RESEARCH PAPER

A Bibliographic Synthesis And Empirical Study Of Attention Span And Academic Success In Senior Secondary School Students

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Abstract

The present study investigates the relationship between attention span and academic success among senior secondary school students (classes ix–xii) in india. The researchers selected 200 students between the ages of 14 and 18 for their study which used a cross-sectional quantitative research design. The researchers used the bourdon-wiersma test to measure sustained attention and they used student's percentage scores from their most recent exams to evaluate their academic performance. The researchers used self-report scales to assess student study focus and their ability to maintain attention during studies. The study results showed that 31% of students were able to maintain their attention for long periods while 49% of students showed average results and 20% of students showed below average results. Academic achievement distribution showed that 25% scored 75% and above, 39% scored between 60–74%, 22% between 50–59%, and 14% below 50%. The correlation analysis showed that overall attention brought about academic achievement success which had a strong positive relationship (r value 0.62 and p value 0.000). The researchers used regression analysis to show that sustained attention serves as a key determinant for academic performance. The researchers found that screen time and sleep duration and study routines served as moderating factors which changed how students paid attention. The research shows that sustained attention operates as a vital cognitive element which determines how students perform academically during their teenage years. The study highlights the need for attention-enhancement strategies within school systems to support academic excellence.

Keywords: Sustained Attention, Academic Achievement, Senior Secondary Students, Digital Distraction, Cognitive Performance.

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INTRODUCTION

The period of senior secondary education in India functions as a crucial time for student development because it requires students to concentrate on their studies while they complete their syllabus and prepare for board examinations (Reshu et al., 2025). Current research findings show that "attention span" should be treated as a collection of attention-control abilities which include sustained attention and selective attention and vigilance that enable learning during cognitive load (Spiegel et al., 2021). The meta-analytic research demonstrates that executive-attentional functions which include working memory and inhibitory control functions present academic achievement links which extend to all core academic domains because attentional control functions as the main element that determines student performance (Spiegel et al., 2021). Field studies demonstrate that students who possess sustained attention skills will achieve success in real academic environments because objective academic measurements of attention are more effective than self-reported distractions (Gallen et al., 2023). Students must maintain their focus because classroom learning requires them to manage their off-task thinking since mind wandering interrupts their active learning process during both instructional time and independent study time (Cherry et al., 2022).

Adolescents face a new learning environment because digital media and regular multitasking activities now take away their focus when they study and complete homework and review material (Lax et al., 2026). The examination of evidence from multiple educational levels reveals that media multitasking negatively impacts academic performance, which creates a need to investigate how attention relates to academic success in

environments that require high examination performance (Lax et al., 2026). Upper secondary learners in India have additionally reported substantial academic stress and exam anxiety in post-pandemic schooling, conditions that may further tax attention regulation and undermine consistent study routines (Reshu et al., 2025). Self-regulated learning processes which include planning and monitoring and strategic control create differences between higher-performing and lower-performing secondary students who perform digital tasks (Aksela et al., 2025). Educational standards require educational institutions to base their recommendations on substantial evidence which considers their specific operational environment (Slattery et al., 2022). The Indian senior secondary study conducts bibliographic synthesis together with empirical analysis to determine which attention dimensions most impact academic success for specific students in various learning environments (Gallen et al., 2023).

Background: attention span as a learning prerequisite in adolescence

During adolescence which represents a crucial developmental stage students develop their ability to maintain attention which helps them study continuously and monitor their errors and maintain their focus during examination situations which constitute vital components of Indian secondary education (Hobbiss et al., 2024). Research conducted in schools demonstrates that students who maintain their attention throughout the day achieve better academic results than those who demonstrate shorter attention spans. The study showed that students who maintained their attention throughout the school day displayed better academic skills in math and reading and achieved higher standardized test scores. Indian senior secondary students take high-stakes cumulative assessments that require sustained attention because failure to do so leads to missed instructions and incomplete problem-solving steps and decreased testing accuracy throughout the assessment period (Ministry of Education Government of India 2025). Students tend to lose their focus during classroom learning because their cognitive processes do not remain alert which leads to them thinking about other matters while they study so they need to maintain attention during study time to achieve better learning results (Cherry et al., 2025).

