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A Study on the Impact Factors of Academic Achievement of University Students

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Abstract

We conducted a survey related to study methods to identify the factors that have an influence on the academic achievement of university students and analyzed the results of this survey for correlation with students' GPA, which represents academic achievement.

Test preparation and effective study habits were found to be the most important factors in overall student achievement. However, when divided by grade, maintaining health and satisfaction with school life are the most important factors for sophomores. Rather, in grades 3 and 4, time spent maintaining health is negatively reflected in improving academic achievement. Divided into gender, male students review or daily academic effort is an important factor in academic achievement, but in the case of female students, there is no difference in relative academic achievement because the amount of review and academic effort are small. For students who have experienced military service, review and test preparation are important to academic achievement, but for students who have not experienced military service, review has no effect on relative academic achievement.

Keywords: *Academic Achievement, GPA, Survey, Correlation, Test Preparation, Effective Study Habits, Review*

1. INTRODUCTION

Academic achievement is an essential indicator of success for university students, and it is influenced by several factors. Understanding these factors is crucial for universities to design effective educational strategies that can enhance students' academic performance. In recent years, there has been a growing interest

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in identifying the impact factors of academic achievement among university students[1,2].

The purpose of this paper is to explore the impact factors of academic achievement among university students. We will examine various factors, such as time management, study habits, major satisfaction, and test preparation etc. that may affect students' academic performance[3]. By identifying these factors, we can develop appropriate interventions and support systems that can promote academic success among university students[4-6].

This study will provide insights into the complex interplay of factors that contribute to academic achievement among university students[7,8]. We will review relevant literature and analyze data from a survey of university students to identify the most significant impact factors. We believe that the findings from this study will be valuable for universities, policymakers, and educators in designing effective educational programs that promote academic success among university students[9,10].

Overall, this paper aims to contribute to the growing body of knowledge on academic achievement in higher education by identifying the key impact factors that influence academic performance among university students. We hope that this study will encourage further research on this topic and inform the development of evidence-based interventions and policies that support students' academic success.

2. RESEARCH METHOD

In this work we conducted a survey to ask how 90 students majoring Paramedicine at K university study with the following guestions:

1. Do you usually allocate enough time to complete assignments, study for tests, and attend classes?

2. Do you regularly attend class, take detailed notes, and participate in class discussions?

3. Do you tend to have effective study habits, such as breaking large tasks into smaller tasks, setting achievable goals, and reviewing material regularly?

4. Do you find it difficult to ask for help from professors, seniors, or colleagues when you have difficulties in academic performance?

5. Are you the type to keep working hard, systematically, and avoiding procrastination?

6. Do you tend to have motivation for academic performance, such as academic goals or rewards for achievement?

7. Do you usually take good care of your physical and mental health for academic performance? (including getting enough sleep, eating well, exercising, and resting)

8. Are you usually good at preparing for lessons?

9. Are you usually good at reviewing?

10. Do you usually prepare well for midterm or final exams?

11. Are you usually satisfied with your school life?

12. Are you satisfied with your chosen major?

13. Are you placed in a financial environment that is sufficient for academic performance?

The answer of the survey questions consts of 5 Likert scale as: (1) Not very much. (2) No. (3) Normal. (4)

Yes. (5) Very much.

Also, we analysed the academic grades of all the students who answered the survey questions, which indicate students academic achievements, in correlation with the survey results.

3. RESULTS AND DISCUSSION

3.1 Survey Results for all Students

Table 1 shows the results of a survey of 90 students in the 2nd to 4th grade of Paramedicine department at K university. In the response to question 1(Are you usually allocating enough time to complete assignments and participate in classes?) and question 3(Do you tend to have effective study habits, such as breaking large tasks into smaller tasks, setting and reviewing achievable goals?) the correlation coefficients were 0.27 and 0.28, indicating that there was some correlation with GPA, which is an academic achievement level. In addition, the average response was 4.15 for question 1 and 3.47 for question 3, indicating the greater influence on academic achievement along with the lower average response of question 3. This result means that effective study habit is the more important factor than class participation time.

