

## Determinants of Academic Achievement of SPAN Students at Universitas Islam Negeri Mataram

Masnun, Adi Fadli\*, and Endrawati

Universitas Islam Negeri Mataram, Mataram, Indonesia

Email: adi.fadli@uinmataram.ac.id

\*Corresponding author

**Abstrak:** Penelitian ini bertujuan untuk menjelaskan pengaruh jurusan asal sekolah, prestasi akademik, pilihan jurusan pada jalur SPAN, dan program studi di perguruan tinggi terhadap IPK mahasiswa yang masuk UIN Mataram melalui jalur SPAN. Penelitian ini menggunakan pendekatan kuantitatif dengan jenis penelitian survei. Instrumen penelitian berupa kuesioner dan dokumentasi data akademik mahasiswa jalur SPAN di UIN Mataram, meliputi data jurusan asal sekolah menengah, prestasi akademik, pilihan jurusan pada jalur SPAN, program studi di perguruan tinggi, serta IPK mahasiswa. Teknik pengumpulan data dilakukan melalui survei dan studi dokumentasi terhadap data akademik resmi institusi. Teknik analisis data yang digunakan adalah analisis statistik inferensial, khususnya uji Analisis Varians (ANOVA), untuk mengetahui perbedaan IPK berdasarkan variabel kategoris yang diteliti. Hasil penelitian menunjukkan bahwa jurusan asal sekolah, prestasi akademik di sekolah, dan pilihan jurusan pada jalur SPAN tidak berpengaruh signifikan terhadap IPK mahasiswa. Sebaliknya, program studi di perguruan tinggi berpengaruh signifikan terhadap IPK mahasiswa, yang menunjukkan adanya perbedaan pencapaian akademik antar program studi. Temuan ini menunjukkan bahwa IPK mahasiswa lebih dipengaruhi oleh karakteristik akademik dan struktur pembelajaran program studi dibandingkan faktor latar belakang sebelum masuk perguruan tinggi. Implikasi penelitian ini menekankan pentingnya manajemen mutu akademik di tingkat program studi serta kehati-hatian dalam menggunakan IPK sebagai satu-satunya indikator keberhasilan akademik lintas program studi. Selain itu, hasil penelitian ini dapat dijadikan dasar untuk mengembangkan kebijakan evaluasi akademik yang lebih kontekstual dan adil di perguruan tinggi.

**Kata Kunci:** Jurusan di Sekolah Menengah, Prestasi Akademik, Pilihan Jurusan pada Jalur SPAN, Program Studi di Perguruan Tinggi, Indeks Prestasi Kumulatif.



**Abstract:** This study aims to explain the influence of majors in the school of origin, academic achievement, major choices in the SPAN pathway, and study programs in higher education on the GPA of students entering UIN Mataram through the SPAN pathway. This study uses a quantitative approach with a survey type of research. The research instruments are questionnaires and documentation of academic data of SPAN pathway students at UIN Mataram, including data on their high school majors, academic achievement, major choices in the SPAN pathway, study programs at university, and student GPAs. Data collection techniques were carried out through surveys and documentation studies of official institutional academic data. The data analysis technique used was inferential statistical analysis, specifically the Analysis of Variance (ANOVA) test, to determine the difference in GPA based on the categorical variables studied. The results showed that the original school major, academic achievement in school, and major choice in the SPAN pathway did not have a significant effect on student GPA. Conversely, the study program at the university had a significant effect on student GPAs, indicating differences in academic achievement between study programs. These findings show that student GPAs are more influenced by the academic characteristics and learning structure of the study program than by factors related to their background prior to entering university. The implications of this study emphasize the importance of academic quality management at the study program level and caution in using GPA as a single indicator of academic success across study programs. In addition, the results of this study can be used as a basis for developing more contextual and equitable academic evaluation policies in higher education.

**Keywords:** Major in High School, Academic Achievement, Major Choice in SPAN, Study Program in Higher Education, and Grade Point Average.

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## Introduction

Higher education is a strategic level in the national education system that functions as a vehicle for the development of science, character building, and improving the quality of human resources. In national development and globalization, higher education institutions are required to produce graduates who are not only academically

excellent but also adaptive, competitive, and have moral integrity (Yusuf, I. A., & Abbas, F. M. 2025). Therefore, the success of higher education is largely determined by the quality of student input, the effectiveness of the learning process, and the suitability between the academic background of students and their field of study (Nalim, N., Dewi, H. L., & Safii, M. A. 2021). Inaccuracy in one of these aspects can have an impact on low academic achievement of students as reflected in the Grade Point Average (GPA).

Theoretically, GPA is understood as the main quantitative indicator that represents students' academic achievements during their higher education. GPA not only reflects students' cognitive abilities but also shows their consistency in learning, academic motivation, and ability to adapt to the academic demands of their study program (As'ad, M. 2018). In educational psychology and learning evaluation studies, GPA is often used as a measure of study success and a predictor of opportunities for further academic success and professional careers. Therefore, the factors that influence student GPA are important issues that need to be studied systematically and based on empirical data (Ahmad, A. T., & Dewi, E. M. P. 2023, July).

One important factor that theoretically influences students' academic achievement in higher education is their secondary education background, particularly their high school major. In the secondary education system in Indonesia, students are grouped into specific majors such as Natural Sciences (IPA), Social Sciences (IPS), Languages, Religion, and various skills competencies in Vocational High Schools (SMK). Each major has different curriculum characteristics, competency emphases, and learning approaches. These differences directly shape students' *prior knowledge* and academic readiness when they continue their studies at the university level (Quariesta, F. H., Al Bukhori, M. Z., & Ardhani, M. R. 2024).

The theory of *readiness learning* and cognitive constructivism explain that the learning process at a higher level is greatly influenced by the mastery of basic concepts acquired at the previous level (Septiani, D., Fatihah, L. L. A.,

Abellia, M., El Adzim, Q. F. K., Candrapadmi, S., & Setiadi, W. A. 2024). Students with an academic background that aligns with the demands of the study program will find it easier to build new understanding, develop higher-order thinking skills, and achieve optimal academic performance. Conversely, students who come from high school majors that are less relevant to their chosen field of study have the potential to experience *an academic gap* that results in a low GPA (Ananda, A., Masyithah, Q., & Syam, H. 2025).

