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From Classroom to Laboratory: A Case Study of Two First-Generation Girl Students from a Rural High School in India Engaged in Scientific Investigations

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Abstract: ***This research article explores the transformative experiences of two first-generation girl students from a rural high school who actively engaged in practical independent research projects over a three-month period, culminating in report writing and a viva. These students were selected for Anveshana, a research program for talented high school students organized by the Prayoga Institute of Education Research. Unlike typical learners, these students worked alongside scientists, experiencing firsthand the role of researchers. This initiative aimed to highlight the importance of instilling professional research activities and fostering a scientific mindset early in students' education. The present study examines the impact of these experiences on their research competencies and social skills, highlighting the potential of such engagement to empower first-generation girl students in underprivileged settings. Our results indicate that given the opportunity, underprivileged girls from rural areas can excel in research and have the potential to become future scientists, contributing significantly to our country's scientific community.***

Keywords: Scientific investigations, first-Generation girl students, rural education, research competencies

1. Introduction

First-generation learners, particularly those in rural areas, often encounter unique challenges due to limited access to educational resources and a lack of familial precedent for higher education. This case study delves into the educational landscape of first-generation girl students in rural settings. The research projects conducted under this program "*Anveshana"* are termed as Practical Independent Research Projects (PIRPs). PIRPs encompass a range of student-led, open-ended research inquiries facilitated by teachers and/or scientists [1]. These projects, typically conducted by high school students, offer an opportunity for authentic scientific exploration outside the traditional curriculum [2,3]. Efforts to engage students in such authentic scientific procedures have proven successful in many countries [4,5].

According to UNESCO Institute for Statistics, Girls, especially in rural areas, face significant barriers to education, leading to higher dropout rates compared to boys [6]. School dropout among girls can have far-reaching consequences, including illiteracy, unemployment, and increased vulnerability to health risks like teenage pregnancy [7]. In India, despite constitutional guarantees and gender-oriented policies, women continue to lag behind men in various measures of well-being, including education [8]. The Indian higher education system, intended to provide equal opportunities, inadvertently perpetuates inequalities, particularly affecting first-generation students [9]. Sex biases prevalent in educational institutions and society at large create structural and attitudinal barriers for girls in rural areas [10, 11]. The social attitude towards girl's education is generally negative. Education for girls is considered as an important practice to expel out the evils of society such as pardah system, early marriage, parental illiteracy, lack of educational facilities at home. Minimizing the above-mentioned problems, girls in rural area girls may achieve success in their higher education provided a good exposure to the advanced educational strategies at an early age [12]. Overcoming these barriers requires addressing social attitudes toward girls' education and providing early exposure to advanced educational strategies [13]. Despite India's significant population of first-generation students, there has been limited research focused on understanding their abilities beyond the standard curriculum.

Context of Girls' Education in Karnataka

The National Family Health Survey in Karnataka indicates progress in women's education, with an increasing proportion reporting completion of 10th standard. However, progress is slower for socially disadvantaged groups, particularly girls from scheduled castes and tribes in rural Karnataka [14, 15].

Previous PIRP programs primarily targeted urban students to instill a scientific mindset and passion for science. This study aims to explore how investigative science projects, when paired with mentor scientists, can influence gifted girl students from rural backgrounds. While PIRPs have been successfully implemented in other countries, they had never been attempted in Indian schools, particularly in rural areas. Therefore, investigating their impact on secondary school students is crucial for understanding their potential in nurturing the next generation of scientists. So, this case study aims to document and analyze the unique experiences of two first-generation girls engaged in independent research projects, highlighting the potential of such initiatives to break social and economic barriers.

2. Methodology

This study was conducted as part of the education research program "*Anveshana*," which encourages high school students to engage in research. The program targets students from Classes 9 to 12 who have a strong interest in science and a passion for pursuing careers in scientific research. This study focused on female students from rural backgrounds who had never been exposed to laboratory experiments and are first-generation learners. The research projects within this program, known as Practical Independent Research Projects (PIRPs), are novel and exploratory, with unknown outcomes for both students and mentors, and are not typically part of their curriculum. The study was carried out in five phases: (1) assessing the initial competencies of students through a pre-research experience survey; (2) presenting an introductory coursework on research methodology and the core project by the guide; (3) involving students in research projects, including data analysis; (4) preparing a research report and delivering an oral presentation to internal research staff and external research professors; and (5) assessing the competencies of students through a post-research experience survey.

2.1 Selection of students

To address our research question, two female students, SP and PK (Codes used), were selected. These students, currently in Class 9, are first-generation learners from rural backgrounds with a strong passion for science research. They were each part of different project groups, each consisting of four students. However, for this study, only the data collected from SP and PK before and after their involvement in a Practical Independent Research Project (PIRP) was utilized. During the program, the students spent an average of 24 hours per week in their designated laboratories. Upon completion, they were required to submit their research findings in the form of a research article and deliver a formal oral presentation. The research projects undertaken by these students were focused on the thematic areas of green chemistry and wellness (Table 1).

