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Building Self-Confidence in Students: Techniques and Impacts

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Abstract

This study investigates the impact of various teaching strategies on enhancing self-confidence among Electronics and Communication Engineering students. The implemented techniques such as teachers and peer feedback, extempore speech, and problem project-based learning were implemented. Pre and post surveys, observations, and interviews were used to gather the data. Initially students exhibited low self-confidence, shyness, and less expressiveness. After implementing the techniques, there was a significant improvement in classroom participation, willingness to engage and communication skills. The results suggest these interventions can positively influence student confidence and academic engagement.

Keywords— Confidence, feedback, Impact, Participation, classroom management

1 Introduction

In today's world, it has become increasingly important for individuals to possess excellent language skills, particularly when speaking before an audience or addressing a large group, in order to convey messages, concepts, or topics clearly and concisely. Facing such audiences or situations requires a high level of self-confidence. Self-confidence [1] is defined as an individual's belief in their ability to perform tasks effectively. It plays a vital role in academic success, communication, and overall student engagement [2].

Despite the shift toward student centric learning in education system, many students still lack the independence to learn autonomously [3]. Students often rely on ready-made notes and presentation slides, seldom validating the content with other sources. Additionally, students tend to do only what is asked of them or taught by their teachers, rarely placing trust in their own understanding [4]. For example, when given an assignment, they frequently look for answers directly provided by the teacher, believing that only the teacher's input is correct. This highlights a significant need to foster self-confidence among students.

Many people equate intelligence with academic success. However, it is self-confidence—more than intelligence that leads to academic achievement. It enhances self-esteem, interpersonal skills [5],

and the ability to acknowledge personal shortcomings while striving to overcome them. Individuals with strong self-confidence tend to be proactive and willing to embrace challenges.

In this study, various techniques were employed to enhance students' self-confidence. These included a five-minute presentation at the beginning of each session, a three-minute extempore speech on random topics, peer feedback, cooperative learning, project-based learning, peer teaching, and public appreciation of student work.

The study began by collecting initial feedback from students to establish a baseline understanding of their current state, clarify mutual expectations, and, most importantly, identify underlying issues among the students.

2 Related Studies

Efrat (2022) outlined a process for conducting action research within the classroom, which involves creating a plan for both students and the teacher, implementing the proposed action, observing the outcomes to assess progress, and finally reflecting on the impact it has had on classroom performance [6].

The handbook [7] provides a practical guide for teachers, addressing the root causes of student-related challenges and offering solutions such as the development of self management skills and effective student handling techniques. It emphasizes the significance of cooperative learning strategies to enhance student participation and boost self-esteem. Additionally, the referenced studies outline strategies to improve the effectiveness of teamwork. Collectively, they discuss six key reforms collaborative learning, support, high expectations, relevance, autonomy, and motivation—as essential factors in driving improved academic performance. Similar approaches are also outlined in the author's subsequent handbook [8].

The paper by Ollenbeck and Hall (2004) explores similar themes, highlighting the relationship between self-confidence and classroom participation, and how this connection can influence students' overall performance—not only academically but also in co-curricular activities [9][10]. They emphasize the critical role of self-confidence and the importance of nurturing it in young learners to help them reach their full potential. Furthermore, the study finds that fostering self-confidence contributes to a positive learning environment, where educators play a pivotal role in supporting and uplifting students.

The relationship between student performance and engagement with faculty has been a subject of considerable academic inquiry. According to the study presented in [11], students tend to invest more effort in courses taught by faculty members with whom they have frequent and comfortable interactions. This observation underscores the pivotal role of student-faculty engagement in enhancing academic outcomes. Pascarella (1980) further emphasizes that faculty mentoring, accessibility, and support from tutors significantly contribute to improved student performance and elevated self-confidence. These elements of academic support serve not only as cognitive resources but also as socio-emotional scaffolds that enable students to thrive in challenging academic environments. As noted in [12], meaningful and sustained engagement between learners and instructors fosters a positive educational climate, promoting both academic success and constructive student behavior.

Also, the study reached a similar conclusion, emphasizing the importance of interactions such as non-classroom contact with students [13]. The paper explores the relationship between self-confidence, motivation, and anxiety among students in Indonesia, based on a sample size of approximately 458 students. The researchers examined strategies to enhance students' self-confidence and motivation, and emphasized the importance of designing a curriculum that fosters a conducive learning environment.

