

# Psychological Foundations Of The Relationship Between Students' Attention Stability And Academic Performance

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**Abstract:** This article provides a theoretical and empirical analysis of the psychological relationship between students' attention stability and academic performance. In the context of modern higher education, students are required to process large amounts of information, maintain concentration during lectures, independently master academic materials, and demonstrate stable cognitive activity in assessment situations. Attention stability is considered one of the key psychological mechanisms that ensures the continuity, accuracy, and productivity of learning activity. The study aims to determine the level of attention stability among university students and to identify its relationship with indicators of academic performance.

The empirical study was conducted among 120 university students. Attention stability was assessed using a psychodiagnostic attention stability test based on correction-task principles, while academic performance was evaluated through students' grade point average and self-reported learning efficiency indicators. The obtained data were processed using IBM SPSS Statistics. Descriptive statistics, Pearson correlation analysis, and linear regression analysis were applied. The results showed a statistically significant positive relationship between attention stability and academic performance. Students with high attention stability demonstrated higher academic achievement, better learning efficiency, and fewer concentration difficulties during educational activities. The findings confirm that attention stability is an important cognitive and psychological predictor of academic success in higher education.

**Keywords:** Attention, attention stability, academic performance, students, learning efficiency, cognitive processes, concentration, SPSS analysis.

**Introduction:** In modern higher education, the effectiveness of students' academic activity is increasingly determined not only by the amount of knowledge they acquire, but also by the development of cognitive processes that regulate learning behavior. Among these processes, attention occupies a central place because it ensures the selectivity, direction, concentration, and stability of mental activity. A student's ability to maintain attention during lectures, independent study, practical classes, examinations, and digital learning environments directly affects the quality of information processing and academic achievement.

Attention stability refers to the ability of an individual to maintain concentration on a specific object, task, or activity for a certain period without significant

distraction or decline in mental efficiency. In the educational process, this psychological quality is especially important because students are constantly required to listen, understand, analyze, memorize, compare, and reproduce academic information. When attention stability is insufficiently developed, students may experience difficulties in understanding complex material, completing assignments accurately, preparing for examinations, and maintaining consistent academic results.

The relevance of studying attention stability has increased in recent years due to the rapid expansion of digital technologies, social networks, multitasking, and information overload. Although digital learning tools provide new opportunities for education, they may also create additional distractions and reduce the depth of

students' concentration. In this regard, the study of attention stability and its relationship with academic performance is of great scientific and practical importance.

Academic performance is a complex psychological and pedagogical phenomenon that reflects the degree to which students master educational content, demonstrate learning motivation, regulate their cognitive activity, and achieve expected educational outcomes. It is influenced by many factors, including intellectual abilities, motivation, self-regulation, emotional state, learning strategies, family environment, teaching quality, and individual psychological characteristics. However, attention stability remains one of the most important cognitive prerequisites for successful learning. Therefore, the psychological analysis of the relationship between students' attention stability and academic performance makes it possible to identify internal cognitive mechanisms that support effective learning. This issue is particularly relevant for improving psychological support systems in higher education institutions, developing training programs aimed at improving students' concentration, and preventing learning difficulties caused by unstable attention.

### Literature Review

The problem of attention has been widely studied in classical and modern psychology. In cognitive psychology, attention is regarded as a mental process that regulates the selection of relevant information and the inhibition of irrelevant stimuli. It allows the individual to direct mental resources toward significant objects and maintain cognitive activity in accordance with the purpose of the task.

According to W. James, attention is the process by which the mind takes possession of one object or thought among several possible objects. This classical interpretation emphasizes the selective nature of attention. Later psychological research developed this idea by distinguishing several characteristics of attention, including concentration, stability, distribution, switching, and volume. Among these characteristics, stability plays a particularly important role in learning because it determines how long a student can maintain effective mental activity without distraction.

L.S. Vygotsky emphasized the social and developmental nature of higher mental functions, including voluntary attention. According to this approach, attention develops through learning, communication, internalization of external regulation, and the gradual formation of self-control. From this point of view, attention stability is not a fixed biological property, but

a psychological function that can be developed through educational influence, purposeful practice, and self-regulation.

A.R. Luria considered attention as an important component of the functional organization of the brain. He noted that voluntary attention is connected with the regulation of mental activity, planning, control, and the maintenance of goal-directed behavior. In educational activity, these mechanisms are manifested in the student's ability to focus on learning tasks, suppress distracting stimuli, and maintain mental effort until the task is completed. Modern cognitive psychology also emphasizes the connection between attention stability and executive functions. Executive functions include planning, inhibition, working memory, cognitive flexibility, and self-monitoring. These functions are directly involved in academic activity because students must manage their time, organize learning materials, resist distractions, and evaluate their own progress. Attention stability acts as a foundation for these processes.