Table 1: Student participants and the nature of their specific research

Project title	Thematic area of research	Student name (Code)	Project Mentor
Degradation of environmentally hazardous dyes through integrated approach utilising eco-friendly nano photocatalysts and microbial consortia	Green chemistry and Technologies	SP Class 9 Age 14	Dr. Venkata Krishna B *Sr. Researcher* *Dept. of Lifesciences*
From Molecules to Medicine: Synthesizing and Studying a Neurological Drug	Wellness	PK Class 9 Age 15	Dr. Athavan Alias Anand *Sr. Researcher* *Dept. of Chemicalsciences*

2.2 Assessment methodology

The selection process for this project was rigorous, involving a detailed application procedure followed by an interview. Key criteria included the students' interest, passion, and commitment to science. The primary objective of this project was to engage students in a three-month research project, observing their attitudes towards science and evaluating their progress in research competencies and social skills. To assess their pre-existing knowledge and skills, a five-point Likert scale survey was administered. This survey contained multiple items designed to measure perceived gains in skills related to research participation. Each item consisted of a statement followed by response options ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The statements addressed various aspects of learning science, and students were asked to rate how much they agreed with each statement.

The pre-test survey included questions related to their basic understanding of research, data analysis, presenting research work, planning, publication, project expectations, and career plans. For the post-test survey, additional questions were included to assess perseverance, curiosity, problem-solving ability, teamwork, equipment handling, and experimental skills developed during the project. Questions were also added to gauge the influence of mentors and interactions with their research groups on their progress. Qualitative data was collected through open-ended questions to understand the students' experiences and skills gained during the project. The comprehensive list of survey questions is provided in Appendix 1 and 2. The Likert scale responses were analyzed both quantitatively and qualitatively, with statements categorized under two broad variables: research competencies and social skills (Table 2), essential for becoming a successful researcher.

Table 2: Variables chosen to study under research competencies and social skills

S. No.	Research competencies	Social skills or abilities
1.	Basic knowledge on research methodology	Leadership
2.	Review of literature	Interpersonal skills
3.	Experimental skill	Team work
4.	Problem solving ability	Independency
5.	Presentation skill	Time management
6.	Ability to analyse data	Communication skill.

2.3 Coursework on research methodology and core subjects

The research methodology coursework covered a range of essential topics, including: types and characteristics of research, ethics in research, literature review and problem definition, sources of research information, research planning, experimental and sample designs, the importance and protection of Intellectual Property Rights (IPRs), the structure and components of scientific reports, and tools for plagiarism prevention and reference formatting. The core

subjects focused on teaching fundamental microbiological techniques, green chemistry principles and procedures, and drug design processes. After completing the coursework, students were tested to qualify for their respective research projects.

2.4 Observations by science teacher

Over a six-month period, the science teacher observed the students during classroom sessions following the completion of their projects. The assessment criteria included classroom participation, question-asking behavior, conceptual understanding, critical thinking, collaboration, and leadership abilities. These observations provided insights into the students' development and engagement with the scientific material.

2.5 Statistical analysis

To determine the statistical significance of the students' responses, frequency distribution and t-tests were performed. Data from both pre-test and post-test surveys were collected and analyzed. The analysis was conducted using Python, and the results were graphically represented to illustrate the changes in student responses. This rigorous statistical evaluation helped to quantify the impact of the research project on the students' competencies and skills.

3. Results and discussion

Analysis of the students' responses revealed significant improvements in both research competencies and social skills. Participation in the project enhanced their experimental, analytical, and social abilities, demonstrating a growing appreciation for creativity. Post-research questionnaires and interviews indicated a notable shift in their perceptions of science and increased enthusiasm for the subject. Overall, the project resulted in substantial growth in the students' academic and personal skills, highlighting the effectiveness of hands-on research experiences in fostering development.

3.1 Statistical analysis

3.1.1 Research competencies

The students initially rated their research competencies between one and two on the pretest. However, on the post-test, their ratings significantly improved to four or five, indicating a strong agreement with the statements after the project duration. To determine the appropriate measure of central tendency for the data from both Case 1 and Case 2, we assessed the skewness of the pretest and post-test data. Figures 1 and 2 illustrate the frequency distribution of research competencies. The pretest data was right-skewed, while the post-test data was left-skewed. This shift suggests that student responses were more concentrated between 1 to 3 on the pretest and leaned towards 5 on the post-test. Given this skewness, the median was chosen as the most suitable measure of central tendency for the data. The median values and corresponding standard deviations are presented in tables 3. The data clearly shows that the essential competencies required to become a successful researcher were significantly enhanced after the project.

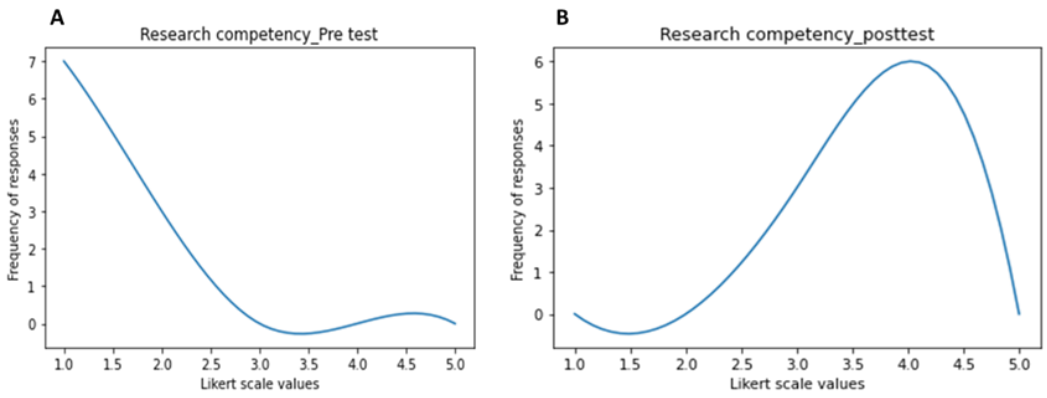


Figure 1: Frequency distribution of case 1 (SP) research competencies in pre and post research experience survey (pre-test was right skewed and the post-test left skewed)

