

Factors Influencing Student Achievement: A Systematic Review

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Abstract--- *The achievement of students is regarded as a crucial indicator of excellent academic performance. This study mainly focuses on investigating the influences of teacher, student, school, and family factors on students' achievement. Few systematic reviews were made on the absolute factors which influence their achievement. Under the management of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement review technique, a systematic review of the Scopus and Web of Science databases identified 10 related studies. Further review of these articles led to four main theme s related to student's achievement, namely teacher, student, school, and family. Subsequently, a total of 11 sub-themes were further generated by these four themes. Several highlighted recommendations presented specific and standard systematic review for each theme, and thorough qualitative focus was placed on the negative impacts by each factor. This study also aims to further investigate the influence of gender factor on students' achievement.*

Keywords--- *Systematic Review, Student Achievement, Academic Performance, Factor Influence Achievement.*

I. INTRODUCTION

Student's achievement is regarded as a crucial indicator of excellent academic performance, and educational efforts are always aimed towards achieving high levels of school achievement. There has been an increase in the engagement of educators in identifying the factors which affect the students' achievement. Several studies focused on investigating the students, school, and family factors in influencing students' achievement. In respect of students factors, academic achievement is significantly influenced by the students' attributes, such as intelligence, motivation, and attitudes among others [1]. Besides, there were students who entered the class with adverse perceptions and low expectations of the subject and their capacity to succeed [2]. Therefore, it could be indicated from the students' perception that they were not confident of their abilities and this would affect their achievement. In terms of family factors, it was well known that student and family backgrounds were constantly the indicators of the high percentage of the student outcome variance [3,4]. Moreover, [5] found that insufficient parental assistance among Somali students in the United Kingdom led to their low academic results. The influencing factors of such academic results also included students' gender, socio-economic background, previous skills, attitudes, ambitions, and learning beliefs.

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In respect of school factor, it was found that the school factors connected with students' achievement were the factors which were mainly linked to school context, features, and resources, and classroom features [6-8]. [9] highlighted that instructions were primarily related to classroom features. They also indicated that proper instruction provided by the teacher would improve students' conceptual understanding, and the students' learning process would enhance through the exposure to rigorous teaching strategies implemented in the classroom [10]. With that being said, it is clear that the teacher factor plays an important role, as the teacher's experiences and attitudes in the classroom would influence students' educational environment, which in turn would have an impact on their achievements [4].

II. RESEARCH OBJECTIVES

The main objective of the study is to investigate the factors which influence students' achievement.

III. METHODOLOGY

A systematic literature review was conducted on two main academic databases of Web of Science and Scopus. Through this review, it was notable that both databases were robust and highlighted more than 256 areas of study, including environmental studies. To be specific, Scopus indexed a total of 1360 environmental science-related publications, while Web of Science (Social Science Citation Index) indexed a total of 108 environmental-related publications [11]. In conducting this review, several terms were used, such as "factor influence" OR "factor impact" OR "factor cause" AND "student achievement" OR "student performance" OR "academic achievement" OR "academic performance". Furthermore, no restriction was applied to the language used in the search process and the date when it took place. All the results findings were then exported to the reference management software, which was EndNote X8.7. Following that, the screening and eligibility processes were performed to extract the relevant articles to be included in this review research. In assisting the research, the relevant articles were then finalized, and the following criteria for inclusion and exclusion of criteria in the relevant articles were developed:

Inclusion Criteria

1. Type of literature: All journals (research articles)
2. Language: English
3. Target person/sample: All types of respondents who were involved in pre-school, primary, secondary, or tuition centres.
4. Outcomes: Any studies which explored the factors influencing students' achievement.

