

Enhancement of the Academic Performance of Polytechnic Students Through Timely and Effective Counseling

¹Ansar Allauddin Mulla, ²Varsha Nalawade, ³Hanmant Jadhav

Kess Rajarambapu Institute of Technology Shivaji University Kolhapur, India

¹ansarmulla212@gmail.com

ABSTRACT

This study investigates the core problem of inadequate academic performance and limited student engagement among polytechnic students, addressing how timely and effective Counseling can serve as a strategic intervention. Conducted at Rajarambapu Institute of Technology (RIT), the research involved Diploma-level students identified through academic records, mentor observations, and informal interactions based on academic, social, and emotional criteria. The study population included students from First, Second, and Third-Year diploma programs, with purposive sampling used to select those in need of support. Data was collected through mentoring reports, counseling documentation, academic performance records, and student feedback surveys. The analysis combined quantitative comparisons of pre- and post-counseling academic results with qualitative insights from student reflections. Findings show that personalized and group Counseling, when integrated with active learning strategies and developmental workshops, significantly enhance academic achievement, student confidence, and participation in college activities. This study underscores the value of embedding structured Counseling and mentoring practices within the academic system to support holistic student development. Future research should examine the long-term effects and scalability of such interventions across diverse educational contexts.

Keywords: Counseling, Academic Performance, Mentoring Activity

INTRODUCTION

The academic success of college students is a critical measure of educational institutions' effectiveness. To enhance students' learning and academic performance, academicians are continually engaged in various academic improvement activities. Various active learning strategies employed by faculty facilitate collaborative learning, enabling students to share knowledge, discuss challenging concepts, and prepare for exams collectively, thereby enhancing their overall understanding and academic performance. Students are asked to attend workshops and seminars on topics such as effective study techniques, time management, and academic writing, which offer valuable abilities and approaches for academic accomplishment (Oredein & Olabisi, 2019). Academic Counseling helps students make decisions about their course selections, career paths, and any difficulties related to academic performance. These activities help to improve academic performance and foster a deeper involvement with the subject matter and the broader academic community.

Education plays a vital role in the overall development of students. In terms of student well-being and academic performance, counseling plays an important role. Academic Counseling helps students plan their educational path by offering direction on course choice, ensuring they meet graduation requirements while aligning with their career goals. Counselors can guide students in finding and clarifying their career goals, connecting them with internships, research opportunities, and other experimental learning activities (Richardson et

al., 2012). For students facing personal or emotional problems, academic Counseling affords a vital support system (Salami, 2010). Counselors will resolve issues like anxiety, stress, depression, and low self-esteem. Counselors help students build confidence, develop coping strategies, and foster positive self-thinking.

This study examines various counseling techniques, the timing of interventions, and their direct impact on academic performance. By addressing students' academic, emotional, and social challenges, Counseling can create a supportive environment conducive to learning. The findings highlight the importance of integrating counseling services into the academic framework (Naga et al., 2020).

The primary purpose of counseling is to augment the academic performance of college students through the provision of adequate and timely support. This objective is fulfilled by addressing a spectrum of student needs, which include overcoming examination-related stress and anxiety, alleviating depression stemming from familial, academic, or other personal challenges, and resolving a range of individual, educational, and psychological issues. Furthermore, counseling aims to guide students toward improved academic achievement while motivating them to engage in various institutional activities. It also serves to provide essential guidance for selecting an appropriate career path, whether for employment, advanced studies, or entrepreneurship. A critical aspect of this process involves examining the correlation between the number of counseling sessions attended and subsequent academic performance. The fulfillment of these objectives is fundamental to fostering the comprehensive development of students, thereby preparing them to meet the evolving demands of both industry and society.

The academic underperformance of polytechnic students is often influenced by a combination of factors, including inadequate coping mechanisms, poor study habits, emotional stress, and lack of timely academic guidance. While existing literature emphasizes the role of pedagogical strategies and curriculum reforms in improving student outcomes, there remains a notable gap in studies that explore structured Counseling and mentoring as core interventions within technical diploma education. Most prior research focuses on general counseling benefits in university settings, leaving polytechnic institutes underrepresented in empirical evidence. This study addresses that gap by investigating how systematic and timely Counseling, combined with active mentoring, directly affects academic performance, emotional well-being, and student engagement. Conducted at Rajarambapu Institute of Technology (RIT), this case study is novel in its application of integrated counseling strategies within a diploma-level technical education framework, using both qualitative and quantitative methods. It contributes new insights into how academic institutions can proactively embed emotional and academic support systems to foster holistic student development, especially in underexplored polytechnic contexts.

METHODS OF RESEARCH

There are various methods for development in line with Counseling and mentoring (Lyons & Chan, 2021). Below are the practices that RIT follows, and further elaboration is provided in detail.