Even classroom participation improves the self-confidence of students. Classroom participation is a feature of many course designs [15]. It results in insightful comments and interesting connections being made by students and can foster a high level of energy and enthusiasm in the classroom

learning environment. However, poorly managed participation can also lead to instructor frustration and student confusion. To overcome passiveness of students in the class, educators should motivate students through various means which is also supported by the study [16][17]. The teacher's tendency to encourage one-way communication patterns will lead to a lack of involvement and participation. Therefore, it is important for teachers to always make the session interactive [18].

Winter and Munn Giddings (2001) provide a framework for systematic classroom management, while Tileston and Christensen focus on the challenges and benefits of cooperative learning. Akbari and Hollenbeck (2020) highlight a direct correlation between self-confidence and classroom participation, whereas Komaraju, Beri, and Pascarella emphasize the importance of faculty-student engagement. These strategies can be integrated into a unified model to better understand their combined impact on building student self-confidence.

Overall study stated that building self-confidence is vital for students' growth both in terms of academic activities and in other co-curricular activities. Further, they broadly discuss various strategies, such as collaborative learning, cooperative learning, self-management, peer feedback, and mentorship.

3 Methods

The scope of the study was limited to a single class of 30, First-Year Electronics and Communication Engineering Students at Jigme Namgyel Engineering College and the primary aim of the study was to assess the student's self-confidence level and the classroom participation.

Initial observation of the students was conducted during regular class hours, which revealed consistently poor students' responses, challenges in articulating their point of view or even at the least to complete one sentence correctly. They were noted to be less expressive and huge reluctance to volunteer. This initial observation and the trend evident from the Table. 1. confirmed the pattern as observed.

A structured questionnaire was given to 30 first-year students to gather data on self-confidence and classroom participation. The survey items were developed based on prior literature and reviewed by two educational psychologists for validity was analyzed using Microsoft 365 for graphical and statistical representation. The collected data Ethical clearance was not formally obtained; however, participation was voluntary and anonymous.

To elaborate on the various techniques implemented to help build up students' self-confidence:

a). 3-Minutes Extempore Speech

Extempore speech can be defined as a form of public speaking in which individuals deliver their content without relying on reading or memorization. Engaging in this activity enhances the speaker's ability to think spontaneously. According to Professor Alexander Lyon (PhD), speakers in such settings are not required to memorize their content; instead, they can communicate in a conversational manner, as they are already familiar with their subject matter. This approach allows speakers to adapt their delivery based on the audience's responses and needs.

In a college setting, for instance, presentations such as those in academic conferences or project reviews are often shortened. In these situations, extempore speakers can more easily condense their material without losing coherence, and they tend to exhibit greater confidence compared to those who rely on reading notes or memorized scripts. As noted by Author [19], current stakeholder expectations emphasize the need for graduates to possess strong communication skills. Therefore, integrating extempore speech into the curriculum serves as an effective strategy to foster spontaneous speaking abilities and improve students' critical thinking and expression.

In classroom practice, a dedicated three-minute slot is provided for individual students to deliver a speech on a topic of their choice, with speakers selected at random. Following each speech, peer feedback is encouraged, consisting of one constructive critique and one positive comment, followed

by a brief QA session. Although this activity typically requires around ten minutes of class time, it has proven highly effective in enhancing student confidence, clarity in speech delivery, and overall engagement in a supportive learning environment.

b). Peer-Feedback

Whenever students engage in tasks and receive constructive suggestions from their peers as part of an assessment, this plays a vital role in their improvement particularly for those who have performed tasks such as presentations or speeches. This activity fosters the development of critical thinking skills and mutual understanding, contributing to a vibrant learning environment, as noted in [20], which emphasizes that feedback empowers students' learning. As a structured activity, feedback is encouraged after every task, presentation, or lecture to enhance the overall learning experience.

c). Teachers' Feedback

Feedback from teachers on students' work plays a vital role, as students tend to place a high level of trust in their teachers. This trust facilitates students' willingness to address areas needing improvement, as the structured nature of teacher feedback makes it easier to incorporate critiques. Overall, teacher feedback highlights areas for improvement while also recognizing and appreciating areas where students have performed well.