Academic performance has also been analyzed from different theoretical perspectives. In educational psychology, it is often interpreted as the result of interaction between cognitive abilities, motivation, learning strategies, emotional regulation, and social conditions. Students with developed attention stability are more likely to participate actively in lessons, understand instructions accurately, complete tasks on time, and demonstrate higher achievement in assessment situations.

Recent empirical studies confirm that sustained attention is associated with learning outcomes and real-world academic skills. Research on sustained attention shows that it is an important cognitive ability related to academic achievement and educational productivity. In particular, studies indicate that students with better sustained attention tend to demonstrate more effective information processing and higher academic outcomes. Moreover, modern research on classroom learning highlights that concentration and attention maintenance are essential for quiz performance, engagement, and learning efficiency. Thus, theoretical and empirical literature suggests that attention stability is one of the core psychological factors influencing academic performance. However, in many educational contexts, especially in higher education institutions, this relationship still requires deeper empirical analysis using statistical methods. Therefore, the present study is aimed at identifying the relationship between students' attention stability and academic performance through SPSS-based statistical analysis.

## AIM AND OBJECTIVES OF THE STUDY

The aim of the study is to identify the psychological relationship between students' attention stability and academic performance.

The objectives of the study are:

1. To analyze the psychological essence of attention stability and academic performance.
2. To determine the level of attention stability among university students.
3. To assess students' academic performance indicators.
4. To examine the statistical relationship between attention stability and academic performance.
5. To determine the predictive role of attention stability in students' academic success using SPSS analysis.
6. To develop psychological and pedagogical recommendations for improving students' learning efficiency.

## Research Methods And Organization

The study was organized on the basis of a quantitative empirical research design. A cross-sectional approach was used to collect data from students at one point in time. This design made it possible to identify the current level of attention stability and its relationship with academic performance indicators.

The study involved 120 university students aged

between 18 and 25. The sample included both male and female students from different years of study. Participation was voluntary, and respondents were informed about the purpose of the research.

The following methods were used in the study:

1. Theoretical analysis of psychological and pedagogical literature on attention, attention stability, and academic performance.
2. Psychodiagnostic method for assessing attention stability. A correction-task-based test was used to evaluate students' ability to maintain concentration, accuracy, and productivity during a structured task.
3. Academic performance assessment, including students' grade point average and self-reported learning efficiency indicators.
4. Mathematical and statistical analysis using IBM SPSS Statistics.

The empirical data were processed using the following statistical procedures:

1. descriptive statistics;
2. frequency analysis;
3. Pearson correlation analysis;
4. linear regression analysis;
5. comparative analysis of groups with different levels of attention stability.

**Table 1**  
**General characteristics of respondents**

| Indicator     | Group       | N  | %    |
|---------------|-------------|----|------|
| Gender        | Male        | 52 | 43.3 |
|               | Female      | 68 | 56.7 |
| Age           | 18–20 years | 44 | 36.7 |
|               | 21–23 years | 58 | 48.3 |
|               | 24–25 years | 18 | 15.0 |
| Year of study | 1st year    | 28 | 23.3 |
|               | 2nd year    | 34 | 28.3 |
|               | 3rd year    | 31 | 25.8 |
|               | 4th year    | 27 | 22.5 |

Table 1 presents the demographic characteristics of the respondents. The sample included 120 students, with female students representing 56.7% and male students 43.3% of the total number of participants. The largest age group was 21–23 years, which accounted for 48.3% of the respondents. This indicates that the majority of

participants were in the active stage of professional and academic formation.

The distribution of students by year of study was relatively balanced. This allowed the study to analyze attention stability and academic performance among students at different stages of higher education. Such a

distribution increases the representativeness of the empirical findings and provides a more comprehensive

view of the psychological characteristics of students' learning activity.

**Table 2**

**Distribution of students by levels of attention stability and academic performance**

| Indicator            | Low   | Medium | High  |
|----------------------|-------|--------|-------|
| Attention stability  | 22.5% | 45.0%  | 32.5% |
| Academic performance | 20.8% | 47.5%  | 31.7% |

The results presented in Table 2 show that the majority of students demonstrated a medium level of attention stability. Specifically, 45.0% of students had an average level of attention stability, while 32.5% showed a high level and 22.5% demonstrated a low level. This means that although most students are able to maintain concentration during learning activities, a significant proportion of them still experience difficulties related to distraction, fatigue, and unstable mental productivity.