Effective and timely Counseling to needy students can help boost, encourage, and upsurge interpersonal competencies as well as academic achievements. The College

Counseling Cell's trust in quality education depends on the development of the whole student. Counseling of students includes the social, emotional, intellectual, and physical aspects related to students' lives. Counseling facilities are available to all students and their families.

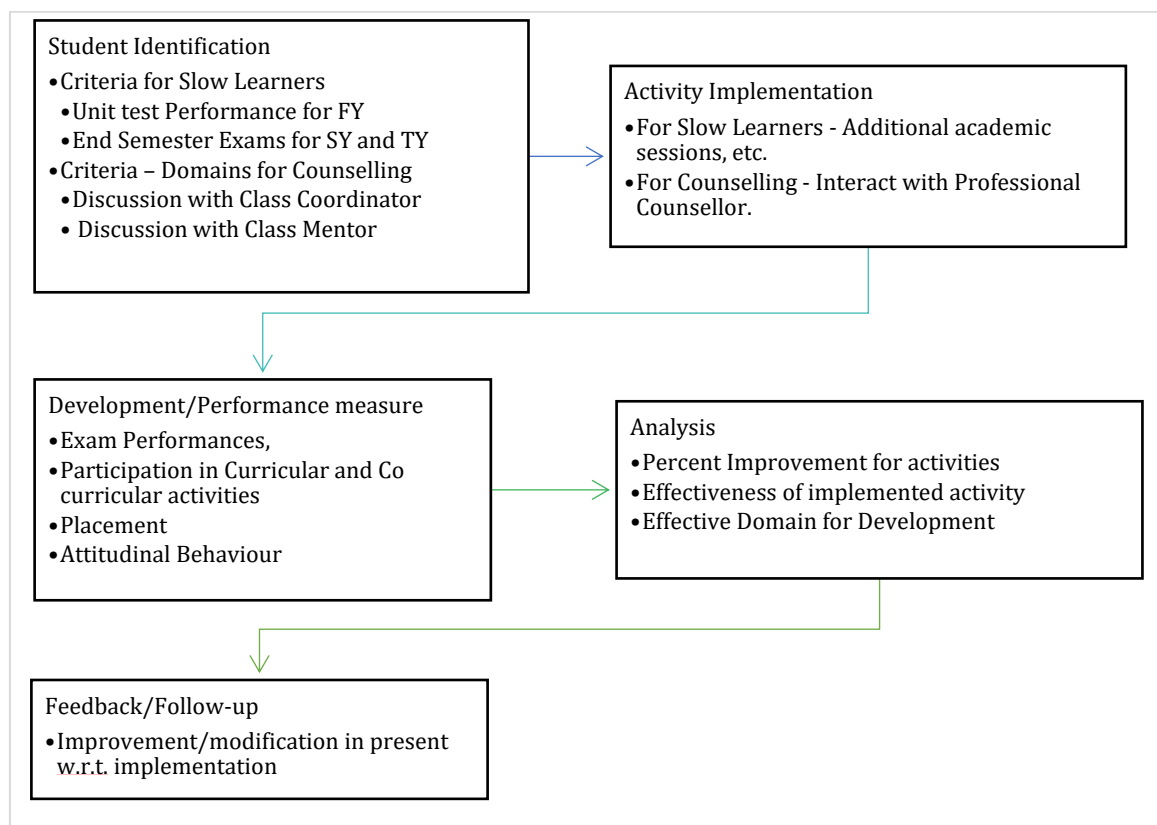


Figure 1 Flowchart – Methodology of Implementation

The above flow chart depicts the implementation of Counseling and mentoring activities at the institute for all the programs and at all levels of students.

This study adopts a mixed-methods research approach, combining both quantitative and qualitative techniques to comprehensively examine the impact of Counseling on the academic performance of polytechnic students. The research follows a case study design conducted at Rajarambapu Institute of Technology (RIT), focusing on Diploma students identified through purposive sampling based on academic records, mentor observations, and informal interactions. The counseling process consisted of multiple stages: (1) identification of students in need of support, (2) initial one-on-one counseling sessions addressing academic, emotional, or social challenges, (3) group mentoring sessions for peer-based support, and (4) follow-up interventions involving workshops and feedback. Data was collected through structured mentoring reports, counseling documentation, student feedback forms, and academic performance records before and after interventions. Quantitative data, primarily academic scores, were analyzed using comparative methods to assess pre- and post-counseling improvement. Qualitative data from student reflections and feedback were thematically analyzed to capture personal growth, confidence, and behavioral changes. This methodology

ensures a rigorous and transparent evaluation of the counseling process and its effectiveness in supporting student development.

