Factors Affecting Student Academic Performance: A Systematic Review

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Article Info	Abstract
	This systematic review synthesizes evidence on factors affecting Student Academic Performance (SAP), focusing on individual, family, school, and social dimensions. A comprehensive search using Google Scholar covered studies from 2000 to July 2024. Thematic synthesis revealed that individual factors such as age, gender, motivation, self-efficacy, and test anxiety significantly impact SAP. Family influences, including parents' education, income, and involvement, were also crucial. School-related factors like teachers' qualifications, self-efficacy, and teaching methods emerged as important, while social factors such as peer relationships, social support, private tutoring, and socioeconomic status also played key roles. However, inconsistencies were found in the magnitude and direction of some effects, indicating the need for further exploration of these influences. The educational relevance and implications of this research are significant, as it highlights a comprehensive understanding of the factors influencing SAP across multiple dimensions—individual, family, school, and social. Practically, this research provides crucial insights for educators, policymakers, and stakeholders to implement targeted interventions that foster supportive learning environments, ultimately enhancing student outcomes.

Introduction

Understanding the multifaceted factors that affect student academic performance (SAP) is paramount in enhancing educational outcomes and fostering a conducive learning environment. SAP significantly impacts students' future educational and career opportunities, personal development, and overall life trajectory (Hamoud et al., 2018). Identifying and analyzing these factors is crucial for developing targeted educational policies, practices, and interventions aimed at improving SAP. This systematic review aims to synthesize and critically evaluate the existing literature on the various factors affecting SAP, with a focus on individual, family, school, and social dimensions.

Previous studies have explored the factors influencing SAP from multiple perspectives. Abu Saa et al. (2019) comprehensively reviewed factors affecting students' performance in higher education, highlighting students' previous grades, e-Learning activity, demographics, and social information. Similarly, Al Husaini and Shukor (2022) examined low entry grades, family support, program type, student gender, and assessment grades as

essential contributors to SAP. Suhaini et al. (2020) synthesized influencing factors from teacher, student, school, and family perspectives, demonstrating the complexity and multidimensional nature of SAP. However, these studies often lack a comprehensive and systematic approach that covers all pertinent dimensions in a structured manner.

To address this gap, the current study builds upon previous research by systematically reviewing and analyzing the factors that affect SAP across four broad dimensions: individual, family, school, and social. This structured approach ensures a more comprehensive understanding of the factors affecting SAP, facilitating the development of evidence-based interventions and policies.

This systematic review employs a rigorous methodology, including a comprehensive search strategy using Google Scholar, thematic synthesis for categorizing and interpreting findings, and strict inclusion and exclusion criteria to ensure only relevant and high-quality studies are analyzed. By synthesizing the existing evidence on the factors affecting SAP, this study provides educators, policymakers, and stakeholders with a comprehensive understanding of the multifaceted nature of SAP and inform evidence-based interventions aimed at improving academic outcomes.

Methodology

According to the instructions proposed by Chandler et al. (2021), the study employed two primary steps, namely question formalization and journal selection procedures.

Question Formalization

To conduct a comprehensive study of the factors affecting SAP from 2000 to July 2024, a systematic approach was adopted to ensure that the available materials were thoroughly researched and analyzed. The primary research questions of this study are: What specific factors within the individual, family, school, and societal dimensions influence Student Academic Performance (SAP), and how do these factors impact it?

Articles Selection Processes

First, we constructed a taxonomy of pathways related to factors affecting SAP. The taxonomy served as a navigational tool to guide our literature search and organization. For the literature search, we used Google Scholar (https://scholar.google.com/), which provides extensive coverage of scholarly information and gives users free access to a wide range of scholarly materials. It also monitors citations and provides direct links to journals. Then, we set specific keywords on it, such as "factor affect" OR "factor impact" OR "factor influence" AND "student performance" OR "student academic performance". This measure ensured that we were kept abreast of any changes in published publications relevant to our survey. In addition, we conducted a comprehensive manual search to extract journals published between 2000 and July 2024, to ensure that we did not inadvertently exclude any related publications. The comprehensive search yielded a cumulative total of 576 journals sourced from the

database published between 2000 and July 2024, subsequently subjected to a meticulous screening process. Then, we use literature management software (e.g. Mendeley) to organize and manage these journals. This stringent methodology ensured that only journals exhibiting a high degree of relevance and possessing a robust structure were deemed eligible for evaluation. The criteria for both inclusion and exclusion of these selected journals have been precisely detailed in Table 1.

Table 1. Criteria for Inclusion and Exclusion

Inclusion Criteria	Exclusion Criteria
Published between 2000 and July 2024	Published before 2000 and after July 2024
Available for free download	Non-download
English articles	Non-English articles
Target person: student	Not student
All affecting factors	Not affecting factors
All academic journals and papers	Books and magazines
Full-text readable	Non-full-text

The research procedure for this systematic review involved an initial inclusion of 107 records for qualitative analysis. Following this, 576 records were screened, with 87 subsequently excluded due to unrelated subjects. Among the remaining, 489 journals were selected, from which 382 records were excluded based on criteria such as non-full-text, non-English articles, non-student focus, irrelevance to affecting factors, being books or magazines, or being non-full-text again. Notably, the final inclusion for qualitative analysis was again 107 records, indicating a refinement process that ensured only the most relevant and comprehensive studies were analyzed. The flow diagram for the research procedure is shown in Figure 1.
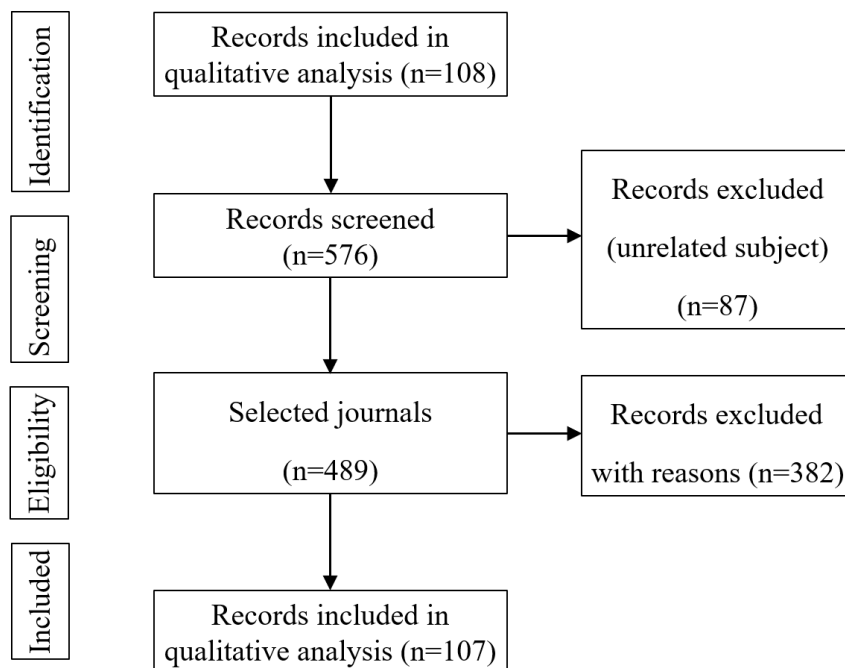

Figure 1. The Selection Process of Previous Articles

Findings and Discussion

Gaining insight into the many determinants that affect SAP is of paramount importance for educators, politicians, and those with vested interests. In recent years, a significant amount of study has been conducted on many aspects that affect SAP (Rajagukguk et al., 2023). The present literature review aims to integrate the results of existing research, with a specific emphasis on four key dimensions: individual, family, school, and social dimensions.

The individual dimensions include motivation (Acosta-Gonzaga & Ramirez-Arellano, 2021; Baber, 2020; Borah, 2021; Dunn & Kennedy, 2019; Gumasing & Castro, 2023; Hamid & Singaram, 2016; Khan et al., 2023; Law et al., 2019; Lee et al., 2019; Namoun & Alshanqiti, 2020; Munda & Tiwari, 2024; Pascoe et al., 2020; Rafiola et al., 2020; Steinmayr et al., 2019; Supervia et al., 2022; Tokan & Imakulata, 2019), self-efficacy (Alemany-Arrebola et al., 2020; Almaiah et al., 2020; Ansari & Khan, 2020; Fearnley et al., 2022; Hamid & Singaram, 2016; Hayat et al., 2020; Jenal et al., 2022; Liem, 2022; Munda & Tiwari, 2024; Rafiola et al., 2020; Supervia et al., 2022; Talsma et al., 2021; Wu et al., 2022), past performance (Alghamdi & Rahman, 2023; Alshanqiti, 2020; Alyahyan & Düştegör, 2020; Arashpour et al., 2023; Berberoğlu & Tansel, 2014; Brech & Burnett, 2019; Issah et al., 2023; Mehndiratta & Mehndiratta, 2023; Namoun & Waheed et al., 2020; Rahman,2021; Steinmayr et al., 2019; Supervia et al., 2022), coping strategies (Sharma & Gupta, 2023; Supervia et al., 2022; Liem, 2022), study habits (Islam & Tasnim, 2021; Limniou et al., 2021; Mohamed et al., 2018; Supervia et al., 2022), physical activity (Harveson et al., 2019; Kleszczewska et al., 2018; Sánchez-Hernando et al., 2021; Shantakumar et al., 2022), gender differences (Agasisti et al., 2018; Alemany-Arrebola et al., 2020; Alyahyan & Düştegör, 2020; Cortés Pascual et al., 2019; Hamid & Singaram, 2016; Mohamed et al., 2018; Moldabayev et al., 2013), age (Arashpour et al., 2023; Borah, 2021; Cagliero et al., 2021; Cortés Pascual et al., 2019; Fernandes et al., 2019; Mohamed et al., 2018), that directly affect SAP. In addition, factors such as emotions (Acosta-Gonzaga & Ramirez-Arellano,2021; Hayat et al., 2020; Luo et al., 2022; Namoun & Alshanqiti, 2020), test anxiety (Akinsola & Nwajei, 2013; Hamid & Singaram, 2016; Jenal et al., 2022; Putwain et al., 2016;), stress (Alemany-Arrebola et al., 2020; Karbownik et al., 2020; Miksza et al., 2021; Munda & Tiwari, 2024; Pascoe et al., 2020; Supervia et al., 2022), self-esteem (Kleszczewska et al., 2018; Supervia et al., 2022), and cognitive abilities (Cortés Pascual et al., 2019; Galikyan & Admiraal, 2019; Khan et al., 2023; Lee et al., 2019; Peng & Kievit, 2020; Sharma & Gupta, 2023; Wu et al., 2022), are also significant to affect SAP.