Exclusion Criteria

1. Type of study: Any journal reviews, book series, book, chapters in a book, conference proceedings, student's thesis or dissertation, and reports
2. Type of person/sample: All types of respondents with disabilities
3. Research focus: Factors influencing students' achievement in terms of cognitive factors

IV. FINDINGS

A total of 324 findings were obtained from two databases, while 52 duplicate findings were eliminated after the duplication process. Based on the overall findings, the titles of the remaining 272 records were screened, while a total of 210 unrelated titles were eliminated. Then, the remaining 62 articles and a total of 42 abstracts were removed. Subsequently, the full texts of 20 relevant abstracts were found and scrutinised. The implementation of the inclusion and exclusion criteria was followed by the removal of a total of 10 unrelated texts. As a result, 10 related studies were involved in this review study. The PRISMA flow diagram for the review process is displayed in Diagram 1 below.

4.1. Main Findings

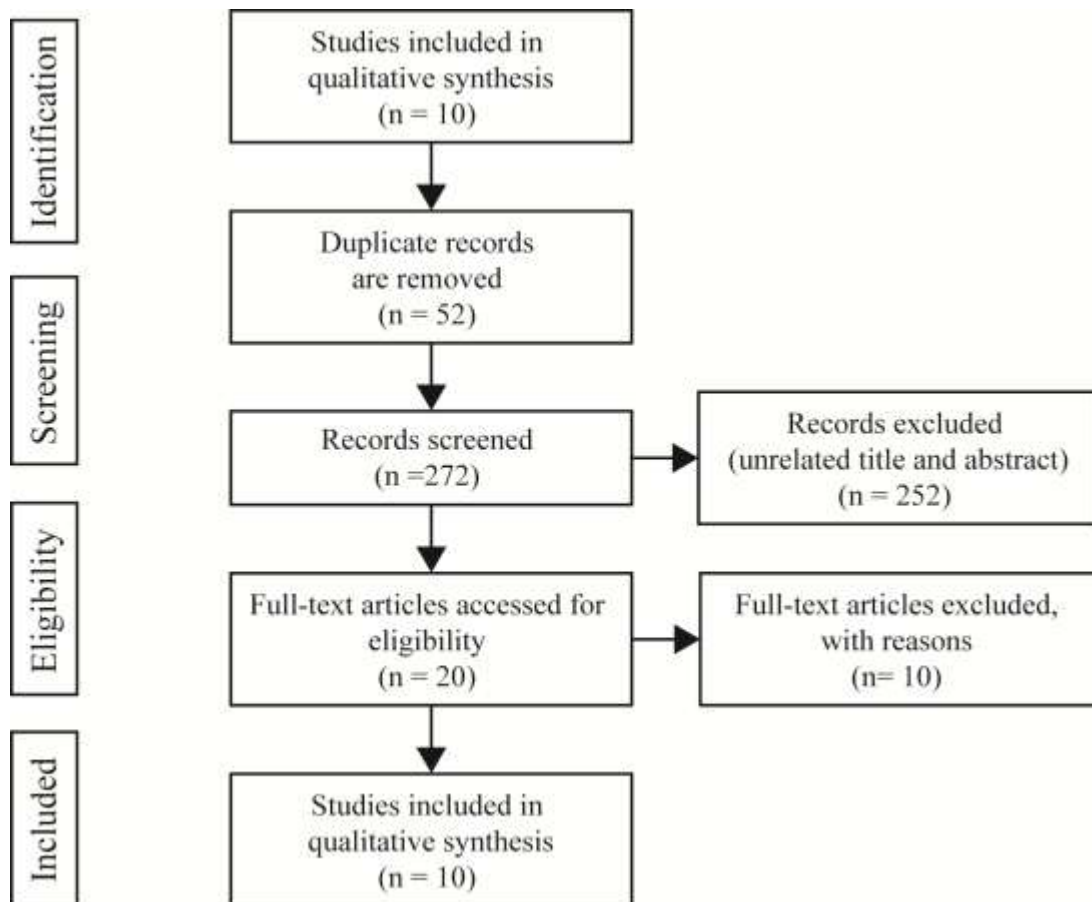


Figure 1: L Flow Diagram **Error! Reference source not found.** This section draws on the discussion which mainly focuses on four main themes, namely teacher, student, school, and family factors and enforcement. Notably, 11 sub-themes which emerged from the aforementioned themes will be presented in Table 1.