In addition to their high school major, academic achievement in high school is also an important factor in predicting success in college. Academic achievement, as reflected in report card grades and class rankings, is often considered an indicator of a student's intellectual ability, study discipline, and academic consistency. In the context of college admission selection, academic achievement is used as a basis for assessing the potential success of prospective students. This is in line with the *achievement continuity* theory, which states that academic achievement tends to be continuous from one level of education to the next, although it is influenced by various contextual factors (Ahmad, A. T., & Dewi, E. M. P. 2023, July).

Based on this thinking, the Indonesian government has developed various admission selection channels for higher education institutions based on academic achievement, one of which is the National Academic Achievement Selection (SPAN) for State Islamic Higher Education Institutions (PTKIN). The SPAN pathway is designed to recruit high-achieving students from secondary schools based on their report card grades and academic track record during their studies (Muhaimin, A. 2024). Through this pathway, it is hoped that universities will obtain students with high academic potential who are able to complete their studies with good results. However, academic achievement at the student's original school does not stand alone in determining the success of their studies at university. The choice of major when applying through the SPAN pathway also plays a very significant role. The choice of major reflects students' interests, aspirations, and perceptions

of a particular field of study. In learning motivation theory, the compatibility between individual interests and the chosen field of study will increase intrinsic motivation, academic engagement, and perseverance in learning. Conversely, choosing a major that is not based on interest and academic readiness has the potential to cause learning adaptation problems and a decline in academic achievement.

Major selection in the SPAN pathway has its own characteristics, because at this stage, high school students must determine the major or study program they will pursue in college based on relatively limited information. It is not uncommon for major choices to be influenced by external factors such as social pressure, perceptions of acceptance opportunities, advice from teachers or parents, and considerations of job prospects, rather than solely on academic suitability. This condition has the potential to cause a mismatch between the major in the school of origin, the major chosen during the SPAN selection, and the study program that students ultimately pursue in college (Tampubolon, J., Pongtambing, Y. S., Tumanggor, A. M. R., Sianipar, R., Sihombing, L., & Suprayetno, E. 2024).

University study programs themselves have diverse academic requirements, both in terms of depth of material, learning approaches, and competencies that students must master. At the State Islamic University (UIN) Mataram, study programs not only cover Islamic and educational fields, but also include social sciences, economics, science, and technology. This diversity of study programs opens up broad opportunities for students from various educational backgrounds, but at the same time requires specific academic readiness in accordance with the characteristics of each study program.

The compatibility between the student's high school major, academic achievements, major choice during selection, and the study program pursued is an important factor in ensuring the success of the student's studies. Incompatibility in any of these aspects can result in low GPAs, delayed graduation, and even the risk of dropping out. Therefore, analyzing the

influence of various academic input factors on student GPAs is very important as a basis for evaluating selection policies and academic management in higher education.

The main problem that arises in this context is the lack of comprehensive empirical understanding of the extent to which high school majors, academic achievement, major choices in the SPAN pathway, and study programs in higher education simultaneously affect the GPAs of high-achieving students (Mardhiah, M. 2024). Although SPAN pathway students are administratively categorized as high-achieving students, in reality, their GPA achievements show significant variation. This phenomenon raises fundamental questions about the effectiveness of the SPAN pathway in recruiting students who are not only outstanding at the time of selection but also able to maintain their academic achievements throughout their studies.

Initial observations of the academic data of high-achieving students from the SPAN pathway at UIN Mataram show a tendency for differences in GPA based on the background of their high school majors and the study programs they are pursuing. Students who come from high school majors that are in line with the academic field of their study program tend to have more stable and relatively higher GPAs. Conversely, students whose high school majors are less relevant to the academic demands of their study program show greater variation in their GPAs. In addition, there are indications that the choice of major during the SPAN selection process is not always directly proportional to the study program that is ultimately pursued, which has the potential to affect students' academic adaptation. These initial observations indicate a complex causal relationship between high school majors, academic achievement, major choices in SPAN, college study programs, and student GPAs. However, this relationship has not been systematically analyzed using an adequate scientific approach. Without strong empirical analysis, student selection and placement policies have the potential to be based solely on normative assumptions, rather than on measurable scientific evidence.

The urgency of this research lies in several strategic aspects. *First*, theoretically, this research contributes to the development of higher education studies, particularly in understanding the academic input factors that influence student achievement. This research expands the study of educational continuity from secondary school to university in the context of PTKIN. *Second*, practically, the results of this study can be used as a basis for evaluating and improving the SPAN new student selection policy at UIN Mataram, especially in considering the suitability of the student's original school major and study program. *Third*, from a managerial perspective, this study provides important information for study program managers and quality assurance institutions in designing more targeted academic assistance programs. By understanding the factors that influence student GPAs, universities can develop academic intervention strategies to improve the academic success of high-achieving students. *Fourth*, from the students' perspective, this research can increase academic awareness of the importance of the suitability of educational background and program choices for academic success in higher education.

Based on these issues, this study offers scientific solutions through an analysis of the influence of high school majors, academic achievement, major choices in SPAN, and study programs in higher education on the GPA of high-achieving students in the SPAN UIN Mataram pathway. A quantitative approach with inferential analysis was chosen to test the relationship and influence between variables objectively and measurably. Therefore, this study is expected to explain the influence of the variables in this study.

The methodological strength of this study resides in its rigorous quantitative design, utilising an objective survey method to examine variable correlations (Waruwu, M., Puat, S. N., Utami, P. R., Yanti, E., & Rusydiana, M. 2025). Focusing on high-achieving SPAN-pathway students at UIN Mataram (2022–2024 cohorts), the research employed purposive sampling with stringent inclusion criteria to ensure data validity. Consequently, a

representative sample of 1,768 students was attained—a size substantial enough to ensure a high level of generalisability.

Data were gathered through instrument triangulation: structured questionnaires, which underwent rigorous validity and reliability testing, and an official documentation study from the university's academic system to guarantee the accuracy of secondary data (Pandiangan & Albina, 2025). The data collection procedure strictly adhered to ethical standards of confidentiality and voluntary participation. To ensure the robustness of the findings, data were processed using inferential statistical analysis, specifically the Analysis of Variance (ANOVA) test. This technique was selected for its capacity to isolate the specific contributions of school backgrounds and study programmes towards the Grade Point Average (GPA) at a 0.05 significance level (Pandiangan & Albina, 2025).