The family dimensions include parental involvement (Cagliero et al., 2021; Duan et al.,2018; Getie, 2020; Lara & Saracostti, 2019; Leonard et al., 2022; Luo et al., 2022; Mishra, 2020; Mohamed et al., 2018; Parmar & Nathans, 2022; Saqib et al., 2018; Sudadio, 2024b; Tu et al.,2009; Young, 2020), family income (Alghamdi & Rahman, 2023; Leonard et al., 2022; Mamo et al., 2017; Mbogo et al., 2021; Mishra, 2020; Moreira et al., 2019; Rahman, 2021; Rozek et al., 2019; Waheed et al., 2020), and parents' education levels (Alhadabi & Karpinski, 2020; Echazarra & Radinger, 2019; Leonard et al., 2022; Mehndiratta & Mehndiratta, 2023; Mishra, 2020; Mohamed et al., 2018; Moreira et al., 2019; Rahman, 2021; Suningsih, 2022) play a crucial role in shaping SAP.

The school dimensions comprise the quality of education (Gopal et al.,2021; Ozturk, 2023; Sudadio, 2024b; Toropova et al., 2019; Wang, 2022), teacher self-efficacy (Toropova et al., 2019; Wang, 2022), teacher

qualifications (Assem et al., 2023; Shannag et al., 2013), school climate (Kleszczewska et al., 2018; Ozdemi, 2019; Ozturk & Ozturk, 2024; Whittle et al., 2018;), and resources (Almaiah et al., 2020; Mamo et al., 2017; Sudadio, 2024b). This dimension also includes the impact of teaching methods (Assem et al.,2023; Borah, 2021; Cakir et al., 2019; Eski & Akman, 2023; Jacobson, 2000; Lekhetho, 2013; Littlejohn, 2020), school leadership (Lekhetho, 2013; Ozdemi, 2019; Sudadio, 2024a), and learning environment (Abuhassna et al., 2020; Getie, 2020; Law et al., 2019).

The social dimensions encompass the broader social context affecting SAP, including socioeconomic status (Alhadabi & Karpinski, 2020; Alyahyan & Düştegör, 2020; Duan et al., 2018; Echazarra & Radinger, 2019; Guo et al., 2023; Issah et al., 2023; Leonard et al., 2022; Mbogo et al., 2021; Mehndiratta & Mehndiratta, 2023; Suningsih, 2022; Yeung & Xia, 2023; Young, 2020), peer relationships (Deng, 2024; Fearnley et al., 2022; Getie, 2020; Lee et al., 2019; Miksza et al., 2021), extracurricular tutoring (Berberoğlu & Tansel, 2014; Chui et al., 2020; Li & He, 2022; Yeung & Xia, 2023; Zhan et al., 2013), social support (Echazarra & Radinger, 2019; Lee et al., 2019; Mishra, 2020), the role of social media (Almaiah et al., 2020; Ansari & Khan, 2020; Dunn & Kennedy, 2019; Nazeef et al., 2024), and extracurricular activities (Agasisti et al., 2018; Mehndiratta & Mehndiratta, 2023). Table 2 presents the comprehensive factors of the four distinct dimensions that affect SAP, as derived from an extensive review of relevant literature.

Table 2. Four Dimensions Affecting SAP based on Chronological Order

No.	Individual	Family	School	Social	Authors
1			Teacher sensitivity, student-teacher rapport, pedagogical methods, and environmental challenges (low expectations and stigmatization)		Jacobson (2000)
2	Aggressive, impulsive, anxious behaviors and learning difficulties	Parental care and family finance	Educational expectations		Tu et al. (2009)
3	Attendance rates and gender differences			Cultural background	Moldabayev et al. (2013)
4			Collaborative methods, a culture of speaking English at school, regular and effective teaching, and leadership		Lekhetho (2013)

No.	Individual	Family	School	Social	Authors
5	Reading fluency, comprehension, and vocabulary				Cimmiyotti (2013)
6	Attendance at science conferences/seminars		Teachers' salaries, the availability of instructional materials, and payment of teachers' allowance		Oredein & Awodun (2013)
7				Private tutoring	Zhan et al. (2013)
8	Task performance and task autonomy				Pulfrey et al. (2013)
9	Test anxiety, trait anxiety, and depression				Akinsola & Nwajei (2013)
10			Teachers' qualifications and teaching practices		Shannag et al. (2013)
11			Teacher attitudes	Shadow education, and market-driven tutorial centers	Chan & Bray (2014)
12	Academic success (high school CGPA)	Family background	Subject tracks	Tutoring	Berberoğlu & Tansel (2014)
13	Test-related anxiety and study skills		Test-taking training, and academic buoyancy	Social dimension and social derogation	Putwain et al. (2016)
14			Organizational health dimensions		Zamora & Hernandez (2016)
15	Intrinsic motivation, self-efficacy, test anxiety, critical thinking and gender differences				Hamid & Singaram (2016)
16	Executive functions				Zorza et al. (2016)
17	Educational history	Family income of parental economic	Inadequate facilities, ineffective rules and	The desert climate and socio-cultural	Mamo et al. (2017)

No.	Individual	Family	School	Social	Authors
		status	regulations, insufficient support, the quality of teacher-student relationships, and assessment methods	factors	
18	Self-esteem and physical activity	Family relations and family affluence	School climate		Kleszczewska et al. (2018)
19		Parental involvement		Low-socioeconomic status	Duan et al. (2018)
20	Gender	Language spoken at home	Disciplinary climate, teacher-student relations, and resources like computers	The role of extracurriculars	Agasisti et al. (2018)
21			Teacher-student rapport, and school climate		Whittle et al. (2018)
22	Present pressure	Parental engagement and home strictness	Teacher attitudes towards students' studies	Future and job tensions	Saqib et al. (2018)
23	Student gender, unexplained absences, ethnicity, student age, learning techniques and study habits	Proper guidance from parents, parental educational attainment, and source of family income	Learning facilities, communication skills		Mohamed et al. (2018)
24	High school GPA, self-confidence and independent activity focus		Institutional commitment		Brech & Burnett (2019)
25	Intrinsic and extrinsic motivation and learning behavior				Tokan & Imakulata (2019)
26	Student's grade,		School subject	Student's	Fernandes et al.

No.	Individual	Family	School	Social	Authors
	attendance record and age			neighborhood and city	(2019)
27	Academic engagement		Digital readiness		Kim et al. (2019)
28	Learning motivation		Student enrolment and blended learning environment		Law et al. (2019)
29	Sleep quality, duration, and consistency				Okano et al. (2019)
30	Students' ability self-concepts, performance motivation and past success		Task values		Steinmayr et al. (2019)
31	Academic distraction		Technology usage		Feng et al. (2019)
32	Effective time management behaviors				Adams & Blair (2019)
33	Intrinsic motivation		Technology-enhanced learning type	Social media groups	Dunn & Kennedy (2019)
34	Cognitive presence levels (triggering event, exploration, integration)			Learner prominence measures (centrality in a learning community)	Galikyan & Admiraal (2019)
35	Executive functions (working memory, inhibition, cognitive flexibility, and planning), gender, age, physical fitness, motor skills and IQ				Cortés Pascual et al. (2019)
36	Psychological motivation, cognitive problem-		Interactions with instructors	Peer collaboration and community support	Lee et al. (2019)

No.	Individual	Family	School	Social	Authors
	solving and learning management				
37		Parental engagement			Lara & Saracostti (2019)
38				Social-emotional skills	Panayiotou et al. (2019)
39	Physical activity				Harveson et al. (2019)
40			Teacher quality (teacher's content knowledge and experience and self-efficacy beliefs)		Toropova et al. (2019)
41		Lower parental education levels	Guidance	Geographical isolation, socio-emotional support, socioeconomic status and barriers like long commutes	Echazarra & Radinger (2019)
42			School leadership, principal effectiveness, instructional leadership, teacher evaluation, professional development, school climate and teacher behaviors		Ozdemi (2019)
43	Emotion regulation	Lower-income backgrounds			Rozek et al. (2019)
44	Engagement in research activities	Lower family income and educated parents	Scholarships	Financial aid	Moreira et al. (2019)
45	Online learning activities and engagement, academic emotions		The teaching environment and style, and rapport between professors		Namoun & Alshanqiti (2020)