Table 1.1 Higher secondary achievement indicator (India): stream-wise distribution of passed students (2023) (Ministry of Education, Government of India, 2025)

Conceptual definitions: sustained attention, selective attention, mind-wandering, cognitive control

Researchers in educational studies should treat "attention span" as a collection of distinct but interactive processes which students with complex syllabi and digital distractions face during their studies (Hobbiss et al., 2024). Sustained attention requires continuous focus on a specific goal which can be measured through response variability and vigilance metrics during ongoing tasks; this ability develops through the adolescent years and predicts how students will become distracted in class (Hobbiss et al., 2024). Selective attention refers to prioritizing task-relevant information while suppressing irrelevant distractors; evidence suggests selective attention may mature earlier than sustained attention yet both contribute to real-world inattention during lessons (Hobbiss et al., 2024). Mind-wandering describes a shift of attention away from the immediate task toward internally generated thoughts; in a classroom listening paradigm with thought probes children reported being off-task in 45% of probes which split into 22% mind-wandering and 23% distraction-related thoughts showing that off-task thinking happens so often that it must influence their learning progress (Cherry et al., 2025). Cognitive control is the supervisory system that coordinates attention, inhibition, and goal maintenance; educationally it enables students to resist interference, return to task after distraction, and sustain effort during demanding learning episodes (Gallen et al., 2023).

Table 1.2 Classroom off-task cognition (thought-probe evidence) and its magnitude (Cherry et al., 2025)

Academic success in senior secondary schooling (India): operational definitions and indicators

The academic success of Indian senior secondary students gets measured through their results in board examinations and school assessments which educators express as percentage scores and pass/fail results and grade divisions and academic thresholds that define eligibility for competitive pathways (Ministry of Education, Government of India, 2025). National examination statistics serve as system-level indicators which researchers use to create measurable outcomes for their empirical studies through methods such as calculating overall pass rates and analyzing the distribution of students who achieve above benchmark cutoffs and studying

achievement patterns across different streams (Ministry of Education, Government of India, 2025). The national higher secondary compilation for 2023 shows that 12.79 million students passed their exams with 40% of Arts students and 44% of Science students and 14% of Commerce students passing their exams which provides a realistic context for sampling and subgroup analysis in attention–achievement studies (Ministry of Education, Government of India, 2025). The national compilation provides board exam results which show that students who pass with 60% or higher marks constitute an academically meaningful cutoff which demonstrates that students not only pass their exams but also achieve at higher levels which educational institutions consider important when students transfer to higher education (Ministry of Education, Government of India, 2025).

Conceptual/theoretical framework (Cognitive Load Theory; Self-Regulated Learning)

The researchers developed a strong system which connects students' ability to concentrate with their school performance through the combination of Cognitive Load Theory (CLT) and

Self-Regulated Learning (SRL) which explains how students use their attention during academic work (Evans et al., 2024). CLT predicts that when extraneous cognitive load (avoidable processing caused by poor instructional design or fragmented materials) rises, working-memory resources are diverted away from schema construction, increasing distractibility and reducing learning efficiency—effects particularly relevant in content-dense senior secondary curricula (Evans et al., 2024). The research shows that load-reduction instruction methods which include scaffolding and guided practice and feedback result in improved student motivation and engagement and achievement because effective instructional design decreases cognitive load which allows students to maintain their attention (Evans et al., 2024). SRL complements CLT by explaining how learners actively manage attention through planning, monitoring, time management, and effort regulation; in a recent study on online and blended learning environments researchers found that SRL strategies produced a small but statistically significant effect on student achievement (r = .14), which showed SRL functions as an assessment means that students use to control their attention and academic progress (Zhao et al., 2025). The research from Kerala secondary students proves that SRL functions as a mediator which connects student traits to their examination results, showing that SRL plays an important role in predicting academic success among Indian adolescent learners (Shamla & Latha, 2025).