4.1.1. Teacher Factor

The teacher is one of the main pillars of the knowledge delivery system for students and their success. Therefore, the role of teachers in determining students' success is important in their academic performance. In relation to this

notion, a total of seven prior studies were found to focus on this factor, particularly on the teacher's influence on students' academic achievement. Among the aforementioned prior studies, 6 studies highlighted that the teaching method or strategy implemented by the teacher was the main factor under this theme. Meanwhile, the teacher's effectiveness in teaching was highlighted by four studies, and the teacher's characteristics were highlighted by two studies.

In respect of the teaching method or strategy implemented by the teacher, six of the prior studies reported that students' achievement was influenced by the teacher's teaching method [12-17]. Furthermore, it was found in most works of research that the methods practised by teachers in delivering knowledge included interactive module, demonstration, instructional materials, or experiment. As a result, significant improvement was present in students' understanding and their achievement in the subjects they learnt. Meanwhile, four studies which were conducted in Germany, Taiwan, Hong Kong, and Nigeria reported that the transition of traditional teaching methods and the use of digital teaching or instructional materials could motivate learning and promote learning achievement [13,14,16, 17]. Besides the use of instructional materials, other methods are also present, which could result in positive outcomes, such as quality learning materials or modules. Accordingly, a study from South Africa found that the modules were regarded as less interesting. This was because the theory was the sole element which was sufficiently provided in the practical component. Besides, it is essential for one to think more by themselves especially in real-life situations [15]. Such situations may be challenging for students to comprehend as they are separated from their everyday lives. Overall, a quality module should be according to students' needs and related to real-life situations [18].

In respect of the teacher's effectiveness in teaching, four studies found that it influenced students' achievement. A study from Malaysia reported that students' achievement improved when they were taught by experienced teachers [4]. It was also found that experienced teachers mastered the contents of the lessons and gained classroom management skills to manage various issues revolving around the students. In contrast, a study in Nigeria reported that failure to provide teachers who were skilled in technology would affect students' achievement [14]. Following that, two studies reported that the teacher's knowledge on the lesson content and interest in the subject they taught significantly increased the number of students who received high marks in the subject they learnt [12,17].

In respect of teacher's characteristics, two studies reported that it influenced students' achievement [12,15]. It is commonly known that students have a close interaction with their teachers. Therefore, this influence could occur in daily interaction between them. These two studies reported that some teachers seemed to have a preference for certain groups. Consequently, students found it challenging to interact with some teachers due to this negative conduct and attitude. Apart from that, it was found that students' achievement improved when teachers showed respect towards them in the form of interaction. Additionally, the performance of learners increased when they were respected by the teachers. Overall, it is essential for students to feel comfortable in their teacher's presence [19].

4.1.2 Student Factor

Students' endeavours towards academic achievement are defined by the level of their engagement, participation, and dedication. In the education field, measuring their efforts is crucial as these efforts contribute to their academic

success and attainments [20]. There are several factors which influence the students' efforts to improve their academic achievement. Accordingly, as a number of previous studies emphasised on this aspect, it was found that students were one of the factors which influenced their academic achievement. In general, three sub-themes were obtained under this factor. To be specific, students' attitude was obtained by three studies, students' interest was obtained by three studies, while students' motivation was obtained by three studies.