Method and Implementation

At the actual implementation and the practical case are presented here. The students of the polytechnic of Rajarambapu Institute of Technology (RIT), Rajaramnagar, 2023-2024 batch are selected for this study. At the beginning of the academic year, the class coordinator and mentors identify and submit a list of counseling-needy students, categorized by counseling domains. These domains include academic performance (as reflected in unit tests), social, psychological, health, educational, employment, career opportunities, personal behavioral problems, family problems, stress, and depression. This is completely done based on a friendly conversation between them. The friendly discussion between the faculty class coordinator and mentor will provide a base for understanding students' interests and scope of development (Santhanamari et al., 2022).

Counseling of Students

- *Personal Counseling* motivates students for good academic performance and overall development.
- *Group Counseling* highlights career opportunities and personality development to encourage students to actively participate in various technical & non-technical institute activities and events.
- *Educational counseling* sessions for slow learners are useful to improve academic performance.

College counselors convey counseling programs mainly in three domains: academic, career, and personal/social. Their activities and programs assist students in resolving emotional, social, or behavioral problems and help them to improve their attention span and sense of direction. Effective counseling programs are essential to the college environment and a key component in promoting student success.

Active Learning Method for Academic Teaching-Learning Processes

The implementation of active learning strategies has shown a significant positive impact on the teaching-learning processes and academic improvement of polytechnic students. By shifting from passive lecture-based instruction to student-centred learning, these methods enhance engagement, critical thinking, and understanding. Active learning enables students to interact directly with content, peers, and faculty in meaningful ways, creating an environment conducive to deeper learning and skill acquisition.

Subject-Independent Collaborative Methods, Techniques such as the Jigsaw method and the IRSIEC method (Mulla et al., 2019), have been introduced across all diploma programs to promote cooperative learning. These methods form heterogeneous student groups where each member contributes uniquely, fostering responsibility, interdependence, and improved communication. They are particularly effective in foundational subjects like Communication Skills and Environmental Studies, where discussion and conceptual clarity are essential.

Problem-Based Learning (PBL) is utilized in technical core subjects, such as Mechanical Engineering, Electrical Circuits, and Applied Physics, to help students tackle real-world problems through micro-projects. This approach enhances analytical and critical thinking

skills by requiring students to explore solutions collaboratively, applying theoretical knowledge to practical scenarios. It supports independent learning and prepares students for industry-oriented challenges.

Peer teaching methods are applied in subjects like Mathematics and Basic Electronics, where students are grouped in pairs or small teams to explain concepts to one another. This method deepens understanding, strengthens conceptual clarity, and improves student confidence. By teaching peers, students reinforce their own learning while developing communication and leadership skills.

In theory-dense subjects like Engineering Drawing and Computer Programming, the Flipped Classroom approach has been implemented. Students study video lectures and reading material at home, which prepares them for in-class sessions focused on problem-solving and application. This method allows learners to grasp foundational concepts at their own pace and enhances classroom participation during hands-on practice.

Collaborative Micro-Projects: Group-based collaborative micro-projects are integrated into subjects like Project Design, Manufacturing Technology, and Electronics Workshop. These projects simulate real-world teamwork, improving project management, planning, and execution skills. Working together, students learn how to delegate tasks, solve technical problems, and meet common objectives, skills vital for engineering careers.

Hands-on Labs and Simulations, for subjects such as Thermodynamics, CNC Programming, and Mechatronics, provide hands-on laboratory work and software-based simulation experiences (Stappenbelt, 2010), thereby bridging the gap between theoretical learning and real-world application. Students engage with tools, machinery, and virtual platforms that replicate industrial environments, enhancing experiential learning and practical competency.

ICT Tools and Gamification, To promote interactive learning, ICT tools like the Socrative App are utilized across various subjects to create a gamified learning environment. Quizzes, polls, and real-time feedback create a competitive yet enjoyable atmosphere, increasing attention span and reinforcing knowledge retention, especially useful in revision sessions and formative assessments.

Together, these methods support not just academic achievement but also the emotional and collaborative growth of students. When integrated with personalized counselling, this active learning ecosystem contributes to a holistic model that equips polytechnic students with both technical proficiency and interpersonal confidence.

Activities In Action for Counseling

Students for Counseling are identified by the following conditions.

- Mentor-mentee meetings held at the beginning of the academic year, along with individual discussions with mentees (Students), help identify and understand the problems of the student. According to the Domains of Needs of Counseling for respective students, the Counselor identifies the students for further Counseling. Individual Counseling helps the mentor to understand the problems of the students and solve them effectively.
- Slow learners' identification: For First-year students' slow learners are identified according to unit test results. The criteria are those who are failing more than three subjects. For second and third-year students summer exam results are considered instead

of unit test results. Educational counseling sessions help to slow learners. Counseling Cell members counsel such students concerning exam preparation, exam stress, motivation to study, study tips, time management, study techniques, etc. Such sessions help to improve the confidence of students, which removes the fear of exams from students' minds.