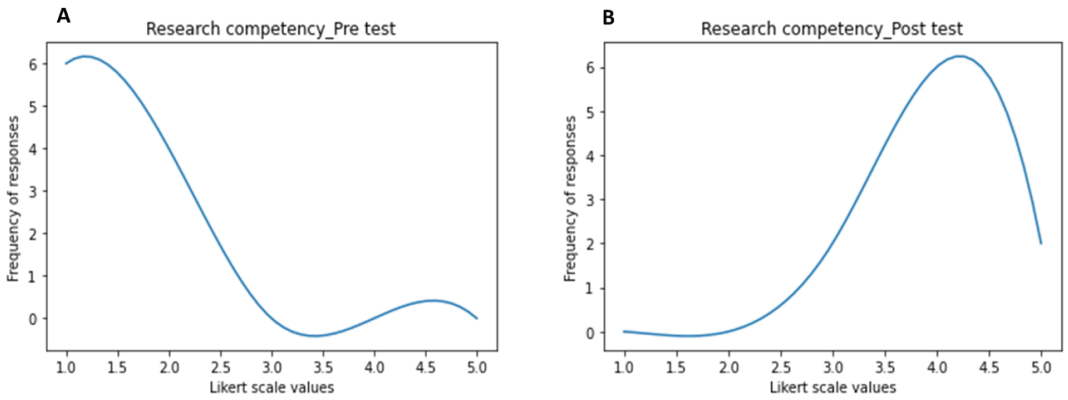


Figure 2. Frequency distribution of case 2 (PK) research competencies in pre and post research experience survey (pre-test was right skewed and the post-test left skewed)

Table 3: The median values and corresponding standard deviations observed while evaluating the research competencies

Research Competency	Pre-test	Post-test
Case 1 (SP)	1.0 (0.48)	4.0 (0.63)
Case 2 (PK)	1.0 (0.5)	4.0 (0.6)

3.1.2 Social skills

To evaluate social skills, questions were designed to assess students' interpersonal skills, time management, teamwork, independence, and their ability to create presentations and posters for their research work. Due to the limited number of questions, statistical analysis was not performed; instead, visual representations of their responses are provided. Figures 3 and 4 depict the frequency distribution of social skills before and after the project. The pretest responses predominantly ranged between one and three, while post-project responses shifted above three (Fig. 3 and 4). Given the skewness of the data, the median was selected as the central tendency, and the interquartile range was used to measure dispersion. The values presented in Table 4 show that the post-test responses are predominantly around four, indicating a strong agreement with the statements related to social skills. This analysis highlights a substantial improvement in the students' social skills, reflecting their increased confidence and ability to work effectively both independently and as part of a team. The median values and their corresponding standard deviations are presented in Table 4. The data clearly indicate a significant enhancement in essential social skills for researchers following the completion of the project.

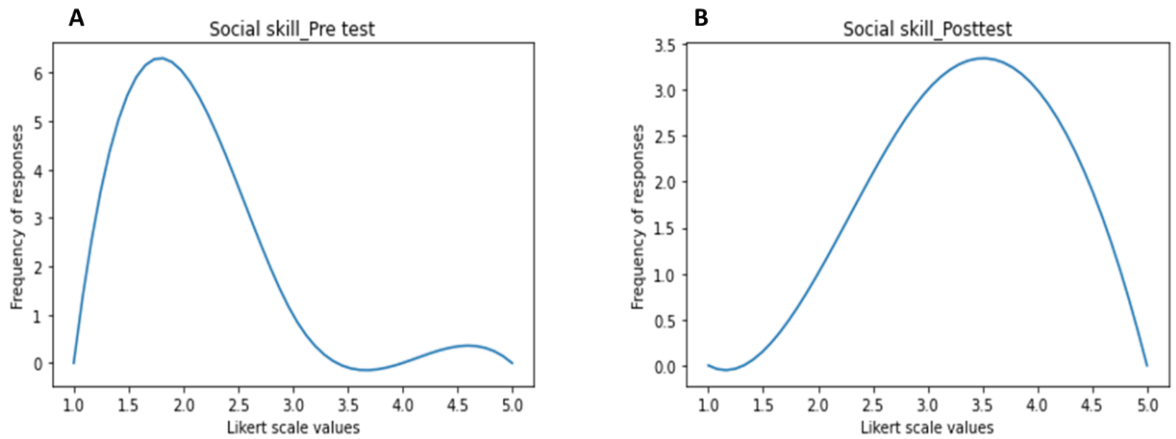


Figure 3: Frequency distribution of case 1 (SP) social skills in pre and post research experience survey (pre-test was right skewed and the post-test left skewed)

