Current STEAM and Education Research
Volume 3, Issue 1, April 2025

DOI: doi.org/10.58797/cser.030105

Analysis of the Relationship Between Parental Support on Student GPA Achievement

Nahdiyaturrohmah[a)], Elysia Salsabila Gunawan[b)],Muhamad Raifal Aprian[c)]
Kezya Marisca Eunice Tambunan[d)], Marsela Putri Marina[e)]

Department of Physics Education, Faculty of Mathematics and Natural Science, Universitas Negeri Jakarta, Jl. Rawamangun Muka, Jakarta 13220, Indonesia

Email: [a)]nahdiyaturrohmah@gmail.com, [b)]salsabila6086@gmail.com, [c)]raifalaprian5@gmail.com,[d)]kezya.marisca.eunice@mhs.unj.ac.id,[e)]marselaputri2005@gmail.com

Abstract

This study explores the influence of study time, parental support, extracurricular activities, age, and participation in tutoring activities on students' Grade Point Average (GPA) achievement. Results show that parental support, in the form of motivation and learning facilities, has a significant influence on improving GPA, while extracurricular activities contribute to the development of learning skills and enthusiasm. Age did not show a direct relationship with GPA achievement, although 16-year-old students tended to have better results. In addition, participation in tutoring activities was shown to have a positive impact through additional study time and deepening of material. This study highlights the importance of synergy between time management, family support, and educational support programs in optimizing student learning outcomes.

Keywords: GPA Achievement, parental support, student learning outcomes

Received: 12 February 2025
Revised: 16 April 2025
Accepted: 18 April 2025
Published: 20 April 2025
Issued: 30 April 2025

Current Steam and Education Research
e-ISSN: 3025-8529

INTRODUCTION

Student learning outcomes are an important indicator in assessing the quality of the learning that has been undertaken by the students.Learning outcomes reflect the extent to which students achieve learning objectives (Doo & Kim, 2024). The factors influencing students' learning outcomes are very diverse, ranging from internal factors such as learning motivation, cognitive abilities, and study habits, to external factors such as family support and school environment (Odermatt et al., 2024). Among these factors, study time and the role of parents are two main aspects that are often associated with academic achievement (Li, 2024).

Time management is the ability of students to divide their time effectively and efficiently (Leek et al., 2024). According to Hu et al. (2024), time management is an action aimed at achieving effective use of time when performing certain actions that lead to a goal (Pedersen et al., 2024). By applying time management, students will have self-regulation in using time effectively and efficiently, such as planning, scheduling, having control over time, always prioritizing according to their interests, and not procrastinating on tasks that need to be completed (Brady et al., 2024). Good time management skills in students will affect their academic achievement (Guo et al., 2024).

In the academic field, students are advised to be active and diligent in the learning process until they complete the tasks assigned by the teacher, as this can maximize the academic potential possessed by the students (Vieira & Alves, 2025). If students do not procrastinate, they will have a high chance of achieving academic accomplishments. However, if students often procrastinate, it will affect their academic performance, and they will miss opportunities and chances to excel (Rad et al., 2025). Procrastination by students continuously will negatively impact the completion of their tasks.However, this is not only because students lack time to study or complete assignments, but also because students spend more time on leisure activities rather than academic matters, such as staying up late and playing online games (Pereira et al., 2024; Bianco et al., 2024). Therefore, it can be interpreted that this behavior is caused by the students' inability to manage their study time and other activities.

In addition, parental support also needs to receive effective attention.All of this is done so that every component of education can function and play its role as expected, whether cognitive, affective, or psychomotor, both intentional and unintentional (Raine et al., 2025).The role of parents here is very important because parents are the first and foremost educators. In addition, parents must set a good example and exhibit good behavior so that children can imitate their parents' goodness (Wondim, 2024). The role of parents is greatly needed in the world of education as a support for their children's academic achievements in school. As is known, there are many factors that can influence a child's academic performance, one of which is parental support, which is a form of parental treatment in providing attention and assistance in educational matters to achieve the academic performance faced by their child (Xiong et al., 2021).

