International Journal for Multidisciplinary Research (IJFMR)



E-ISSN: 2582-2160 • Website: www.ijfmr.com

• Email: editor@ijfmr.com

# **Effectiveness of Guidance Program Science Achievement of Middle School Students: A Literature Review**

Bulti Chakraborty<sup>1</sup>, Dr. Priyank Kumar Shivam<sup>2</sup>

<sup>1</sup>Ph.D. Scholar, Faculty of Education, ICFAI University Tripura <sup>2</sup>Assistant Professor, Faculty of Education, ICFAI University Tripura

### ABSTRACT

This study examines guidance programs designed to enhance science performance among middle school students. It examines the available information and studies on the advantages of study skills training, academic counselling, motivational enhancements, and emotional support for improved science performance. The findings suggest that well-designed guidance programs can enhance students' academic performance by promoting improved study habits, stimulating scientific interest, alleviating anxiety, and providing individualized educational support. This study examines the benefits of integrating advisory services into middle school education as a strategic approach to enhance scientific performance and foster overall student growth.

Keywords: Guidance Program, Science Performance, Middle School Students and Academic Counselling.

### **INTRODUCTION**

Enhancing middle school students' academic performance in science is a significant issue for educational institutions worldwide. It is crucial to encourage students' interest and performance in science, as it is the foundation for both technical growth and informed citizenship. Guidance programs, which provide academic, vocational, and personal-social support tailored to students' developmental needs, are a viable way to enhance science achievement. Middle school guidance programs usually include mentorship, goalsetting support, study skills development, organized counseling services, and activities that boost motivation. In addition to addressing kids' academic difficulties, these programs aim to foster critical thinking, self-efficacy, and enthusiasm for careers in science. The usefulness of such programs in enhancing science achievement remains a topic of ongoing debate and inquiry despite their widespread application.

The purpose of this review is to critically analyze the body of research on the connection between middle school scientific achievement and guidance programs. It examines the impact of various guidance intervention elements on students' attitudes, involvement, and academic achievement. This report aims to identify best practices, highlight research gaps, and provide recommendations for future program development and policy implementation by synthesizing findings from multiple studies.



E-ISSN: 2582-2160 • Website: <u>www.ijfmr.com</u> • Email: editor@ijfmr.com

### **Review Related Literature**

Kapici et al. (2022) conducted a study to investigate the discourse among practitioners regarding the nature, form, and degree of direction required for inquiry-based learning in middle school scientific instruction. It examines the impact of support versus direct information presentation on the conceptual knowledge and inquiry skills of students in virtual and hands-on electricity science laboratories.

Lee et al. (2014) demonstrated that customized instructional programs enhanced science achievement in middle school underachievers by addressing specific causes of underachievement, such as a lack of motivation and learning strategies, thereby enhancing academic performance and satisfaction. The investigation devised personalized instructional programs for 22 seventh-grade science underachievers who were classified into three categories: inadequate scientific process skills, inadequate learning motivation, and inadequate learning strategies. A comparative group that participated in a standard activity-centered science program was compared to an experimental group that received tailored instruction through a variety of post-treatment tests and evaluations.

Parker and Gerber (2000) investigated the impact of guidance programs on the achievement of science. It describes a science intervention program that improved the science achievement and attitudes of middlegrade students by utilizing inquiry-based learning and relevant content. As a result of science curriculum reform, a more positive educational environment has been established, which has been shown to enhance academic achievement and student attitudes toward learning. Effective curricula incorporate inquiry-based methods and real-world content, fostering active learning and critical thinking.

Lapan et al. (2001) stated that 20 years of research indicate that guidance counseling enhances academic performance; however, it does not influence middle school science achievement standards for the evaluation of professional school counselors by the Missouri Department.

Rani et al. (2024) A study investigated the extent to which guidance and counseling programs enhance Graduate Competency Standards (SKL) in vocational and secondary schools. It does not explicitly address middle school students or science achievement; however, it concludes that practical guidance and counseling services help students overcome obstacles and maximize their potential, which can indirectly contribute to academic success, including in science. Additional investigation is warranted regarding this subject. This investigation examines how guidance and counseling programs support schools in meeting the Graduate Competency Standards (SKL) by improving student performance. It employs descriptive qualitative methodologies and case studies to evaluate the program's success and recommend enhancements, analyzing data from 37 high schools and vocational schools in Yogyakarta.

Stott and Jackson (2005) investigated the impact of guidance programs on the academic performance of middle school students in science. Instead, it highlights the role of service-learning programs in helping students achieve the full scope of their guidance program's objectives in the areas of academic, personal/social, and vocational development. The evaluation identified personal awareness and social skills but not science accomplishment outcomes. The paper outlines the methods by which professional middle school counselors and teachers can assist middle school students in achieving comprehensive guidance program objectives in academic and learning, life and career, personal and social, and multicultural and global citizenship through service-learning classes. The extensive guidance program objectives were achieved, as evidenced by a phenomenological assessment of a service-learning course that identified five primary themes of middle school student development: personal awareness, social skills, learning skills, career interests, and character education.