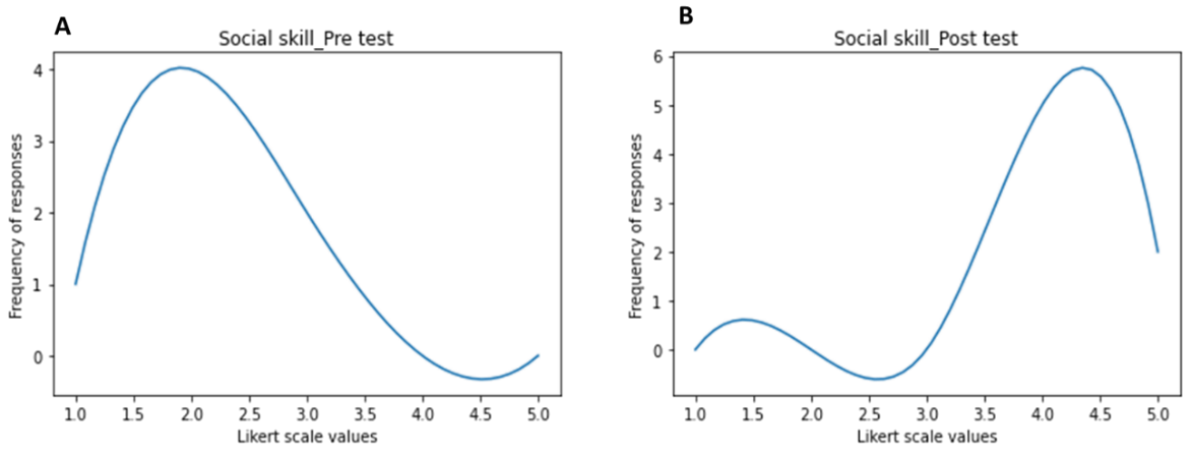


Figure 4: Frequency distribution of case 2 (PK) social skills in pre and post research experience survey (pre-test was right skewed and the post-test left skewed)

Table 4: The median values and corresponding standard deviations observed while evaluating the social skills

Social skill	Pre-test	Post-test
Case 1 (SP)	2.0 (0.3)	3.0 (0.75)
Case 2 (PK)	2.0 (0.69)	4.0 (0.48)

3.2 Assessing research competencies and social skills post-project

A third set of Likert-type questions was administered to evaluate the research competencies and social skills of students after the project. These questions differed from the second set, as they aimed to capture experiences and insights gained specifically through project participation. The detailed question sets are provided in Appendix II. To determine the statistical significance of their responses, a one-sample t-test was performed with a null hypothesis mean of 4.5. Additionally, a radar chart visually represents the Likert scale responses, illustrating that most responses are above the neutral point.

Case I: In this case, the t-value was -0.70, with the absolute value being less than the critical t-value of 2.11. This result fails to reject the null hypothesis, indicating that most responses are above the neutral level. This finding highlights the substantial positive impact of the research work on the student's research competencies and social skills (Fig. 5).

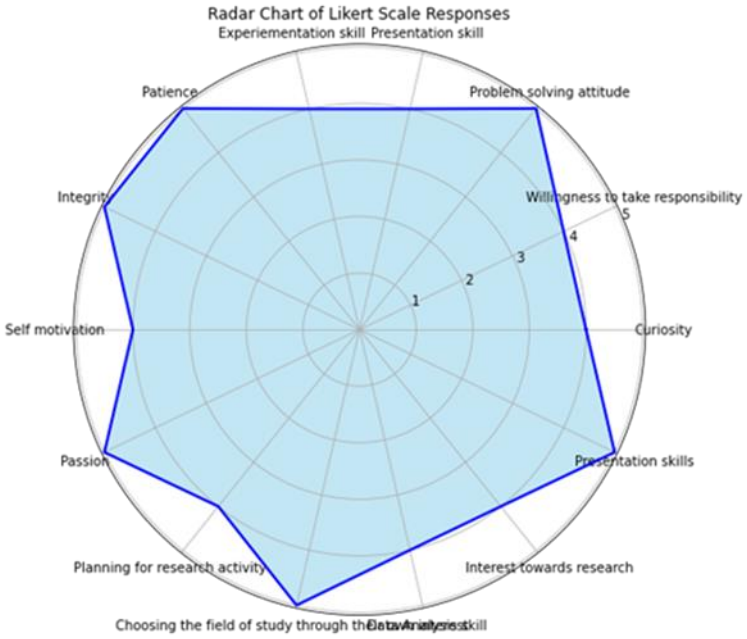


Figure 5: Radar chart representing the Likert scale responses from SP

Case II: For this student, the t-value was -0.461, again with the absolute value less than the critical value of 2.11. This result also fails to reject the null hypothesis, revealing that most responses are above the agreement level. It demonstrates a strong positive influence of the research project on the student's development (Fig. 6).

