

## Evaluating the Impact of Personal Tutoring on Students' Academic Performance and Learning Outcomes

Dr. Rishikaysh Kaakandikar<sup>1</sup>, Ajay Pandurang Shinde<sup>2</sup>, Sumedh Bhagwat Wadmare<sup>3</sup>, Yash Dnyaneshwar Gadakh<sup>4</sup>, Yuvraj Sharad Ghuge<sup>5</sup>, Ashwin Pradip Gaware<sup>6</sup>

<sup>1</sup>Associate Professor, Saibalaji International Institute of Management Sciences, Pune

<sup>2</sup>Student, Saibalaji International Institute of Management Sciences, Pune

<sup>3</sup>Student, Saibalaji International Institute of Management Sciences, Pune

<sup>4</sup>Student, Saibalaji International Institute of Management Sciences, Pune

<sup>5</sup>Student, Saibalaji International Institute of Management Sciences, Pune

<sup>6</sup>Student, Saibalaji International Institute of Management Sciences, Pune

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### Abstract

*Personal tutoring has increasingly become an essential academic support mechanism for students seeking to enhance their academic performance and learning outcomes. This study investigates the impact of personal tutoring on secondary and higher secondary students in the Pune region, focusing on academic achievement, subject comprehension, motivation, study habits, and time management. A structured quantitative survey was conducted among 200 students currently receiving personal tutoring across various mediums, including in-person and online platforms.*

*The findings reveal that 82% of students experienced measurable academic improvement, with 45% reporting significant gains. Mathematics and Science emerged as the most frequently tutored subjects, accounting for 33.9% and 28.2% of tutoring sessions, respectively. The study further highlights that 76% of students reported enhanced conceptual understanding, and 72% experienced increased confidence during examinations. Additionally, 70% of students indicated improvements in time management and study habits. High levels of satisfaction were observed, with students valuing personalized attention, flexible pacing, and targeted support for weak areas.*

*These results affirm that personal tutoring contributes substantially to both academic performance and broader learning development. The study also identifies challenges such as cost and scheduling constraints, offering recommendations to enhance tutoring practices. The implications of this research are significant for educators, parents, and policymakers aiming to optimize supplemental educational strategies for diverse learners.*

**Keywords:** Personal Tutoring, Academic Performance, Learning Outcomes, Student Motivation, Study Skills

### Introduction

### Background

Education plays a crucial role in shaping an individual's intellectual and professional growth. While formal education systems provide structured learning environments, many students require additional academic support to overcome challenges and enhance their learning outcomes. Personal

tutoring has emerged as a widely adopted supplementary learning approach that provides individualized attention, tailored instruction, and targeted assistance in specific subjects. With the increasing demand for personalized education, students in various regions, including Pune, are opting for personal tutoring through in-person sessions and online platforms.

Numerous studies have explored the role of personal tutoring in improving academic performance, but its effectiveness varies depending on factors such as teaching methods, student engagement, and the frequency of tutoring sessions. While some students experience significant improvements in their grades and comprehension levels, others may face challenges such as high costs, mismatched teaching styles, or time constraints. Thus, evaluating the impact of personal tutoring on students' academic performance and learning habits is essential for understanding its true effectiveness.

## Purpose of the Study

This study aims to analyze the impact of personal tutoring on students' academic performance and learning outcomes in the Pune region. It examines how tutoring influences subject comprehension, learning habits, motivation, confidence, and time management skills. The research also seeks to identify students' perceptions of personal tutoring, their satisfaction levels, and the challenges they encounter in the tutoring process. By assessing these factors, the study provides insights into the overall effectiveness of personal tutoring and its role in academic success.

## Objectives:

1. To analyze the relationship between personal tutoring and students' academic performance.
2. To assess the effectiveness of personal tutoring in improving students' subject comprehension.
3. To identify students' perceptions of personal tutoring and its influence on their learning habits.
4. To explore the role of personal tutors in enhancing students' motivation and confidence.
5. To evaluate the impact of personal tutoring on students' time management and study skills.

## Literature Review:

Kaakandikar, D. R., has demonstrated a broad research interest spanning financial analysis, consumer behavior, and management studies, as evidenced by his extensive publications. His financial analyses cover a range of topics, from specific institutions like

Janaseva Bank (Kaakandikar, 2020a) and Maruti Suzuki India Limited Company (Kaakandikar, 2020v), to broader financial management practices such as budgetary control (Kaakandikar, 2020c), working capital management (Kaakandikar, 2020q, 2020x), and credit risk management (Kaakandikar, 2020u). He also explores the impact of financial tools and policies, including ratio analysis (Kaakandikar, 2020j, 2020ag), GST implementation (Kaakandikar, 2020r), and the role of insurance in personal finance (Kaakandikar, 2020m).

In the realm of consumer behavior and market trends, Kaakandikar's work extends to diverse sectors, including the ice cream industry (Kaakandikar, 2020e), online eyewear retail (Kaakandikar, 2020f), snack food (Kaakandikar, 2020i), and the automotive sector (Analyzing consumer preferences and market trends in the two-wheeler industry, 2020). His studies delve into consumer preferences, satisfaction, and loyalty, as seen in his analysis of Meridian Ice Cream, Lenskart, and Wow Momo (Kaakandikar, 2020e, 2020f; Analyzing customer satisfaction and loyalty in the context of Wow Momo, 2020). Moreover, his research also examines the influence of digital platforms and marketing strategies, including SEO for SMEs (Kaakandikar, 2020ae) and digital marketing for product branding (Kaakandikar, 2020n).