No.	Individual	Family	School	Social	Authors
	(interest, enthusiasm, intrinsic motivation), and historical academic data		and students		
46	Self-efficacy, positive learning-related emotions, and metacognitive learning strategies				Hayat et al. (2020)
47	Past performance, emotional stability, and assessments (assignments and quiz marks)	Family characteristics (expenditure and income)	Student-instructor interaction		Waheed et al. (2020)
48	Students' background, experience, collaborations, interactions, and autonomy		Learning environment		Abuhassna et al. (2020)
49	Academic-related stress, anxiety about schoolwork, poor sleep, decreased motivation and engagement, mental health issues, and substance				Pascoe et al. (2020)
50	Health behaviors, and mental health issues	Parental education		Socioeconomic status	Alhadabi & Karpinski (2020)
51	Attitudes towards native speakers, and anxiety	Parental encouragement	Classroom environments, class sizes, and seating arrangements	Peer support	Getie (2020)
52	Learning motivation, and self-efficacy		Blended learning		Rafiola et al. (2020)
53	Historical grades		E-learning activity	Socioeconomic	Alyahyan &

No.	Individual	Family	School	Social	Authors
	and test scores, gender, and psychological attributes			status, environment	Düştegör (2020)
54	Student engagement, academic self-efficacy and optimism		Collaborative learning	Social media	Ansari & Khan (2020)
55		Family resources (finances, academic guidance, parental involvement, language skills, and the educational level of parents)	Campus social organizations and faculty relationships	Social support	Mishra (2020)
56	Student motivation		Classroom interaction, course structure, instructor knowledge, and facilitation		Baber (2020)
57	Self-efficacy and anxiety levels, gender differences, and stress-induced anxiety				Alemany-Arrebola et al. (2020)
58	Meta-linguistic skills for reading and numerical skills for mathematics, cognitive abilities (working memory, reasoning, and executive function)				Peng & Kievit (2020)
59	Self-efficacy (user confidence)		Technological facilities, and e-learning system quality, trust	Cultural aspects (ICT literacy, social media integration)	Almaiah et al. (2020)

No.	Individual	Family	School	Social	Authors
			(security, privacy) and study environment		
60			Identifying student cues for teaching adaptation, modelling effective learning strategies, and interactive methods		Littlejohn (2020)
61	Saccharomyces boulardii supplementation, and pre-examination stress				Karbownik et al. (2020)
62	Migrant status, ethnic minority status	Parental involvement	Student with teacher relationships	Higher socioeconomic status	Young (2020)
63			School tutoring	Family tutoring	Chui et al. (2020)
64	Interest/value in tasks, students' age, aptitude, and their attitude, dynamic of results, internal motivation		Classroom activities, and the reward-punishment, teaching methods	Relatedness from social rewards	Borah (2021)
65	Self-efficacy, gender		Learning environment		Talsma et al. (2021)
66	Diet, consistent sleep, physical activity, excessive screen time, and substance use				Sánchez-Hernando et al. (2021)
67	Effective study habits		Information/data management, digital creation skills, and digital independent learning		Limniou et al. (2021)
68	School grades, age, educational	Early engagement		Streaming video lectures	Cagliero et al. (2021)

No.	Individual	Family	School	Social	Authors
	materials, and early semester study				
69	Stress level, self-oriented perfectionism, and adaptability			Peer relationships	Miksza et al. (2021)
70	Attendance, study habits, physical resources, interest in study, regular study, hard work, dedication, self-confidence, and learning technique	Support by family			Islam & Tasnim (2021)
71	Class attendance, study hours, past academic results, and university admission test scores	Family income, and educated parents	Educational internet usage		Rahman (2021)
72		Parental income		Socioeconomic status	Mbogo et al. (2021)
73	Student expectations and prompt feedback		Instructor quality, and effective course design		Gopal et al. (2021)
74			Teacher burnout (teacher exhaustion and attrition)		Madigan& Kim (2021)
75	Motivation, positive emotions and negative emotions, cognition, and metacognition				Acosta-Gonzaga & Ramirez-Arellano (2021)
76	Intrinsic and extrinsic goal orientation, self-efficacy, control of learning beliefs, and test anxiety		Task value		Jenal et al. (2022)
77	Interactions,	Private learning			Lei & Lin (2022)

No.	Individual	Family	School	Social	Authors
	intrinsic goal orientation and meta-cognitive self-regulation	space			
78	Perceived competence, coping strategies, and self-efficacy		Autonomy-supportive contexts, specific feedback, and growth mindset interventions		Liem (2022)
79	Cognitive load, self-efficacy, and long-term test performance		Item difficulty		Wu et al. (2022)
80	School marks, number of failed subjects, time spent assimilating subject matters, personality traits, resilience, motivational processes, emotional intelligence, learning style, study strategies, self-efficacy, self-esteem, coping strategies, anxiety and stress control, study habits, creativity development, and personal satisfaction		Repeated courses	Socio-demographic variables, and social skills	Supervia et al. (2022)
81	The type and duration of physical activity				Shantakumar et al. (2022)
82		Home social capital, and parental engagement		Cultural capital, and shadow education (weekend tutoring)	Li & He (2022)

No.	Individual	Family	School	Social	Authors
83		Parental warmth and parental involvement			Parmar & Nathans (2022)
84		Parental educational background, especially mothers' education		Higher socioeconomic status	Suningsih (2022)
85		Parental support, family size, level of parental income, and education level		Socioeconomic status	Leonard et al. (2022)
86	Learning efficacy, and positive emotions	Family cultural capital, family engagement, and parents' expectations			Luo et al. (2022)
87			Teacher emotional intelligence and engagement, and teacher self-efficacy		Wang (2022)
88	Self-efficacy		Interactions with instructors	Peer interaction	Fearnley et al. (2022)
89	The time spent on social media, health effects due to smartphone use	Family interaction	Educational impacts	Social interactions	Mathimagal et al. (2022)
90	Learning behaviors (the frequency of raised hands, resource utilization, engagement in discussions, and attendance)				Du et al. (2022)
91	Grades in various semesters	Family income, the number of siblings, whether the mother lives	School location		Alghamdi & Rahman (2023)

No.	Individual	Family	School	Social	Authors
		with the family, the father's job, the mother's job, accommodation type and location			
92	Technostress, cognitive appraisal, and coping strategies				Sharma & Gupta (2023)
93	Cognitive engagement (motivation and strategic learning), and emotional engagement				Khan et al. (2023)
94	Procrastination, and misconceptions		Innovative instructional strategies, and teachers' qualifications		Assem et al. (2023)
95	Prior academic performance, student behavioral traits, and psychological variables		School environment	Socioeconomic status	Issah et al. (2023)
96	Learning motivation				Gumasing & Castro (2023)
97	Engagement levels, past performance, age, and educational backgrounds				Arashpour et al. (2023)
98	The student's role		Formative and summative assessments, the role of the teacher, and the learning environment context	Changes in work restrictions, the adaptation challenges, and the impact of the pandemic	Kasp & Venkatraman (2023)
99		Parental input, and family structure		Socioeconomic status	Guo et al. (2023)
100	Educational	Parental support		Socioeconomic	Yeung & Xia

No.	Individual	Family	School	Social	Authors
	expectations of youths	for college education		status	(2023)
101	Prior programming experience, and Class XII results	Parental education		Higher socioeconomic status, and extracurricular activities	Mehndiratta & Mehndiratta (2023)
102	Religiosity			Social provision, and social anxiety as ethnic minorities	Fakapulia et al. (2023)
103				Collaborative learning, social interaction, and social media usage	Nazeef et al. (2024).
104			School bullying, Teacher-student relationships	Peer relationships	Deng (2024)
105			Principal leadership		Sudadio (2024a)
106	Procrastination, academic stress, academic self-efficacy, resilience, and motivation			Social anxiety	Munda & Tiwari (2024)
107		Education costs, parental participation	Teacher quality, curriculum relevance, facilities and resources	Community participation, education policies	Sudadio (2024b)

Individual Dimensions

Based on Table 2, the individual dimensions can be categorized into five aspects: psychological dispositions, learning behaviors and cognitive strategies, health-related dimensions, demographic characteristics, and past performance.

Psychological Dispositions

Table 3 shows the psychological dispositions derived from existing studies that are classified into five aspects, which include stress and test anxiety, self-esteem, emotions, motivation and self-efficacy.

Table 3. Aspects of Psychological Dispositions

Psychological Dispositions	
Stress and Test Anxiety	
Academic-related stress	Pascoe et al. (2020); Munda & Tiwari (2024)
Stress-induced anxiety	Alemany-Arrebola et al. (2020)
Pre-examination stress	Karbownik et al. (2020)
Stress level	Miksza et al. (2021)
Stress control	Supervia et al. (2022)
Test anxiety	Akinsola & Nwajei (2013); Hamid & Singaram (2016); Jenal et al. (2022)
Test-related anxiety	Putwain et al. (2016)
Self-esteem	
Self-esteem	Kleszczewska et al. (2018); Supervia et al. (2022)
Emotions	
Academic emotions	Namoun & Alshanqiti (2020)
Positive learning-related emotions	Hayat et al. (2020)
Positive emotions and negative emotions	Acosta-Gonzaga & Ramirez-Arellano (2021)
Positive emotions	Luo et al. (2022)
Motivation	
Intrinsic motivation	Hamid & Singaram (2016); Dunn & Kennedy (2019); Namoun & Alshanqiti (2020)
Intrinsic and extrinsic motivation	Tokan & Imakulata (2019)
Psychological motivation	Lee et al. (2019)
Performance motivation	Steinmayr et al. (2019)
Learning motivation	Law et al. (2019); Rafiola et al. (2020); Gumasing & Castro (2023)
Motivation	Pascoe et al. (2020); Baker (2020); Acosta-Gonzaga and Ramirez-Arellano (2021); Khan et al. (2023); Munda & Tiwari (2024)
Internal motivation	Borah (2021)
Motivational processes	Supervia et al. (2022)
Self-efficacy	
Self-efficacy	Hamid & Singaram (2016); Hayat et al. (2020); Ansari & Khan (2020); Almaiah et al. (2020); Alemany-Arrebola et al. (2020); Rafiola et al. (2020); Talsma et al. (2021); Supervia et al. (2022);Fearnley et al. (2022); Jenal et al. (2022); Liem (2022); Wu et al. (2022); Munda & Tiwari (2024)
Coping Strategies	
Coping strategies	Liem (2022); Supervia et al. (2022); Sharma & Gupta (2023)

According to Table 3, this category comprises factors related to psychological characters, including stress, anxiety,

self-esteem, emotions, motivation, self-efficacy, and coping strategies. It reflects how students' internal psychological states and emotional management abilities can influence SAP.