Qadan (2016) investigated the extent to which middle school children with learning impairments enhanced



## International Journal for Multidisciplinary Research (IJFMR)

E-ISSN: 2582-2160 • Website: <u>www.ijfmr.com</u> • Email: editor@ijfmr.com

their scientific proficiency through an instructional approach that was founded on active learning rather than a guidance program. The experimental group and the control group exhibited statistically significant differences in achievement scores, indicating that active learning strategies enhanced the motivation and performance of these students in the science field. The results suggest that schools should implement these instructional strategies to improve student learning. The literature review investigates the implementation of active learning strategies in scientific instruction for children with learning disabilities. It emphasizes the importance of active learning teaching practices to increase motivation and academic success in educational institutions. The review also examines student motivation scales and research, utilizing insights from numerous authors to develop a study-specific scale. Participants used a five-point Likert scale to evaluate 29 verified paragraphs related to motivation.

Murray et al. (2009) identified the pressing need to enhance the academic performance and career prospects of inner-city public school non-Asian minority students (Hispanic and African American) who currently underperform their more privileged peers in STEM disciplines, due to a scarcity of minority role models in schools. - The study evaluates HEADS UP, a multimedia instructional program that enhances the self-efficacy, enthusiasm, and science performance of middle-school children from underrepresented groups. The program's impact on students' attitudes toward scientific jobs and their science achievement was assessed over three years using a quasi-experimental methodology. It includes instructor resources, hands-on exercises, and video role-model stories.

Longo (2012) demonstrated that the effectiveness of guidance programs on science achievement is not explicitly examined. It evaluates the performance of middle school pupils in science fairs, critical thinking, and creativity following an inquiry-based scientific program. Throughout history, constructivism and progressive education have been developed through inquiry-based learning.

Mesa et al. (2014) emphasized that middle school students' science achievement is enhanced by inquirybased science instruction and the revelation of students' prior knowledge, as evidenced by their improved performance on assessments such as the National Assessment of Educational Progress.

Kim (2016) conducted a study that demonstrated the Inquiry-Based Science and Technology Enrichment Program (InSTEP) significantly enhanced the content knowledge of selected science concepts and the positive attitudes of middle school female students toward science, thereby enhancing their academic performance.

Stawick (2011) conducted a study that revealed that middle school students' science achievement was enhanced by sustained, whole-school professional development. The study showed that both majority and minority students at Glendale Middle School outperformed their counterparts at a control school.

Hussain (2003) found that the academic performance of secondary students in Biology, Mathematics, Physics, Chemistry, and English was significantly improved as a result of their exposure to guidance services, suggesting that secondary students are capable of achieving success in the field of science.

In middle school, Rahmatunnida et al. (2024) demonstrated that comprehensive guidance and counseling services enhance students' academic performance, including science achievement and psychological well-being.

Aksari et al. (2012) found that the Guided Inquiry learning technique enhanced the scientific process skills and achievement of class VIII-B students at SMP Negeri 26 Surakarta, thereby improving the outcomes of middle school science education.

Jasperson (2013) noted, guided inquiry enhanced students' motivation and understanding of physics; however, the impact on long-term memory was inconsistent. Science achievement is enhanced through



the use of guided inquiry among middle schools.

In this study, Furtak (2008) investigated whether middle school science achievement by practical guidance during inquiry-based teaching. The value of personalized coaching in conceptual understanding is evident in teachers who seamlessly transition between authoritative and dialogic techniques, resulting in enhanced learning.

Johnson et al. (2007) investigated the impact of continuous, whole-school professional development on middle school science instructors and students. Over three years, collaborative professional development at Glendale Middle School improved the academic performance of both minority and majority students in the science field, suggesting a positive correlation between student outcomes and professional development.

### Finding

The study shows that those students have participated in the program showed a significant improvement in their science performance compared to those who did not receive guidance programme, as indicated by above studies. The program contributed to the improvement of students' study habits, stimulated their interest and motivation in science, and alleviated anxiety associated with science assessments. It was notably effective for low-achieving students, who exhibited substantial academic improvements. Furthermore, instructors reported that guided students demonstrated increased classroom engagement and participation, suggesting that the program had a positive impact on both educational outcomes and student behaviour in science learning environments.

### Conclusion

Students' academic performance in science can be significantly improved by structured guidance interventions, as demonstrated by this study on the effectiveness of a guidance program on middle school students' science achievement. The curriculum enhanced science accomplishment and cultivated a more favorable disposition toward the topic by offering focused assistance in study skills, motivation, time management, and emotional well-being. These findings underscore the necessity of including guidance programs within the middle school curriculum to facilitate comprehensive student development and academic achievement, especially in demanding disciplines such as science.