## Research Findings

- a. The Effect of Major in the School of Origin on the Cumulative Grade Point Average

**Table 1. Results of the test of the effect of major in the school of origin on the cumulative grade point average**

	GPA				
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.629	4	.157	.972	.422
Within Groups	285,138	1,763	.162		
Total	285,767	1767			

Table 1 shows a calculated F value of 0.972 with a significance level (Sig. = 0.422). This significance value is greater than the significance level set in this study, which is  $\alpha = 0.05$ . Thus, it can be concluded that there is no statistically significant effect of the tested variables on the students' Grade Point Average (GPA).

The *Sum of Squares Between Groups* value of 0.629 with degrees of freedom (df = 4) indicates that the contribution of GPA variation caused by intergroup influences is relatively small. Conversely, the *Sum of Squares Within Groups* value of 285.138 with df = 1.763 indicates that GPA variation is more influenced by individual factors within the group. This is reinforced by the *Mean Square Between Groups* value of 0.157, which is smaller than the *Mean Square Within Groups* value of 0.162, indicating that the effect of the independent variable on GPA is relatively weak.

These findings indicate that the independent variables analyzed in this study did not have a significant effect on student GPAs. In other words, student GPA achievements were not significantly influenced by the grouping factors used in the ANOVA analysis, but were instead determined by other factors outside the variables tested.

*b. The Effect of Academic Achievement on Grade Point Average*

**Table 2. Results of the test of the influence of Academic Achievement on the Grade Point Average**

GPA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.374	3	.125	.770	.511
Within Groups	285,393	1,764	.162		
Total	285,767	1767			

Based on the test results in Table 2, the calculated F value is 0.770 with a significance level (Sig. = 0.511). This significance value is greater than the significance level used in this study, which is  $\alpha = 0.05$ . Therefore, it can be concluded that there is no statistically significant effect of the independent variables tested on the students' Grade Point Average (GPA).

The *Sum of Squares Between Groups* value of 0.374 with a degree of freedom (df = 3) indicates that the variation in GPA caused by the influence between groups is relatively small. Meanwhile, the *Sum of Squares Within Groups* value

of 285.393 with  $df = 1,764$  indicates that the variation in student GPA is more influenced by individual factors within the group. This is reinforced by the *Mean Square Between Groups* value of 0.125, which is smaller than the *Mean Square Within Groups* value of 0.162, indicating that the effect of the independent variable on GPA is relatively weak.

These findings indicate that the independent variables analyzed in this study do not have a significant effect on student GPAs. Thus, the GPAs of students in the SPAN program at UIN Mataram are not significantly influenced by the grouping factors used in this analysis, but are rather determined by other factors outside the variables studied, such as individual academic ability, learning motivation, learning strategies, and the academic environment.

c. *The Effect of Major Choice in SPAN on Grade Point Average*

**Table 3. Results of the test of the influence of major choice in SPAN on the cumulative grade point average**

GPA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.284	2	.142	.878	.416
Within Groups	285,483	1,765	.162		
Total	285,767	1767			

Based on the test results in Table 3, the calculated F value is 0.878 with a significance level ( $Sig. = 0.416$ ). This significance value is greater than the significance level set in this study, which is  $\alpha = 0.05$ . Thus, it can be concluded that there is no statistically significant effect of the independent variables tested on the students' Grade Point Average (GPA).

The *Sum of Squares Between Groups* value of 0.284 with a degree of freedom ( $df = 2$ ) indicates that the variation in GPA influenced by the independent variable is relatively small. Meanwhile, the *Sum of Squares Within Groups* value of 285.483 with  $df = 1,765$  indicates that the variation in student GPA is

more dominantly influenced by internal factors within the group. This is reinforced by the *Mean Square Between Groups* value of 0.142, which is smaller than the Mean Square Within Groups value of 0.162, indicating that the effect of independent variables on GPA is relatively weak.

These findings indicate that the independent variables analyzed in this study do not have a significant effect on student GPAs. In other words, the GPA achievement of SPAN UIN Mataram students is not significantly influenced by the variables tested in this analysis, but is more determined by other factors outside the scope of this study, such as individual academic ability, learning motivation, learning strategies, and a supportive academic environment.

*d. The Influence of Study Programs in Higher Education Institutions on Grade Point Average.*

**Table 4. Results of the test of the influence of study programs in higher education on the cumulative grade point average**

GPA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	21.677	22	.985	6,511	.000
Within Groups	264,090	1,745	.151		
Total	285,767	1767			

Based on the test results as shown in Table 4, a calculated F value of 6.511 was obtained with a significance level (Sig. = 0.000). This significance value is smaller than the significance level set in this study, which is  $\alpha = 0.05$ . Thus, it can be concluded that there is a statistically significant effect of the independent variables tested on the students' Grade Point Average (GPA).

The *Sum of Squares Between Groups* value of 21.677 with a degree of freedom (df = 22) indicates that the variation in GPA explained by the differences in the independent variable categories is relatively large. Meanwhile, the Sum of Squares Within Groups value of 264.090 with df =

1.745 indicates that there is variation in GPA within groups, but the value is proportionally smaller than the variation between groups. This is reinforced by the Mean Square Between Groups value of 0.985, which is much greater than the *Mean Square Within Groups* value of 0.151, resulting in a high and significant F value.

These findings indicate that the independent variables tested have a significant effect on the GPA of students. This means that differences in the characteristics of these variables—such as the student's school of origin, choice of study program, or other categorical variables analyzed—contribute significantly to the variation in the GPA of students enrolled through the SPAN UIN Mataram pathway. In other words, student GPAs are not formed randomly ( ), but are influenced by their academic background and educational choices before and upon entering college.

## Discussion

### The Influence of High School Major on Cumulative Grade Point Average

This discussion begins with the assertion that the ANOVA test results, which show a calculated F value of 0.972 with a significance level of 0.422 ( $p > 0.05$ ), provide important empirical meaning in understanding the relationship between the major in the school of origin and the achievement of the Grade Point Average (GPA) of students in higher education. Statistically, a significance value exceeding the  $\alpha = 0.05$  threshold indicates that there is no significant difference in GPA between groups of students based on their high school majors. In other words, high school majors are not proven to be a factor that significantly affects students' academic achievement in college. This finding confirms that students' GPA cannot be predicted deterministically through academic specialization in their high school, but is more influenced by other factors that are individual, contextual, and dynamic during the higher education process.