In respect of the students' attitude, three studies were conducted in several countries, such as Turkey, Nigeria, and South Africa. It was reported that students' achievement was usually influenced by their attitude. A study by [12] found that students could achieve a high grade in a subject when they knew how to take notes in the classroom. Furthermore, they could improve their understanding of certain topics by asking questions on areas which they did not understand during a lesson. This finding was in an agreement with the finding by [14], who found that insufficient frequency of studying resulted in students' habit of reading, lateness to school, peer group influence, and poor concentration in class. These outcomes were the influencing factors of students' performance in their subjects. Furthermore, students' learning styles and study habits were the major issues reported in [21] study from South Africa. Secondly, in terms of students' interest, three studies reported that their interests in the lesson they learned could facilitate their comprehension of the topic they learnt and increase their performance [12,14,22]. Besides, in Aydeniz and Kaya's (2012) study, they found that not being able to achieve high marks would negatively affect their interests in the subjects.

In respect of students' motivation, three studies conducted in Turkey and a study in South Africa reported that motivation and confidence influenced students' achievement. A study by Aydeniz & Kaya (2012) reported that lack of motivation for the subject and learning based on the classroom's instruction were the factors influencing students' achievement. It was also found that appreciation from the teacher motivated the students to spend longer time for studying, assisting them in displaying a better performance in their subjects. On the other hand, with an insufficient time of studying to obtain high marks in the subject, students' self-confidence and motivation would be impacted. A study from [23] found that quality education for the students and their motivation prior to their enrolment to school had a crucial role in their academic achievement. Additionally, it was found in a study from South Africa that positive interaction between teachers and students increased their commitment level to academic assignments and performance [15].

4.1.3 School Factor

Schools influence students' academic and social growth, especially academic achievement through its structure, staffing, organisation, resources, and environment. Numerous works of research were conducted on the influence of schools on students' attachment, commitment, involvement, and most importantly, academic achievement. Therefore, it was expected that this influence resulted in the need for strengthening students' achievement, which was related to the components of the factors influencing their achievement. In this case, several studies emphasized on this factor, leading to the acquirement of three sub-themes under it. To be specific, leadership was acquired by three studies, facilities were acquired by two studies, while the environment was acquired by two studies.

In respect of leadership, especially the role of principals, three studies reported that student achievement was

influenced by the leadership of school principals [12-14]. Aydeniz and Kaya's (2012) study found that schools should organise educational programmes to assist the understanding, abilities, and resources of the students' parents to provide better support for their children's education in school. It was also found that this form of educational opportunity could assist with the students' development of positive attitudes towards the subject. Besides, it was more likely that they would be assisted in gaining higher achievements. Two studies revealed that principal leadership was significantly and positively related to students' achievement [13,14]. They also reported that school principals played a key role in encouraging educational reform.

In respect of facilities, it was found in two studies that it influenced students' achievement [14,15]. To be specific, it was reported by a study from South Africa that poor provision of appropriate facilities, equipment, teaching materials, and poor training and retraining programmes for the teachers were the factors influencing students' academic achievement [14]. Following that, Sikhwari and his colleagues reported that another obstacle in the processes of mastering knowledge was the inadequacy of reference books [15]. Specifically, insufficient resources were obstacles for students to perform in their subjects. Meanwhile, in respect of the environment, two studies reported that unconducive classroom environment and school location resulted in the students' poor performance in their subject [12,14]. Additionally, it was found in Ayden and Kaya's (2012) study that a conducive learning environment was a factor they considered as challenging for students to achieve a good performance in their subject.

4.1.4 Family Factor

Although the family was essentially responsible for nurturing the growth of the child, family structure was one of the factors which resulted in students' achievement. Considering that it poses a significant impact on the children's functions, it has a positive effect on them, depending on the family characteristics. In relation to this matter, six studies focused on the factors influencing students' achievement. As a result, two sub-themes were obtained, where four studies obtained support and other four studies obtained background.