In a study examining the multifaceted impacts of stress on academic performance, Pascoe et al. (2020) identified a correlation between academic-related stress and reduced academic performance. This connection was further elaborated upon by Alemany-Arrebola et al. (2020), who observed a worsening of stress-induced anxiety because of the sudden shift to online learning frameworks during the pandemic, undermining students' confidence in their academic abilities. Furthermore, Karbownik et al. (2020) delineated a direct link between pre-examination stress and cognitive impairment, predicting a subsequent decline in both academic performance and psychosomatic health. Echoing these sentiments, Miksza et al. (2021) reported an inverse relationship between stress levels and subjective vitality among music students, implicating a detrimental impact on their educational engagement. Munda & Tiwari (2024) found that academic stress negatively impacts students' academic performance, with procrastination acting as a mediating factor between stress and success. Finally, Supervia et al. (2022) posited that stress control is pivotal, as it is interwoven with other personal determinants, such as self-efficacy and resilience, affecting student performance within the academic milieu.

Akinsola and Nwajei (2013) pointed out the harmful effects of test anxiety on academic performance. They advocated for multimodal interventions, including relaxation and cognitive restructuring, to enhance student performance. Putwain et al. (2016) contend that academic resilience should be cultivated to mitigate test-related anxiety. Jenal et al. (2022) distinguished between the adverse impacts of test anxiety and the beneficial effects of a belief in effortful success on academic performance. However, Hamid and Singaram (2016) showed that test anxiety and critical thinking were not clear or inversely related to performance.

Self-esteem emerged as a significant determinant of life satisfaction and academic performance (Kleszczewska et al., 2018). They advocated for enhancing self-esteem through physical activity to improve outcomes, notably for students from economically challenged backgrounds. Supervia et al. (2022) reinforced this view, recognizing that self-esteem, in conjunction with self-efficacy and resilience, had a nuanced effect on performance within the educational context. This shows that the effect of self-esteem on SAP receives further influence from other factors. Emotions in academics, specifically interest and enthusiasm, significantly influenced student engagement and performance within online and blended learning realms (Namoun & Alshanqiti, 2020). Further, Hayat et al. (2020) discerned that positive learning-related emotions, spurred by self-efficacy, foster the application of metacognitive strategy, thus improving medical students' learning outcomes. Acosta-Gonzaga and Ramirez-Arellano (2021) identified a dichotomy wherein positive emotions aid motivation and strategy development, whereas negative emotions, like boredom and anxiety, undermine accomplishments. Finally, Luo et al. (2022) proposed that while positive emotions are conducive to online learning, the adverse effects of negative emotions can be mitigated by robust learning efficacy.

Intrinsic motivation, as revealed by Hamid and Singaram (2016), was strongly correlated with positive academic performance and well-being among medical students, with self-regulation playing a pivotal role in engagement. Tokan & Imakulata (2019) observed that intrinsic and extrinsic motivations and learning behavior are significant

determinants of performance. Dunn & Kennedy (2019) established that intrinsic motivation is a predictor of engagement and improved grades in technology-enhanced learning, whereas extrinsic motivation lacks a direct correlation with grades. The importance of psychological motivation for high-level academic activities in e-learning (Lee et al., 2019), while Steinmayr et al. (2019) demonstrated that ability self-concepts and task values hold more predictive power for academic success than goals and performance motivation. Acosta-Gonzaga & Ramirez-Arellano (2021) noted that motivation, coupled with emotions, cognition, and metacognition, significantly impacts learning, with positive emotions serving to enhance motivation. Supervia et al. (2022) underscored academic self-efficacy as a predictor of performance intertwined with motivational processes and satisfaction. The impact of ergonomic factors on learning motivation and, consequently, on academic performance during online classes was determined by Gumasing & Castro (2023). Cognitive and emotional engagements, especially motivation, were established as pivotal for academic success in primary schools (Khan et al., 2023).

Besides, intrinsic motivation, significantly influenced online engagement and was a key predictor of student performance (Namoun and Alshanqiti, 2020). Pascoe et al. (2020) demonstrated that stress, particularly when coupled with motivational decline due to sleep disruption, substantially affects performance. The crucial role of learning motivation in conjunction with blended learning methods for enhancing student performance (Rafiola et al., 2020), whereas Baber (2020) pinpointed motivation as vital for learning outcomes and satisfaction amidst the shift to online education during the pandemic. Borah (2021) emphasized that attitude, which directly impacts internal motivation and is shaped by task interest and teaching approaches, is central to academic success. The influence of learning motivation on social presence played a vital role in enhancing enrolment but did not directly influence learning performance in a blended learning setting (Law et al., 2019). Motivation plays a crucial role in impacting student achievement, where procrastination linked to poor motivation results in reduced academic performance (Munda & Tiwari, 2024).

The strong linkage between self-efficacy, high motivation, and enhanced performance in medical students (Hamid & Singaram, 2016), underscores the criticality of belief in one's abilities. Hayat et al. (2020) found that self-efficacy bolsters learning-related emotions and metacognitive strategies, culminating in improved academic performance. The pandemic-induced anxiety diminished students' academic self-efficacy (Alemany-Arrebola et al., 2020), revealing the psychological foundations of self-belief. Almaiah et al. (2020) highlighted the direct influence of self-efficacy on engagement and success within e-learning contexts during the pandemic. Fearnley et al. (2022) concurred, recognizing self-efficacy as a significant predictor of academic performance and perceived learning, especially in online education contexts. Munda & Tiwari (2024) described that academic self-efficacy moderated the relationship between academic stress and procrastination, with high self-efficacy students actively delaying tasks but ultimately achieving better performance.

As posited by Ansari & Khan (2020) as pivotal for student engagement, self-efficacy directly affects academic performance, particularly evidenced by online lecture involvement and examination results. Jenal et al. (2022) noted that control beliefs, inherent to self-efficacy, foster a mindset where effort equates to success, thereby potentially boosting performance. Liem (2022) identified self-regulatory self-efficacy as a deterrent to perceived distractions and an enhancer of positive emotions, contributing to academic success. Wu et al. (2022) observed

that students' flow states, indicative of immersive engagement, are amplified by high self-efficacy, thus improving performance. During the challenges of the COVID-19 pandemic, the role of self-efficacy in mobilizing performance resources (Talsma et al., 2021). Supervia et al. (2022) underscored self-efficacy as a critical performance indicator, interfacing with engagement and satisfaction and mediating resilience's impact on academic success. However, Rafiola et al. (2020) discerned that self-efficacy alone did not have a significant positive influence on SAP.

Coping strategies, when paired with perceived competence, enhanced academic performance and well-being (Liem, 2022). Resilience and coping strategies' significant impacted on academic success, particularly in adapting to social challenges (Supervia et al., 2022). Further, the importance of coping strategies in managing technostress in technology-enhanced learning environments, thereby affecting academic success, was corroborated by Sharma & Gupta (2023). These findings collectively emphasize the pivotal role of coping strategies in educational outcomes.

The current review underscores the intricate relationship between psychological dispositions and SAP, with motivation levels, self-efficacy, and test anxiety as pivotal factors. Future research is vital to address gaps in understanding their individual and interactive effects, given their complex nature and mixed findings (e.g., Hamid & Singaram, 2016 vs. Akinsola & Nwajei, 2013). Motivation levels, though widely recognized as crucial, require further exploration to tailor interventions effectively across diverse contexts (Dunn & Kennedy, 2019). Self-efficacy's pivotal role in bolstering learning strategies underscores its necessity in fostering academic confidence, especially during challenging times like pandemics (Hayat et al., 2020). Test anxiety's detrimental impact necessitates multimodal interventions tailored to mitigate its negative effects (Putwain et al., 2016). Thus, continued investigation into these factors is imperative for advancing our understanding and enhancing SAP.

Learning Behaviors and Cognitive Strategies

Table 4. Learning Behaviors and Cognitive Strategies

Learning Behaviors and Cognitive Strategies	
Habits	
Study habits	Mohamed et al. (2018); Limniou et al. (2021); Islam & Tasnim (2021); Supervia et al. (2022)
Metacognition	
Metacognition	Acosta-Gonzaga & Ramirez-Arellano (2021)
Woking Memory	
Woking memory	Cortés Pascual et al. (2019); Peng & Kievit (2020)

Table 4 shows study habits, metacognition, and executive functions such as working memory which are learning behaviors and cognitive strategies that affect SAP. Effective study habits, complemented by learning resources and parental involvement, are significantly linked to enhanced academic performance (Mohamed et al., 2018). Limniou et al. (2021) noted that resourcefulness and self-regulation, particularly in digital settings, are discipline-

specific study habits conducive to student success. Furthermore, Islam & Tasnim (2021) posited that good study habits, hard work, dedication, and self-confidence are beneficial for academic performance, whereas lack of effort and interest are counterproductive. Supervia et al. (2022) recognized study habits as critical factors that, depending on their synergy within the educational sphere, can either foster or impede performance.