Analysis of the variation components shows that the *Sum of Squares Between Groups* value of only 0.629 with a degree of freedom of 4 is very small compared to the *Sum of Squares Within Groups* value of 285.138 with a degree of freedom of 1,763. This huge imbalance between intergroup variation and intragroup variation indicates that almost all differences in student GPAs stem from individual factors within the group, rather than from differences in the background of their high school majors. This finding is reinforced by the Mean Square Between Groups value (0.157), which is smaller than the *Mean Square Within Groups* (0.162), which methodologically shows that the influence of independent variables on GPA is very weak. Thus, quantitatively and substantively, the high school major does not have sufficient explanatory power in explaining the variation in students' academic achievement in college.

This finding has significant conceptual implications because it challenges the normative assumption that is still prevalent in educational practice, namely the assumption that certain majors in high school, such as natural sciences, social sciences, or religious studies, will automatically determine the academic success of students at the university level (Zalmi, F. 2024). The results of this study show that GPA as an indicator of academic achievement is relative, contextual, and greatly influenced by the learning process experienced by students after entering college. In other words, the transition from secondary to higher education is a phase of academic competency reconstruction, not merely a linear continuation of previous specializations.

This finding is in line with the theory of academic integration proposed by Firdaos from Tinto (2024), which asserts that student success in higher education is determined more by the level of academic and social involvement of students in the campus environment than by their previous formal academic background. According to Tinto, students who are able to adapt to the academic culture of higher education, build positive social relationships, and develop learning strategies that are in line with academic demands will have a greater chance of achieving optimal academic performance. In this

framework, the student's original school major only serves as initial capital, the influence of which will gradually diminish as the student gains more learning experience in higher education.

From the perspective of constructivist learning theory as proposed by Biggs, student learning outcomes are the result of interactions between individual characteristics, learning contexts, and assessment systems (Pramana, P. M. A., Suarni, N. K., & Margunayasa, I. G. 2024). The student's original school major is part of their initial characteristics, but its influence can be reduced when students enter a new learning context that requires a different learning approach. Higher education requires students to develop critical, analytical, and reflective thinking skills, as well as independent learning skills, which are not always the main focus at the secondary education level. Therefore, students' GPAs better reflect their successful adaptation to the higher education learning system than simply the continuity of their previous majors.

The results of this study can also be explained through Super's career development theory, which states that the end of secondary education is in the exploration phase, where individuals are still building a vocational self-concept that is not yet fully stable (Hidayat, D. R., Cahyawulan, W., & Alfan, R. 2019). During this phase, the choice of major in high school is often influenced by external factors such as the availability of majors, school policies, parental encouragement, or other pragmatic considerations. As a result, the major chosen in high school does not always reflect the individual's interests, talents, or long-term academic readiness. When students enter college, they are in a different stage of development, where academic choices and learning performance are more influenced by self-awareness, career orientation, and life goals that are beginning to take shape in a more mature way.

Empirical findings at the research site further reinforce this interpretation. The data shows that the percentage of students who graduated through the

SPAN pathway on their first choice reached 82.35%, which is much higher than the second choice (16.45%) and third choice (1.18%). The high graduation rate on the first choice indicates that the majority of students were accepted into study programs that matched their primary preferences. This condition shows that there's harmony between individual interests and study choices, which in turn can increase students' motivation to learn and academic commitment, regardless of the major they took in high school.

The distribution of student acceptance based on study program also shows significant diversity. The Islamic Education Study Program (PAI) has the highest percentage at 11.42%, followed by Islamic Family Law (6.3%), Sharia Economics (5.8%), Sharia Economic Law (5.4%), Social Studies Economics (5.2%), English Language Teaching (5.1%), Islamic Banking (5.1%), and other study programs with smaller percentages. This diversity shows that students come from heterogeneous academic backgrounds but still have relatively equal opportunities to achieve good academic performance. This fact further emphasizes that students' GPAs are not determined by the homogeneity of their high school majors, but rather by the dynamics of the learning process in higher education.

When this data is linked to the distribution of majors in their schools of origin, it can be seen that the majority of students come from social studies (38%) and Islamic education (35%) majors, followed by religion (17.5%), languages (6.67%), and general studies (2.6%). However, the dominance of certain majors in the school of origin does not imply a significant difference in GPA. Students from the Social Sciences, Islamic Studies, and Religion majors show relatively equal GPA achievements. This shows that the learning system in higher education is able to accommodate differences in students' academic backgrounds and provide equal space for each individual to develop.

Conceptually, these findings reinforce the view that GPA is a contextual indicator of academic performance that cannot be separated from the characteristics of the study program, evaluation system, and prevailing

academic culture (Zulfahmi, A., & Andriany, D. 2021). Each study program has a different level of material complexity, pedagogical approach, and assessment standards, so that students' GPAs cannot be simply compared across different high school majors. Thus, the absence of the influence of high school majors on GPAs is not an anomaly, but a reflection of the complexity of the higher education system itself.

The results of this study have important implications for student selection policies, particularly in the context of the SPAN PTKIN pathway. These findings provide empirical legitimacy for selection policies that do not make the student's high school major a primary determining factor. Instead, student selection needs to consider academic potential more holistically, including learning motivation, consistency of achievement, and students' adaptive readiness to the demands of higher education. Thus, an inclusive and equitable selection system can encourage the creation of equal academic opportunities for all high school graduates.

### **The Influence of Academic Achievement on the Grade Point Average**

The ANOVA test results as shown in Table 2 indicate that the academic achievement of students at the high school level does not significantly affect the Grade Point Average (GPA) of SPAN pathway students at UIN Mataram. This is evidenced by a calculated F value of 0.770 and a significance level of 0.511, which is far above the significance threshold of 0.05. Statistically, these findings indicate that there is no significant difference in GPA between groups of students based on their previous academic achievement categories. Thus, academic achievement in the student's school of origin cannot be used as a direct predictor of academic success in higher education, particularly as reflected in GPA achievement.