In respect of support factor, a study from Turkey reported that relationship between the students and their parents had a significant impact on their enhanced interests and improved achievement in their subjects [12]. Essentially, family has a crucial role in the decision for students to put an effort into studying the subject for improved results. Meanwhile, it was found in a study conducted in Hong Kong that the students' family, who determined the location of their neighbourhood and school, provided them with a supportive relationship in schools. The family also consisted of individuals who promoted the sharing of societal norms and values, which were necessary for students' success [16]. It was reported that inadequate parental support in terms of the provision of reading materials at home was a factor influencing students' academic performance [14]. On the other hand, a study conducted in Taiwan reported that most parental models related to high students' achievement were the models which focused on supervising their children's learning processes [13].

They also found that good communication about school activities and high expectations for their children had the strongest relation with students' achievement.

In terms of family background, a study conducted in Nigeria reported that parent factors, such as family size,

occupation of parents, and parents' educational background were the factors influencing students' achievement [14]. These findings were in an agreement with the finding of a study from Kuwait, which reported that parental education appeared to be highly effective in influencing students' achievement [1]. In contrast, two studies from South Africa and Turkey reported that low-income families were also the factors influencing students' achievement. Besides, insufficient access to a conducive learning environment at home was one of the disruptions to students' time for studying [12,21]. Van Heerden also reported that those who resided in metropolitan regions and cities found the noises from their neighbourhoods disrupted them from studying effectively [21].

V. DISCUSSION

It was indicated from the review that the four factors which were previously discussed (teacher, student, school, family factors) provided diverse reasons for the influence on students' achievement. Besides, the impacts of the factors were positive and negative impacts related to the factors influencing the students' achievement. Furthermore, these factors were closely related to one and another. This could be seen from how the positive characteristics, experiences, and behaviour of teachers in the classroom positively contributed to the student's educational environment. A proper educational environment would, in turn, improve the students' achievement. According to [4], in respect of teachers' experience and students' achievement, a prevalent hypothesis was present regarding the association between students' higher achievement and the most experienced or qualified teachers. This is due to the materials and leadership skills mastered by these qualified teachers in order to manage various classroom issues. Additionally, a study conducted by [24] confirmed that there was a positive relationship between teachers' experiences and students' performances.

Instructions are mainly related to the environment of the classroom. It could be clearly seen that the quality of instructions provided by teachers influenced the students' interest in their subjects. Specifically, a well-structured lesson would result in positive outcomes for the students. An instruction which emphasised conceptual growth facilitated the students' learning skills, conceptual understanding, and knowledge [9]. Taking the students into consideration, it is important for teachers and parents to appreciate the students' performance as this will encourage the students to spend more time studying. This appreciation would be their motivation to put more effort into their studying in order to maintain their results and avoid disappointment from the authorities that they respected. Besides, students' performance would increase when they were respected and appreciated by the teachers [15]. Overall, respect and trust should be present within the interaction between teachers and students.

Besides teacher and student factors, it was also found that school and family factors posed significant impacts on student achievement. When leadership was concerned, school principals played a crucial role in the diverse methods of promoting educational forms. Essentially, leadership is exercised by principals to encourage teachers to improve their performance by assigning them to courses related to what they need for their improvement. Moreover, educational programmes can be formed through proper leadership practices, so that parents can keep themselves on track and acquire knowledge, skills, and resources to support their children education. The involvement of family will also affect students' attitude towards learning, especially for the parents who are concerned about their achievement. Apart from that, the family members who possess information on future job opportunities will

definitely encourage the students to put an effort and show good performance in school.