- **Counselor – Student interaction:** During the interaction with the counselor, students expressed their problems. Counseling cells offer encouragement, solutions to their problems, and assurance and support whenever needed. Depending on the problems, solutions are discussed with students. At the end of the academic year, an analysis was done, which showed improvement in students' academic performance as well as per need.

RESULTS AND DISCUSSION

For the 2023-24 batch of students, Table 1 represents the number of students identified who applied counseling activities to them and the improved number of students. Also, the percentage improvement is mentioned concerning students of the respective program.

Table 1 Architecture of Activity Implementation (Slow Learner) (Batches 2022-23 & 2023-24)

Class	First Year (FY)			Second Year (SY)			Third Year (TY)		
Program ↓	Identified Students	Improved Academic Perf.	FY Improvement %	Identified Students	Improved Academic Perf.	SY Improvement %	Identified Students	Improved Academic Perf.	TY Improvement %
For Batch 2023-24									
AE	13	10	77	4	3	75	9	6	67
CE	6	6	100	7	6	86	14	11	79
CO-A	4	4	100	6	6	100	4	4	100
CO-B	2	2	100	4	4	100	0	0	-
EE	21	21	100	2	2	100	4	2	50
HA	2	2	100	5	4	80	4	3	75
ME	26	26	100	11	7	64	4	4	100
For Batch 2022-23									
AE	13	10	77	4	3	75	9	6	67
CE	6	6	100	7	6	86	14	11	79
CO-A	4	4	100	6	6	100	4	4	100
CO-B	2	2	100	4	4	100	0	0	-
EE	21	21	100	2	2	100	4	2	50
HA	2	2	100	5	4	80	4	3	75
ME	26	26	100	11	7	64	4	4	100

AE-Automobile Engineering; CE-Civil Engineering; CO-A-Computer Engineering A-Division; CO-B Computer Engineering B Division; EE-Electrical Engineering; HA-Hardware & Maintenance Engineering; ME-Mechanical Engineering.

Table 2 represents the activity implementation for the counseling domains to the respective class and program students. It represents program-wise classes of students in the implementing batches and the activities implemented for the domains respectively. For exam fear – the students were given the guidance and motivation to face examinations, the counselors discussed about the strategies and tricks to get of exam fear and get good marks. Education counselling gave a carrier-oriented responsibility to gain education and pillar it to their future life. Study stress was resolved by discussion with mentors and enjoying study rather loading to the brain.

Table 2 Architecture of Activity Implementation (Other Counseling Domains) for batch 2023-24

Program → Domains ↓	AE			CE			CO-A			CO-B			HA			EE			ME		
	FY	SY	TY	FY	SY	TY	FY	SY	TY	FY	SY	TY	FY	SY	TY	FY	SY	TY	FY	SY	TY
Exam Fear	1	-	-	2	-	-	1	-	-	2	-	-	-	1	3	-	-	-	1	-	-
Educational Counseling	2	3	3	1	3	4	-	4	3	3	3	-	-	-	-	2	2	3	2	2	2
Study Stress	1	-	-	-	-	-	1	-	-	-	1	-	1	1	-	1	-	-	-	-	-
Low Confidence	2	2	-	2	-	-	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Lack of concentration	-	1	-	1	-	-	-	-	-	3	-	-	-	-	-	-	-	-	1	-	-
Behavior Problem	-	2	3	2	-	1	-	1	2	-	1	-	-	1	-	2	-	2	-	-	-

AE-Automobile Engineering; CE-Civil Engineering; CO-A-Computer Engineering A-Division; CO-B Computer Engineering B Division; EE-Electrical Engineering; HA-Hardware & Maintenance Engineering; ME-Mechanical Engineering; FY – First Year; SY – Second Year; TY-Third Year.

Counseling of students is done concerning the counseling needs of students mentioned in the identified students list. According to need, the Counseling of students is done regarding different aspects such as exam fear, educational Counseling, study stress, low confidence, lack of concentration behavior problems, etc. Positive observations concerning the above points those noted are as follows,

- Students' Confidence levels increase, and they participate in various colleges' technical and non-technical events. Some of them achieved ranks for it.
- Academic scores/ passing percentage of students is increased.
- Students are communicating with faculty and solving difficulties, which results in the removal of exam fear.
- The low concentration issue is solved by discussion with the respective faculty. Faculties use different active learning methods for more interactive and interesting lectures (Shah et al., 2020).
- During face-to-face individual Counseling, the counselor suggests students follow some CBT (Cognitive Behavioral Theory) which shows a very good effect on the behavior of students in college classrooms, campus, academics, and overall well-being (Larose, 2015).