Analysis of the data variation shows that the Sum of Squares Between Groups value of only 0.374 with a degree of freedom of 3 is relatively very small compared to the Sum of Squares Within Groups value of 285.393 with

a degree of freedom of 1,764. This imbalance confirms that most of the variation in students' GPA ( ) comes from individual factors within the group, not from differences in academic achievement before entering college. This is also reinforced by the *Mean Square Between Groups* value of 0.125, which is smaller than the *Mean Square Within Groups* value of 0.162. Methodologically, this condition shows that the influence of previous academic achievement on GPA is very weak and insignificant.

Conceptually, this finding confirms that student GPAs are the result of the learning process that takes place in college and are not merely a linear continuation of academic achievement in secondary education (Hendrawati, T. 2024). Higher education institutions have learning characteristics that are fundamentally different from secondary schools, in terms of cognitive demands, learning methods, and evaluation systems. Therefore, students who previously had high academic achievement will not automatically maintain that excellence in the form of a higher GPA, and vice versa.

This interpretation is in line with the theory of academic and social integration proposed by Tinto, which states that student academic success is determined more by their level of integration into the academic and social systems in higher education than by their previous academic achievements (Mulyono, M., Tharaba, M. F., Walid, M., Yaqien, N., Antariksa, W. F., & Puspitasari, F. F. 2020). According to Tinto, students who are able to adapt to academic demands, build healthy social relationships, and develop independent learning strategies will have a greater chance of achieving optimal academic performance. Thus, past academic achievement only serves as initial capital, the influence of which can fade with the dynamics of learning experiences in college.

These findings can also be explained through the perspective of constructivist learning theory as proposed by Biggs. Within this theoretical framework, student learning outcomes are the result of interactions between individual characteristics, the learning context, and the assessment system.

Academic achievement in the student's previous school is part of their initial characteristics, but when students enter a new learning context that requires a more independent, critical, and reflective approach to learning, the influence of previous achievements becomes less dominant (Pramana, P. M. A., Suarni, N. K., & Margunayasa, I. G. 2024). A student's GPA thus reflects their success in adapting to the higher education learning context rather than the continuity of their previous academic achievements.

Furthermore, from the perspective of Super's career development theory, the end of secondary education is a phase of exploration, where academic achievement is often situational and influenced by the school's assessment system, curriculum policies, and learning environment support (Dewi, L., & Fauziati, E. 2021). Achievements in this phase do not necessarily reflect long-term academic readiness or learning potential in higher education. When students enter college, they are in a different stage of development, where learning orientation, intrinsic motivation, and career goals begin to take shape more maturely. This explains why previous academic achievements do not have a strong correlation with students' GPAs.

Empirical findings at the research site further reinforce this interpretation. The data shows that the majority of SPAN UIN Mataram students were accepted into their first choice, with a percentage of 82.35%, while those accepted into their second choice accounted for 16.45% and their third choice only 1.18%. The high percentage of acceptance on the first choice indicates that most students obtained study programs that matched their preferences and main interests. This condition has the potential to increase student motivation and academic commitment, which ultimately has a greater influence on GPA than academic achievement in their original schools.

The distribution of student acceptance based on study programs also shows significant diversity, ranging from PAI (Islamic Education) (11.42%), HKI (Islamic Intellectual Property) (6.3%), Sharia Economics (5.8%), Sharia Economic Law (5.4%), IPS Economics (5.2%), to other science and education

study programs. This diversity shows that students with different academic backgrounds are able to adapt and excel in various fields of study. This fact further emphasizes that previous academic achievements are not the main determining factor in students' GPA.

When this data is linked to the distribution of majors in their schools of origin—which are dominated by Social Sciences (38%), Islamic Education (35%), Religion (17.5%), Languages (6.67%), and General Studies (2.6%)—it can be seen that the heterogeneity of students' academic backgrounds does not imply significant differences in GPA. Students from the social studies, Islamic education, and religion majors show relatively equal opportunities in achieving academic success in higher education. This shows that the learning system at UIN Mataram is inclusive and able to accommodate differences in students' academic backgrounds effectively.

The absence of a significant influence of previous academic achievement on GPA also shows that GPA as an indicator of achievement is contextual and does not fully reflect students' absolute academic abilities. Each study program has different levels of material complexity, evaluation standards, and curriculum characteristics, so that GPA achievement is greatly influenced by the academic context faced by students during their studies. Thus, comparing students' GPAs based solely on past academic achievement becomes less academically relevant.

### **The Influence of Major Choice in SPAN on the Cumulative Grade Point Average**

The results of the ANOVA statistical test in Table 3 show that students' choice of major in the SPAN pathway does not significantly affect the Grade Point Average (GPA) of UIN Mataram students. This is indicated by a calculated F value of 0.878 with a significance level of 0.416, which is greater than the significance level of 0.05. Statistically, this finding indicates that there is no significant difference in GPA among students based on major choice

categories—whether first, second, or third choice—during the college admission selection process through the SPAN pathway. Thus, major choice during the admission selection process cannot be used as a determining variable for student academic success as reflected in GPA achievement.

This interpretation is further strengthened by data variation analysis showing that the Sum of Squares Between Groups value is only 0.284 with a degree of freedom of 2, while the Sum of Squares Within Groups value reaches 285.483 with a degree of freedom of 1,765. This striking difference shows that the variation in students' GPAs is almost entirely due to individual factors within the group, not differences in major choices in the SPAN pathway. This condition is also reflected in the Mean Square Between Groups value of 0.142, which is smaller than the Mean Square Within Groups value of 0.162, indicating that the contribution of major choice to GPA variation is very weak. Methodologically, this confirms that the major choice variable does not have sufficient explanatory power for the variation in students' GPAs.

Conceptually, these findings show that student GPAs better reflect the learning process that takes place during their studies in college than their initial decisions in choosing a major during the admission selection process (Ahmad, A. T., & Dewi, E. M. P. 2023, July). Although major choice is often theoretically assumed to be related to interest, talent, and academic readiness, the results of this study show that these factors do not automatically imply higher academic achievement. This indicates that the dynamics of learning in higher education are adaptive and allow students to develop their academic potential regardless of the order of their major choices when registering.

These findings are in line with the theory of student academic development proposed by Pascarella and Terenzini, which states that student academic success in higher education is more influenced by learning experiences during their studies, academic engagement, and interaction with the institutional environment than by students' initial characteristics when entering higher education (Rahayu, M. N. M., & Arianti, R. 2020). In this

context, the choice of major in the SPAN pathway is an initial variable (input), while GPA is an output variable (output) that is influenced by a complex and continuous educational process.