Table 1. Correlation coefficient between the average response for each question and GPA for each student and response values

Question No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Ave.	4.15	4.34	3.47	3.85	3.41	3.88	3.85	2.74	3.31	3.56	3.93	4.31	3.64
Correl.	0.27	0.09	0.28	0.07	0.09	0.16	-0.04	0.03	0.14	0.31	0.15	0.07	0.02

In the response to question 10(Are you usually doing well in preparing for midterm or final exams?) the correlation coefficient was 0.31, indicating the greatest correlation with GPA. Here, too, the fact that the response average is as low as 3.56 indicates that better test preparation than any other factor acts as a decisive factor in increasing academic achievement.

As shown in Figure 1, the responses to the remaining questions showed weak correlations with correlation coefficients of 0.16, 0.14, and 0.15 for questions 6, 9, and 11, respectively. Also for question 6 (Do you manage your health well for academic performance?), question 8 (Do you usually prepare well for classes?), and question 13 (Is the economic environment good for study?) the correlation coefficients are 0.04, 0.03, and 0.02, respectively. These results mean that these questions have little to do with GPA.

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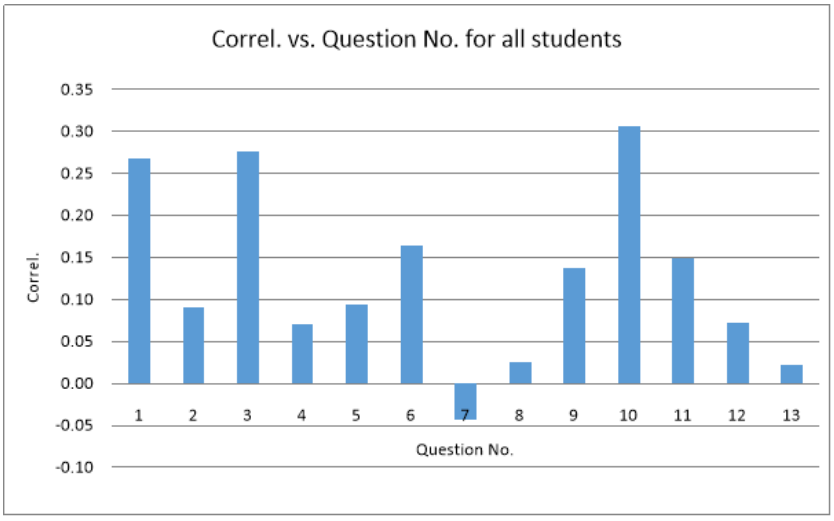

Figure 1. Correlation between student GPA and response values for each question

3.2 Survey Results by Grade

Table 2 shows the survey results for students in each grade. For sophomores, questions 7 and 11, which had a correlation coefficient of 0.38, showed the highest correlation with GPA. Also, question 1 showed a correlation coefficient of 0.25. In addition, considering the average response by question, it is understood that questions 7 and 8 have the more significant effect on GPA.

Table 2. The average response for each survey questions by grade level, and the correlation coefficient between GPA and response values for each student

Question No.		1	2	3	4	5	6	7	8	9	10	11	12	13
2nd grade	Ave.	4.12	4.42	3.27	3.52	3.39	3.91	3.82	2.64	3.33	3.52	3.88	4.48	3.91
	Correl.	0.25	−0.15	0.07	−0.04	−0.10	0.05	0.38	0.06	0.07	0.06	0.38	0.00	−0.06
3rd grade	Ave.	4.06	4.17	3.47	3.94	3.44	3.75	3.92	2.72	3.36	3.50	3.83	4.06	3.47
	Correl.	0.31	0.16	0.49	0.20	0.19	0.35	−0.14	0.00	0.14	0.55	−0.07	0.06	0.05
4th grad	Ave.	4.36	4.50	3.77	4.18	3.36	4.05	3.77	2.91	3.18	3.73	4.18	4.45	3.50
	Correl.	0.14	0.19	0.22	−0.05	0.29	−0.04	−0.47	−0.08	0.43	0.33	−0.08	0.01	0.12

In the 3rd grade, questions 1, 3, 6, and 10 showed correlation coefficients of 0.31, 0.49, 0.35, and 0.55, respectively. This results mean that questions 3, and 10 are the greatest impact factors in GPA but questions 1, and 6 act a little as the important factors as well.

