students with special educational needs (SEN)?

What are the similarities and differences between global and Malaysian research findings?

What research gaps exist regarding behaviour and academic achievement among students with special educational needs?

4. Methodology

4.1 Research Design

This study employed a PRISMA-based scoping review design to examine empirical evidence regarding the relationship between behaviour and academic achievement. A scoping review approach was selected due to its flexible nature, which allows for a broad exploration of behavioural variables and academic outcomes without being restricted to a specific research design.

4.2 Search Sources

The literature search process for this scoping review utilised multiple database sources to ensure comprehensive and relevant literature coverage, international searches were conducted through databases such as Scopus, Web of Science (WoS), ScienceDirect, and SpringerLink, as these databases contain peer-reviewed articles with extensive coverage in the fields of psychology, special education, and child development. In addition, Google Scholar was used as a supplementary search source to identify additional articles that may not have been directly indexed in the primary databases.

Within the Malaysian context, searches were conducted through MyCite, MyJurnal, and local university journals such as those from Universiti Kebangsaan Malaysia (UKM), Universiti Malaya (UM), Universiti Putra Malaysia (UPM), and Universiti Pendidikan Sultan Idris (UPSI) to ensure that relevant local studies were included. The search process also involved the use of snowballing techniques, whereby references cited in selected studies were further reviewed and considered. This approach enabled the inclusion of both database search results and articles previously identified or possessed by the researchers in the screening and evaluation process.

Scopus and Web of Science (WoS) databases were used as the primary sources for article searches in this study because both are highly indexed databases that are internationally recognised. Other databases such as Google Scholar, SpringerLink, ScienceDirect, MyCite, and MyJurnal were used as supporting sources to ensure broader research coverage, particularly within the Malaysian context.

4.3 Search Strategy

The search strategy was developed based on a combination of keywords encompassing three main elements: behaviour, academic achievement, and the population of students with special educational needs. English keywords were used for international databases, while Malay translations were used for local searches. The combination of keywords included “inattention”, “hyperactivity”, “challenging behaviour”, “off-task behaviour”, “academic achievement”, “school performance”, “reading performance”, “math achievement”, “special needs”, “ADHD”, and “autism”. For Malaysian searches, terms such as “tingkah laku mengganggu” (disruptive behaviour), “pencapaian akademik” (academic achievement), “murid pendidikan khas” (special education students), “autisme” (autism), and “ADHD” were also used.

4.4 Inclusion and Exclusion Criteria

Inclusion criteria were established to ensure that all selected articles were relevant to the objectives of the study. Articles were included if they were published between 2021 and 2025, focused on populations of students with special educational needs such as ADHD, autism, SLD (Specific Learning Disability), ID (Intellectual Disability),

or EBD (Emotional Behavioural Disorder), and examined at least one behavioural variable and one academic achievement-related variable. In addition, the articles were required to be empirical peer-reviewed studies published in academic journals, or systematic reviews/meta-analyses containing quantitative findings related to learning outcomes.

Articles written in both Malay and English were accepted. Meanwhile, articles were excluded if they did not involve academic or behavioural variables, did not examine school-aged student populations, or were purely theoretical or editorial in nature. These inclusion and exclusion criteria ensured that only studies directly relevant to the relationship between behaviour and academic achievement were included in the review.

4.5 Screening Procedure (PRISMA Flow)

The article screening process was conducted in stages according to the PRISMA-ScR procedure. At the initial stage, a large number of records were identified through searches of international and local databases, followed by additional searches through article references and snowballing techniques. After duplicates were removed, the remaining articles were screened based on their titles and abstract. Articles that did not involve students with special educational needs, did not measure behavioural or academic achievement variables, or were unrelated to education were excluded at this stage.

Articles that passed the abstract screening were subsequently evaluated through full-text review to determine their suitability according to the inclusion criteria. At this stage, articles that did not clearly report academic variables, used irrelevant populations, or failed to provide empirical data were excluded. Ultimately, a total of 15 articles were selected for analysis in this scoping review, consisting of 10 international articles and 5 Malaysian articles. This process ensured that all included studies were valid and aligned with the research objectives.