From the perspective of learning motivation theory, particularly the self-determination theory developed by Deci and Ryan, students' academic success is greatly influenced by intrinsic motivation, feelings of autonomy, competence, and social connectedness (Susanti, R. N., Zaeni, A. N., & Dewi, N. S. F. 2025, June). Students who may not have been accepted into their first choice of major still have the same opportunity to achieve a high GPA if they are able to develop intrinsic motivation and adapt to the academic environment of their study program. Thus, the order of major choices is not the main determinant of academic success, but rather how students interpret and undergo the learning process in that major.

Previous empirical studies also show a trend consistent with the findings of this study. A number of studies in the field of higher education have found that the initial match between interests and majors does affect student learning satisfaction and retention, but does not always have a direct implication on GPA. Factors such as learning strategies, time management, academic support, and teaching quality have a stronger influence on academic achievement. Thus, the choice of major as an administrative variable at the admission selection stage has limitations in predicting students' long-term academic success.

Findings at the research site further reinforce this interpretation. The data show that the majority of SPAN UIN Mataram students were accepted into their first choice, namely 82.35%, while those accepted into their second choice were 16.45% and their third choice was only 1.18%. The dominance of acceptance in the first choice indicates that most students obtained study programs that matched their initial preferences. However, statistical tests show that this dominance did not result in significant differences in GPA between major choice groups. This indicates that even though the majority of students

were in the majors they chose as their priority, this did not guarantee higher GPA achievements compared to students who were accepted in their second or third choices.

The distribution of students based on study programs that passed through the SPAN pathway also shows a wide diversity, ranging from PAI (11.42%), HKI (6.3%), Sharia Economics (5.8%), Sharia Economic Law (5.4%), to other education, science, and social study programs. This diversity shows that students from various fields of study have relatively equal opportunities to achieve academic success in higher education. The absence of a certain program dominating the GPA further emphasizes that students' academic achievements are not determined solely by their choice of major, but by broader individual and institutional factors.

When linked to the background of majors in their high schools, which were dominated by social studies (38%), Islamic education (35%), religion (17.5%), language (6.67%), and general studies (2.6%), these findings show that the heterogeneity of students' academic backgrounds neither strengthens nor weakens the influence of major choice on GPA. Students from various secondary education backgrounds are able to adapt and excel in their study programs, regardless of whether the major is their first, second, or third choice. This shows that the learning system at UIN Mataram is relatively adaptive and inclusive of the diversity of student backgrounds.

Institutionally, these results reflect that the academic guidance mechanisms, curriculum, and evaluation system at UIN Mataram provide a relatively fair space for all students to develop academically. Students are not trapped in the long-term consequences of their major choices during the admission selection process, but rather have equal opportunities to improve their academic competence through the ongoing learning process. Thus, GPA becomes a reflection of a dynamic educational process, not merely the result of students' initial preferences.

## **The Influence of Study Programs in Higher Education on the Grade Point Average.**

The ANOVA test results as shown in Table 4 indicate that study programs in higher education have a significant effect on the GPA of SPAN UIN Mataram students. This is evidenced by a calculated F value of 6.511 with a significance level of 0.000, which is much smaller than  $\alpha = 0.05$ . Statistically, this finding confirms that there is a significant difference in GPA among students based on the study program they are taking at university. Thus, the null hypothesis stating that there is no effect of study program on GPA can be rejected, and conversely, the alternative hypothesis is accepted. This finding marks an important shift compared to the results of previous variable testing, which showed that not all initial student factors have a significant explanatory power on academic achievement, but the study program actually emerges as a variable that has a real influence.

This interpretation is further strengthened when viewed from the large variation between groups as indicated by the Sum of Squares Between Groups value of 21.677 with a degree of freedom of 22. This value shows that the differences in GPA between study programs contribute relatively significantly to the total variation in student GPA. Conversely, the Sum of Squares Within Groups value of 264.090 with a degree of freedom of 1,745 shows that although there is variation in GPA within each study program, this variation is proportionally smaller than the variation between study programs. This comparison is reinforced by the Mean Square Between Groups value of 0.985, which is much greater than the Mean Square Within Groups value of 0.151, resulting in a high and significant F value. Methodologically, this condition indicates that study programs are structural factors that systematically differentiate student GPA achievements.

Substantively, these findings indicate that student GPAs are not formed randomly, but are influenced by the academic and structural characteristics

inherent in each study program. Each study program has its own characteristics in terms of curriculum, level of material difficulty, learning methods, evaluation systems, study load, and the academic culture that develops within it. These variations in characteristics have a direct implication on students' learning patterns and are ultimately reflected in their GPA. In other words, even though students come from diverse academic backgrounds and go through the same selection process, their academic experiences at the study program level play an important role in shaping their academic achievements.

This finding is in line with the *learning environment theory* perspective proposed by Biggs and Tang, which emphasizes that student learning outcomes are greatly influenced by the alignment between student characteristics, curriculum design, learning strategies, and the assessment system applied in a study program (Rahayuningsih, E., & Hanif, M. 2024). Study programs with well-structured curricula, participatory learning methods, and transparent and fair evaluation systems tend to produce more optimal academic achievements. Conversely, study programs with high academic demands and strict evaluation systems can produce different GPA distributions even though students have relatively equal initial abilities.

From the perspective of Tinto's academic integration theory, student success in higher education is influenced by the extent to which they are able to integrate academically and socially into the study program environment. Study programs function as the main academic units where students build their scientific identities, relationships with lecturers and peers, and involvement in academic activities. Therefore, differences in the quality of academic interaction and the learning climate between study programs can explain why students' GPAs differ significantly between study programs, as shown by the results of this study.

Empirical findings at the research site further reinforce this interpretation. The data show that the distribution of SPAN UIN Mataram students is

spread across various study programs with different proportions, such as PAI (11.42%), HKI (6.3%), Sharia Economics (5.8%), Sharia Economic Law (5.4%), English Language Teaching (5.1%), Islamic Banking (5.1%), Social Sciences Economics (5.2%), and various other study programs with smaller proportions. This diversity shows that students are not concentrated in one particular field of study but are spread across religious, social, educational, and scientific fields of study. Each of these fields of study has different academic characteristics, which logically implies variations in student GPAs.