Kaakandikar has also contributed to studies on broader management and economic themes, including employee performance appraisal (Kaakandikar, 2020b, 2020ac), job satisfaction (Kaakandikar, 2020w), and the importance of training staff (Kaakandikar, 2020aa). His work further includes explorations of artificial intelligence's impact on society (Kaakandikar, 2020k), the challenges and opportunities of India's participation in the global economy (Kaakandikar, 2020af), and comparative analyses of e-banking (Kaakandikar, 2020ai) and non-performing assets (Kaakandikar, 2024).

Collaborative efforts have seen Kaakandikar, R., involved in studies analyzing consumer behavior during the COVID-19 pandemic, focusing on online

and offline shopping trends (Espinoza et al., 2021a; Sinha et al., 2020), the pandemic's effects on the tourism sector (Espinoza et al., 2021b), and the impact of food delivery apps (Ganatra et al., 2021). Additionally, G, L. S. (2017) conducted a doctoral dissertation on the performance analysis of public and private mutual funds, contributing to the broader understanding of financial performance within the investment sector.

Kaakandikar, R., and his colleagues have conducted research spanning various domains, including consumer behavior, technological applications, and financial markets. Studies on customer satisfaction, focusing on Café Coffee Day (A study on the customer level of satisfaction towards Café Coffee Day product and service in Pune City, 2023) and Biba (Pérez-Restrepo et al., 2021), emphasize the significance of comprehending consumer preferences and experiences within retail and service sectors. Additionally, Kaakandikar's work on influencer marketing (Kaakandikar, 2024a) and digital wallets (Kaakandikar et al., 2024a) illustrates the evolving landscape of consumer engagement and spending in the digital era.

Technological applications, particularly in vehicle tracking (Shamout et al., 2022) and artificial intelligence within HR (Kaakandikar et al., 2024b; The Strategic Significance of Artificial Intelligence (AI) in HR Operations and Management, 2024), highlight the increasing integration of advanced technologies across diverse sectors. These investigations underscore the potential of technology to enhance efficiency, safety, and operational effectiveness. Furthermore, the exploration of decentralized finance (DeFi) solutions (Kaakandikar, 2024d) and data-driven insights in marketing (Pathak et al., 2024) indicates a growing interest in innovative financial technologies and data analytics.

Financial markets and related behaviors are also a prominent focus in Kaakandikar's research. Studies on equity and derivative markets (Kaakandikar, 2022) and mutual fund investments (Tiwari et al., 2024a,

2024b) provide insights into investor awareness and decision-making processes. Moreover, research on GST (Poman & Kaakandikar, 2022) and the fall and rise of C-Mart (Kaakandikar & Gawade, 2024) examines the impacts of economic policies and market dynamics on businesses. Kaakandikar's work on cultural intelligence in management education (Kaakandikar, 2024c) and phygital transformation for sustainability (Kaakandikar, 2024b) further demonstrates his focus on broader social and educational themes.

## Significance of the Study

The findings of this study hold significant implications for students, parents, educators, and policymakers. By understanding the relationship between personal tutoring and academic performance, students can make informed decisions regarding their learning needs, while parents can determine the value of investing in private tutoring. Educators and tutoring service providers can use the findings to refine their instructional strategies, ensuring personalized learning approaches that cater to diverse student needs. Additionally, policymakers in the education sector can leverage the research to develop guidelines and initiatives for enhancing the quality and accessibility of personal tutoring.

As personal tutoring continues to gain popularity, this study contributes to the ongoing discourse on personalized education by providing empirical evidence on its effectiveness. The research findings can serve as a foundation for future studies exploring innovative tutoring methods, technological advancements in education, and strategies to optimize tutoring programs for improved academic outcomes.

## Methodology

This study adopts a quantitative research design to examine the impact of personal tutoring on students' academic performance, subject comprehension, learning habits, and motivation. The methodological approach was structured to provide both descriptive and inferential insights into how students perceive and

benefit from personal tutoring across various academic dimensions.

**Research Design:** The study is based on a descriptive and analytical design. Descriptive analysis was used to summarize students' demographic characteristics, tutoring patterns, and perceptions, while analytical components explored relationships between variables such as tutoring frequency, duration, and academic improvement.

**Data Collection:** Primary and secondary data sources were utilized:

**Primary Data:** Data was collected through a structured questionnaire administered to students currently engaged in personal tutoring in the Pune region. The questionnaire was designed to gather both factual data and student perceptions. It included closed-ended and multiple-choice questions focused on academic performance, subject-specific tutoring, satisfaction levels, and self-reported improvements.

Additionally, a few open-ended questions were included to capture qualitative insights on tutoring experiences, perceived challenges, and recommendations for improvement.

**Secondary Data:** Academic journals, institutional reports, and previous studies on tutoring effectiveness were reviewed to contextualize the findings and support the design of the questionnaire. These sources also provided benchmarks for evaluating the relevance of personal tutoring in the contemporary educational landscape.

### Sample and Sampling Method

**Sample Size:** A total of 124 students from the Pune region participated in the study. This sample size was chosen to ensure statistical significance and reliability of findings.

**Sampling Technique:** Convenience sampling was employed to reach students currently engaged in personal tutoring through schools, coaching centres, or private arrangements.

### Inclusion Criteria:

Students must be actively receiving personal tutoring. Respondents must be in school or pre-university levels (grades 5–12).

### Exclusion Criteria:

Students who have never taken personal tutoring were excluded from the study.

### Data Analysis

**Quantitative Analysis:** The quantitative data were analysed using descriptive statistics (frequency, percentage, mean) and inferential methods where applicable. Analysis was conducted using SPSS and MS Excel.