Metacognition, with its emphasis on students' self-regulation and cognitive awareness, has been identified as a pivotal element in academic performance (Acosta-Gonzaga & Ramirez-Arellano, 2021). Working memory is further recognized by Cortés Pascual et al. (2019) as a foundational factor, with its information management capabilities being vital for scholastic success. Peng and Kievit (2020) expound on this, noting the role of working memory in facilitating essential cognitive functions and its resultant impact on learning.

The current review emphasizes the crucial role of study habits, metacognition, and working memory in SAP. However, future research may overlook these factors due to methodological complexities in measuring their individual effects and the competing priorities of exploring novel variables. The intricate interplay with other psychological dispositions further complicates the interpretation of their impact. Nonetheless, their significance in fostering student success underscores the need for researchers to continue investigating their role within the broader educational context, ensuring comprehensive understanding and effective interventions.

Health-Related Dimensions

Table 5. Health-Related Dimensions

Health-Related Dimensions	
Activity	
Physical activity	Kleszczewska et al. (2018); Haeveson et al. (2019); Sánchez-Hernando et al. (2021); Shantakumar et al. (2022)
Sleep	
Sleep quality	Okano et al. (2019)
Poor sleep	Pascoe et al. (2020)
Consistent sleep	Sánchez-Hernando et al. (2021)
Healthy Habits	
Excessive screen time	Sánchez-Hernando et al. (2021)
Health behaviors	Alhadabi & Karpinski (2020)

Based on Table 5, this category includes physical activity, sleep, and other health habits that can directly affect cognitive function and SAP. Physical activity has been shown to bolster self-esteem, subsequently enhancing life satisfaction and academic performance, particularly in socioeconomically disadvantaged families (Kleszczewska et al., 2018). Harveson et al. (2019) discovered that resistance to physical activity acutely improves mathematics scores and cognitive function, underscoring its benefits to brain activity and scholastic tasks. Sánchez-Hernando et al. (2021) linked a lifestyle inclusive of regular physical activity with superior academic outcomes, positing that physical health underpins cognitive learning capacities. Additionally, regular physical activity like jogging

and cycling were associated with better mental health and confidence, fostering improved academic performance (Shantakumar et al., 2022).

The crucial role of sleep quality and regularity for academic success was established by Okano et al. (2019), who proposed that sufficient, uninterrupted rest enhances cognitive functions in students. Pascoe et al. (2020) built on these findings, linking academic stress and poor sleep to a decline in scholastic performance, thus spotlighting anxiety's adverse effects on performance. Additionally, Sánchez-Hernando et al. (2021) reported that dietary habits, along with consistent sleep patterns and physical activity, have a direct bearing on educational outcomes, with balanced diets and adequate rest leading to improved grades.

The importance of healthy habits for academic performance is well-documented. Sánchez-Hernando et al. (2021) noted the negative impact of excessive screen time on academic performance. Alhadabi & Karpinski (2020) further established the link between health behaviors, mental health, and academic success. Health-related dimensions such as physical activity and sleep quality are integral to cognitive function and academic performance (Kleszczewska et al., 2018; Okano et al., 2019).

The present review shows the significance of health-related dimensions, particularly physical activity, sleep quality, and healthy habits, in fostering cognitive function and SAP. Physical activity bolsters self-esteem and cognitive functions, enhancing academic outcomes (Kleszczewska et al., 2018; Haeveson et al., 2019). Sleep quality and consistency are crucial for maintaining cognitive abilities and mitigating the adverse effects of stress on performance (Okano et al., 2019; Pascoe et al., 2020). Furthermore, excessive screen time and unhealthy habits hinder academic success (Sánchez-Hernando et al., 2021; Alhadabi & Karpinski, 2020). Neglecting these factors in future research may stem from a narrow focus on psychological determinants or methodological challenges in measuring their impact. However, their substantial contributions to SAP underscore the need for their continued inclusion in educational research.

Demographic Characteristics

Table 6. Demographic Characteristics

Demographic Characteristics	
Gender	
Gender	Moldabayev et al. (2013); Hamid & Singaram (2016); Agasisti et al. (2018); Cortés Pascual et al. (2019); Talsma et al. (2021); Mohamed et al. (2018); Alyahyan & Düştegör (2020); Alemany-Arrebola et al. (2020)
Age	
Age	Mohamed et al. (2018); Cortés Pascual et al. (2019); Cagliero et al. (2021); Fernandes et al. (2019); Borah (2021); Arashpour et al. (2023)

Based on Table 6, this category addresses factors such as gender and age. Gender has been identified as a significant factor influencing academic performance. Moldabayev et al. (2013) observed that attendance rates

impacted grades differently across genders, with male students initially showing a stronger correlation, which then shifted in later semesters. Although females generally exhibited higher motivation, this was not always reflected in significantly different academic performance compared to males, indicating a complex interrelation (Hamid & Singaram, 2016). Gender, along with school factors such as disciplinary climate and teacher-student relations, was influential in student performance, with supportive interactions and larger class sizes fostering resilience in a gender-differentiated manner (Agasisti et al., 2018). Gender differences were significant in the impact of executive functions, especially working memory, on academic success (Cortés Pascual et al., 2019). Gender was found to be a predictor of grades during the COVID-19 pandemic (Talsma et al., 2021).

Gender has emerged as a significant predictor of academic performance, as found by Mohamed et al. (2018), who suggested that societal and educational roles contribute to shaping academic outcomes. Alyahyan & Düştegör (2020) noted the inconsistent impact of demographics, including gender, across studies, hinting at a complex interaction with sociocultural factors. Additionally, Alemany-Arrebola et al. (2020) reported that during the COVID-19 pandemic, gender differences were pronounced, with women experiencing higher stress levels than men, negatively affecting their academic self-efficacy.

Age was identified as a significant predictor of academic performance, with maturity potentially enhancing learning through effective techniques and supportive home environments, as found by Mohamed et al. (2018). Older students often experienced lower success rates, possibly due to less favorable high school outcomes (Cagliero et al., 2021). Fernandes et al. (2019) highlighted age's role within the social environment affecting learning, with older students' demographic factors becoming more salient in their academic performances. Borah (2021) suggested that age's influence on performance was mediated by its interaction with teaching methods, learner aptitude, and attitudes. An inverse relationship between age and performance (Arashpour et al., 2023), with younger students outperforming older counterparts who, despite additional responsibilities, displayed resilience in academic improvement over time. However, Cortés Pascual et al. (2019) echoed this resilience, finding that age was not a significant predictor of performance, implying that cognitive abilities could outweigh the potential educational disadvantages of older age.

Demographic characteristics, specifically gender and age, will be integral to the current EDM-based study on subject options in NCEE. Gender (Hamid & Singaram, 2016; Talsma et al., 2021), and age (Arashpour et al., 2023; Mohamed et al.,2018), are predictors of academic performance. The current study will incorporate these variables to understand their complex interplay with academic performance in Chinese, Mathematics, and English, and to derive insights that could inform tailored educational strategies within the context of recent NCEE reforms. The present review highlights the significance of demographic characteristics, particularly gender and age, in shaping SAP. Gender differences in motivation, resilience, and stress response underscore its necessity in understanding academic outcomes (Hamid & Singaram, 2016; Alemany-Arrebola et al., 2020). Age's role in learning effectiveness and resilience, despite mixed findings, warrants further investigation given its potential to inform age-appropriate interventions (Mohamed et al., 2018; Arashpour et al., 2023). Including gender and age in future studies is crucial due to their predictive power and the need to address potential sociocultural biases and inequalities in education. Thus, these factors are indispensable for developing tailored educational strategies that

cater to diverse student populations.

Past Performance

Based on Table 7, past performance is also a very common predictor of SAP. The influence of high school CGPA on performance was noted, with private tutoring providing a modest advantage, particularly in subjects like mathematics (Berberoğlu & Tansel, 2014). The significance of high school GPA as a harbinger of collegiate success was underscored, demonstrating a direct linkage between earlier and later academic performance (Brech & Burnett, 2019). Steinmayr et al. (2019) expanded the scope of predictors to include motivational constructs, indicating that students' self-concepts and task values, shaped by past successes, influence subsequent performance. Alyahyan & Düştegör (2020) identified historical grades and test scores as primary indicators of academic success while acknowledging the varied effects of demographics and environmental factors. Historical academic data was reported to significantly affect performance in online and blended learning contexts (Namoun & Alshanqiti, 2020). Past performance was identified as a robust predictor of future academic success, with early performances laying the groundwork for continued excellence (Waheed et al., 2020). Additionally, engagement levels, alongside previous success, were seen to shape educational outcomes, suggesting that past performance bolsters engagement and ongoing performances (Arashpour et al., 2023).

Table 7. Past Performance

Past Performance	
School CGPA	Berberoğlu & Tansel (2014); Brech & Burnett (2019);
Past successes	Steinmayr et al. (2019)
Historical grades and test scores	Alyahyan & Düştegör (2020)
Historical academic data	Namoun & Alshanqiti (2020)
Past performance	Waheed et al (2020); Arashpour et al (2023)
Past academic results	Rahman (2021)
School marks and failed subjects	Supervia et al. (2022)
Class XII results	Mehndiratta & Mehndiratta (2023)
Semesters grades	Alghamdi & Rahman (2023)
Previous academic performance	Issah et al. (2023)

Furthermore, past academic results were found to be strong determinants of students' GPA, with Rahman (2021) emphasizing their long-term impact on current success. Supervia et al. (2022) pinpointed school marks and failed subjects as reliable predictors of academic performance, suggesting that historical scholastic records underpin the development of students' academic self-efficacy and resilience. The influence of Class XII results on performance in programming was examined using the apriorist algorithm to generate association rules (Mehndiratta & Mehndiratta, 2023). Alghamdi & Rahman (2023) identified grades across various semesters as significant

indicators of performance, noting that family factors like income and parental involvement also play a role, thus indicating that past performance is influenced by both individual and familial factors. Confirming this trend, Issah et al. (2023) reported that previous academic performances are widely recognized as significant predictors of student learning outcomes.