Effect and Improvement in Student Performances

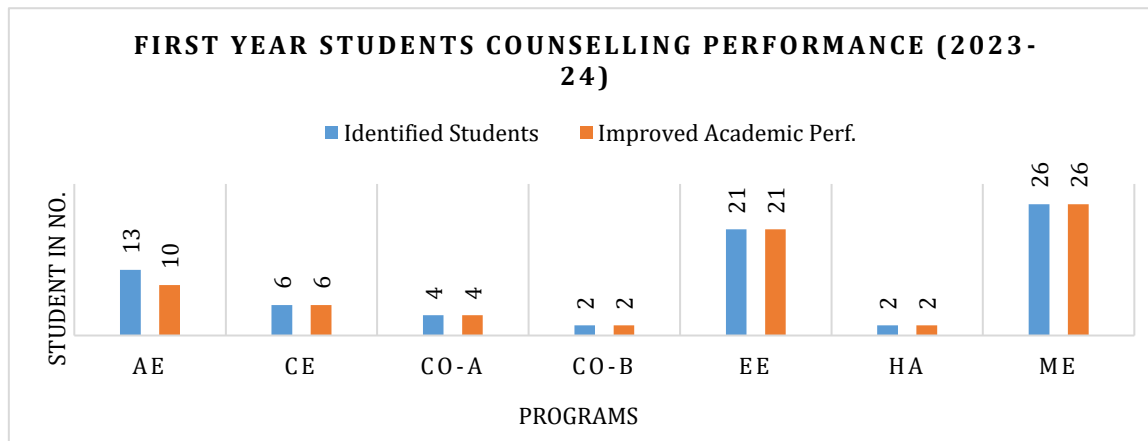


Figure 2 First Year (FY) Students Counseling Performance

To the FY student, skill identification and learning style identification activities were conducted, and various active learning methods were employed to deliver course content. The bar graph shown in Figure 2 shows FY students' counseling performance. CE, COA, COB, EE, HA, and ME program students demonstrate a 100% improvement in their academic performance, with all identified students achieving an increase in their passing percentage. AE students show 97% improvement in academics. This indicates that counseling activities for students are beneficial for student's improvement.

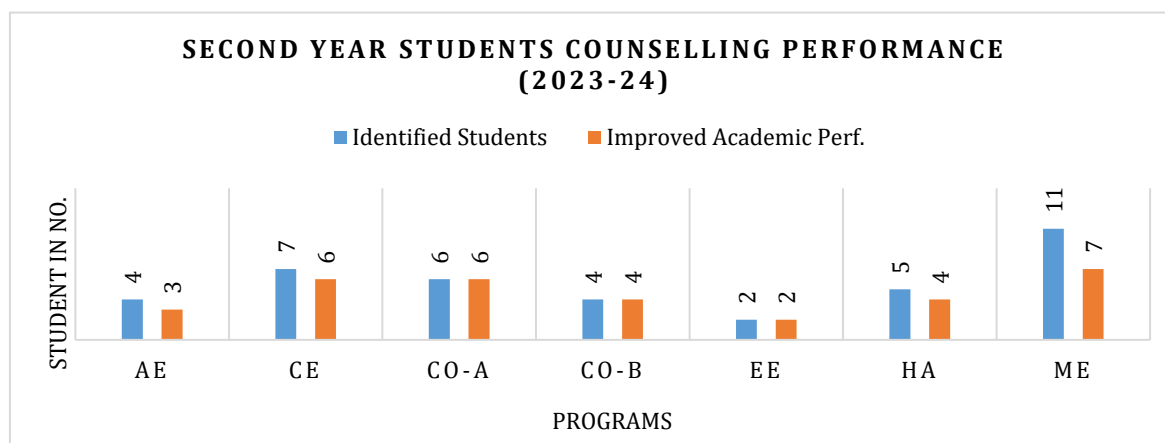


Figure 3 Second Year (SY) Students' Counseling Performance

Active learning methods, such as Jigsaw and Socrative apps, have been used to improve students' learning and academic performance. The bar graph shown in Figure 3 shows the Second Year (SY) students' counseling performance. COA, COB, and EE program students demonstrate a 100% improvement in their academic performance, with all identified students increasing their passing percentage. Program AE, CE, and HA students show a 97% improvement in academics. In the case of ME program students, 77% improvement is observed. Overall improvement in academics has increased.