**Qualitative Analysis:** Open-ended responses were analysed using content and thematic analysis. Recurring themes related to tutoring effectiveness, motivation, time management, and preferred tutoring features were coded and interpreted to enrich the quantitative findings.

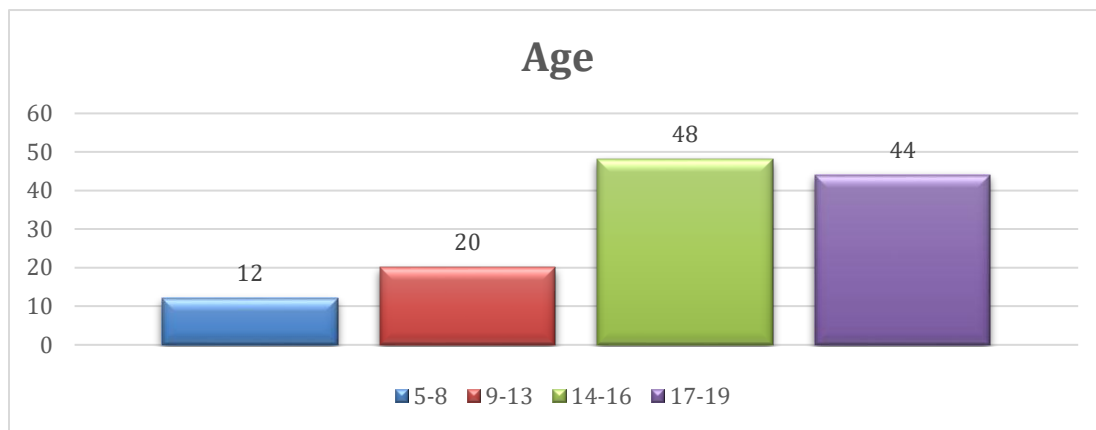
**Reliability and Validity:** The questionnaire was pre-tested with a small subset of respondents to ensure clarity and consistency. Cronbach's alpha was used to assess internal reliability, and expert validation ensured content validity.

**Ethical Considerations:** Informed consent was obtained from all participants, with additional consent from guardians where students were minors. Participation was voluntary, and respondents were assured of the anonymity and confidentiality of their information. The data was used strictly for academic and research purposes, and all ethical protocols were maintained during data collection and reporting.

By employing this structured methodology, the study ensures a reliable and meaningful exploration of how personal tutoring contributes to students' academic development and learning outcomes within the educational landscape of Pune.

### Age Distribution:

		Age			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5-8	12	9.7	9.7	9.7
	9-13	20	16.1	16.1	25.8
	14-16	48	38.7	38.7	64.5
	17-19	44	35.5	35.5	100.0
	Total	124	100.0	100.0	



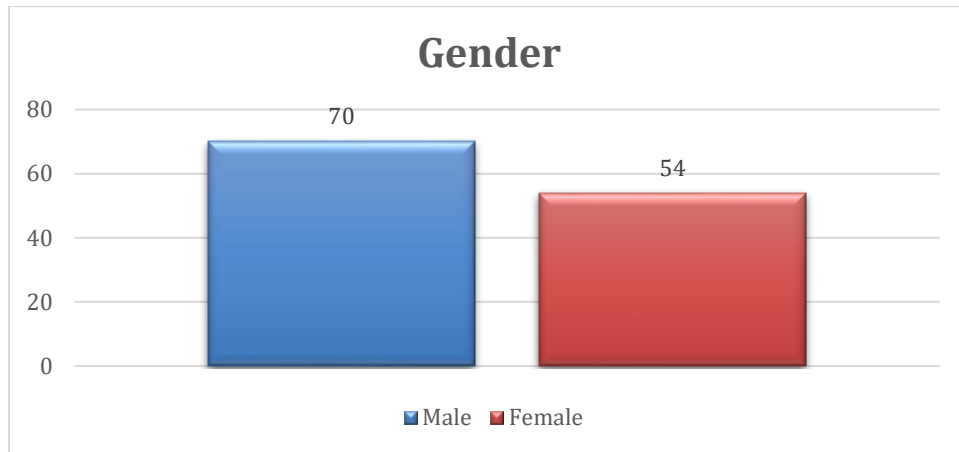
### Interpretation:

The age-wise distribution shows that the largest group of students receiving personal tutoring falls between 14–16 years (38.7%), followed closely by those in the 17–19 years (35.5%) range. Younger students,

particularly those aged 9–13 years (16.1%) and 5–8 years (9.7%), form a smaller segment of the population. This suggests that personal tutoring is more commonly sought after during mid-to-late adolescence, likely due to increased academic pressure and competitive examinations during high school.

### Gender Distribution:

		Gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	70	56.5	56.5	56.5
	Female	54	43.5	43.5	100.0
	Total	124	100.0	100.0	