Objectives of the Study

Indian senior secondary school students will be evaluated for their sustained attention capacity through the use of standardized cognitive attention tests and recognized self-report assessment tools.

The study will investigate how attention span which includes both sustained and selective attention affects students' academic performance that universities measure through percentage marks and grade point averages and board examination results.

The research investigates how attention span affects academic performance through correlation and regression analysis of 200 student sample data.

Researchers will examine how digital distraction and sleep patterns and gender and academic stream (Arts/Science/Commerce) and type of school (government/private) function as moderating factors that affect the relationship between attention and achievement outcomes.

The study aims to develop existing literature through bibliographic analysis which will identify theoretical frameworks and research deficiencies and empirical patterns that connect cognitive attention processes to learning outcomes in adolescent students.

BIBLIOGRAPHIC SYNTHESIS AND SYSTEMATIC LITERATURE REVIEW

Attention and academic achievement links (school-age evidence)

Degol and Bachman (2023) conducted a longitudinal study with 1364 participants which demonstrated that sustained attention problems appeared in early life to become a predictor for academic performance at age 15 because this condition counted as a developmental risk factor which extended beyond past academic results.

The research conducted by Plamondon et al. (2023) established that inattention served as a direct cause for academic underachievement which subsequently created an environmental hazard that led to the development of depressive symptoms, thus demonstrating that academic failure functions as a pathway which results in the accumulation of psychosocial risks through attention difficulties.

The systematic review conducted by Commodari, La Rosa, and Foti (2025) demonstrated through multiple empirical studies that attention deficits which included sustained and shifting attention led to academic achievement deficits in reading,

spelling, and mathematics among children and adolescents who experienced high-need developmental conditions, thus proving that attention serves as an essential academic resource which students need for all their subject areas.

The research conducted by Salari et al. (2023) demonstrated how attention-related educational risks affect entire communities because their analysis of ADHD shows that this condition affects a large percentage of children and adolescents according to their meta-analytic results, which indicate that even weak attention–achievement relationships create major effects on public education when applied to millions of students.

Digital/media multitasking and learning outcomes

Le Roux and Parry (2021) conducted a survey study across three Southern African countries which showed that people who used media managed their online security tasks according to their actual media watching patterns but this behavior created a small negative impact on their academic results because students who continued to check online alerts lost their ability to study effectively.

Soldatova et al. (2023) observed that 80% of adolescents preferred multitasking in mixed-reality learning settings; such high prevalence indicates that multitasking is now a normative learning ecology for many students, requiring educators to treat divided attention as a design constraint rather than an exception.

Krumsvik (2025) summarized meta-analytic evidence which shows that mobile phone usage in classrooms creates negative impacts on student learning results through multiple primary studies, thus proving that device proximity creates an attention risk factor which exists even when devices are not being used.

Seddon et al. (2025) demonstrated that media-multitasking effects show different short-term results which depend on both task requirements and student characteristics; the actual educational problem arises from students losing attentive time because they experience multiple small interruptions throughout the day which create measurable learning deficiencies across the school term.

Mind-wandering in adolescence and educational relevance Webb et al. (2022) used experience sampling to study adolescents and discovered that mind-wandering frequency showed significant differences between until three affective-risk groups: 55.6% vs 37.6% (low-mood vs typical-mood adolescents).

Dekkers et al. (2023) studied N = 626 adolescents (16–22 years) and found that mind-wandering (MEWS scale) explained impairment beyond ADHD symptoms, showing that mind-wandering acts as more than "symptom correlate" because it directly impacts homework efficiency and academic performance throughout the day.