Past performance is a significant indicator of future success (Steinmayr et al., 2019; Waheed et al., 2020). In the current EDM-based investigation into subject options for NCEE, historical academic performances will be a key variable. By analyzing past performance data, the study aims to predict outcomes in Chinese, Mathematics, and English, recognizing that prior success often sets a precedent for future academic endeavors, and tailoring educational strategies accordingly.

The current review illuminates the crucial role of past performance as a reliable indicator of future SAP. The congruence of findings, from high school CGPA to semester grades, demonstrates its universally recognized importance (Alyahyan & Düştegör, 2020; Waheed et al., 2020). Beyond simply reflecting students' academic capabilities, past performance also plays a pivotal role in shaping their motivation, engagement, and resilience (Steinmayr et al., 2019; Arashpour et al., 2023). As such, integrating past performance into future research is vital to understanding its complex interplay with other factors and developing tailored interventions that leverage students' prior successes. Despite potential limitations such as sociocultural biases, its predictive strength and widespread agreement among scholars underscore the need for its continued consideration in educational research.

Family Dimensions

Based on Table 2, the family dimensions can be categorized into three aspects: demographic dimensions, parental involvement and *support, and family environment.*

Demographic Dimensions

Based on Table 8, it includes parental education levels, family income, and family structure. Parental educational attainment was identified as a significant predictor of academic performance, with home-related aspects and study habits, influenced by parental education, positively correlating with student success (Mohamed et al., 2018). Parental education, as part of a broader set of socioeconomic factors, correlates with GPA and fosters non-cognitive skills like perseverance (Alhadabi & Karpinski, 2020). Parental education, particularly in programming subjects, was found to often promote better student outcomes (Mehndiratta & Mehndiratta, 2023). In rural contexts, lower parental education levels were shown to affect the degree of involvement in children's education and career aspirations, impacting academic performance (Echazarra & Radinger, 2019). Moreira et al. (2019) demonstrated that scholarships for study, potentially more accessible to students with educated parents, were associated with better academic performance in medical students. The education of both mother and father emerged as important factors that positively affect students' performance, with educated parents playing a supportive role (Rahman, 2021). Mishra (2020) noted that the educational level of parents affects the resources and guidance available to underrepresented students. Leonard et al. (2022) showed that higher parental education

levels lead to better student support and success, while Suningsih (2022) found that parents' education, especially mothers', significantly motivates children to learn English as a foreign language.

Table 8. Demographic Dimensions

Demographic Dimensions	
Family Education Levels	
Parental education	Mohamed et al. (2018); Alhadabi & Karpinski (2020); Mehndiratta & Mehndiratta (2023)
Lower parental education levels	Echazarra & Radinger (2019)
Educated parents	Moreira et al (2019); Rahman (2021)
Educational level	Mishra (2020); Leonard et al. (2022)
Mothers' education	Suningsih (2022)
Family Income	
Parental income	Mbogo et al (2021)
Family income	Rahman (2021); Waheed et al. (2020); Alghamdi & Rahman, 2023
Levels of parental income	Leonard et al. (2022)
Family income of parental economic status	Mamo et al. (2017)
Source of family income	Mohamed et al. (2018)
Lower-income	Rozek et al. (2019)
Lower family income	Moreira et al. (2019)
Family Structure	
Family structure	Guo et al. (2023)

Parental income was positively correlated with improved academic performance, suggesting enhanced resources boost exam success (Mbogo et al., 2021). Rahman (2021) demonstrated that not only family income but also class attendance, study hours, and educational internet usage were beneficial to students' CGPA, underscoring the importance of individual effort and supportive environments. Family income and emotional stability were emphasized as significant determinants of student performance (Waheed et al., 2020). Family income's role in predicting student success was underlined, with a call for increased parental involvement to further academic performance (Alghamdi & Rahman, 2023). Higher levels of parental income were linked to better academic outcomes, a result of stronger support and encouragement (Leonard et al., 2022).

Moreover, family income was noted by Mamo et al. (2017) to influence student performance through parental economic status and the consequent access to educational resources. However, Mohamed et al. (2018) found that once controlling for other factors, the primary source of family income did not significantly predict academic performance variations, pointing to the strong impact of learning techniques and study habits on academic success. Rozek et al. (2019) found that lower-income students often experience increased stress during high-stakes exams in STEM fields, potentially impairing their performance. Financial aid, particularly research scholarships, was

observed to enhance academic performance among medical students, suggesting it as a tool to counterbalance the effects of lower family income and promote educational equity (Moreira et al., 2019).

Guo et al. (2023) extensively analyzed the impact of family structures on academic performance, concluding that intact family structures tend to support higher academic performance through access to resources and co-parenting. The absence of one or both parents, particularly in single-parent families, often results in lower academic performance, primarily due to reduced family socioeconomic status rather than the family structure itself. However, they found that family structure influences middle-school students' academic performance through socioeconomic status and parental input, with intact families fostering higher performance than those with absent parents.

This review points out the pivotal role of demographic dimensions, particularly parental education and family income, in shaping SAP. The educational attainment of both parents has emerged as a robust predictor, influencing students' study habits, resources, and non-cognitive skills (Mohamed et al., 2018; Rahman, 2021). The necessity of including these factors in future research stems from their consistent association with SAP and their potential to inform targeted interventions for underrepresented students. Family income, too, is a significant determinant, albeit intertwined with multiple factors, highlighting the importance of equitable access to educational resources (Mbogo et al., 2021; Waheed et al., 2020). The complexity surrounding family structure underscores the need for a nuanced understanding of its impact, considering both socioeconomic and familial dynamics (Guo et al., 2023). Therefore, future studies should prioritize these demographic dimensions to develop comprehensive educational strategies that mitigate socioeconomic disparities and promote academic excellence.

Parental Involvement and Support

Based on Table 9, factors such as parental involvement and support are very important to affect SAP. Parental engagement, such as teacher attitudes and home strictness, were found to significantly affect SAP (Saqib et al., 2018). Parental engagement was identified as instrumental in children's academic success, with higher involvement levels linked to improved performance (Lara & Saracostti, 2019). Parental engagement was also seen to overshadow financial contributions, offering a positive impact on academic outcomes, particularly in underprivileged families (Li & He, 2022). According to Sudadio (2024b), parental involvement influences student motivation and performance by contributing to improved educational outcomes. Luo et al. (2022) expanded on this, noting the role of family cultural capital and expectations in fostering academic emotions and online learning engagement. For students from lower socioeconomic backgrounds, parental involvement was particularly beneficial, correlating with academic success and positive behavior at school (Duan et al., 2018). Socioeconomic status was found to shape parental involvement, leading to proactive educational measures such as tutoring that enhance grades and exam results (Young, 2020). The effects of parental warmth and involvement on academic performance were found to vary by gender; in immigrant families, boys seemed to benefit more from such involvement (Parmar & Nathans, 2022).In the absence of parental care, such as due to AIDS, children experienced lower academic marks and educational expectations (Tu et al., 2009). Parental encouragement was highlighted as beneficial for students learning English as a foreign language, indicating that home support builds positive

attitudes and confidence crucial for language proficiency (Getie, 2020). Early engagement with educational materials and focused study efforts, rather than passive resource accumulation, were recommended for improving outcomes, emphasizing the importance of active involvement (Cagliero et al., 2021).

Table 9. Parental Involvement and Support

Parental Involvement and Support	
Parental Involvement	
Parental engagement	Saqib et al. (2018); Lara & Saracostti (2019); Li & He (2022)
Parental participation	Sudadio (2024b)
Family engagement	Luo et al. (2022)
Parental involvement	Duan et al. (2018); Young (2020); Parmar & Nathans (2022)
Parental care	Tu et al. (2009)
Parental encouragement	Getie (2020)
Early engagement	Cagliero et al. (2021)
Parental Support	
Parental support	Leonard et al. (2022); Yeung & Xia (2023)

Leonard et al. (2022) observed that socioeconomic factors, including family size and parental education, significantly affected academic outcomes, with students from more affluent backgrounds often excelling due to stronger support systems. Parental support emerged as a critical factor influencing academic commitment and performance in middle school, with implications extending into adulthood (Yeung & Xia, 2023).Parental involvement has emerged as a decisive factor in SAP, offering an essential layer of support that can substantially enhance educational outcomes (Lara & Saracostti, 2019; Leonard et al., 2022).The current review puts forward the crucial importance of parental involvement and support in affecting SAP. Parental engagement and care have consistently demonstrated their ability to foster academic success, particularly for students from disadvantaged backgrounds (Saqib et al., 2018; Duan et al., 2018). The importance of examining parental involvement in future research arises from its undeniable significance and the potential to develop interventions that leverage the strength of family support. While some variations in effectiveness may exist based on factors such as gender and socioeconomic status, the broad consensus among researchers emphasizes the need to continue exploring this dimension in educational research (Parmar & Nathans, 2022; Leonard et al., 2022). Ultimately, parental involvement in students' learning remains a fundamental aspect of comprehending and enhancing SAP.