Table 1: The Main Themes and the Sub Themes

Author	Teacher Factor			Student factor			School Factor			Family Factor	
	CH	MS	EF	AT	IT	MT	LS	FC	EV	SP	BC
[4] Al-Agili et al., 2012 (Malaysia)			✓								
[1] Alomar, 2006 (Kuwait)											✓
[12] Aydeniz & Kaya, 2012 (Turkey)	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
[23] Cakir & Gheorghe, 2017 (Turkey)						✓					
[13] Cheng & Weng, 2017 (Taiwan)		✓					✓			✓	
[14] Igberadja, 2015 (Nigeria)		✓	✓	✓	✓		✓	✓	✓	✓	✓
[17] Ohle et al., 2015 (Germany)		✓	✓		✓						
[15] Sikhwari et al., 2015 (South Africa)	✓	✓				✓		✓			
[16] Sun et al., 2012 (Hong Kong)		✓								✓	
[21] Van Heerden, 1995 (South Africa)				✓							✓
Teacher Factor	Student Factor			School Factor			Family Factor				
CE = Characteristics	AT = Attitude			LS = Leadership			SP = Support				
MS = Method/strategy	IT = Interest			FC = Facilities			BC = Background				
EF = Effectiveness	MT = Motivation			EV = Environment							

Besides positive impacts, negative impacts could occur to students' achievement through the factors. To illustrate this point, provided if any other instructional materials or tools used by the teachers as their teaching approach were neither interesting nor fulfilled the students' needs, boredom and low concentration span would occur among them. As a result, their academic performance would be negatively affected. Furthermore, teachers who placed their focus solely on certain groups would lead to further negative impacts of student's attitude. Similarly, this resulted in low concentration span and interaction between the teacher and students. These outcomes are also possible for students who show less respect to the teachers. Additionally, students' negative attitude towards the subject would affect their academic performance. This would be a more serious case during the age of technology, where students place more focus on their cell phones, video games, and entertainment compared to their studies. Besides, students who stay up late at night will experience lateness and sleepiness at school. They may even miss lessons as they will not be present at school all day.

Poor academic performance among students is also due to inadequate support from school and family. It could be clearly seen that the school environment which does not provide a conducive space for students' learning process would pose adverse impacts on their academic achievement. Therefore, school principals should be concerned about the school environment including teacher, students, and gardeners among others. In contrast, principals who are not perceptive to the needs and circumstances of students would lead to a worse situation. Moreover, with a poor

relationship between school and parents, a negative impact would occur on students' academic performance and attitudes. It was found in a study by [25] in Latin America that students who were responsible for earning salaries for their families on a regular basis showed a poor performance in their exams. Therefore, it could be said that family background plays a key role in this issue. Nevertheless, this adverse situation would not occur if parents and school play their roles in monitoring their children and students.

VI. CONCLUSION

The recent literature on the factors influencing students' achievement provided a basic understanding of their responses towards these factors. Four main themes which represented the factors influencing students' achievement were identified based on the systematic review performed by this study. Specifically, the first theme was the teacher factor, specifically in the aspect of the teacher's characteristics, teaching method or strategy, and effectiveness. The second theme was the student factor, which was developed based on students' attitude, interest, and motivation. The third theme was known as school factor, which was specifically the school's environment, leadership, and facilities. Meanwhile, the fourth theme was the awareness of the family factor, which referred to the family's background and support. Overall, these factors are the major factor that effect stakeholder especially in school and educational institutions. By further expanding these factors through the integration of diverse research findings, the stakeholders could receive assistance in improving the influencing factors which are in line with the students' needs, abilities, and interests.

VII. RECOMMENDATIONS

The findings and systematic review process of this study have developed a number of suggestions which may be beneficial for future studies. It is first suggested that future studies place an in-depth qualitative focus on the negative impacts on each factor by determining the latent factors which are faced by the school, teachers, students, and family. Furthermore, it is important to identify the main factors which influence students' performance. Otherwise, with no measure taken to overcome all the impacts, the deterioration of a student's future and national education is predicted to occur in the future. Additionally, it is recommended for future studies to investigate other factors influencing students' performance, including gender. It was highlighted in past research by [1] and [16] that students' achievement might pose diverse impacts on male and female individuals. Last but not least, further investigation into diverse factors is considered vital as a gender issue is a continuing debate regarding their impacts on students' vulnerability, risk exposure, and responsiveness.

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