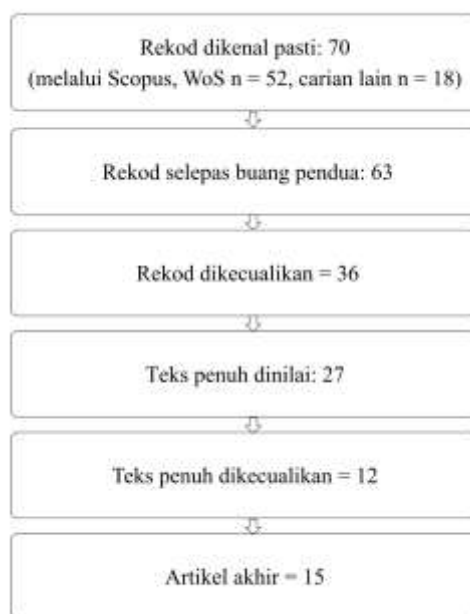


Figure 1: PRISMA Flow Diagram of the Article Selection Process

4.6 Data Extraction Process

Data extraction was conducted using a specially designed form developed to collect important information from each study. The extracted information included the authors' names, year of publication, country of study, population characteristics, research design, behavioural variables measured, academic variables assessed, measurement instruments, and the main findings of the study. To ensure consistency in the data extraction process, each article was carefully reviewed and the information was recorded using a standardised approach. The extracted data were subsequently organised into an extraction table to facilitate cross-study comparisons and enable researchers to identify consistent patterns across the findings.

4.7 Data Analysis

The review data were analysed using a thematic synthesis approach, in which the findings from each study were compared, grouped, and analysed to identify major themes describing the relationship between behaviour and academic achievement. Thematic analysis enabled both quantitative and qualitative findings to be integrated interpretatively in order to produce a comprehensive understanding of the topic. These themes were subsequently used to develop an explanatory framework describing the mechanisms through which specific behaviours—such as inattention, hyperactivity, challenging behaviour, and off-task behaviour—influence student learning. In addition, the analysis considered contextual differences between international and Malaysian studies to evaluate the applicability of the findings within the local special education context.

5. Findings

5.1 Characteristics of the Studies

This scoping review included 15 studies that examined the relationship between behaviour and academic achievement among students with special educational needs (SEN). Ten studies were international studies, while 5 articles were Malaysian studies. The studies involved students with ADHD, autism spectrum disorder (ASD), specific learning disorders (SLD), emotional and behavioural disorders (SLD), emotional and behavioural disorders (EBD), and students in special education programmes.

The international studies used different research designs which included:

longitudinal studies (n = 4),

experimental/behavioural intervention studies (n = 3),

cross-sectional studies (n = 3), and

meta-analysis studies (n = 1).

Meanwhile, the Malaysian studies were mostly qualitative studies or small-scale intervention studies. This diversity of research designs provided a more comprehensive understanding of the behaviour-academic achievement relationship across different populations and contexts.

5.2 Behaviour and Academic Achievement

From the studies reviewed, inattention was a factor most consistently associated with poor academic achievement. Students with higher levels of inattention were more likely to perform poorly in reading, mathematics, and spelling (Condo et al., 2023; Hulsbosch et al., 2025). Several studies also found that inattention was a stronger predictor of academic performance than hyperactivity (Hulsbosch et al., 2025). Similarly, Che Mat et al. (2022) reported that inattention reduced classroom engagement among students with ADHD in Malaysia.

Hyperactivity and impulsivity were also associated with lower academic achievement, particularly in mathematics, although this relationship was less consistent than that of inattention (Salla et al., 2022). Challenging behaviours such as non-compliance, classroom disruption, and defiance, were found to interrupt teaching and reduce students' learning opportunities (Flores et al., Lee & Wong, 2023).

Off-task behaviour was another common factor linked to lower academic performance. Students who frequently avoided classroom tasks or lost focus had fewer opportunities to practice literacy and numeracy skills (Kent et al., 2023). In Malaysia, the use of visual supports was reported to improve on-task behaviour and classroom participation among students with autism (Zainal et al., 2024).