Family Environment

Based on Table 10, family environment refers to the language environment at home, private learning space, family interactions, accommodation type and location. Agasisti et al. (2018) identified the language spoken at home as a significant factor influencing student performance, with the linguistic environment playing a crucial role in academic outcomes. Mishra (2020) emphasized the importance of parental language skills, especially for underrepresented students, positing that home proficiency in the instructional language lays a foundation for success.

Table 10. Family Environment

Family Environment	
Language Environment	
Language spoken at home	Agasisti et al. (2018)
Parental language skills	Mishra (2020)
Private Learning Space	
Private learning space	Lei & Lin (2022)
Family Interactions	
Family interactions	Mathimagal et al. (2022)
Accommodation Type and Location	
Accommodation type and location	Alghamdi & Rahman (2023)

Lei & Lin (2022) discovered that a private learning space significantly boosts students' intentions to persist with online learning, suggesting that such spaces can improve concentration and academic outcomes. Family interactions were found to significantly affect student performance (Mathimagal et al., 2022). Furthermore, the type and location of student accommodation were identified as critical factors for academic performance, with the nature of living conditions, family income, and parental involvement all playing roles in academic success (Alghamdi & Rahman, 2023).

This review reveals the profound impact of the family environment on SAP, encompassing language, learning space, family dynamics, and accommodation. The linguistic milieu at home and parental language abilities are crucial for academic success (Agasisti et al., 2018; Mishra, 2020). A private learning space enhances online learning persistence, potentially augmenting academic outcomes (Lei & Lin, 2022). Family interactions and accommodation type significantly influence performance, with complex interactions involving living conditions, income, and parental engagement (Mathimagal et al., 2022; Alghamdi & Rahman, 2023). Neglecting these factors in future research may stem from a narrow focus on individual factors, methodological challenges, or resource constraints.

School dimensions

Based on Table 2, the school dimensions can be categorized into two aspects: teacher dimensions, and school environment, resources and leadership.

Teacher Dimensions

Based on Table 11, this category includes dimensions such as teacher qualities, self-efficacy, teachers' qualifications, and instructional practices. Toropova et al. (2019) demonstrated that a teacher's content knowledge and experience have a positive effect on mathematics performance. Gopal et al. (2021) noted that in online learning, instructor quality, student expectations, prompt feedback, and effective course design are critical for

success. Additionally, Wang (2022) found that a teacher's emotional intelligence and engagement significantly predict student success.

Table 11. Teacher Dimensions

Teacher Dimensions	
Teacher Qualities	
Teacher's content knowledge and experience	Toropova et al. (2019)
Instructor quality	Gopal et al. (2021)
Emotional intelligence and engagement	Wang (2022)
Self-efficacy	
Self-efficacy beliefs	Toropova et al. (2019)
Teacher self-efficacy	Wang (2022)
Teachers' Qualifications	
Teachers' qualifications	Shannag et al. (2013); Assem et al. (2023)
Instructional Practices	
Teaching practices	Shannag et al. (2013)
Pedagogical methods	Jacobson (2000)
Interactive methods	Littlejohn (2020)
Collaborative methods	Lekhetho (2013)
Teaching methods	Borah (2021)
Innovative instructional strategies	Assem et al. (2023)

Toropova et al. (2019) reported that while teacher self-efficacy beliefs are associated with perceived instructional quality, they do not significantly correlate with average math performance in classrooms. Contrarily, Wang (2022) highlighted that teacher self-efficacy, coupled with high engagement and emotional intelligence, enhances student outcomes, indicating the importance of teachers' belief in their capabilities.

Shannag et al. (2013) found that teachers' qualifications and student-centered teaching practices are key to student performance in science, with advanced degrees and certifications linked to better outcomes. Assem et al. (2023)

also underscored that teachers' qualifications, particularly in subject-matter expertise and pedagogical skills, significantly influence student performance, with highly qualified teachers leading to greater performance.

Jacobson (2000) highlighted that pedagogical methods and positive student-teacher relationships significantly impact academic performance, with approaches that address individual needs and diversity will enhance outcomes. The challenges of the transition to online teaching, particularly the lack of interactive methods, were discussed by Littlejohn (2020), noting their importance for developing proactive learning strategies. Collaborative methods and strong school leadership, coupled with a cultural shift towards English usage, were key to improving student performance in Lesotho (Lekhetho, 2013). Borah (2021) noted the influence of teaching methods on performance, mediated by students' attitudes shaped within the educational context. Innovative instructional strategies in physics, such as inquiry-based teaching, were found to boost engagement and comprehension, in contrast to traditional lectures (Assem et al., 2023).

This review highlights the pivotal influence of teacher dimensions on SAP, encompassing key factors such as teacher's education, qualifications, teaching methods, and self-efficacy. Teacher's education and qualifications are widely acknowledged as essential elements, influencing instructional quality and student outcomes (Shannag et al., 2013; Assem et al., 2023). Teaching methods, including interactive and collaborative approaches, have been proven to foster student engagement and academic performance (Jacobson, 2000; Littlejohn, 2020). Teacher's self-efficacy, while intricately linked to student achievement, remains a vital determinant of instructional effectiveness and student success (Toropova et al., 2019; Wang, 2022). The imperative for continued research into these factors arises from their undeniable significance, the possibility of disagreements surrounding their relative impact, and the necessity to devise targeted interventions that harness teacher strengths. Ultimately, these teacher dimensions play a fundamental role in understanding and enhancing student performance.

School Environment, Resources and Leadership

Based on Table 12, this encompasses the overall school environment, resources available and leadership within the school. Kleszczewska et al. (2018) found that a positive school climate, by promoting self-esteem through physical activity, especially in less affluent families, could enhance life satisfaction and improve academic outcomes. Whittle et al. (2018) elaborated that a school climate fostering active learning and strong student-teacher relationships boosts performance, despite potential time barriers. School climate also indirectly affects performance via school leadership, influencing teacher behaviors, which highlights the importance of effective leadership for academic success (Ozdemi, 2019). Law et al. (2019) found that the blended learning environment, through aspects like student enrolment and motivation, influences cognitive and social presence, which then indirectly impacts academic performance, whereas the teaching environment has a direct positive effect. The study environment, influenced by diverse factors like technology and resource readiness, plays a crucial role in academic performance (Almaiah et al., 2020). In online learning, the learning environment, shaped by student background, experience, and autonomy, is a significant determinant of academic success, with student satisfaction serving as a key mediator (Abuhassna et al., 2020). Getie (2020) pointed out that the classroom learning environment, alongside teacher attitudes and the availability of educational resources, affects language performance, with

students' positive attitudes towards resources like textbooks reflecting favorably on certain educational context elements.

Table 12. School Environment and Resources

School Environment and Resources	
School Environment	
School climate	Kleszczewska et al. (2018); Whittle et al. (2018); Ozdemi (2019)
Blended learning environment	Law et al. (2019)
Study environment	Almaiah et al. (2020)
Learning environment	Abuhassna et al. (2020); Getie (2020)
School Resources	
Inadequate facilities	Mamo et al. (2017)
Technological facilities	Almaiah et al. (2020)
Facilities and resources	Sudadio (2024b)
School Leadership	
Leadership	Lekhetho (2013)
School leadership	Ozdemi (2019)
Principal leadership	Sudadio (2024a)

Mamo et al. (2017) found that institutional factors, including inadequate facilities and ineffective policies at Dire Dawa University, Ethiopia, were detrimental to female students' academic performance, signaling a pressing need for institutional reform. Almaiah et al. (2020) reported that during the COVID-19 pandemic, students' e-learning performance was positively influenced by technological facilities readiness and system quality, yet trust issues presented a negative impact. According to Sudadio (2024b), school facilities and resources enhance student learning experiences and outcomes by providing adequate physical and technological support.

In Lesotho, Lekhetho (2013) found that strong leadership, alongside collaborative teacher-student efforts, and English language immersion, directly improved student performance on school-leaving examinations, underscoring the significance of leadership in academic success. Ozdemi (2019) also emphasized the crucial role of school leadership, particularly the indirect influence of principals through instructional leadership and teacher development, in enhancing student academic outcomes. Sudadio (2024a) argued that principal leadership was crucial for enhancing student performance, emphasizing its transformative nature and character change within individuals.

This review unravels the pivotal role of school environment, resources, and leadership in fostering SAP. A nurturing school climate, supportive blended learning environments, and adequate resources are essential for enhancing outcomes. Inadequate facilities and technological limitations hinder performance, while effective leadership shapes the academic landscape. Future research may overlook these factors due to a narrow focus on individual characteristics or methodological challenges in measuring their holistic impact. However, the

interconnectedness of these dimensions necessitates their inclusion in studies to develop comprehensive strategies that address the complexities of academic success.

Social Dimensions

Based on Table 2, the social dimensions can be categorized into three aspects: cultural influences and socioeconomic status, peer relationships and extracurricular activities, and social interactions and tutoring.

Cultural Influences and Socioeconomic Status

Based on Table 13, factors such as cultural background and socioeconomic status (SES) play a pivotal role in shaping SAP. The cultural background was found to significantly affect student performance, as Moldabayev et al. (2013) highlighted its role in academic outcomes. Mamo et al. (2017) identified socio-cultural factors at Dire Dawa University as influential on female SAP, with the cultural context affecting the availability of learning materials and services, thereby impacting success. Cultural aspects were also observed to enhance engagement and success in e-learning during COVID-19, with cultural initiatives improving student satisfaction and confidence (Almaiah et al., 2020).