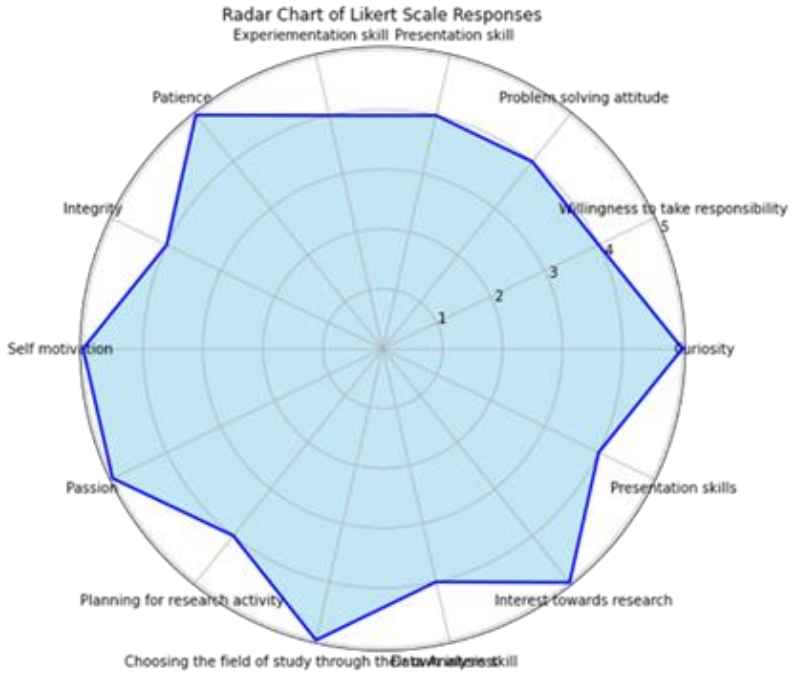


Figure 6: Radar chart representing the Likert scale responses from PK

In summary, both cases show significant improvement in research competencies and social skills, emphasizing the effectiveness of hands-on research experiences in fostering student growth.

3.3 Effects of mentors and interaction with research group

To assess students' perceptions of their mentors and research group interactions, specific questions were included in the post-project survey using a five-point Likert scale. These questions were designed to capture the students' viewpoints on their mentoring experience and group dynamics after the project. A one-sample t-test was conducted to evaluate their responses, with the null hypothesis mean set at 4.5, indicating an expected positive viewpoint.

For both cases, the t-values (0.316 and 1.88) were less than the critical t-value of 2.30 at a significance level of 0.05. These results fail to reject the null hypothesis, indicating that the students' responses were generally positive. The data suggest that the mentors had a substantial positive impact on the students' project outcomes. Most responses were above neutral, often rating higher than four, confirming that the mentoring provided had a positive influence on the students' experiences (Fig. 6). The visual representation of these responses through radar charts, plotted using Python, further underscores the positive impact of effective mentorship and collaborative research environments. Overall, the analysis highlights the critical role of mentors and peer interactions in enhancing the students' research competencies and social skills, leading to a successful and enriching educational experience.

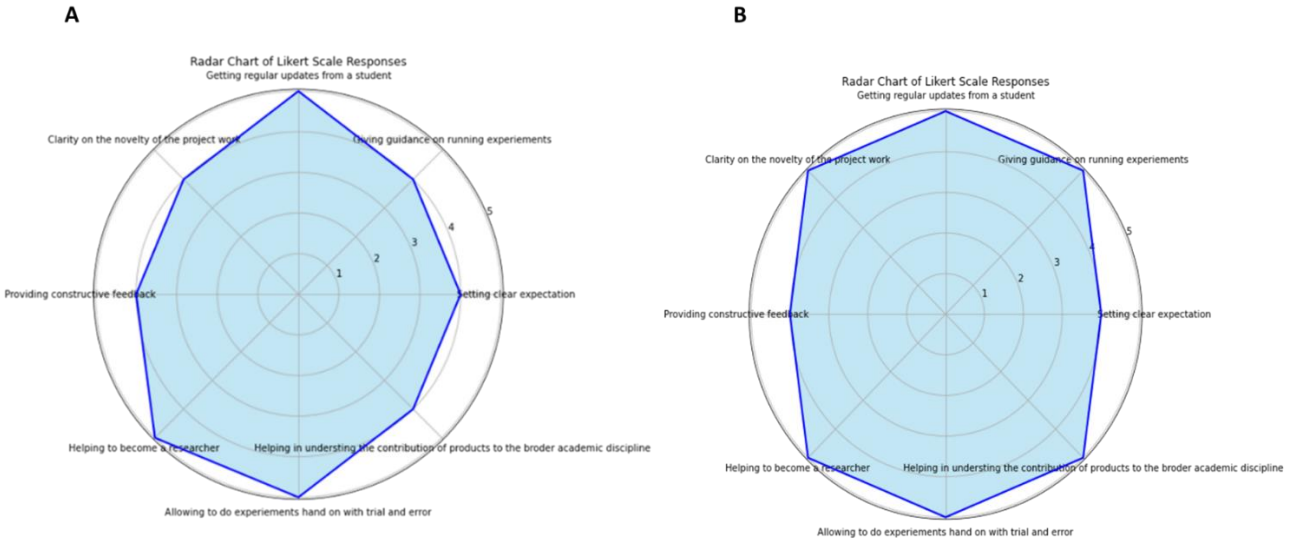


Figure 6: Effects of Mentors and Interaction with Research Group: visual representation of the responses from SP (A) and PK (B) through radar chart

3.4 Skills gained through independent research project

Before the project, the students anticipated gaining knowledge in conducting research, teamwork experience, and overall proficiency in research. They expected to discover new things uniquely, learn from mentors, and participate in various experiments. The data revealed that the project experience indeed met and exceeded these expectations. The students developed skills in teamwork and confidence, became adept at presenting reports and results, and acquired significant knowledge in research. Additionally, they improved their interaction skills with unfamiliar people. Overall, the responses from both students indicate that the project significantly enhanced their research competencies and social skills, fulfilling their personal goals and providing a valuable educational experience. The students' understandings of the nature of science were similar to those reported in prior investigations in that they were mostly inadequate or otherwise inconsistent with modern views of the nature of science before they began their individual research projects [16].