To address the issues regarding students' learning outcomes, educational institutions organize various activities, namely extracurricular activities. School extracurricular activities are not just a complement to the teaching and learning process, but also a means for students to gain additional values beyond academic lessons that are beneficial for community life.In practice, extracurricular activities often become a hallmark of a school. Extracurricular activities are intended to develop one of the subjects that interest a group of students, such as sports, arts, various skills, and scouting, which are organized at school outside the regular curriculum.The implementation of extracurricular activities between one school and another can vary.The variation is greatly determined by the abilities of the teachers, students, and the school.

METHOD

The method we will use is the quantitative method using secondary data from Kaggle Website. The qualitative research method based on Kaggle refers to an approach that utilizes the Kaggle platform to support qualitative analysis, particularly in the collection, processing, and analysis of unstructured data such as text, images, or other information.Kaggle, as a data science community, provides various open datasets, data processing tools, and discussion forums that can enrich research.In data collection, researchers can utilize relevant datasets available on Kaggle, such as reviews, opinions, or survey data.Next, data processing is carried out using a Python or R-based scratch pad available at that stage, supported by techniques such as content mining or picture handling to extract information.

RESULTS AND DISCUSSION

Based on the results of the research that has been conducted, data in the form of visual graphs were obtained, comparing parental support with GPA.

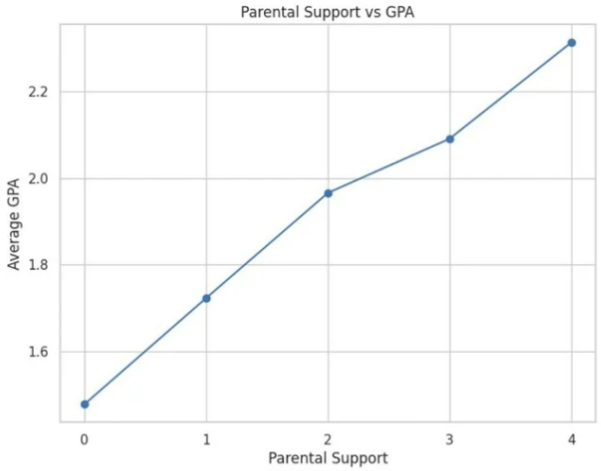

Figure 1. Comparison Chart between Parental Support and GPA

The findings of this study reveal that parental support plays a crucial and statistically significant role in influencing students' academic performance, as reflected in their Grade Point Average (GPA). This aligns with numerous educational theories and empirical studies which suggest that the home environment, particularly parental involvement, serves as a foundational support system for students. Parents who actively monitor, encourage, and provide resources for their children's education help to cultivate a positive academic mindset. These students often feel more motivated, confident, and accountable, which translates into improved academic outcomes.

Parental support encompasses a wide range of behaviors, from providing learning materials and managing study routines at home, to offering emotional encouragement and maintaining open communication with teachers. This study emphasizes that it is not merely the quantity of involvement that matters, but also the quality. Students whose parents were more consistently engaged in their academic journey tended to show higher levels of discipline, time management, and intrinsic motivation—factors that are directly related to GPA improvement. These results reinforce the idea that effective academic achievement is not solely dependent on classroom instruction, but also on the continuous reinforcement of educational values at home.

Moreover, the findings suggest that the influence of parental support may be even more pronounced among students who face academic challenges or lack internal motivation. In such cases, parents act as external motivators, helping students persist through difficulties and guiding them in goal setting. The support provided often includes helping with assignments, setting study schedules, and offering encouragement after failures—interventions that can buffer students from stress and academic burnout. Consequently, schools should consider integrating parent engagement strategies within their student support programs to foster a holistic approach to learning.