Table 13. Cultural Influences and Socioeconomic Status

Cultural Influences and Socioeconomic Status	
Cultural Influences	
Cultural background	Moldabayev et al. (2013)
Socio-cultural factors	Mamo et al. (2017)
Cultural aspects	Almaiah et al. (2020)
Socioeconomic Status	
SES	Alhadabi & Karpinski (2020); Alyahyan & Düştegör (2020); Mbogo et al. (2021); Issah et al. (2023)
Low-SES	Duan et al. (2018)
Higher SES	Young (2020); Suningsih (2022); Mehndiratta & Mehndiratta (2023)

Alhadabi & Karpinski (2020) observed that health behaviors and mental health, along with SES, correlate with GPA, emphasizing the substantial impact of non-cognitive factors such as grit and self-efficacy on academic performance, highlighting the importance of an educational environment that nurtures these qualities. Alyahyan & Düştegör (2020) noted the varied impacts of SES on academic outcomes, with its effects modulated by students' prior performances and environmental context. While acknowledging SES as a significant determinant of Mathematics and English performance, Mbogo et al. (2021) contested the notion that SES alone predicts academic success. Prior academic success, demographic traits, and SES as significant influencers of academic performance (Issah et al., 2023).

The benefits of parental involvement, especially for students from low-SES backgrounds, as it correlates with

academic success (Duan et al., 2018). Young (2020) revealed that parents with higher SES are more likely to participate in their children's education, a factor that correlates with improved grades and performance on exams. Guardians of higher SES are active in supporting their children's English language learning, a commitment that enhances academic performance (Suningsih, 2022). Improved performance in programming subjects was linked to higher SES, which encompasses parental education, they noted SES's influence on prior experience and performance (Mehndiratta & Mehndiratta,2023).

This review delves into the intricate interplay between cultural influences and socioeconomic status (SES) in shaping SAP. Cultural background and sociocultural factors are pivotal in modulating academic outcomes, and influencing resource access and engagement (Moldabayev et al., 2013; Mamo et al., 2017). SES emerges as a critical determinant, with its complex relationship to academic success inviting both controversy and consensus (Alhadabi & Karpinski, 2020; Alyahyan & Düştegör, 2020). Its significance extends beyond direct effects, influencing parental involvement, educational resources, and student motivation (Duan et al., 2018; Young, 2020). Future research necessitates a nuanced examination of SES, acknowledging its multifaceted nature and potential to inform equitable educational interventions. This is essential given the prevailing recognition of SES as a key driver of academic disparities, underscoring its necessity in shaping educational policies and practices.

Peer Relationships and Extracurricular Activities

Based on Table 14, this encompasses the impact of peer support and extracurricular activities. Lee et al. (2019) emphasized the importance of peer collaboration in e-learning for cognitive problem-solving and motivation. The significance of peer support in enhancing academic outcomes, who observed its positive effect on attitudes toward learning and interactions with native speakers (Getie, 2020). Deng (2024) stated that peer relationships can positively or negatively impact students' academic performance, with acceptance enhancing academic development and rejection, including bullying, negatively affecting academic performance. Miksza et al. (2021) identified the quality of peer relationships as essential for students' vitality and engagement in music education, suggesting that while stress diminishes vitality, strong peer bonds can counteract this effect. Conversely, Fearnley et al. (2022) noted that peer interactions, unlike those with educational content and instructors, had a lesser effect on satisfaction and academic outcomes.

Table 14. Peer Relationships and Extracurricular Activities

Peer Relationships and Extracurricular Activities	
Peer Relationships	
Peer collaboration	Lee et al. (2019)
Peer support	Getie (2020)
Peer relationships	Miksza et al. (2021); Deng (2024)
Peer interactions	Fearnley et al. (2022)
Extracurricular Activities	
The role of extracurriculars	Agasisti et al. (2018)
Extracurricular activities	Mehndiratta & Mehndiratta (2023)

Agasisti et al. (2018) recognised the role of extracurriculars in creating an environment favourable to academic success, intertwined with parental support, socio-economic status, and educational aspirations that together influence academic commitment and performance. Mehndiratta & Mehndiratta (2023) also found that extracurricular activities enhance student performance in programming, linking such involvement to socio-economic advantage and higher parental education, which afford students enriched experiential learning and support networks.

The current review illuminates the pivotal role of peer relationships and extracurricular activities in shaping SAP. Peer collaboration and support emerge as critical factors, fostering cognitive engagement and positive learning attitudes (Lee et al., 2019; Getie, 2020). The quality of peer relationships is underscored for vitality and academic engagement, mitigating the effects of stress (Miksza et al., 2021). While the direct impact of peer interactions on academic outcomes may be nuanced (Fearnley et al., 2022), their significance in nurturing a supportive learning environment cannot be overlooked. Extracurricular activities, too, are identified as essential, contributing to academic success by fostering an environment conducive to learning and enriched experiential learning opportunities (Agasisti et al., 2018; Mehndiratta & Mehndiratta, 2023). The necessity of investigating peer relationships and social support in future research arises from their consistent positive associations with academic performance, the potential for controversy surrounding their specific mechanisms, and the widespread recognition of their importance in promoting student well-being and performance.

Social Interactions and Tutoring

Table 15. Social Interactions and Tutoring

Social Interactions and Tutoring	
Social Interactions	
Social media groups	Dunn & Kennedy (2019)
Social media integration	Almaiah et al. (2020)
Social media	Ansari & Khan (2020)
Community support	Lee et al. (2019)
Socio-emotional support	Echazarra & Radinger (2019)
Social support	Mishra (2020)
Social interaction and social media usage	Nazeef et al. (2024)
Tutoring	
Private tutoring	Zhan et al. (2013)
Tutoring	Berberoğlu & Tansel (2014); Chui et al. (2020)
Weekend tutoring	Li & He (2022)

Based on Table 15, Dimensions including social interactions and tutoring are vital factors that affect SAP by many scholars. Dunn and Kennedy (2019) found that student performance in a technology-enhanced learning environment is positively influenced by active engagement with social media groups, suggesting a link between

such interaction and better grades. Almaiah et al. (2020) indicated that e-learning is enhanced by factors including social media integration, which boosts engagement and success. Moreover, social media facilitates collaborative learning, significantly improving academic performance by fostering creativity and global learning connections (Ansari and Khan, 2020).

Community support and peer collaboration are also key social factors that impact student performance, fostering a sense of belonging and aiding problem-solving in e-learning environments (Lee et al., 2019). In rural settings, socio-emotional support plays a critical role in affecting student performance, academic participation and completion rates, as well as students' self-esteem and career aspirations (Echazarra & Radinger, 2019). Mishra (2020) highlighted that social support significantly influences the academic outcomes of underrepresented students, with community resources particularly beneficial in contexts lacking social capital. Nazwwf et al. (2024) described how social interaction with peers and teachers, as well as social media usage, positively impact students' academic performance through collaborative learning.

Private tutoring in one-on-one and small-group settings is effective for exam preparation and improving learning strategies in Hong Kong (Zhan et al., 2013). The impact of such tutoring, particularly in subjects like mathematics and the Turkish language, is minor compared to other factors such as socioeconomic status, and it may contribute to social inequalities (Berberoğlu & Tansel, 2014). An algorithm proposed by Chui et al. (2020) suggests that a holistic approach to tutoring can positively affect student performance. Weekend tutoring and parental engagement are especially beneficial for academic outcomes in less advantaged families, while tutoring during workdays may have a negative impact (Li & He, 2022). The above scholars hold two different perspectives, so the inclusion of private tutoring in the current study is necessary.

Social support emerges as a crucial element in bolstering students' academic journey, providing a foundation for engagement and success that extends beyond the classroom (Mishra, 2020). Such support, especially in underrepresented communities, can significantly mitigate the challenges posed by socioeconomic disparities. In contrast, private tutoring, while beneficial, presents a dichotomy in its impact; it can enhance learning and exam preparation yet potentially exacerbate social inequalities (Berberoğlu & Tansel, 2014).

This review shows the role of social interactions and tutoring in shaping SAP. Social media integration and community support foster engagement and creativity, enhancing academic outcomes (Dunn & Kennedy, 2019; Lee et al., 2019). However, the debate surrounding private tutoring remains pertinent, as it offers a mixed bag of benefits and potential drawbacks. On one hand, private tutoring, particularly during weekends and with parental engagement, can significantly boost exam preparation and learning strategies (Zhan et al., 2013; Li & He, 2022). On the other hand, its efficacy is contested, with concerns over exacerbating social inequalities and its minor impact compared to socioeconomic factors (Berberoğlu & Tansel, 2014). Given its widespread use and controversial nature, future research on private tutoring is imperative to disentangle its complex effects, inform equitable educational policies, and develop tailored interventions that harness its potential while mitigating its pitfalls.

Conclusion

This systematic review highlights the multifaceted nature of factors affecting SAP, emphasizing the intricacies of individual, family, school, and social dimensions. The critical roles of factors, such as age, gender, motivation levels, self-efficacy, and past performance, are highlighted as they significantly shape academic performance. Family dimensions, including parental education, income, and involvement, are shown to be potent predictors of student performance. Similarly, teacher education, qualification, teaching methods, and teacher's self-efficacy are identified as central school-related factors. Social dimensions, such as peer relationships, social support, private tutoring and socioeconomic status emerge as vital contributors to SAP. Notably, inconsistencies in the effects of some factors necessitate further research to elucidate their complex relationships and develop effective interventions.

Recommendations

Future research on SAP factors should focus on refining interventions tailored to individual differences. Understanding the moderating effects of cultural context and technological advancements on SAP is vital. The role of mental health support systems within schools needs exploration, given their potential to mitigate negative psychological impacts. Moreover, the longitudinal impact of early intervention programs should be examined to determine their sustained effects on SAP. Finally, policymakers should leverage research findings to develop equitable education policies that address socioeconomic disparities and enhance overall student well-being and performance.

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