Some studies found that emotional regulation difficulties affected students' motivation and participation by learning. Students who struggled to regulate their emotions were more likely to experience lower academic performance, particularly during adolescence (McDaniel et al., 2024).

5.3 Academic Achievement Measures

Academic achievement was measured in different ways across the reviewed studies. Most international studies used reading achievement, mathematics performance, spelling scores, grade point average (GPA), or standardised academic assessments (Condo et al., 2023; Hulsbosch et al., 2025). In contrast, Malaysian studies focused more on classroom engagement, participation, attention, and readiness to learn than on formal academic outcomes (Che Mat et al., 2022; Lee & Wong 2023).

The reviewed studies suggest that behavioural difficulties are closely related to academic performance. Several intervention studies also reported that behavioural strategies, including token economy systems, visual supports, and behavioural relaxation training, improved students' attention, classroom participation, and task completion (Rohani & Jamaluddin, 2021; Zainal et al., 2024; Jiang et al., 2025). However, few Malaysian studies examined whether these behavioural improvements resulted in measurable gains in academic achievement.

6. Discussion

This review found that behaviour is closely related to academic achievement among students with special educational needs. Across the included studies, inattention was the behavioural factor most consistently associated with lower academic performance (Condo et al., 2023; Hulsbosch et al., 2025). Students who had difficulty

maintaining attention were more likely to struggle with reading, mathematics, and spelling, suggesting that sustained attention is important for successful learning.

Compared with inattention, hyperactivity and impulsivity showed a weaker relationship with academic achievement (Salla et al., 2022). Although these behaviours affected learning, they were less consistent predictors of academic outcomes. This finding suggests that supporting students to maintain attention during classroom activities may have a greater impact on learning than focusing only on reducing hyperactive behaviour.

The review also found that challenging behaviour and off-task behaviour reduce students' opportunities to learn. Students who frequently disrupted lessons, refused instructions, or avoided classroom tasks received less effective instruction because teaching time was interrupted (Flores et al., 2022; Kent et al., 2023). Similar findings were reported in Malaysia, where teachers identified behaviour management as a major challenge during classroom instruction (Lee & Wong, 2023). These findings suggest that improving classroom behaviour may also increase students' access to learning.

Behavioural interventions showed encouraging results across the reviewed studies. Strategies such as token economy systems, visual supports, and behavioural relaxation training improved attention, classroom engagement, and task completion (Rohani & Jamaluddin, 2021; Zainal et al., 2024; Jiang et al., 2025). These findings indicate that behavioural interventions may contribute to better learning by increasing students' participation in classroom activities. However, most intervention studies measured behavioural outcomes rather than academic achievement, making it difficult to determine whether improvements in behaviour lead to long-term academic gains.

Another important finding is the difference between international and Malaysian research. International studies commonly measured academic achievement using standardised tests or school grades (Condo et al., 2023; Hulsbosch et al., 2025), whereas Malaysia studies focused mainly on behavioural change, classroom engagement, and teachers' experiences (Che Mat et al., 2022; Lee & Wong, 2023; Zainal et al., 2024). While these studies provide useful evidence for classroom practice, they offer limited information about the relationship between behavioural improvement and academic performance. Future studies in Malaysia should include both behavioural and academic outcome measures to provide stronger evidence for educational practice.

In conclusion, the findings suggest that improving students' behaviour, particularly attention and classroom engagement, may create more opportunities for learning and support better academic achievement among students with special educational needs.

7. Conclusion

This scoping review examined the relationship between behaviour and academic achievement among students with special educational needs (SEN). The findings show that behaviour, especially inattention, is closely related to students' academic performance. Other behaviours, such as hyperactivity, challenging behaviour, and off-task behaviour, also affect learning by reducing students' engagement in the classroom. The review also found that behavioural interventions can improve attention, participation, and classroom behaviour. The findings suggest that supporting positive behaviour may help improve learning and academic outcomes for students with SEN.

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