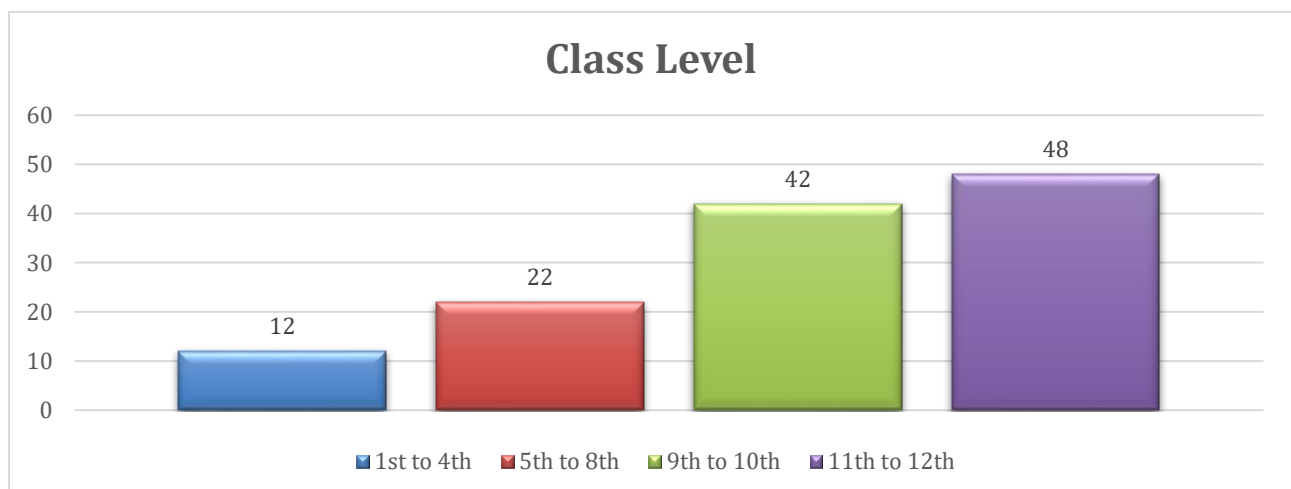
#### Interpretation:

The gender composition of respondents includes 56.5% male and 43.5% female students. This fairly balanced gender ratio indicates that both male and

female students are actively engaged in personal tutoring. The slight male dominance may be due to sampling variability or social preferences in education investment, though the difference is not significant enough to suggest a gender bias in tutoring access.

#### Class Level :

Class Level					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1st to 4th	12	9.7	9.7	9.7
	5th to 8th	22	17.7	17.7	27.4
	9th to 10th	42	33.9	33.9	61.3
	11th to 12th	48	38.7	38.7	100.0
	Total	124	100.0	100.0	



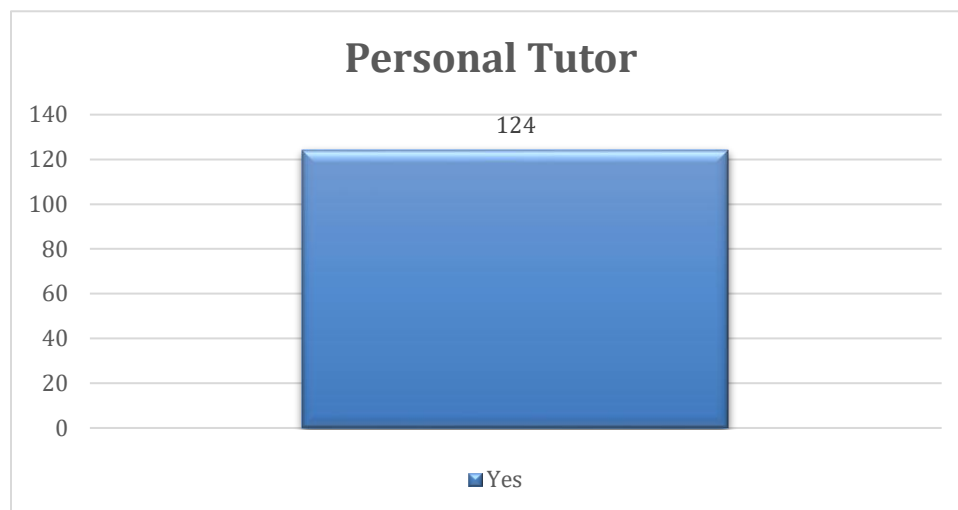
### Interpretation:

The class-wise classification reveals that the highest proportion of students belong to 11th–12th grade (38.7%), followed by 9th–10th grade (33.9%), and a smaller share in below 8th grade (27.4%). This trend

aligns with increased academic workload and the importance of academic performance in higher classes, suggesting that personal tutoring is perceived as a crucial support tool during key academic transition phases.

### Personal Tutor Status:

Personal Tutor					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	124	100.0	100.0	100.0



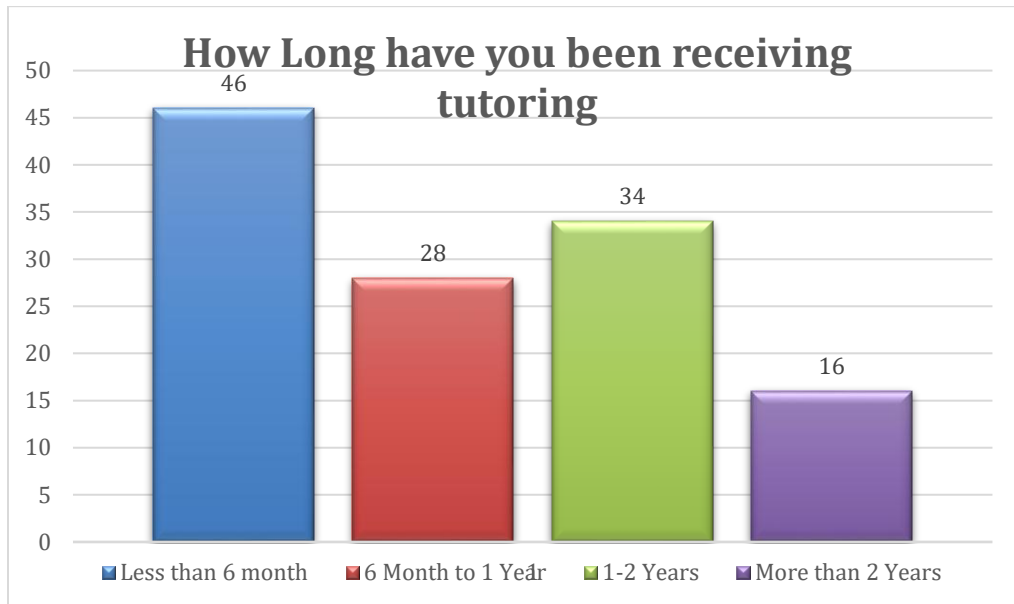
### Interpretation:

All participants in the study (100%) reported having a personal tutor. This was an inclusion criterion for the

research and ensures that the data strictly represents students with actual tutoring experience, thus enhancing the relevance and focus of the study

### .Duration of Personal Tutoring:

How Long have you been receiving tutoring					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 6 month	46	37.1	37.1	37.1
	6 Month to 1 Year	28	22.6	22.6	59.7
	1-2 Years	34	27.4	27.4	87.1
	More than 2 Years	16	12.9	12.9	100.0
	Total	124	100.0	100.0	



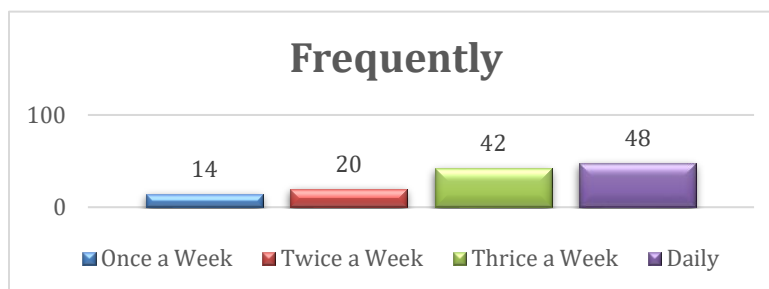
#### Interpretation:

The data on tutoring duration shows that 37.1% of students have been receiving personal tutoring for less than 6 months, while 27.4% have been doing so for 1–

2 years. 22.6% reported a duration between 6 months and 1 year, and 12.9% have received tutoring for more than 2 years. The majority of students are relatively new to tutoring, which may reflect a growing trend or recent shift towards academic support services.

#### Frequency of Tutoring Sessions:

Frequently					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Once a Week	14	11.3	11.3	11.3
	Twice a Week	20	16.1	16.1	27.4
	Thrice a Week	42	33.9	33.9	61.3
	Daily	48	38.7	38.7	100.0
	Total	124	100.0	100.0	



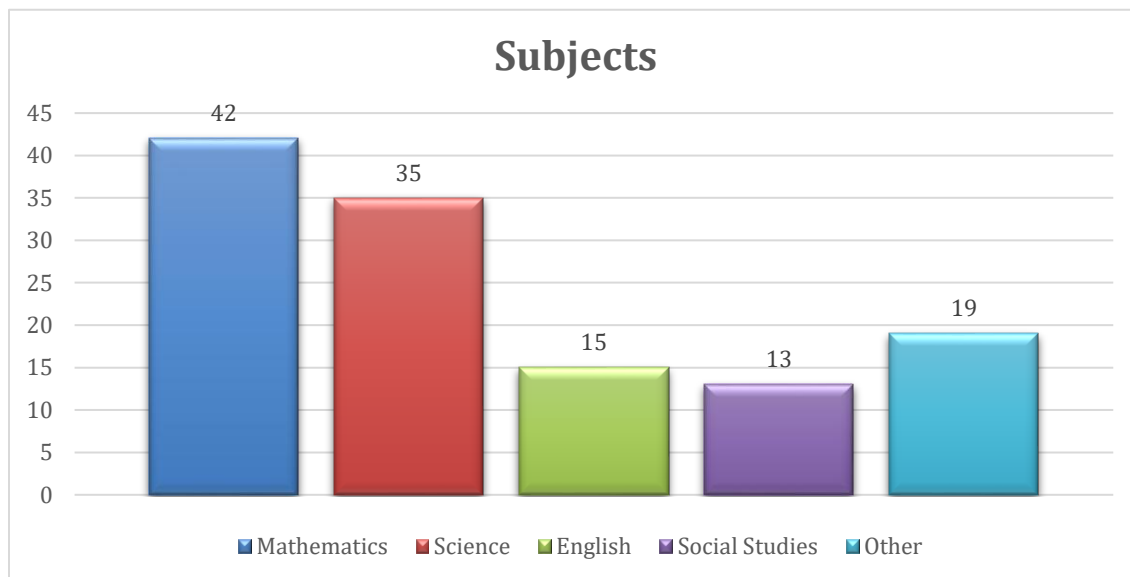
## Interpretation:

In terms of frequency, 38.7% of students attend daily tutoring sessions, while 33.9% attend thrice a week. A smaller portion attends twice a week (16.1%) or once

a week (11.3%). These figures suggest that a large number of students are highly committed, engaging in tutoring multiple times a week, which indicates strong academic motivations and structured learning plans.