Figure 1: Students during implementation of various teaching and learning strategies

d). Peer-to-Peer Teaching

This approach serves as an effective method to build students' confidence by allowing them to take

on the role of a teacher and instruct their peers. Within these teaching strategies, specific topics are assigned to students along with reading materials and other resources, and they are asked to prepare and teach their classmates. High-achieving students are strategically distributed across different groups and appointed as mentors to support and guide their peers. In addition, special sessions are sometimes arranged with students from higher semesters, who visit classes to share their knowledge and teach. These strategies collectively reinforce communication skills and help students develop the confidence to address audiences and express themselves more effectively.

e). JIG-SAW Teaching Strategies

This approach describes as a form of cooperative learning that yields favorable outcomes through the practice of teamwork [21][22]. It enables students to develop expertise in specific topics and share their knowledge with peers, leading to engaging, interactive, and student-centered learning. This method encourages learners to explore a variety of resources to strengthen both subject knowledge and communication skills, ultimately enhancing their confidence in addressing larger audiences.

f). Group Work (Mini-Project Group Discussion)

Learning through group work, supported by relevant materials and minor project assignments, serves as an effective strategy to help students apply theoretical knowledge to practical contexts. When all group members actively participate, they are able to contribute ideas, collaborate to solve problems, and present their outcomes to peers. This approach enhances practical skills, deepens subject knowledge, and boosts students' self-confidence. In the current educational landscape, cooperative and collaborative learning plays a vital role and has demonstrated numerous successful outcomes, as noted in [23].

In this context, students are engaged in a series of structured activities designed to develop key skills, including problem-solving, analytical thinking, communication, and applied subject knowledge. The steps involved are as follows:

1. Identify a problem: Divide students into groups of 5 or 6 and assign them searching for problems around campus or within the community. However, they should focus on finding problems where they can apply automation.

2. State the problem: here, they will return from the field and start discussing on their trip and articulate the problem they have identified. In this way, they will break the problem into the smallest possible and state it clearly.

3. Brainstorm the Solutions: This state will cater to the generation of as many potential solutions through brainstorming.

4. Discuss and weigh Solutions: Now, students will organize a proper discussion and evaluate on each solution that they have listed in the earlier session based on feasibility and effectiveness and select the best one.

5. Develop a prototype: Based on the solution chosen, the student will develop the prototype to address the identified problem. For example, the prototype developed was automatic water sprinkler, automatic water level controller of building, automatic fan controller in the college kitchen, etc..

6. Exhibition: Once they have completed their development task, students will hold an exhibition to showcase their finding to their fellow mates and faculty of the college. This comprehensive process helps students develop abovementioned skills along with creativity and critical thinking abilities.

Figure 2: Group Discussion and Exhibition

3.1 What are the Criteria Set to Select the Above Techniques?

The criteria set for the above techniques are to encourage students to:

a) Build Self-confidence

Students in the class engage in activities that build their confidence to handle audiences and express themselves effectively.

b) Active participation in the classroom

This is to encourage students to participate in the class activities, as students lack the confidence to come forward. This also encourages them to volunteer and lead the team.

c) Communication skills

This is an outcome of the student's confidence and active participation in the class.

d) Teamwork

This develops students' engagement in the activity, as it will make students inclusive in all the tasks provided to them.

e) Practical application

In this approach, students collaborate in groups, sharing tasks and ideas to produce optimal results, effectively simulating real-world scenarios. This experience helps prepare them for future professional environments by developing them into capable and adaptable human resources.

Participation in these activities, along with involvement in setting criteria, supports the development of strong communication skills, effective idea expression, volunteerism, and a sense of social responsibility. This process not only boosts confidence and enhances performance but also contributes to holistic learning. It addresses common student challenges such as fear of public speaking, difficulties in social interaction, and limited perspective-taking—ultimately equipping students to face future challenges with maturity and resilience.

3.2 Analysis of Feedback and Observed Data

To gain an overview of the necessity for implementation, a survey was conducted within the classroom. Over the course of the semester-long session, it was observed that classroom participation was notably disappointing. When questions were posed, students rarely volunteered to respond; instead, responses often came from a crowd. Furthermore, the same individual frequently dominated the responses.

Table 1: Questionnaire before implementing teaching methods

Reasons	Yes	No	Happy	Scared	Shy
I would participate if the teacher appreciated my effort	30	–	–	–	–
I do not participate due to shyness	20	10	–	–	–
I fear to talk in front of my mates	22	8	–	–	–
I have low confidence in public speaking	18	12	–	–	–
I fear that my mates judge me on my response	21	9	–	–	–
I am more contributing to Group Work	24	6	–	–	–
How do you feel when a teacher asks you a question?	–	–	12	16	2

Subsequently, one-on-one interactions were initiated with a focused group of 10 students by inviting them to the office. These interactions provided sufficient insight into the reasons for students' reluctance to participate in class. Similarly, the study emphasizes the importance of informed student-faculty contact to better understand students' issues in the classroom [13]. Through these interactions, clearer results emerged, identifying common concerns such as peer judgment, low self-esteem, fear of making mistakes in front of peers, and lack of confidence.