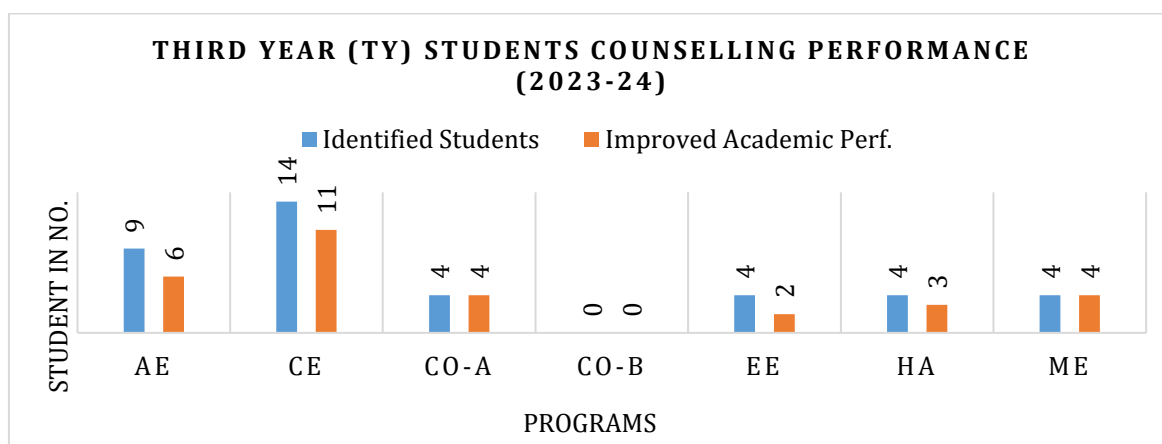


Figure 4 Third Year (TY) Students' Counseling Performance

The bar graph shown in Figure 4 shows TY students' counseling performance. COA, and ME program students show 100% improvement in their academics. In the case of the remaining programs, there is improvement in the range of 50-90%. There were no students shortlisted for Counseling from the program CO B division of TY for Counseling shortlisted.

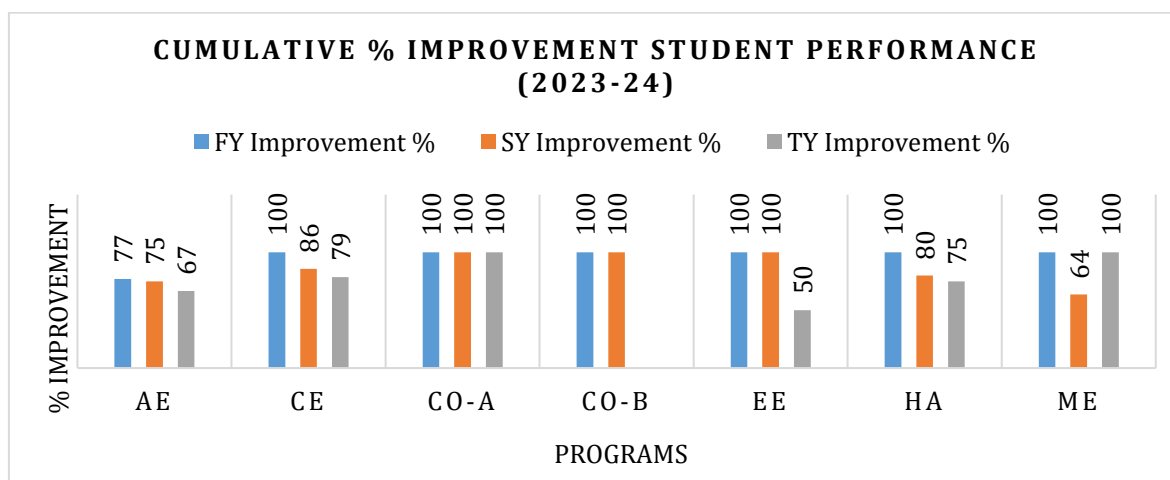


Figure 5 Cumulative % Improvement Student Performance (2023-24)

For all programs and Classes, the percent Improvement is shown in the bar graph in Figure 5. A cumulative % improvement graph indicates that the passing percentage has increased. Program-wise Improvement is shown in the graph, with maximum growth observed for the programs of CO-A & B students across all classes. For HA, EE, and ME programs to the second level. However, for the AE program, the overall FY-TY effect ranges from 67-77%. More effort is needed for this program for the student to be implemented by the respective mentor.