3.5 Science teacher's observations in classroom

The science teacher has observed the students in a normal classroom along with their peers for six months and felt that "SP and PK have shown remarkable improvement in their classroom engagement, asking questions and boldly offering answers, which has fueled their interest in science. Their performance across subjects has improved, reflecting better conceptual understanding and an appreciation for experimental learning. Enhanced critical thinking and analytical skills have been observed, though their collaboration skills need further development. Both students are now more confident and proactive, regularly submitting homework on time and eagerly solving practice papers. Their early success and hard work have set a strong foundation for future achievements"

3.6 Major impacts of the independent research project

To understand the students' perspectives and experiences, they were asked to provide qualitative feedback on their research projects. Here are their responses:

SP: "*This program has greatly benefited my future in science and expanded my knowledge about research. The most important lesson I learned is that researching requires full willingness and concentration. The results we obtained helped me address some drawbacks of existing methods. Overall, it was a good experience."*

PK: "*This project had a tremendous impact on me. I had an excellent experience overall. Given a choice between attending school or engaging in experiential learning at Prayoga, I would definitely choose Prayoga. I had an amazing experience, unlike anything I had before. Thank you for that."*

These reflections indicate that the independent research projects not only enhanced their research competencies but also provided them with meaningful and impactful educational experiences.

4. Conclusion

This case study demonstrates the transformative impact of engaging students in independent research projects. They developed confidence in presenting their findings, enhanced their ability to work both independently and as part of a team, and improved their interaction skills with unfamiliar individuals. Quantitative and qualitative data analyses showed substantial growth in their experimental, analytical, and interpersonal abilities. Observations by their science teacher further substantiated these findings, highlighting their improved classroom engagement, critical thinking, and overall academic performance. In conclusion, this study underscores the importance of hands-on research experiences in fostering scientific curiosity and skill development among high school students. The program effectively bridged the gap for these first-generation learners, providing them with valuable educational experiences that significantly enhanced their academic and personal growth. We recommend that more schools establish small laboratories and provide research training for teachers to support and guide students in similar projects, thereby empowering the next generation of scientists.

5. Other recommendations

We strongly advocate for the establishment of small laboratories in every school to facilitate small-scale research projects. Additionally, it is crucial for high school teachers to be equipped with basic research practices and undergo training to effectively mentor and guide exceptionally gifted students in their research endeavors. This approach will significantly enhance the educational experience and foster a deeper understanding of scientific inquiry among students.

Acknowledgements
We acknowledge the cooperation extended to us by all the project mentors and other faculty during the project implementation and evaluation phases. We thank Dr. Athavan Alias Anand for helping us collect the data from his project student. We also gratefully acknowledge Prayoga Institute of Education Research (PIER) and Sai Krushna Vidya Mandir School for their support. We'd like to acknowledge the companies Zeroda and Kennametal for sponsoring some of the equipment required for our Anveshana project.

References

[1] J. Bennett, L. Dunlop, K.J. Knox, M.J. Reiss, R. Torrance Jenkins, "Practical independent research projects in science: a synthesis and evaluation of the evidence of impact on high school students," International Journal of Science Education, XXXX (14), pp. 1755-1773, 2018.
[2] N. Lederman, F. Abd-El-Khalick, "Avoiding de-natured science: Activities that promote understandings of the nature of science, In W. McComas (Ed.)," The nature of science in science