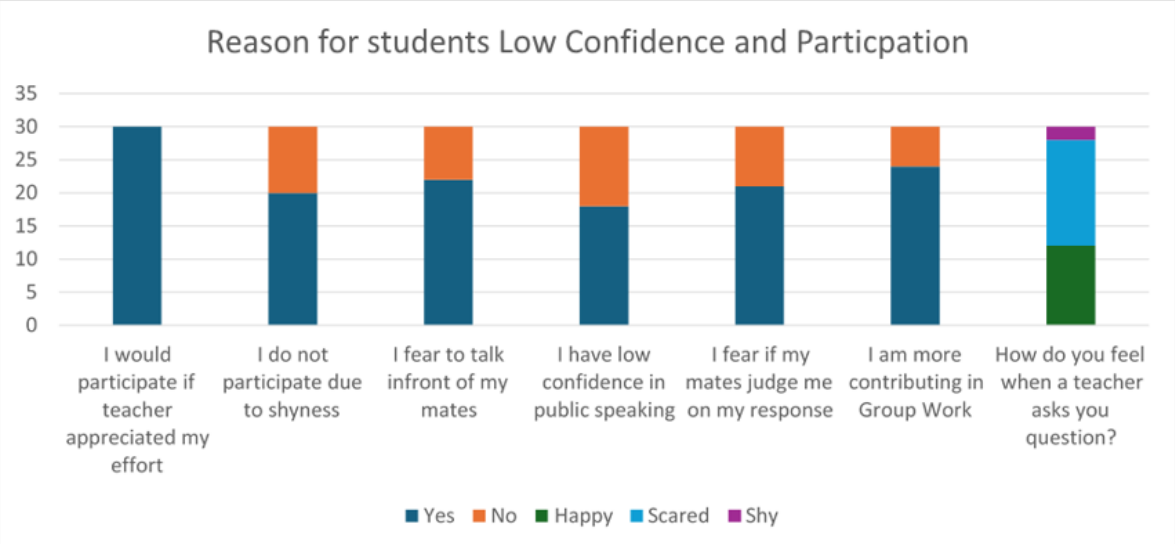

Figure 3: Reason for students' low confidence and Participation

To investigate the factors influencing classroom participation and student confidence, a comprehensive survey was conducted across the entire class. The results indicated that 85% of students

reported a lack of confidence, which significantly impacted their willingness to participate in classroom activities. Additionally, 70% of respondents expressed a fear of speaking in front of large groups, and 80% identified low self-esteem as a contributing factor to their limited engagement. These findings aligned closely with the patterns observed in an earlier focus group discussion. A subsequent survey was administered deeper into the underlying causes of diminished participation and confidence, reaffirming the trends initially identified. Figure 1 presents a visual representation of the issues affecting student engagement. Following this, a pre-survey was carried out in the subsequent academic semester using a structured questionnaire designed to further assess the factors influencing student behavior in classroom settings.

Table 2: Students believe before and after the implementation of teaching strategies

Questions on	Before	After
Classroom presentations	80.8%	100%
Peer feedback sessions	84%	89.5%
Group problem solving	88.5%	84.2%
Talent show	73.1%	60%
Classroom leadership roles	69%	70%
Collaborative group projects	100%	90%
Recognizing strengths	76%	75%
Setting achievable goals	88%	85%
Providing constructive feedback	92%	100%
Role-playing and public speaking	77%	85%

Table 2 and Figure 4 provide valuable insights into the outcomes observed before and after the implementation of the teaching and learning strategies. Data in the "before" column reflect participants' perceptions of whether activities in specific areas could enhance their confidence prior to the implementation. In contrast, data in the "after" column were collected following the application of all strategies. These results offer important observations regarding the impact of the implemented strategies on enhancing students' self-confidence and active participation. A detailed analysis of the data presented in Table 2 is as follows:

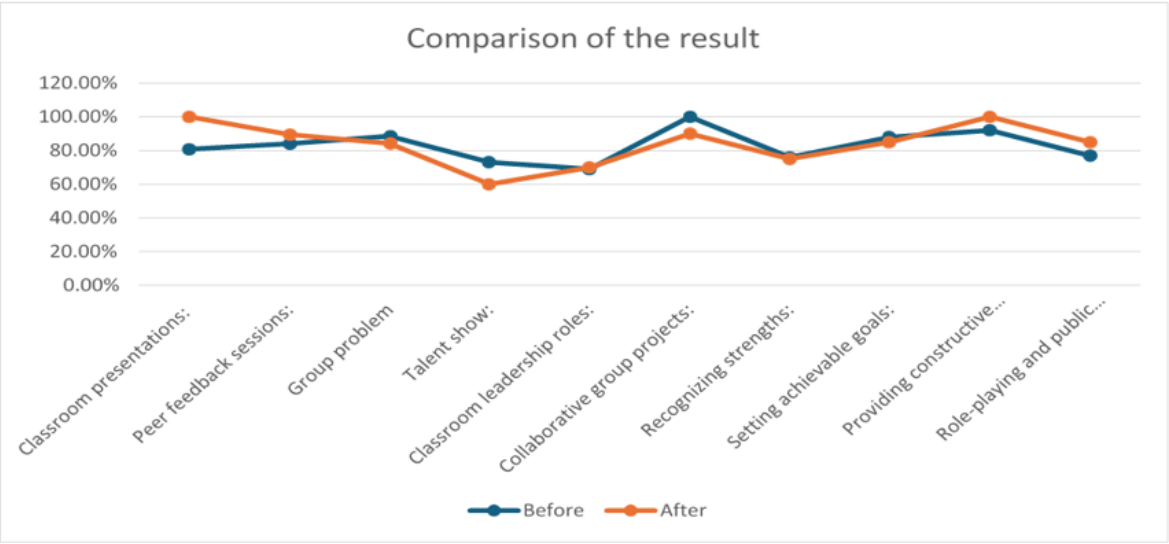

Figure 4: Comparative results

3.2.1 Positive Impact

Comparison of the data reveals a significant increase in student confidence, rising from 80% to 100%, indicating that classroom presentations are a crucial tool for enhancing students' confidence in public speaking, idea expression, and communication skills. Similarly, peer feedback showed an increase of approximately 6%, from 84% to 89.5%, suggesting that this activity fostered a vibrant environment encouraging critical thinking and acceptance of criticism from both peers and teachers, ultimately improving content quality and public speaking abilities.

A comparable trend is observed in constructive feedback from teachers, which increased from 92% to 100%. This underscores the importance of providing consistent and guided constructive feedback to build student confidence. Additionally, role-playing and public speaking activities showed an increase from 77% to 85%, demonstrating that such activities contribute to building confidence and improving academic performance. The activity implemented involved a 3-minute extempore speech presentation.

3.2.2 Mixed Impact

When comparing the data on group problem-solving activities, a slight decrease is observed, from 88% to 84%. Similarly, collaborative group projects experienced a decline of approximately 10%, dropping from 100% to 90%. Despite these minor decreases, the levels remain high and indicate significant potential, particularly in the context of teaching and learning in engineering. These slight drops may be attributed to challenges related to group dynamics and the demands of collaborative work, which can affect some students' performance and confidence. The activities conducted under these two categories involved problem-based learning (PBL) mini-projects.

3.2.3 Negative Impact

Talent shows exhibited a notable decrease from 73% to 60%. The activity involved students solving programming problems on the board and explaining their solutions to peers, showcasing their talent in problem analysis and coding. This setting may have created pressure by exposing students' fears, low self-esteem, and lack of confidence in a public environment, which could negatively impact their performance. Similarly, a comparable decline was observed in areas related to setting attainable goals and recognizing personal strengths.