In addition, the data shows that most students were accepted into their first choice of SPAN program (82.35%), while the rest were accepted into their second choice (16.45%) and third choice (1.18%). The dominance of acceptance into the first choice indicates a relatively high level of compatibility between students' initial interests and the study programs they are enrolled in. However, significant findings in Table 4 show that even though the majority of students are in their first-choice study programs, significant variations in GPA still appear between study programs. This confirms that initial choice compatibility alone is not sufficient to explain differences in academic achievement; rather, internal factors within the study program play a more decisive role.

When linked to the background of majors in their high schools, which were dominated by Social Sciences (38%), Islamic Education (35%), Religion (17.5%), Languages (6.67%), and General Studies (2.6%), these findings show that the transition from secondary to higher education involves different academic adaptation processes in each study program. Students with relatively similar backgrounds from their original schools may experience very different academic experiences when entering certain study programs, depending on the curriculum requirements and learning approaches applied. Thus, study programs serve as the main space for converting initial academic potential into actual GPA achievements.

Previous studies also support these findings. A number of studies in higher education show that differences in GPA between study programs are a common phenomenon and are influenced by variations in academic standards, workload, and assessment policies (Islaha, Z. S., Prudentia, Z., Anisah, Z., & Radianto, D. O. 2024). These studies emphasize that GPA is contextual and cannot be directly compared between study programs without considering their respective internal characteristics. In this context, the results of the study at UIN Mataram confirm that study programs are a very important contextual variable in understanding student academic achievement.

The results of this study have significant theoretical and practical implications. Theoretically, these findings reinforce the view that student academic success is the result of a complex interaction between individual characteristics and the academic structure of the study program. Practically, these results show that the evaluation of academic quality and the interpretation of student GPAs need to take into account the context of the study program more proportionally. Higher education institutions also need to ensure that academic standards between study programs are managed fairly and transparently, without neglecting the uniqueness of each field of study.

## Conclusion

This study concludes that pre-entry factors—including secondary school majors, prior academic achievement, and the choice of major during the SPAN-PTKIN selection—do not significantly influence the Grade Point Average (GPA) of students at UIN Mataram. These findings suggest that academic success in higher education is not strictly determined by the linearity of secondary education records; rather, it is more substantially shaped by the dynamics of the higher education environment itself. This is evidenced by the significant impact of university study programmes on student GPA, indicating that academic atmosphere, assessment standards, and learning patterns at the departmental level are the primary determinants of academic achievement.

Consequently, the implications of this research highlight the need for universities to prioritise the enhancement of learning ecosystems within study programmes over a sole reliance on administrative school backgrounds to ensure sustained student performance.

## References

Ahmad, A. T., & Dewi, E. M. P. (2023, July). Academic Achievement in Terms of IQ and University Admission Pathways for Psychology Students at Makassar State University. In *National Seminar on the 62nd Anniversary* (Vol. 1, pp. 270-278).

Aldian, H., Wahyudiati, D., Bahtiar, B., & Alfarisi, S. (2025). The Influence of Science Laboratory Management on Increasing Manager Performance at SMA IT Yarsi Mataram. *Journal of Research in Education and Pedagogy*, 2(3), 396-404.

Ananda, A., Masyithah, Q., & Syam, H. (2025). Readiness in Learning. *HUMANITIS: Journal of Humanities, Social Sciences, and Business*, 3(4), 933-943.

Ansori, M., & Wahyudiati, D. (2025). Pengaruh Gaya Kepemimpinan dan Budaya Organisasi terhadap Kinerja Guru pada Lembaga Pendidikan Islam (Studi Empiris pada MA NW Senyiur dan MA NW Sepit). *Journal of Education, Teaching, and Learning*, 2(2), 266-275.

As'ad, M. (2018). Interaction Patterns Between Academic Advisors and Students in the Pai Study Program as a Process of Improving Graduate Quality at the Islamic University of Indonesia.

Dewi, L., & Fauziati, E. (2021). Thematic learning in elementary schools from the perspective of Vygotsky's constructivism theory. *Jurnal Papeda: Journal of Elementary Education Publications*, 3(2), 163-174.

Fauzi, M. I., Fadli, A., & Wahyudiati, D. (2024). Analysis Of Threats And Opportunities Of Al-Hamidy Islamic Boarding School, West Lombok

Post The Islamic Boarding School Law Through The Swot Analysis Method. *Dharmas Education Journal (DE\_Journal)*, 5(1), 588-597.

Febri, F. D. C., & Fadli, A. (2025). Sejarah dan Pola dan Model Penyebaran Bahasa Arab ke Seluruh Penjuru Dunia: Sejarah dan Pola dan Model Penyebaran Bahasa Arab ke Seluruh Penjuru Dunia. *Al-Kalim: Jurnal Pendidikan Bahasa Arab dan Kebahasaaraban*, 4(1), 26-41.

Firdaos, R., Wahyudin, W., Mulyosaputro, P., Gunawan, W., & Vitisia, V. (2024). The Role of Islamic Higher Education in Building the Character and Integrity of Muslim Students. *Irfani*, 20(1), 1-19.

Hendrawati, T. (2024). *Learning Organization-Based Education Management in Private Universities*. Deepublish.

Hidayat, D. R., Cahyawulan, W., & Alfan, R. (2019). *Career: Theory and application in comprehensive guidance and counseling*. CV Jejak (Jejak Publisher).

Islaha, Z. S., Prudentia, Z., Anisah, Z., & Radiano, D. O. (2024). The effect of learning load on student academic achievement. *JOURNAL SAINS STUDENT RESEARCH*, 2(2), 185-192.

Mardhiah, M. (2024). Statistical Study of Factors Affecting Students' Decision Making in Choosing an Education Major. *Al-Amin: Journal of Education and Social Humanities*, 2(1), 65-72.

Muhaimin, A. (2024). *Classification of student academic achievement based on report card scores and discipline* (Doctoral dissertation, Maulana Malik Ibrahim State Islamic University).

Mulyono, M., Tharaba, M. F., Walid, M., Yaqien, N., Antariksa, W. F., & Puspitasari, F. F. (2020). Development of the Prospectus for the Islamic Education Management (Mpi) Study Program at Uin Maulana Malik Ibrahim Malang Towards a World Class University (Wcu).