The significance of parental support also extends beyond academic performance to shape students' attitudes toward education and long-term academic goals. Students who feel supported by their parents often demonstrate a stronger sense of responsibility and commitment to their studies. They are more likely to attend school regularly, complete assignments on time, and participate actively in class. Additionally, these students tend to develop better emotional regulation and resilience when facing academic setbacks. This shows that parental support not only enhances academic outcomes in the short term but also contributes to the development of essential life skills and learning habits that are critical for success beyond the classroom.

Another interesting dimension observed in this study is how the form and frequency of parental support can vary based on socio-economic status, educational background, and cultural expectations. For instance, parents with higher educational attainment may be more equipped to assist with academic content, while others may show support through encouragement, ensuring a structured home environment, or emphasizing the value of education through daily routines. Despite these differences, the common factor among all effective parental support is consistent engagement and positive reinforcement. This highlights the need for schools to recognize and respect diverse forms of parental involvement, and to ensure that all families—regardless of background—feel empowered to contribute meaningfully to their child's academic journey.

CONCLUSION

This study highlights the critical role of parental support as a key factor in enhancing student GPA. As academic success is multidimensional, involving emotional, cognitive, and behavioral aspects, the findings suggest that parents serve as essential partners in the learning process. Future educational interventions should focus on building stronger parent-school partnerships, providing

training or resources to parents on how to support learning at home, and creating open channels of communication to keep parents informed about their child's progress. Strengthening parental involvement may ultimately contribute not only to better academic performance but also to the overall well-being and development of students.

REFERENCES

Dowson, D., Unterhitzenberger, D. C., & Bryde, P. D. J. (2024). Facilitating and improving learning in projects: Evidence from a lean approach. *International Journal of Project Management*, *42*(1), 102559–102559. https://doi.org/10.1016/j.ijproman.2024.102559

Fernández-Sánchez, A., Lorenzo-Castiñeiras, J., & Sánchez-Bello, A. (2024). Navigating the Future of Pedagogy: The Integration of AI Tools in Developing Educational Assessment Rubrics. *European Journal of Education*. https://doi.org/10.1111/ejed.12826

González-Cortés, J. J., Cantero, D., & Ramírez, M. (2024). Project-Based Learning in Bioprocess Engineering: MATLAB Software as a Tool for Industrial-Scale Bioreactor Design. *Computer Applications in Engineering Education*, *33*(1). https://doi.org/10.1002/cae.22811

Halawa, S., Lin, T.-C., & Hsu, Y.-S. (2024). Exploring instructional design in K-12 STEM education: a systematic literature review. *International Journal of STEM Education*, *11*(1). https://doi.org/10.1186/s40594-024-00503-5

Ilić, S., Virtanen, P., Crawford, D., Heikkilä, T. T., & Bergeret, F. S. (2024). Superconducting diode effect in diffusive superconductors and Josephson junctions with Rashba spin-orbit coupling. *Physical Review. B./Physical Review. B*, *110*(14). https://doi.org/10.1103/physrevb.110.l140501

Kett, N., Spray, E., Rutherford, N., & Rendoth, T. (2024). Integration of simulation technology with assessment in initial teacher education. *Australasian Journal of Educational Technology*, *40*(4), 155–172. https://doi.org/10.14742/ajet.9450

Lui, D., Fields, D. A., & Kafai, Y. B. (2024). Collaborative Troubleshooting in STEM: A Case Study of High School Students Finding and Fixing Code, Circuit and Craft Challenges in Electronic Textiles. *Cognition and Instruction*, *42*(3), 1–40. https://doi.org/10.1080/07370008.2024.2334697

Luo, W., Gu, Y., Zhang, J., Qiang, L., He, L., Tang, B., Wan, Q., Wu, K., Guo, Y., Xing, S., Li, Y., & Zhang, P. (2024). Computational study of cathode plasma dynamics in high-power electron beam diodes by particle-in-cell simulations. *Physics of Plasmas*, *31*(10). https://doi.org/10.1063/5.0216523