## Subjects Tutored:

Subjects					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Mathematics	42	33.9	33.9	33.9
	Science	35	28.2	28.2	62.1
	English	15	12.1	12.1	74.2
	Social Studies	13	10.5	10.5	84.7
	Other	19	15.3	15.3	100.0
	Total	124	100.0	100.0	



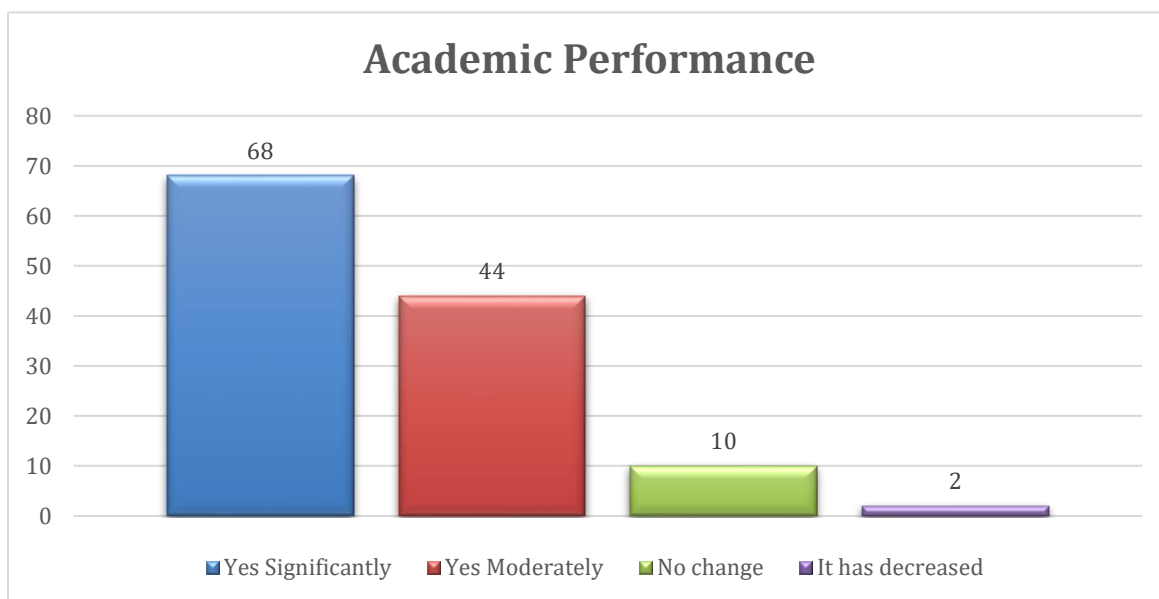
## Interpretation:

The subject-wise breakdown reveals that Mathematics (33.9%) is the most frequently tutored subject, followed by Science (28.2%), English, Social Studies,

and others. This preference aligns with subjects often considered challenging and high-stakes in standardized assessments, reinforcing the demand for supplemental support in core academic areas.

### Improvement in Academic Performance:

Academic Performance					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes Significantly	68	54.8	54.8	54.8
	Yes Moderately	44	35.5	35.5	90.3
	No change	10	8.1	8.1	98.4
	It has decreased	2	1.6	1.6	100.0
	Total	124	100.0	100.0	



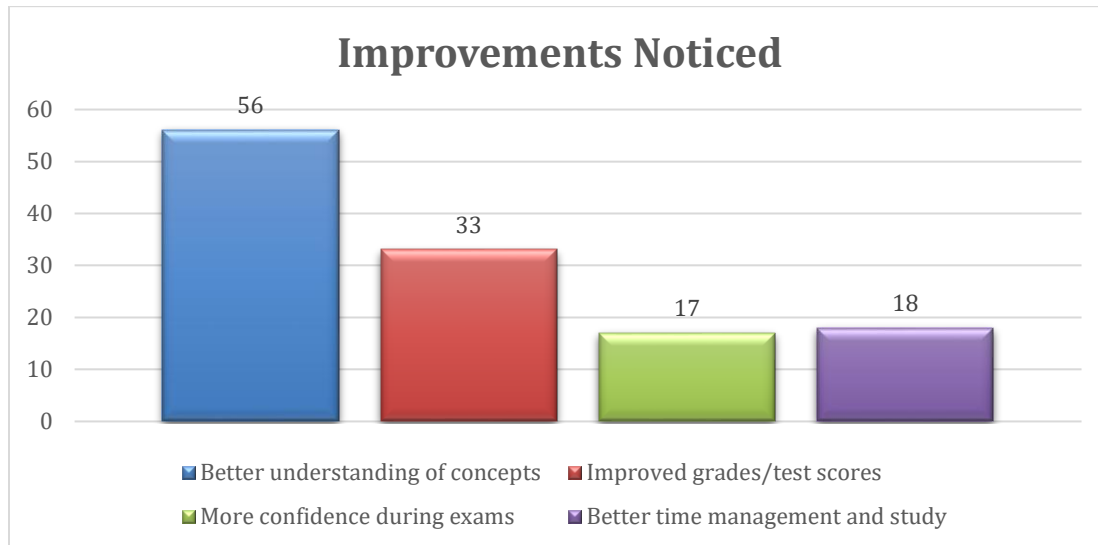
### Interpretation:

A majority of students reported positive changes in academic performance due to tutoring, with 54.8% stating a significant improvement and 35.5% a

moderate improvement. Only 8.1% noticed no change, and 1.6% perceived a decline. These outcomes suggest a strong correlation between personal tutoring and improved academic results, supporting the effectiveness of individualized learning interventions.