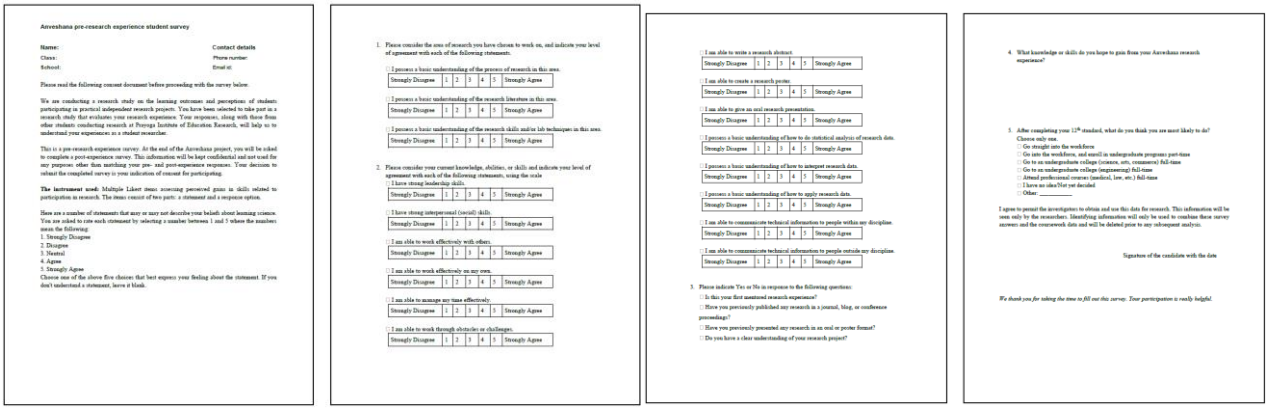
education: Rationales and strategies, Dordrech, The Netherlands: Kluwer, pp. 83–126, 1998.
[3] D. King, A. Bellocchi, S.M. Ritchie, "Making Connections: Learning and Teaching Chemistry in Context," Research in Science Education, XXXVII (3), pp. 365–384, 2007.
[4] H. Neber, M. Anton, "Promoting Pre-experimental Activities in High-school Chemistry: Focusing on the role of students' epistemic questions," International Journal of Science Education, XXX (13), 1801–1821, 2008.
[5] S. Duggan, & R. Gott, "The place of investigations in practical work in the UK National Curriculum for Science," International Journal of Science Education, XVII (2), 137–147, 1995.
[6] UNESCO "Million Children and Youth Are Out of School" 263, 2016. [Online] Available: http://uis.unesco.org/en/news/263-million-children-and-youthare- out-school. [Accessed January 26, 2021].
[7] I.F. Sandøy, M. Mudenda, J. Zulu, E. Munsaka, A. Blystad, M.C. Makasa et al, "Effectiveness of a girls' empowerment programme on early childbearing, marriage and school dropout among adolescent girls in rural Zambia: study protocol for a cluster randomized trial," Trials XVII (1), pp. 588, 2016.
[8] M. Sampa, C. Jacobs, P. Musonda, "Effect of cash transfer on school dropout rates using longitudinal data modelling: a randomized trial of research initiative to support the empowerment of girls (rise) in Zambia," Open Publ. Health J, XI (1), pp. 507–515, 2018.
[9] Wazir, Rekha, "The Gender Gap in Basic Education: NGOs as change agents," New Delhi: Sage, 2000.
[10] J.B.G. Tilak, "How inclusive is higher education in India? Social Change," XXXXV (2), pp. 185–223, 2015.
[11] S. Desai, V. Kulkarni, "Changing educational inequalities in India in the context of affirmative action," Demography, XXXXV (2), pp. 245–270, 2008.
[12] C. Anamika, K. Sushil, "A study on problems and challenges faced by girl students in higher education," . Philosophical Readings XIII (4), pp. 130-135, 2022.
[13] R. Wadhwa, "Factors influencing first and non-first generation learners' entry to higher education in India". In Education as a right across the levels: Challenges, opportunities and strategies," Viva Books Private Limited, 2014.
[14] T.S. Beattie, P. Bhattacharjee, S. Isac, C. Davey, P. Javalkar, S. Nair et al, "Supporting adolescent girls to stay in school, reduce child marriage and reduce entry into sex work as HIV risk prevention in north Karnataka, India: protocol for a cluster randomised controlled trial," BMC Public Health, XV, pp. 292, 2015.
[15] T. Raghavendra, B. Anderson, "SAMATA: Keeping girls in secondary school Ð Project implementation design". Karnataka Health Promotion Trust, 2013.
[16] R.L. Bell, L.M. Blair, B.A. Crawford, N.G. Lederman, "Just do it? Impact of a science apprenticeship program on students' understanding of the nature of science and scientific inquiry" Journal of Research in Science Teaching, XXXX (5), pp. 487 – 509, 2003.

Author Profile

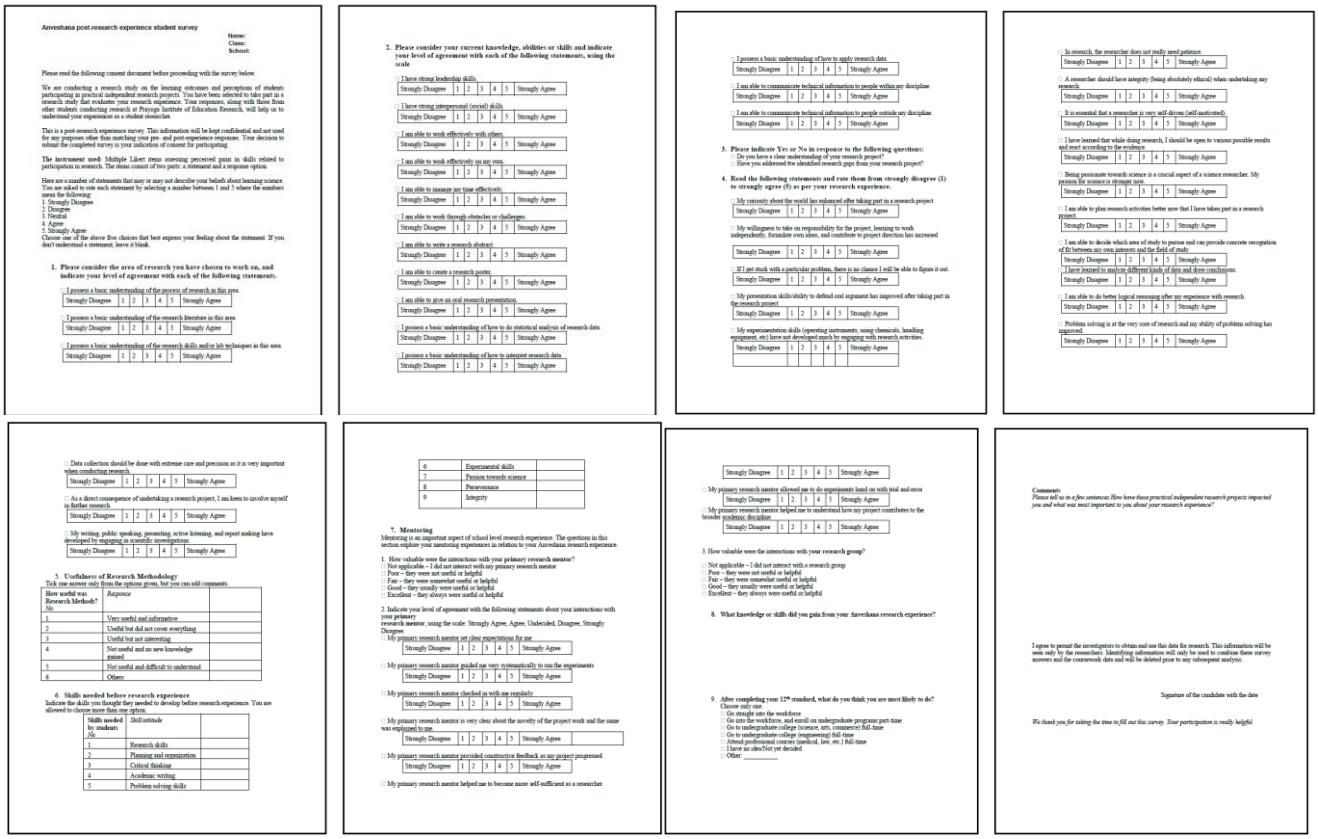
Dr. Venkata Krishna Bayineni is a senior researcher with expertise spanning microbiology, biotechnology, and environmental science. He earned his postgraduate degree in Microbiology from Dayananda Sagar College before embarking on a Ph.D. journey in Biotechnology at Visvesvaraya Technological University (VTU). Notably, he achieved success in the National Eligibility Test (NET) administered by the ASRB and acknowledged by the UGC/CSIR. Dr. Krishna's contributions to therapeutic and environmental applications of enzymes and metabolites from microbes and plants have been substantial. Currently, he is engaged in various research endeavors focusing on science education at the school level.