The distribution of academic performance indicators also shows that 47.5% of students had medium academic results, 31.7% had high academic performance, and 20.8% demonstrated low academic performance. A preliminary comparison of the two indicators suggests that students with higher attention stability tend to achieve better academic results. This assumption was further tested using correlation and regression analysis.

**Table 3**

**Descriptive statistics of attention stability and academic performance indicators**

| Variable                   | N   | Mean  | Standard Deviation | Minimum | Maximum |
|----------------------------|-----|-------|--------------------|---------|---------|
| Attention stability score  | 120 | 72.40 | 11.85              | 41      | 96      |
| Concentration accuracy     | 120 | 78.15 | 10.62              | 45      | 98      |
| Task productivity          | 120 | 69.80 | 12.34              | 38      | 95      |
| Academic performance score | 120 | 74.65 | 9.87               | 49      | 94      |
| Learning efficiency index  | 120 | 71.25 | 10.41              | 46      | 93      |

Table 3 presents the descriptive statistics of the main psychological and academic indicators. The mean score for attention stability was 72.40, which corresponds to a medium-to-high level. This indicates that most students are generally capable of maintaining attention during educational activities, although individual differences remain significant.

The standard deviation of attention stability was 11.85, suggesting a noticeable variation among respondents. Some students demonstrated very high attention stability, while others had difficulties maintaining concentration over time. The mean score for academic performance was 74.65, which also corresponds to an average-to-good level.

The results show that concentration accuracy and task productivity are important components of attention stability. Students who performed correction tasks with fewer mistakes and higher productivity tended to have better academic performance. This supports the idea

that attention stability is not only a general psychological characteristic, but also a practical cognitive resource that directly influences learning outcomes.

#### **Spss Statistical Analysis**

The empirical data were processed using IBM SPSS Statistics. At the first stage, descriptive statistics were calculated in order to identify the general distribution of the variables. At the second stage, Pearson correlation analysis was conducted to determine the relationship between attention stability and academic performance. At the third stage, linear regression analysis was used to determine whether attention stability predicts students' academic performance.

Before conducting correlation and regression analysis, the normality of distribution was checked. The values of skewness and kurtosis were within acceptable limits, which allowed the use of parametric statistical methods. The significance level was set at  $p < 0.05$ .

**Table 4**

**Pearson correlation between attention stability and academic performance**

| Variables                                     | r    | p      |
|-----------------------------------------------|------|--------|
| Attention stability ↔ Academic performance    | 0.62 | < 0.01 |
| Concentration accuracy ↔ Academic performance | 0.57 | < 0.01 |
| Task productivity ↔ Academic performance      | 0.54 | < 0.01 |
| Attention stability ↔ Learning efficiency     | 0.59 | < 0.01 |

Table 4 shows that there is a statistically significant positive correlation between attention stability and academic performance ( $r = 0.62$ ;  $p < 0.01$ ). This means that students with higher attention stability tend to demonstrate higher academic achievement. The relationship is positive and moderately strong, indicating that attention stability is an important psychological factor in successful learning.

A significant positive correlation was also found between concentration accuracy and academic performance ( $r = 0.57$ ;  $p < 0.01$ ). This suggests that students who make fewer errors during attention tasks

are more successful in academic activity. Similarly, task productivity was positively related to academic performance ( $r = 0.54$ ;  $p < 0.01$ ), indicating that the ability to work efficiently without losing concentration contributes to better learning outcomes.

The correlation between attention stability and learning efficiency was also statistically significant ( $r = 0.59$ ;  $p < 0.01$ ). This result confirms that attention stability supports not only formal academic grades, but also students' subjective experience of effective learning.

**Table 5**

**Linear regression analysis: attention stability as a predictor of academic performance**

| Predictor           | B     | Std. Error | Beta | t    | p       |
|---------------------|-------|------------|------|------|---------|
| Constant            | 37.82 | 4.91       | —    | 7.70 | < 0.001 |
| Attention stability | 0.51  | 0.06       | 0.62 | 8.55 | < 0.001 |

Model summary:  $R = 0.62$ ;  $R^2 = 0.38$ ; Adjusted  $R^2 = 0.37$ ;  $F = 73.10$ ;  $p < 0.001$ .

The regression analysis presented in Table 5 shows that attention stability is a statistically significant predictor of academic performance. The regression coefficient indicates that an increase in attention stability is associated with an increase in academic performance. The standardized beta coefficient ( $\beta = 0.62$ ;  $p < 0.001$ ) confirms the strong predictive role of attention stability.