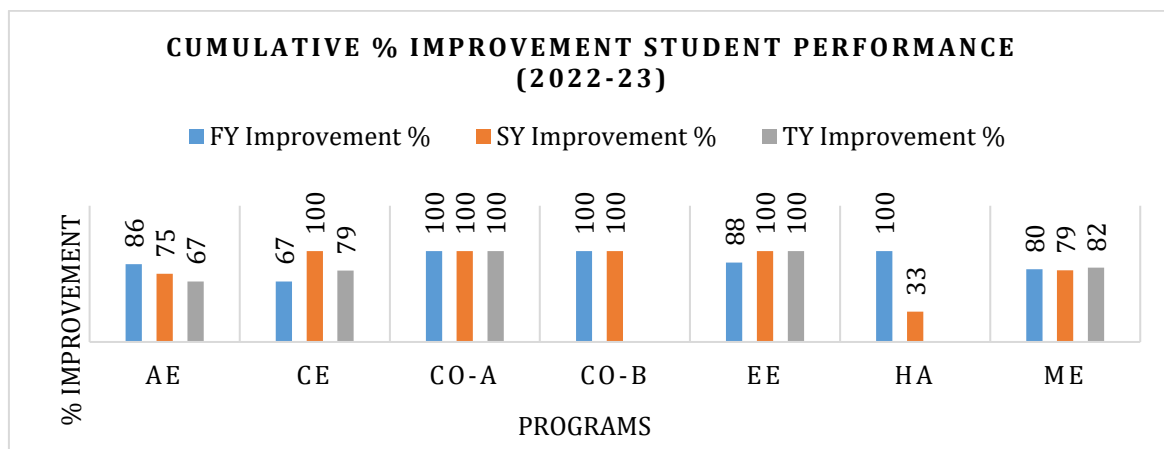


Figure 6 Cumulative % Improvement Student Performance (2022-23)

The bar graph for batch 2022-23, shown in Figure 6, shows a percentage improvement for all the programs and classes. A Cumulative percentage improvement graph indicates that the passing percentage has increased. Program-wise Improvement is shown in the above graph, and maximum growth can be seen for the programs of CO-A, B, and EE in all classes of students. For the programs of CE and ME, the growth is to the second level. However, for the AE program, the overall FY-TY effect ranges from 67-86%.

The cumulative percentage improvement in students' performance for the academic years 2022-23 and 2023-24 demonstrates that the implemented activities have significantly improved students' academic performance, as indicated by the respective percentages. The same activity can be continued for overall improvement within the Counseling and mentoring activities (Irfan et al., 2020).

The study shows the impact of Counseling on academic progress, student well-being, and overall development (Koki, 1994). Effective and timely Counseling is crucial for improving the student's academic performance, confidence, and other skills.

Feedback from the implemented students was taken from five questions viz, 1. How effective were the counseling sessions in addressing your academic challenges? 2. To what extent did the active learning strategies (e.g., jigsaw, flipped classroom, PBL) improve your understanding and academic performance? 3. How satisfied are you with the personalized and group mentoring provided? 4. How well did the counseling program address your social and emotional challenges? 5. How likely are you to recommend this Counseling and mentoring program to your peers? For a five-point response, the response

options are as follows: 1: Very Unlikely, 2: Unlikely, 3: Neutral, 4: Likely, 5: Very Likely.

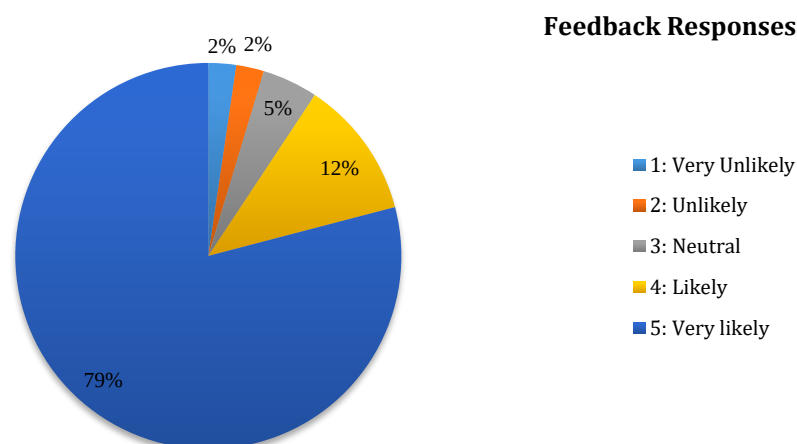


Figure 7 Feedback responses

Sample Responses on a five-point scale from forty-three students are shown in Figure 7 and cumulatively received are "The sessions were extremely effective (5) in helping me understand and overcome my academic struggles.", "The active learning strategies improved my understanding greatly (4), especially techniques like flipped classrooms and quizzes.", "I am very satisfied (5) with the mentoring provided; it felt tailored to my needs.", "The program addressed my emotional challenges well (4), although some areas could still be improved.", "I would very likely (5) recommend this program to anyone who needs academic or emotional support." These questions and responses help evaluate the program's impact while offering room for insights and improvement.