In the 4th grade, questions 9 and 10 showed correlation coefficients of 0.43 and 0.33, and question 2, 3, and 5 showed correlation coefficients of 0.19, 0.22, and 0.29, respectively. Considering the average response for each question, it can be seen that questions 9, and 10 have the most important effect on GPA, and questions 3, and 5 are also considered to have some effect.

In particular, as shown in Figure 2, question 7 indicates a significant negative correlation with a

correlation coefficient of -0.47 for 4th grade, which is considered to indicate that excessive sleep and leisure time of students rather acted as a negative factor on GPA. In 3rd grade, the correlation coefficient of question 7 was -0.14, showing a somewhat negative correlation with GPA. However, in the sophomore year, the correlation coefficient of question 7 was 0.38, which was higher than those of 4th and 3rd grade. As such, the difference in the result values for the same question by grade level is thought to be due to the difference in lifestyle. It can be seen as a result of showing that the higher grade the student becomes, the more time he or she invests in learning rather than the time devoted to mental and physical health, the higher the academic achievement.

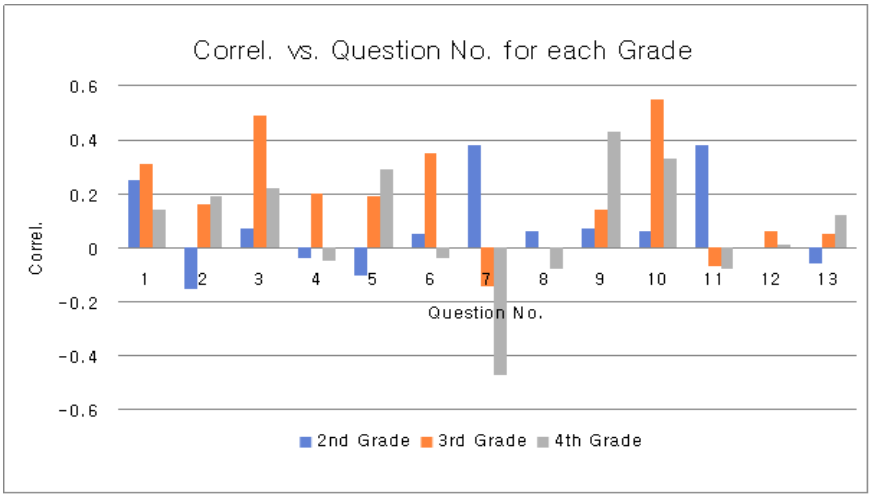

Figure 2. Correlation between student GPA by grade and response values by survey questions

3.3 Students Gender Survey Results

Table 3 shows the survey results by classifying students by gender. Here, male and female students show large differences in several questions in the correlation coefficient between GPA and response values for each question. In questions 4, 5, 7, 9, 10, 11 male students and female students scored -0.17 : 0.21, 0.35 : 0.02, -0.23 : 0.09, 0.53 : -0.05, 0.52 : 0.26, -0.09 : 0.27 respectively. This results indicate a great difference in the correlation coefficients according to gender. This is thought to be because there are differences in learning methods that are advantageous to improving academic achievement because there are differences in lifestyle between male and female students.

In particular, as shown in Figure 3, in question 9, the correlation coefficient between male and female students was 0.53 and -0.05, respectively, showing the greatest difference. This means that male students' daily review has a great influence on their academic achievement. However, in the case of female students, there was no significant individual difference in daily review, so it seems that there is no difference in academic achievement measured by relative evaluation.