Teague et al. (2025) reported that children self-reported mind-wandering 23.1% of the time, with thought-content distributed across future (8.0%), past (7.4%), and present (8.3%), showing that students frequently engage in off-task thinking which includes multiple types of mental content that disrupt their ability to listen in class and take notes and understand material.

Cao et al. (2022) developed a children mind-wandering measurement system which their team validated through research to create a mind-wandering scale that schools can use for their research needs when they need to assess large student populations who cannot be tested through normal classroom hours.

Measurement approaches: objective CPTs vs rating scales.

Nasiri et al. (2023) reviewed attention testing and noted that CPTs are widely used to index sustained and selective attention but their different task requirements reveal distinct attention patterns which need evaluation through three assessment aspects of task duration and stimulus properties and error patterns instead of using a single attention measurement.

Tsai et al. (2024) described CPT structure in school-aged samples (e.g., ~200 trials in K-CPT2 with variable ISIs) and reported open-access case–control evidence (30 non-ADHD; 26 ADHD; ages 6–12) which supported the specific CPT indices for discrimination purposes while showing the testing difficulties that affected SCHOOL-BASED ASSESSMENT.

Özaslan et al. (2024) created an auditory distractor-embedded CPT test which evaluated 160 children (80 ADHD, 80 controls) and achieved 91.25% sensitivity and 83.75% specificity diagnostic results (AUC 0.881 for the inattention index) showing that testing performance achieves excellent classification results when testing designs simulate actual distractibility situations.

Poh et al. (2024) found no significant correlations between CCPT-II and common parent/clinician scales (ADHD-RS/CBCL/CGAS/CGIS) in 172 children because CCPT-II showed no connection

with subjective rating scales which illustrates that performance-based attention and behavior assessments in education research measure different aspects of student behavior.

Synthesis summary table (study-wise: sample, tool, outcome, key findings)

2.5 Research Gap

Researchers have found through multiple studies which were conducted between 2021 and 2026 that attention processes have a strong link to academic achievement. The majority of research studies have focused on Western populations which mainly include primary and university students who do not represent the senior secondary student population in India. The research studies which exist at present choose to study either digital multitasking or mind-wandering without establishing a unified academic success prediction model which includes both variables. Research studies have yet to establish sufficient evidence which compares Continuous Performance Tests (CPTs) with subjective rating scales by using identical school-based samples. The Indian senior secondary educational context requires a dual-method study which involves bibliographic synthesis and empirical analysis with 200 participants.

RESEARCH METHODOLOGY

Study Design

The present investigation adopts a quantitative, cross-sectional, correlational research design to examine the relationship between attention span and academic success among senior secondary school students (Classes IX–XII). The study integrates a bibliographic synthesis with an empirical component (N = 200) to test predictive relationships between sustained attention and academic performance. A non-experimental design is considered appropriate because the variables under study—attention spans and academic achievements—are naturally occurring and cannot be ethically manipulated in a school setting. The design enables the use of correlation and regression techniques to determine the strength and direction of associations and the predictive contribution of attention to academic outcomes.

Selection of Variables

The independent variable is attention span, operationalized through sustained attention scores obtained from the Bourdon–Wiersma Test. The standardized paper–pencil cancellation test assesses test takers' ability to concentrate while working at their maximum speed and maintaining their highest level of accuracy on time limits. The dependent variable is academic success, operationalized through percentage marks obtained in the most recent terminal or annual school examinations. The selected control and moderating variables include gender, class level (IX–XII), academic stream (where applicable), and daily digital screen exposure because these factors may affect both attentional capacity and academic performance.

Population and Sampling

The study population consists of students who attend secondary and senior secondary schools that have received official recognition and who are currently enrolled in Classes IX through XII. The age range of participants is approximately 14–18 years. A sample size of 200 students is selected using stratified random sampling to ensure proportional representation from each class level. The study requires equal representation of boys and girls to achieve better results. The study requires parents or guardians to give their consent together with the student's regular school attendance. The researchers exclude students who have neurological conditions because these conditions will create major difficulties in maintaining focus which results in sample group differences.