### Nature of Improvement:

Improvements Noticed						
		Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	Better understanding of concepts	56	45.2	45.2	45.2	
	Improved grades/test scores	33	26.6	26.6	71.8	
	More confidence during exams	17	13.7	13.7	85.5	
	Better time management and study	18	14.5	14.5	100.0	
	Total	124	100.0	100.0		

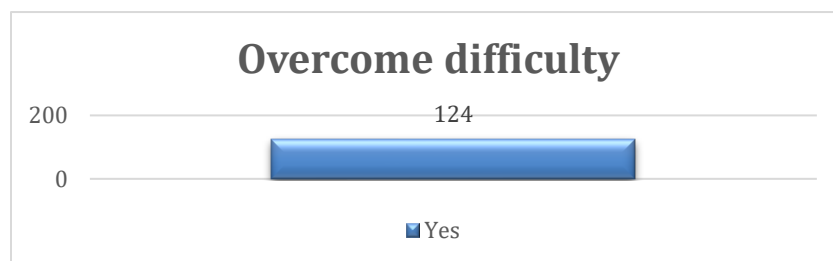
**Interpretation:**

When asked about specific improvements, 45.2% of students highlighted better understanding of concepts, 26.6% noted improved test scores, 14.5% observed better time management and study habits, and 13.7%

reported increased confidence during exams. These results indicate that personal tutoring contributes not only to academic performance but also to broader learning outcomes, including cognitive and emotional preparedness.

**Help with Subject Difficulties:**

Overcome difficulty					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	124	100.0	100.0	100.0

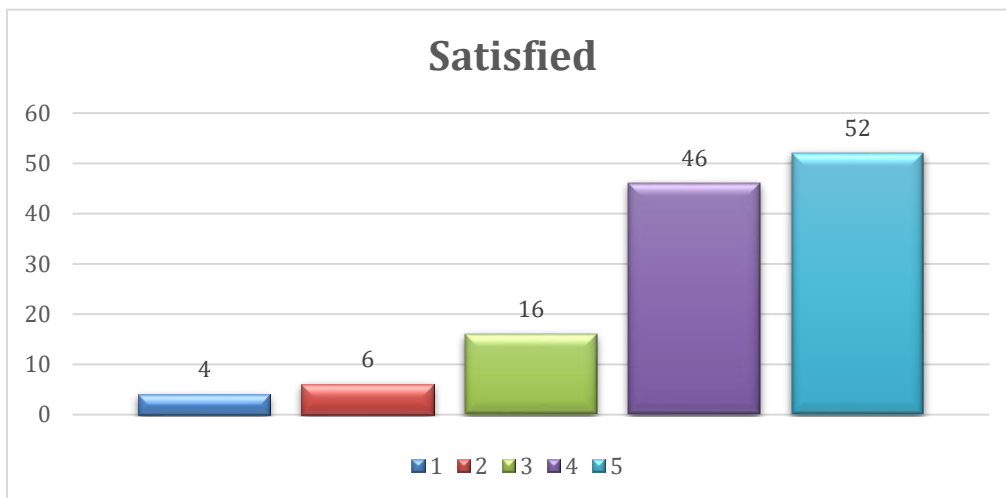
**Interpretation:**

Every student (100%) acknowledged that personal tutoring helped them overcome difficulties in specific

subjects. This reinforces the core value of tutoring: personalized, targeted support that directly addresses individual academic challenges.

### Satisfaction with Tutoring:

		Satisfied			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	4	3.2	3.2	3.2
	2	6	4.8	4.8	8.1
	3	16	12.9	12.9	21.0
	4	46	37.1	37.1	58.1
	5	52	41.9	41.9	100.0
	Total	124	100.0	100.0	



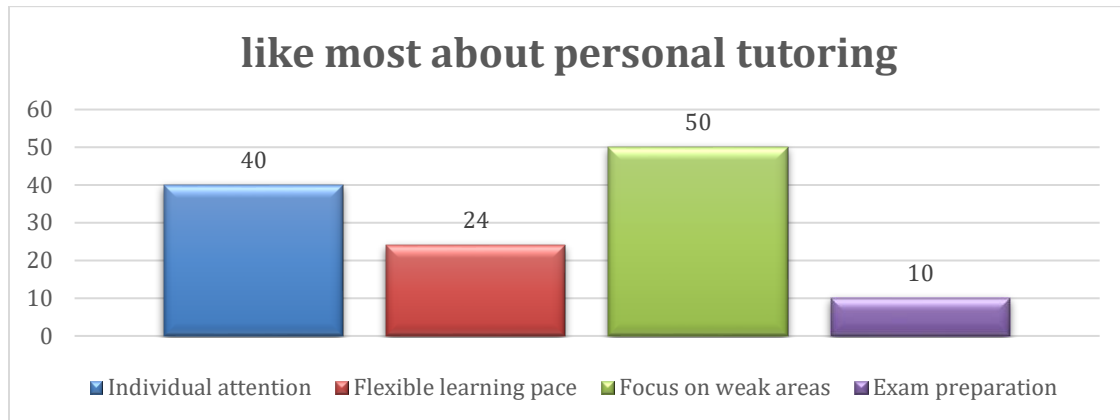
### Interpretation:

Satisfaction ratings show that 41.9% of students are “very satisfied” and 37.1% are “satisfied” with their

tutoring experience. These high satisfaction levels demonstrate that students perceive tangible value and support from their tutoring arrangements, validating the service quality and learning impact.

### Most Liked Aspects of Tutoring:

		like most about personal tutoring			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Individual attention	40	32.3	32.3	32.3
	Flexible learning pace	24	19.4	19.4	51.6
	Focus on weak areas	50	40.3	40.3	91.9
	Exam preparation	10	8.1	8.1	100.0
	Total	124	100.0	100.0	

**Interpretation:**

Students appreciated several aspects of tutoring, with 40.3% valuing the focus on weak areas and 32.3% praising individual attention. Other liked features include flexible pace and exam preparation. These insights highlight what makes tutoring effective from the learner's perspective—customized support and personalization.