The coefficient of determination ( $R^2 = 0.38$ ) shows that attention stability explains 38% of the variance in academic performance. This is a meaningful result in psychological and educational research, as academic performance is usually influenced by many different factors. Therefore, attention stability can be considered one of the key cognitive predictors of students' academic success.

**Table 6**

**Comparison of academic performance by levels of attention stability**

| Attention stability level | N  | Mean academic performance | SD   |
|---------------------------|----|---------------------------|------|
| Low                       | 27 | 64.30                     | 7.85 |
| Medium                    | 54 | 73.90                     | 8.42 |
| High                      | 39 | 83.20                     | 6.95 |

Table 6 demonstrates that students with high attention stability had the highest academic performance score ( $M = 83.20$ ), while students with low attention stability had the lowest academic performance score ( $M = 64.30$ ). Students with a medium level of attention stability occupied an intermediate position ( $M = 73.90$ ).

These results confirm that attention stability plays an important role in academic achievement. Students with stable attention are more capable of focusing on learning materials, completing tasks accurately, and maintaining cognitive effort during the educational process. In contrast, students with low attention stability are more likely to experience distraction,

mental fatigue, incomplete understanding of learning materials, and lower academic results.

### Discussion

The results of the study confirm the hypothesis that students' attention stability is positively related to academic performance. The correlation analysis showed a statistically significant relationship between these variables, while the regression analysis demonstrated that attention stability is a significant predictor of academic achievement.

From a psychological point of view, this relationship can be explained by the regulatory function of attention. Stable attention allows students to maintain focus on academic tasks, process information deeply, and avoid irrelevant distractions. In lecture situations, students with stable attention are more likely to understand the logical structure of the topic, remember key concepts, and participate actively in discussion. During independent learning, attention stability helps students read academic texts, complete written assignments, and prepare for examinations more effectively.

The findings also support the view that attention stability is closely connected with self-regulation. A student with stable attention is usually better able to plan learning activities, monitor progress, control distractions, and maintain motivation. Therefore, attention stability should be considered not only as a cognitive process, but also as an important component of learning behavior and academic self-management.

The results have practical significance for higher education institutions. If students with low attention stability are identified at an early stage, psychological and pedagogical interventions can be developed to support them. Such interventions may include concentration training, time management exercises, self-regulation techniques, mindfulness practices, structured learning strategies, and reduction of digital distractions.

### Conclusion

The present study was devoted to the psychological foundations of the relationship between students' attention stability and academic performance. The theoretical analysis showed that attention stability is one of the most important cognitive characteristics of learning activity. It ensures concentration, continuity of mental effort, accuracy of information processing, and effective completion of academic tasks.

The empirical results demonstrated that most students had a medium level of attention stability, while a considerable number of students showed either high or low indicators. The analysis of academic performance

revealed a similar distribution, with most students demonstrating medium academic results. This suggests that individual differences in cognitive regulation may be reflected in students' educational achievements.

The SPSS-based statistical analysis confirmed a statistically significant positive relationship between attention stability and academic performance. Pearson correlation analysis showed that higher attention stability is associated with higher academic achievement. Regression analysis demonstrated that attention stability significantly predicts students' academic performance and explains 38% of its variance.

The findings allow the following conclusions to be drawn:

1. Attention stability is an important psychological factor influencing students' academic performance.
2. Students with high attention stability demonstrate better learning efficiency and higher academic achievement.
3. Low attention stability may increase the risk of learning difficulties, distraction, and unstable academic results.
4. The development of attention stability should be included in psychological and pedagogical support programs for students.
5. Higher education institutions should create conditions that support students' concentration, self-regulation, and cognitive productivity.

In conclusion, attention stability can be considered a significant cognitive and psychological resource for successful learning. Its development contributes not only to the improvement of academic performance, but also to the formation of students' independent learning skills, self-regulation, and professional competence.

### Practical Recommendations

Based on the results of the study, the following recommendations can be proposed:

1. Psychological services in higher education institutions should regularly assess students' attention stability.
2. Students with low attention stability should be involved in concentration-development and self-regulation training programs.
3. Teachers should use interactive and structured teaching methods to maintain students' attention during classes.
4. Students should be encouraged to reduce

multitasking and organize a distraction-free learning environment.

5. Time management, mindfulness, and cognitive training exercises should be introduced into student support programs.

6. Academic advisors should consider attention-related difficulties when analyzing students' low academic performance.

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