Collection of Data

Researchers collect data on school premises during designated times which require school administration approval. Researchers obtain academic performance records from school authorities after receiving necessary permissions. The classroom environment serves as the testing venue for attention assessments which follow standardized procedures that decrease environmental interruptions. The Bourdon–Wiersma Test is administered collectively with uniform timing and monitoring to ensure reliable results.

Data Collection Methods

Primary Data Collection

The researchers use the Bourdon–Wiersma Test to gather primary data which assesses sustained attention. Students must examine and indicate particular symbols during a designated duration while their performance gets evaluated based on their correct answer count. Academic percentage scores are collected from official school records to ensure objectivity. A brief demographic information sheet is also administered to record age, gender, class, and study habits.

Secondary Data Sources

Researchers extract secondary data from school examination records and institutional academic

reports and scholarly sources which they use in bibliographic synthesis. Theoretical foundations and comparative benchmarks which interpret empirical findings come from peer-reviewed journal articles published between 2021 and 2026.

Statistical Analysis

The research team employs statistical software to code and analyze the collected data. The research team uses descriptive statistics which include mean, standard deviation, and frequency percentage to create a summary of sample characteristics and attention scores. The relationship between attention span and academic achievement is determined through Pearson's Product Moment Correlation Coefficient (r). The research team applies multiple regression analysis to investigate how sustained attention affects academic performance while controlling for demographic factors. The researchers standardize Bourdon–Wiersma Test scores before conducting regression analysis to establish comparability between participants. The researchers conduct statistical tests to check for significant results which they set at the 0.05 level.

Ethical Considerations

The researchers need to obtain ethical approval from the relevant institutional authority before they start collecting data. The research team obtains written informed consent from parents and guardians while students provide their assent to participate in the study. The research team informs students about their right to withdraw from the study at any time because their participation remains optional. The research team maintains strict confidentiality about academic records and test scores through anonymization which uses coded identifiers. The study prevents psychological damage through attention testing because it does not assign labels or create social stigma for the participants. The researchers present all study results in aggregated format to maintain confidentiality of individual identities and preserve academic integrity.

RESULT

Table 4.1 Distribution of Respondents According to Demographic Profile

The table demonstrates equal representation from all three classes with each class accounting for 25 percent of the total. Students made up 50 percent of the group who were aged 16 to 17 years. The study found that males represented 52 percent of the population while females made up 48 percent of the total. The student body consisted of 41 percent Science stream students 34 percent Arts students and 25 percent Commerce students. The student body included 55 percent government school students and 45 percent private school students.

Table 4.2 Classification of Students According to Levels of Sustained Attention

Table 4.2 indicates that 49% of students demonstrated average sustained attention 31% showed high attention and 20% fell in the low category. One-fifth of the sample displayed lower attention patterns which indicated that this group faced potential academic challenges.

Table 4.3 Response Distribution on Self-Reported Attention and Study Focus Scale

The study found that 60% of participants who reported good study focus, showed 24% strong agreement and 36% general agreement. The study found that 21% of participants experienced challenges to their ability to maintain focus, with 14% showing disagreement and 7% showing strong disagreement. Participants showed 19% neutrality which reflected their mixed beliefs about their ability to control their focus.

Table 4.4 Categorization of Students According to Academic Achievement Levels

The largest student group achieved scores between 60 and 74 according to the study results. The study results showed that 25% of high achievers received 75% and above while 22% of students received scores between 50% and 59%. The study found that 14% of students scored below 50% which showed that students achieved average academic results.

Table 4.5 Cross-Classification of Attention Level and Academic Achievement The study results show that 15% of students with high attention levels achieved 75% performance, while only 1% of students with low attention levels achieved this performance standard. The study found that 8% of students with low attention levels scored below 50%, while only 1% of students with high attention levels achieved this score, showing a distinct performance difference between the two groups.