Mamor, M., Bouziane, K., Chakir, H., & Ruterana, P. (2024). Analysis of barrier inhomogeneities in Ti/p–type strained Si0.95Ge0.05 Schottky diodes using reverse current-voltage characteristics. *Materials Science in Semiconductor Processing*, *176*, 108314. https://doi.org/10.1016/j.mssp.2024.108314

Manyakhin, F. I., Varlamov, D. O., Krylov, V. P., Morketsova, L. O., Skvortsov, A. A., & Nikolaev, V. K. (2024). Physico−mathematical model of the voltage−current characteristics of light-emitting diodes with quantum wells based on the Sah−Noyce−Shockley recombination mechanism. *Journal of Semiconductors*, *45*(8), 082102–082102. https://doi.org/10.1088/1674-4926/23120044

Qi, S., Ge, J., Ji, C., Ai, Y., Ma, G., Wang, Z., Cui, Z., Liu, Y., Wang, Z., & Wang, J. (2025). High-temperature field-free superconducting diode effect in high-Tc cuprates. *Nature Communications*, *16*(1). https://doi.org/10.1038/s41467-025-55880-4

Sheikh, W. (2024). A multimodal pedagogical approach to teaching electromagnetics. *Computer Applications in Engineering Education*, *32*(5). https://doi.org/10.1002/cae.22758

So, V., Suganthi, M. D., Menon, A., Zhu, M., Zhuravel, R., Pu, H., Wolynes, P. G., Onuchic, J. N., & Pagano, G. (2024). Trapped-ion quantum simulation of electron transfer models with tunable dissipation. *Science Advances*, *10*(51). https://doi.org/10.1126/sciadv.ads8011

Song , S., & Lai, Y. C. (2024). Evaluating the Impact of the ARCS Motivational Model on Student Engagement in Blended Learning Environments: A Mixed-Methods Study among Vocational College Students. *Evolutionary Studies in Imaginative Culture*, 997–1016. https://doi.org/10.70082/esiculture.vi.2492

Soysal, Y. (2024). Science teachers' conceptual perspectives on scientific experiments: a metaphorical representation. *Research in Science & Technological Education*, 1–26. https://doi.org/10.1080/02635143.2024.2440391

Sozański, K. (2024). Low-Cost Hardware Analog and Digital Real-Time Circuit Simulators for Developing Power Electronics Control Circuits. *Energies*, *17*(24), 6359. https://doi.org/10.3390/en17246359

Wang, F., Gao, C., Ding, G., Yu, C., Wang, Z., Wang, X., Feng, Q., Yu, P., Zuo, P., Chen, W., Wang, Y., Jia, H., Chen, H., Zhang, B., & Wang, Z. (2024). Achieving ultralow leakage current in Schottky-MIS cascode anode lateral field-effect diode based on AlGaN/GaN HEMT. *Science China Information Sciences*, *68*(1). https://doi.org/10.1007/s11432-024-4197-y

Weber, J., & Wilhelm, T. (2024). Contributing factors to the improvement of conceptual understanding in a computer-based intervention in Newtonian dynamics. *Physical Review Physics Education Research*, *20*(2). https://doi.org/10.1103/physrevphyseducres.20.020130

Xiao, J., Wang, Y., Wu, J., Yuan, L., Tai, H., & Jiang, Y. (2024). Suppressing the Dark Current Under Forward Bias for Dual-Mode Organic Photodiodes. *Laser & Photonics Reviews*, *19*(4). https://doi.org/10.1002/lpor.202400920

Zhang, Y., Han, H., Dou, S., Wu, X., Qiu, J., Nie, B., & Wei, R. (2024). Diode characteristics of gas flow through conical nanochannels at atmospheric pressure. *Physics of Fluids*, *36*(11). https://doi.org/10.1063/5.0239419