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Table 3. The average response for each survey question classified by gender, and the correlation coefficient between GPA and response values for each student

Question No.		1	2	3	4	5	6	7	8	9	10	11	12	13
Male	Ave.	4.19	4.30	3.59	3.96	3.56	3.93	4.19	2.81	3.33	3.70	4.07	4.37	3.59
	Correl.	0.33	0.16	0.33	−0.17	0.35	0.17	−0.23	0.07	0.53	0.52	−0.09	0.08	0.03
Female	Ave.	4.14	4.36	3.42	3.80	3.34	3.86	3.70	2.70	3.30	3.50	3.88	4.28	3.66
	Correl.	0.25	0.05	0.29	0.21	0.02	0.17	0.09	0.02	−0.05	0.26	0.27	0.08	0.01

In question 11, which asks about satisfaction with school life, there is no big difference between male and female students, with average responses of 4.07 and 3.88, respectively, but the correlation coefficient between individual student response values and academic achievement GPA is -0.09 and 0.27, respectively, showing a large difference. This result indicates that female students' satisfaction with school life has the greater influence on academic achievement than male students.

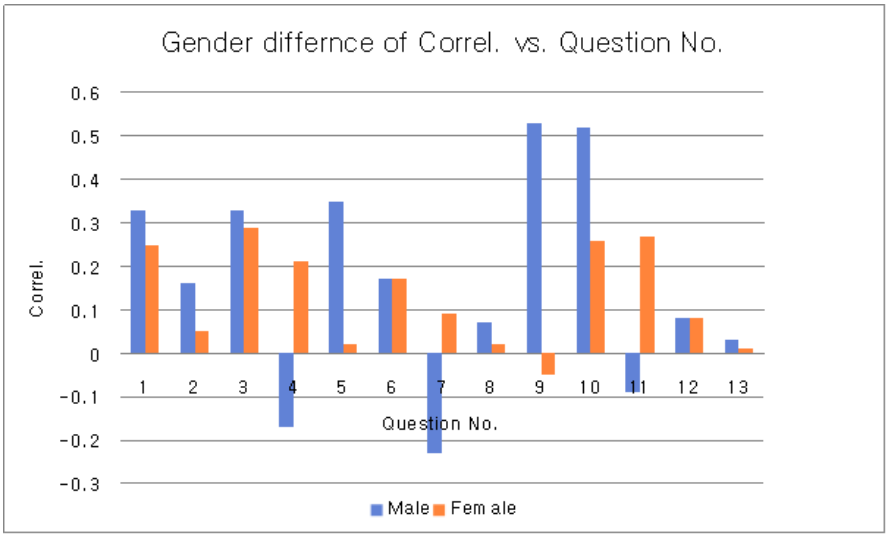

Figure 3. Correlation between student GPA divided by student gender and response values for each question

In question 7 asking about mental and physical health care, male students showed an average response of 4.19, and the correlation coefficient with academic achievement was -0.23. This result shows that the correlation coefficient with the average response of female students for question 7 is 3.70 and 0.09, indicating that health management has little relevance to academic achievement, but male students seems to spend a lot of time resting, sleeping, or socializing for health management. Therefore, male students' academic achievement and too much efforts for health maintenance may appear in inverse proportion to each

other.

The correlation coefficient of question 4, which asks the degree to which one asks for help from a professor, senior, or colleague to resolve difficulties, is -0.17 for male students and 0.21 for female students. This result means that female students asking for help from professors, seniors, and peers to solve the more difficult problems than male students helps improve their academic achievement. The negative correlation coefficient of male students in this question is thought to be because high-ranking male students do not ask for help from those around them.

3.4 Survey Results Classified by Students' Military Service Experience

Table 4 shows the results of the survey according to the students' military service experience. In the case of students who experienced military service, the response values in questions 1, 3, 5, 9, and 10 are highly correlated with academic achievement, with the correlation coefficient with GPA ranging from 0.32 to 0.53. questions 9 and 10 show the largest correlation coefficients of 0.51 and 0.53, which means that reviewing and preparing well for tests are very important factors in increasing academic achievement.