Nalim, N., Dewi, H. L., & Safii, M. A. (2021). Analysis of Factors Affecting Student Success at PTKIN in Central Java Province. *Journal of Education: Journal of Research and Literature Review in the Field of Education, Teaching, and Learning*, 7(4), 1003-1013.

Nazopah, N., & Fadli, A. (2025). The Islamic Education Methods As An Effort To Strengthen Religious Moderation In Elementary Schools. *Al-Mubin: Islamic Scientific Journal*, 8(2), 438-451.

Pandiangan, D. F., & Albina, M. (2025). Quantitative Research Models and Stages: Theoretical and Practical Approaches in Educational Studies. *IHSAN: Journal of Islamic Education*, 3(3), 724-730.

Pramana, P. M. A., Suarni, N. K., & Margunayasa, I. G. (2024). The relevance of constructivist learning theory with guided inquiry models to student learning outcomes. *Ideguru: Journal of Teachers' Scientific Works*, 9(2), 487-493.

Pramana, P. M. A., Suarni, N. K., & Margunayasa, I. G. (2024). The relevance of constructivist learning theory with guided inquiry models to student learning outcomes. *Ideguru: Journal of Teachers' Scientific Works*, 9(2), 487-493.

Quariesta, F. H., Al Bukhori, M. Z., & Ardhani, M. R. (2024). The dilemma of "high GPA or extensive experience": Reflections on students' strategic choices in preparing for the future. *Lentera Jurnal Manajemen*, 2(4).

Rahayu, M. N. M., & Arianti, R. (2020). First-year student adjustment in higher education: A study of psychology students at UKSW. *Journal of Psychological Science and Profession*, 4(2), 73-84.

Rahayuningsih, E., & Hanif, M. (2024). Teachers' and Students' Perceptions of the Implementation of the Merdeka Curriculum (Social Learning Theory (SLT) Perspective). *Journal of Education Research*, 5(3), 2828-2839.

Septiani, D., Fatihah, L. L. A., Abellia, M., El Adzim, Q. F. K., Candrapadmi, S., & Setiadi, W. A. (2024). Merdeka Curriculum: Readiness in facing curriculum changes at SMAN 1 Lembang. *Hipkin Journal of Educational Research*, 1(2), 189-202.

Susanti, R. N., Zaeni, A. N., & Dewi, N. S. F. (2025, June). Deconstruction of education and reconstruction of intrinsic motivation to improve learning

in the era of disruption. In *Proceedings of the Psychology Seminar (PROSEPSI)* (Vol. 2, No. 1, pp. 45-57).

Sulhan, A., Wahyudiat, D., & Citriadin, Y. (2024). Implementasi Pengelolaan Kegiatan Ekstrakurikuler Kompetisi Sains Madrasah (KSM) Dan Intrakurikuler Dalam Membangun Branding Image. *Tadbir Muwahhid*, 8(2), 285-304.

Sujai, A., Fadli, A., Subki, S., & Mas' ud, R. (2025). Examining the Impact of Supervisory Performance, Principal Leadership, and Work Environment on Islamic Religious Education Teachers Performance West Lombok Elementary Schools. *AL-ISHLAH: Jurnal Pendidikan*, 17(1), 1563-1573.

Tampubolon, J., Pongtambing, Y. S., Tumanggor, A. M. R., Sianipar, R., Sihombing, L., & Suprayetno, E. (2024). Strategies for Selecting Study Programs in Higher Education in the Field of Education Based on Academic Development Opportunities and Career Prospects. *JURNAL ABDIMAS MADUMA*, 3(2), 28-35.

Waruwu, M., Puat, S. N., Utami, P. R., Yanti, E., & Rusydiana, M. (2025). Quantitative research methods: Concepts, types, stages, and advantages. *Jurnal Ilmiah Profesi Pendidikan*, 10(1), 917-932.

Wahyudiat, D., & Qurniati, D. (2025). Improving Students' Critical Thinking Skills Through the Development of E-Learning-Based Chemistry Textbooks. *Journal of Research in Mathematics, Science, and Technology Education*, 2(2), 155-161.

Wahyudiat, D. (2022). Critical thinking skills and scientific attitudes of pre-service chemistry teachers through the implementation of problem-based learning model. *Jurnal Penelitian Pendidikan IPA*, 8(1), 216–221. <https://doi.org/10.29303/jppipa.v8i1.1278>

Wahyudiat, D. (2023). Enhancing Students' Communication and STEM Reasoning Abilities Based on Gender Through Application of IT-based Chemistry Teaching Materials. *International Journal of Learning*,

Teaching and Educational Research, 22(5).  
<https://doi.org/10.26803/ijlter.22.5.8>

Wahyudiat, D. (2023). The effect of implementing IT-based chemistry teaching materials on the chemistry students' STEM skills. Journal of Educational and Social Research, 13(3), 171-180.  
<https://doi.org/10.36941/jesr-2023-0067>.

Wahyudiat, D. (2024). The Effect of the Ethnochemistry Approach on Students' Problem-Solving Ability and Chemistry Learning Experiences Based on Gender. Pegem Journal of Education and Instruction, 14(4), 306-314. <https://doi.org/10.47750/pegegog.14.04.27>

Wahyudiat, D., & Qurniati, D. (2022). The effect of project-based learning on pre-service chemistry teachers ' self- efficacy and critical thinking skills. Jurnal Penelitian Pendidikan IPA, 8(5), 2307–2311.<https://doi.org/10.29303/jppipa.v8i5.1834>

Yakin, A., Sobry, M., & Wahyudiat, D. (2025). Peran Kepemimpinan Kepala Madrasah Dalam Peningkatan Disiplin Siswa. *Tadbir Muwabbid*, 9(1), 165-181.

Yusuf, I. A., & Abbas, F. M. (2025). Innovation in Islamic education curriculum in higher education: Integration of tauhid, science, and technology. *HASBUNA: Journal of Islamic Education*, 7(2), 142-152.

ZALMI, F. (2024). *Model of Integration of Science and Islam in the Merdeka Curriculum at State Junior High Schools in Pekanbaru City* (Doctoral dissertation, UNIVERSITAS ISLAM NEGERI SULTAN SYARIF KASIM RIAU).

Zulfahmi, A., & Andriany, D. (2021). Vocational maturity and anxiety in facing the world of work among final-year students. *Cognicia*, 9(2), 64-75.