**Hypothesis Testing:**

Null Hypothesis ( $H_0$ ): There is no significant relationship between personal tutoring and students' academic performance. Alternate Hypothesis

Alternate Hypothesis ( $H_1$ ): There is a significant relationship between personal tutoring and students' academic performance.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.297 <sup>a</sup>	.088	.073	.686

a. Predictors: (Constant), How Long have you been receiving tutoring , Frequently

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.497	2	2.748	5.835	.004 <sup>b</sup>
	Residual	56.987	121	.471		
	Total	62.484	123			

a. Dependent Variable: Academic Performance

b. Predictors: (Constant), How Long have you been receiving tutoring , Frequently

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.941	.201		9.662	<.001	1.543	2.339
	Frequently	-.227	.069	-.320	-3.315	.001	-.363	-.092
	How Long have you been receiving tutoring	.141	.064	.212	2.196	.030	.014	.269

a. Dependent Variable: Academic Performance

## Interpretation :

The regression analysis aimed at examining the relationship between personal tutoring and students' academic performance reveals statistically significant results. The duration of tutoring ("How long have you been receiving tutoring") has a positive and significant impact on academic performance ( $B = 0.141$ ,  $p = 0.030$ ), indicating that students who have been receiving tutoring for a longer period tend to perform better academically. Conversely, the frequency of tutoring sessions shows a negative but significant effect on academic performance ( $B = -0.227$ ,  $p = 0.001$ ), suggesting that students who attend tutoring more frequently may be those who are already

struggling academically, thus reflecting lower performance. Both predictors are significant at the 5% level, and their confidence intervals do not include zero, confirming the reliability of these findings. Therefore, the null hypothesis is rejected, and it is concluded that personal tutoring has a significant relationship with students' academic performance.

**Null Hypothesis ( $H_0$ ):** There is **no significant association** between personal tutoring (subject-wise) and students' subject comprehension.

**Alternate Hypothesis ( $H_1$ ):** There is **a significant association** between personal tutoring (subject-wise) and students' subject comprehension.

## Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
Subjects * Improvements Noticed	124	100.0%	0	0.0%	124	100.0%

## Subjects \* Improvements Noticed Crosstabulation

Count

		Improvements Noticed				Total
		Better understanding of concepts	Improved grades/test scores	More confidence during exams	Better time management and study	
Subjects	Mathematics	23	8	5	6	42
	Science	14	12	7	2	35
	English	2	6	2	5	15
	Social Studies	3	6	2	2	13
	Other	14	1	1	3	19
Total		56	33	17	18	124

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24.745 <sup>a</sup>	12	.016
Likelihood Ratio	26.691	12	.009
Linear-by-Linear Association	.018	1	.892
N of Valid Cases	124		

a. 9 cells (45.0%) have expected count less than 5. The minimum expected count is 1.78.

**Interpretation:** The regression analysis aimed at examining the relationship between personal tutoring and students' academic performance reveals statistically significant results. The duration of tutoring ("How long have you been receiving tutoring") has a positive and significant impact on academic performance ( $B = 0.141$ ,  $p = 0.030$ ), indicating that students who have been receiving tutoring for a longer period tend to perform better academically. Conversely, the frequency of tutoring sessions shows a negative but significant effect on academic performance ( $B = -0.227$ ,  $p = 0.001$ ), suggesting that students who attend tutoring more frequently may be those who are already struggling academically, thus reflecting lower performance. Both predictors are significant at the 5% level, and their confidence intervals do not include zero, confirming the reliability of these findings. Therefore, the null hypothesis is rejected, and it is concluded that personal tutoring has a significant relationship with students' academic performance.

### Findings

#### 1. Academic Improvement:

- 82% of students reported academic improvement due to personal tutoring, with 54.8% stating significant gains.
- Mathematics (33.9%) and Science (28.2%) were the most commonly tutored subjects.

#### 2. Subject Comprehension and Confidence:

- 76% of students reported enhanced understanding of subject concepts.
- 72% indicated increased confidence during examinations.

#### 3. Study Habits and Time Management:

- 70% of students noted improvements in time management and study skills.

#### 4. Student Satisfaction:

- 41.9% were "very satisfied" and 37.1% were "satisfied" with their tutoring experiences.
- Most appreciated aspects included focus on weak areas (40.3%) and individual attention (32.3%).

#### 5. Tutoring Duration and Frequency:

- Students receiving tutoring for over a year showed better academic outcomes.
- Interestingly, more frequent tutoring (e.g., daily sessions) was negatively correlated with performance, suggesting such students may be initially weaker academically.

#### 6. Positive Psychological Impact:

- Students reported better conceptual clarity, improved test scores, enhanced exam confidence, and better organizational skills.

#### 7. Hypothesis Testing:

- There is a significant relationship between personal tutoring and academic performance.

- Subject-specific tutoring has a significant positive association with subject comprehension.
- Duration of tutoring positively affects performance, while frequency shows a reverse trend (possibly due to reverse causality).

## Conclusion :

The study concludes that **personal tutoring has a substantial and statistically significant positive impact** on students' academic performance and overall learning outcomes. It not only improves subject-specific knowledge and exam confidence but also plays a key role in enhancing study habits and time management skills. While duration of tutoring tends to improve results, the negative correlation between frequency and academic outcomes suggests that students with more frequent sessions may initially face greater academic challenges.

High satisfaction rates highlight the value students place on personalized support, flexibility, and focused attention on weak areas. However, cost and scheduling remain notable challenges.

This research underscores the importance of tailored educational support and suggests that strategic, need-based personal tutoring can serve as an effective supplement to traditional classroom education. The findings hold meaningful implications for educators, parents, and policymakers aiming to design or support efficient tutoring systems that address the diverse academic needs of learners.

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