Table 4. Average response values for each question question classified by military service experience, and correlation coefficient between GPA and response values for each student

Question No.			1	2	3	4	5	6	7	8	9	10	11	12	13
Military Service	Yes	Ave.	4.20	4.28	3.56	4.00	3.56	3.84	4.28	2.80	3.32	3.68	4.12	4.36	3.60
		Correl.	0.37	0.08	0.32	−0.19	0.32	0.10	−0.16	0.20	0.51	0.53	0.04	0.15	0.09
	No	Ave.	4.14	4.36	3.44	3.79	3.35	3.89	3.68	2.71	3.30	3.52	3.86	4.29	3.65
		Correl.	0.24	0.08	0.29	0.22	0.04	0.18	0.07	−0.02	−0.02	0.27	0.23	0.06	−0.01

However, in the case of students without military experience, including female students, the correlation coefficient in question 9 was -0.02 as clearly shown in Figure 4, showing that the amount of daily review is not related to academic achievement. However, in question 10 about test preparation, the correlation coefficient was 0.27, which is weaker than that of students who experienced military service, 0.53, but it shows an important relationship with academic achievement.

Also, in the case of students who experienced military service, the correlation coefficients in questions 1, 3, and 5 were 0.37, 0.32, and 0.32. This result means that active participation in task performance and learning, effective learning habits, and continuous effort in academic performance are important factors in academic achievement. In the case of students without military service experience, the correlation coefficients for these questions were 0.24, 0.29, and 0.04, respectively.

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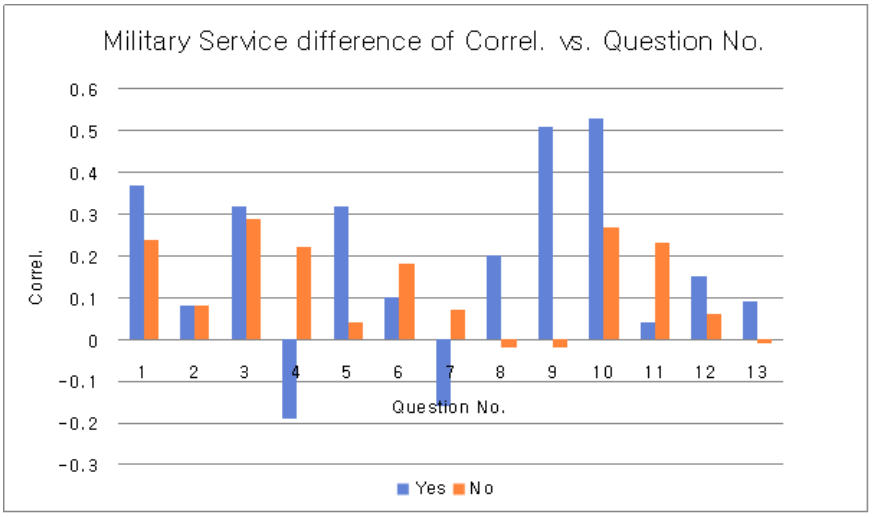

Figure 4. Correlation between student GPA classified by military service experience and response values for each question

From these results, it can be seen that task performance, learning participation, and effective learning habits are important factors in academic achievement, just like those who have experienced military service, but it can be seen that the degree of continuous academic performance has little correlation. This is because the level of continuous effort for academic performance may be almost same in all students who have not experienced military service.

4. CONCLUSION

In this study, we found the factors that affect students' academic achievement by analyzing the survey results and students' GPA as follows.

For all the students surveyed, the most important factor in academic achievement was good preparation for midterm and final exams. In addition, being active in performing assignments or participating in classes and having effective study habits are the next important factors. However, considering the average response of students, it can be said that effective learning habits have the greater impact on academic achievement than class participation. Prior study before taking classes, maintenance of mental and physical health, and economic problems were not found to be related to academic achievement.

However, when classified by grade, the factor that had the greatest influence on academic achievement was health maintenance and satisfaction with school life in the second grade. On the contrary, effective study habits, asking for help from professors and seniors, and preparing well for exams have a great impact on academic achievement in the third and fourth years. It was found that the time spent on maintaining their health had a negative effect on their academic achievement.

When separated by gender, there are differences in factors affecting academic achievement due to differences in lifestyle between male and female students. For male students, constant effort for review or usual academic performing appears to be an important factor in academic achievement, but in the case of female students, it has little to do with it.

When classified by military service experience, review and test preparation appear to be the most important factors in academic achievement for students of military service experience. However, for students without military service experience, exam preparation is an important factor as well, but review appears to be unrelated to academic achievement. This is understandable because, in general, there is no differentiation because the amount of review of these students is small or the variance is not large.

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