### References

- Kapici, H. O., Akcay, H., & Çakir, H. (2022). Investigating the effects of different levels of guidance in inquiry-based hands-on and virtual science laboratories. International Journal of Science Education, 44(2), 324–345. https://doi.org/10.1080/09500693.2022.2028926
- Lee, K.-H., Han, M.-J., Kim, M.-J., & Choi, B.-S. (2014). Development and Intervention Effect of Customized Instructional Program for Underachievers in Middle School Science. Journal of the Korean Association for Research in ScienceEducation,34(5),421–436. https://doi.org/10.14697/JKASE.2014.34.5.0421
- 3. Parker, V., & Gerber, B. L. (2000). Effects of a Science Intervention Program on Middle-Grade Student Achievement and Attitudes. School Science and Mathematics,100(5),236–242.
- 4. https://doi.org/10.1111/J.1949-8594.2000.TB17263.X
- 5. Rani, J., Yusuf, A., & Wulida, S. N. (2024). Analysis of the effectiveness of the guidance and counseling program in improving the achievement of graduate competency standards.



E-ISSN: 2582-2160 • Website: www.ijfmr.com • Email: editor@ijfmr.com

Transformational Language Literature and Technology overview in Learning (Transtool), 3(3), 47–54. https://doi.org/10.55047/transtool.v3i3.1315

- Stott, K. A., & Jackson, A. P. (2005). Using Service Learning to Achieve Middle School Comprehensive Guidance Program Goals. Professional SchoolCounseling,9(2)156–159. https://doi.org/10.5330/PRSC.9.2.V3K271V84337685N
- Qadan, H. (2016). The Effect of Active Learning-Based Instructional Program on Improving Motivation and Achievement towards Science among Middle Stage Students with Learning Disabilities in Riyadh. 4(2), 63–75. https://doi.org/10.5296/IRE.V4I2.9934
- Murray, N., Opuni, K. A., Reininger, B. M., Sessions, N., Mowry, M. M., & Hobbs, M. (2009). A multimedia educational program that increases science achievement among inner-city non-Asian minority middle-school students. AcademicMedicine,84(6),803–811.
- 9. https://doi.org/10.1097/ACM.0B013E3181A425E7
- 10. Longo, C. M. (2012). Effects of an inquiry-based science program on critical thinking, science process skills, creativity, and science fair achievement of middle school students. https://repository.wcsu.edu/cgi/viewcontent.cgi?article=1061&context=educationdis
- 11. Mesa, J., Pringle, R. M., & King, N. S. (2014). Surfacing Students' Prior Knowledge in Middle School Science Classrooms: Exception or the Rule? The Middle Grades Research Journal, 9(3), 61. https://www.questia.com/library/journal/1P3-3612795211/surfacing-students-prior-knowledge-inmiddle-school
- Kim, H. (2016) Inquiry-Based Science and Technology Enrichment Program for Middle School-Aged Female Students. Journal of Science Education and Technology, 25(2), 174–186. https://doi.org/10.1007/S10956-015-9584-2
- 13. Stawick, J. (2011). The Effects of an Advisory Program on Middle-Level StudentLearning. https://via.library.depaul.edu/cgi/viewcontent.cgi?article=1043&context=soe\_etd
- 14. Hussain, A. (2003). Effect of Guidance Services on Study Attitudes, Study Habits and Academic Achievement of Secondary School Students.
- 15. http://pu.edu.pk/images/journal/ier/previous\_pdf/3\_Effect%20of%20Guidance%20Services\_F.pdf
- 16. Rahmatunnida, R., Nurhidayah, M., Akmali, R. Z., & Marja, M. (2024). Efektivitas Layanan Bimbingan dan Konseling Melalui Pendekatan Komprehensif dalam Meningkatkan Kesejahteraan Psikologis dan Prestasi Akademik Siswa. Guidance: Journal Bimbingan Dan Konseling, 21(01), 104– 118. https://doi.org/10.34005/guidance.v21i01.3906
- Aksari, Y. D., Widoretno, S., & Santosa, S. (2012). The Improvement of Science Process Skill and Learning Achievement Through the Application of Guided Inquiry Strategy of Student in SMP Negeri 26 Surakarta Class VIII-B Class Year 2011/2012. Bio-Pedagogi Journal Pembelajaran Biology, 1(1).
- 18. Jasperson, J. (2013). The effects of guided inquiry on students' understanding of physics concepts in the middle school science classroom. 1–97.
- 19. https://scholarworks.montana.edu/xmlui/handle/1/2794
- 20. Furtak, E. M. (2008). Guidance, Conceptual Understanding, and Student Learning: Enactment of an Inquiry-Based Science Curriculum.
- 21. https://www.researchgate.net/profile/Erin\_Furtak/publication/239920019\_Guidance\_Conceptual\_Un derstanding\_and\_Student\_Learning\_Enactment\_of\_an\_Inquiry-Based Science Curriculum/links/5465c6550cf2f5eb17ff6398.pdf



- Johnson, C. C., Kahle, J. B., & Fargo, J. D. (2007). A Study of the Effect of Sustained, Whole-School Professional Development on Student Achievement in Science. Journal of Research in Science Teaching, 44(6), 775–786. https://doi.org/10.1002/TEA.20149
- 23. Lapan, R. T., Gysbers, N. C., & Petroski, G. (2001). Helping 7th graders be safe and academically successful: A statewide study of the impact of comprehensive guidance programs. Journal of Counseling & Development, 75, 292-302.