To further substantiate the impact of counseling activities, future analysis will incorporate inferential statistical tools to enhance the robustness of the findings. While the current study effectively highlights trends through percentage-based pre- and post-intervention comparisons, the authors acknowledge the limitation of not conducting inferential tests to determine the statistical significance of the observed improvements. Preliminary plans are underway to apply paired-samples *t*-tests and non-parametric alternatives (such as Wilcoxon signed-rank tests) to validate academic performance improvements and behavioral outcomes. Additionally, normality checks will be introduced to ensure statistical assumptions are met. These enhancements will not only strengthen the credibility of the data interpretation but also allow for generalizable conclusions across different student cohorts and programs.

CONCLUSIONS

The case study conducted at Rajarambapu Institute of Technology demonstrates that effective and timely counseling is a crucial catalyst for enhancing the academic performance and holistic development of polytechnic students. The integration of active learning strategies such as the jigsaw method, flipped classroom, two-minute papers, project-based learning (PBL), think-pair-share, role play, ICT tools, and quizzes, alongside structured counseling interventions, has yielded measurable improvements in student outcomes, particularly among academically underperforming students, with performance gains ranging from 67% to 100%. The findings underscore the importance of addressing not only academic but also emotional

and social challenges through counseling to foster a supportive and growth-oriented learning environment. Moreover, embedding counseling services within the academic ecosystem has shown potential to align student development with the evolving demands of industry and society. Research Implications: This study opens avenues for further research on the longitudinal impact of counseling on students' academic trajectories and career readiness. Future studies could explore the scalability of such counseling frameworks across varied educational settings, analyze differential impacts based on student demographics, and assess the effectiveness of digital or hybrid counseling models. Investigating these aspects would deepen our understanding of how integrated counseling strategies can be optimized to support diverse learner needs and institutional goals.

REFERENCES

- Irfan, M. M., Deshmukh, R., & Subramanyam, K. (2020). Mentoring approaches for various learning behaviors of the future engineers in professional education: Competency and commitment development. *Journal of Engineering Education Transformations*, 34, 433–439. <https://doi.org/10.16920/jeet/2021/v34i0/157192>
- Koki, S. (1994). *The role of teacher mentoring in educational reform*. Pacific Resources for Education and Learning.
- Larose, S., Savoie, J., DeWit, D. J., Lipman, E. L., & DuBois, D. L. (2015). The role of relational, recreational, and tutoring activities in the perceptions of received support and quality of mentoring relationship during a community-based mentorship program. *Journal of Community Psychology*, 43(7), 896–913. <https://doi.org/10.1002/jcop.21700>
- Lyons, M. D., & Chan, W. Y. (2021). *Mentoring for enhancing school attendance, academic performance, and educational attainment*. National Mentoring Resource Center, OJJDP.
- Mulla, A. A., Patil, S. R., & Mulla, T. A. (2019). IRSIEC technique - Integral revision, in semester examination and evaluation of content/course. *Journal of Engineering Education Transformations*, 32(4), 39–45. <https://doi.org/10.16920/jeet/2019/v32i4/145519>
- Naga, G., Krishnan, P., Darshini, P., Abhraham, P., & Thomas, S. (2020). The effect of mentorship program in enhancing the academic performance of first MBBS students. *Journal of Advanced Medical Education & Professionalism*, 8(4), 196–199. <https://doi.org/10.30476/jamp.2019.82591.1061>
- O'Connor, S., Power, J., Blom, N., & Tanner, D. (2024). Engineering students' perceptions of problem and project-based learning (PBL) in an online learning environment. *Australasian Journal of Engineering Education*. <https://doi.org/10.1080/22054952.2024.2357404>
- Oredein, A. O., & Olabisi, K. (2019). Essence of academic performance: Counselling. *Current Research in Education and Social Studies*, 1(4), 1–6. <https://doi.org/10.9734/bpi/cress/v1/c4>
- Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological Bulletin*, 138(2), 353–387. <https://doi.org/10.1037/a0026838>

- Salami, S. O. (2010). Emotional intelligence, self-efficacy, psychological well-being and students' attitudes: Implications for quality education. *European Journal of Educational Studies*, 2(3), 209–218.
- Santhanamari, G., Deepa, M., Susithra, N., & Reba, P. (2022). Establishing a constructive mentoring scheme for engineering students - A case study. *Journal of Engineering Education Transformations*, 35(1), 303–311.
<https://doi.org/10.16920/jeet/2022/v35is1/22044>
- Shah, A. P., Mulla, A. A., & Patil, S. H. (2020). Integral revision, in semester examination and evaluation of content II technique. *Journal of Engineering Education Transformations*, 34(Special Issue), 319–325. <https://doi.org/10.16920/jeet/2021/v34i0/157162>
- Stappenbelt, B. (2010). The influence of action learning on student perception and performance. *Australasian Journal of Engineering Education*, 16(1), 1–12.
<https://doi.org/10.1080/22054952.2010.11464042>