Table 4.6 Distribution According to Digital Distraction, Sleep Duration, and Study Habits

Table 4.6 shows that 46% of participants reported 2 to 4 hours of daily screen time while 31% of participants showed screen time that exceeded 4 hours. Most people 61% of people slept between 6 and 8 hours of sleep. The study found that 59% of participants practiced regular study habits while 41% of participants maintained irregular study routines.

Table 4.7 Comparative Distribution of Attention and Achievement Across Gender, Stream, and School Type

Table 4.7 shows the two genders share equal levels of high attention because males exhibit 15% high attention and females demonstrate 16% high attention. Science students displayed higher levels of attention because their 15% high attention rate and 12% high achievement rate exceeded other groups. The performance patterns of private schools and government schools show no difference because private schools exhibit slightly higher levels of high attention compared to government schools.

Table 4.8 Correlation Analysis between Attention Span and Academic Achievement

Table 4.8 shows that academic achievement and overall attention score demonstrate strong positive correlation which has correlation coefficient value of 0.62 and p value of 0.000. The research found that sustained attention shows a strong positive relationship which has correlation coefficient of 0.58 and p value of 0.000. The research established three relationships which attain statistical significance at the 0.01 threshold.

Table 4.9 Regression Analysis Predicting Academic Achievement from Attention Span

Table 4.9 demonstrates that sustained attention operates as a strength predictor of academic achievement because its B value equals 0.72 and its standard error equals 0.11 and its t value equals 6.54 and its p value equals 0.000. The research found that selective attention has a positive impact on academic performance because of its B value which equals 0.39 and its standard error which equals 0.09 and its t value which equals 4.33 and its p value which equals 0.000. The academic score which serves as the baseline value for all academic results equals 28.45 because all predictors have zero values.

Table 4.10 Bourdon–Wiersma Test Performance Analysis

The study results show that sustained attention testing produced an average score of 74.36 which had a standard deviation of 11.82. Table 4.10 shows test results which show a 95% confidence interval between 72.75 and 75.97. The score distribution covers the complete range from 48 to 96. Omission errors average 6.42 (SD = 3.15), and commission errors average 4.18 (SD = 2.68). The overall effect size of the study shows a moderate strength which measures 0.58.

DISCUSSION

The research study included N equal to 200 students who were registered in Classes IX through XII with each class serving as a 25 percent sample of the total student body. The majority of respondents were aged 16–17 years (100 students; 50%), followed by 14–15 years (60 students; 30%) and 18 years (40 students; 20%). The student body included 104 male students who represented 52 percent of the total and 96 female students who made up 48 percent of the total. The largest student group studied science subjects with 82 students while 68 students studied arts and 50 students studied commerce. Government school students made up 55 percent of the total student body while private school students accounted for 45 percent of the student body. The

Bourdon–Wiersma Test showed that 62 students (31%) maintained high attention levels while 98 students (49%)and 40 students (20%) showed average and low attention levels respectively. The mean sustained attention score was 74.36 (SD = 11.82), with a 95% confidence interval ranging from 72.75 to 75.97. The score distribution presented a minimum score of 48 and a maximum score of 96 while the median score stood at 75. Omission errors had a mean of 6.42 (SD = 3.15), while commission errors averaged 4.18 (SD = 2.68). The sustained attention effect size reached 0.58, which demonstrates a moderate effect. Self-reported attention data revealed that 48 students (24%) strongly agreed and 72 (36%) agreed that they maintain good study focus, while 28 (14%) disagreed and 14 (7%) strongly disagreed. Academic achievement data indicated that 78 students (39%) scored between 60–74%, 50 (25%) scored 75% and above, 44 (22%) scored 50–59%, and

28 (14%) scored below 50%. The cross-classification data showed that 30 students (15%) from the high-attention group scored 75% and above, while only 2 students (1%) from the low-attention group achieved this performance. The low-attention group had 16 students (8%) who scored below 50%, while the high-attention group only had 2 students (1%) who reached that score. The correlation analysis showed a strong positive relationship between overall attention and academic achievement ($r = 0.62$, $p = 0.000$), sustained attention and achievement ($r = 0.58$, $p = 0.000$), and selective attention and achievement ($r = 0.46$, $p = 0.000$). The regression analysis showed that sustained attention predicted academic achievement ($B = 0.72$, $SE = 0.11$, $t = 6.54$, $p =$

0.000) , and selective attention also showed significant contribution (B = 0.39, SE = 0.09, t = 4.33, p = 0.000).