Ms. Padmapriya Rajan is a research associate who has a background in theoretical physics. She has completed her post-graduation in physics at Bharathidasan University, Tamil Nadu. Notably, she qualified for the state level eligibility test for lectureship and she has worked in core theoretical physics problems like Quantum solvability of Mathews-Lakshmanan nonlinear oscillator and weak decays of Mesons and Baryons. Currently, she is focusing on light matter physics and science education research.

Annexure 1:



Annexure 2:



Annexure 3:

PRAYOGA

Dear Mr. Vinod Cartic,

Greetings from Prayoga!

I hope this message finds you well. As you may recall, Ms. Pushpavathi S and Ms. Poornima K from Sai Krushna Vidya Mandir School successfully completed a research project at Prayoga about a year ago in 2023. We're reaching out to gain insight into your observations and reflections regarding their progress and development since completing the project.

Reflection on Growth:

How have you observed Ms. Pushpavathi S and Ms. Poornima K grow and develop in their scientific understanding and skills since completing the research project at Prayoga? Have there been any notable changes or improvements in their approach to learning and applying scientific concepts in the classroom setting?

We have seen that both Pushpavathi and Poornima have become significantly more interactive in the classroom. They ask a lot of questions and are bold enough to venture their answers, even if it is wrong. They are taking a lot more interest and keenness in learning Science. Across subjects also, we have seen them being more attentive and developing interest. Their performance and marks have also reflected this growth.

Integration of Research Experience:

How effectively has students integrated the knowledge and experience gained from the research project into their ongoing academic pursuits and classroom activities? Have they demonstrated an ability to apply the methodologies and critical thinking skills learned during the project to other areas of science or coursework?

The students are better able to grasp concepts. They use methods like induction and deduction to arrive at a reasonable answer. They appreciate the value of an experimental approach to learning. They are more inquisitive and able to use critical thinking skills more effectively. Their ability to observe and analyse has shown improvement.

Collaborative Skills:

Did student's demonstrate strong collaborative skills, particularly in working with peers at school? How this impacted their ability to work effectively within group settings in the classroom environment?

While both students have good at speaking confidently, collaboration is an area that needs some more improvement. One of the best ways that one can learn is to teach others. At our school, we value peer to peer learning, and this is where Pushpavathi and Poornima need to show further improvement here.

Mr. Vinod Cartic, Science Teacher, Sai Krushna Vidya Mandir School
Signature

PRAYOGA

Independence and Initiative:

To what extent has exhibited independence and initiative in their scientific inquiries and projects following their experience at Prayoga Research Centre?

Both students are extremely confident and able to express themselves well. They are more enterprising now. They typically submit their homework on time. They are also keen to solve multiple practice papers and improve their overall score. We have seen a significant development in their willingness to lead and take initiative.

Long-Term Impact:

In your opinion, what long-term impact has the research project had on students' academic and personal growth? How do you anticipate their experiences at Prayoga will continue to shape their future pursuits in science and beyond?

There is a greater sense of self belief. We see the students aiming higher and setting more focused goals for themselves. Pushpavathi aims to do a PhD in the study of the brain, while Poornima is keen to pursue Commerce. I believe that Prayoga has instilled in them the value of hard work and helped them taste the fruit of success. They are definitely keen to achieve more and we are sure that this early stage learning will hold them in good stead in future also.

Thank you for taking the time to share your insights and observations. Your perspective is invaluable as we seek to understand the lasting impact of students's research experience at Prayoga.

Best regards,

Dr. Venkata Krishna B

Mr. Vinod Cartic, Science Teacher, Sai Krushna Vidya Mandir School
Signature