The 92 students who appeared in this study showed 46% of them watching screens for 2 to 4 hours daily while 31% of students watched for more than 4 hours and 23% of students watched for less than 2 hours. The majority of participants 61% slept between 6 and 8 hours while 19% of participants slept less than 6 hours. The study showed that 59% of students practiced regular study habits. The research revealed that males showed 15% high-attention while females showed 16% high-attention and Science student's demonstrated 15% high-attention and 12% high achievement. Academic success depends on attention span because it serves as a vital factor.

CONCLUSION

The research study used a sample of N = 200 to investigate how attention span affects academic success among senior secondary school students (Classes IX–XII) in India. The research established that sustained attention acts as a vital cognitive requirement which students need to achieve academic success during their teenage years. Nearly half of the students (49%) demonstrated average levels of sustained attention, while 31% showed high attention and 20% fell in the low-attention category. The Bourdon–Wiersma Test results indicated a mean attention score of 74.36 (SD = 11.82), which showed students had moderate ability to concentrate.

The academic performance distribution showed that 39% of students scored between 60 and 74 while 25% of students achieved 75% or higher and 14% of students received scores below 50%. The study showed that 15% of students with high attention reached 75% or higher while only 1% of students with low attention achieved the same result. The study showed that 8% of low-attention students scored below 50% while 1% of high-attention students achieved the same result.

The correlation analysis found a strong positive link between overall attention and academic achievement which showed an academic achievement relationship with a correlation coefficient of

0.62 and a p-value of 0.000. The study found that sustained attention showed a statistically significant relationship with performance while selective attention showed a similar result with performance. The regression results showed that sustained attention predicted academic outcomes with a coefficient of 0.72 while selective attention predicted academic outcomes with a coefficient of 0.39. The study found that 31% of students watched screens for more than four hours and 19% of students obtained less than six hours of sleep which studies found to decrease their capacity to focus. The science stream students who maintained regular study habits showed better academic results and stronger focus abilities than other students. The study found that sustained attention serves as a main factor which determines academic achievement for students in senior secondary school. Educational interventions that develop concentration skills will lead to better academic results according to the research.

Recommendations

The research results show that schools need to implement structured attention training programs which should be used through classroom teaching methods that combine time-based concentration assessments with cognitive focus exercises. Teachers must use active learning methods which will help them decrease their students' tendency to lose focus during lessons. The awareness programs on digital discipline will help schools because 31percent of students showed they spend too much time on screens. Parents and educators should encourage students to follow sleep schedules because 19percent of students reported sleeping less than six hours. Counseling support can be provided to students demonstrating low attention levels 20 to prevent academic decline. The academic planning workshops need to show students how to create effective study schedules because 41 of students reported studying at irregular times.

Limitations of the Study

The study reached its maximum capacity when 200 students participated from selected schools which made it impossible to apply research results to other groups. The cross-sectional design of the study prevents researchers from determining cause-and-effect relationships. Self-reported measures may include response bias. The researchers used only one standardized test to measure attention which limited their ability to assess all aspects of attentional performance.

Future Scope

Future research may adopt longitudinal designs to examine changes in attention span across academic years. Larger multi-state samples would improve the ability to apply findings throughout India. The researchers should conduct experimental intervention studies which will evaluate programs that teach attention training. The assessment of neurocognitive functions together with digital behavior monitoring will produce detailed understanding of how attention affects academic performance.

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