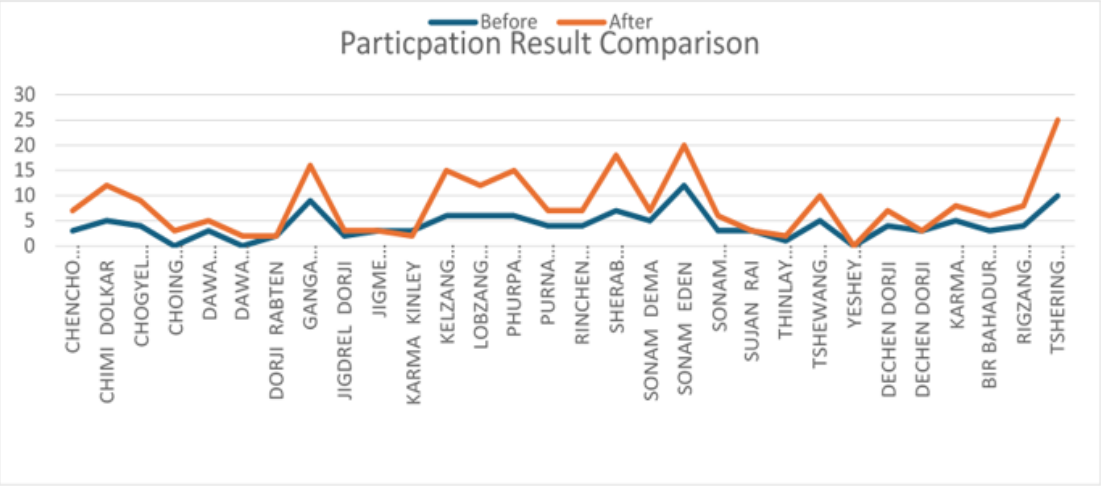

Figure 5: Results of participation in the class after implementation of techniques.

3.2.4 Minimal Impact

A comparison of the data for leadership roles reveals a minimal increase, from 69% to 70%, indicating only a slight improvement. This suggests that stronger support and guidance from the tutor are necessary to achieve a more significant impact. For the leadership activity, the class was divided into four groups, with leaders appointed on a rotational basis every three weeks until the end of the semester.

Following the implementation of all strategies, an interesting trend emerged in classroom participation compared to the initial stage. Table 3 and Figure 5 present the observed data collected throughout the semester.

Table 3: Student Progress Before and After the Program

Name of the Students	Before	After	Name of the Students	Before	After
Chencho Wangval	3	7	Rinchen Dema Tamang	4	7
Chimi Dolkar	5	12	Sherab Yangden	7	18
Chooyel Zangpo	4	9	Sonam Dema	5	7
Choing Rangdel	3	7	Sonam Eden	12	20
Dawa Choden Tshomo	3	5	Sonam Lhamo	3	6
Dawa Tshering Nesor	0	2	Sujan Rai	3	3
Dorji Rabten	2	8	Thinlay Nidup Dorji	1	2
Ganga Maya Thapa	9	16	Tshewang Norbu	5	10
Jigdrel Dorji	2	3	Yeshew Pelden	0	0
Jigme Tamang	3	6	Dawa Tshering	4	7
Karma Kinley	3	2	Dechen Dorji	3	3
Kelzang Dorji	6	15	Karma Gyeltshen	5	8
Lobzang Dorji	6	10	Bir Bahadur Duklung Rai	3	6
Phurpa Thinley	6	15	Rigzang Namgyel	4	8
Purna Bahadur Subba	4	7	Tshering Dargay	10	25

The duration of the study spanned one semester. An examination of Figure 5 indicates that approximately 80% of students improved their classroom participation following the implementation of the techniques.

4 Discussion

The analysis of the data presented above reveals that students in the class initially exhibited a lack of confidence, which significantly affected their participation and contribution to classroom activities. To address this issue, various techniques and strategies were implemented, including classroom presentations, feedback sessions, individual performance showcases, group work, and other activities designed to build confidence and enhance classroom engagement.

Among these, presentation techniques proved to be the most effective, followed closely by peer and teacher feedback, as well as role-playing and public speaking exercises. Presentations allow students to articulate their thoughts and ideas clearly while fostering critical thinking skills. Feedback plays a crucial role in boosting students' morale by encouraging them to accept constructive criticism and improve accordingly. Similarly, role-playing and public speaking activities help develop communication skills. Collectively, these methods contribute significantly to the development of both subject knowledge and self-confidence.

Group activities such as problem-based learning (PBL) projects and peer-to-peer teaching, which simulate real-world scenarios, also contributed substantially to learning despite showing slight de-

creases in effectiveness compared to initial data. These variations may be attributed to group dynamics, differences in skill levels among group members, stress related to teamwork, or the presence of free riders. Nevertheless, these strategies remain valuable for promoting confidence through idea sharing, task leadership, time management, and presentation skills.

Conversely, strategies like talent shows, goal setting, recognizing strengths, and leadership roles showed minimal or negative impacts. These outcomes could stem from factors such as student shyness, lack of focus, or stress induced by time-constrained goal-setting. However, these findings do not diminish the importance of these strategies, as they offer benefits such as increased motivation and confidence when goals are achieved, and improved performance through strength recognition.

At the conclusion of the study, it was evident that several factors contributed to the observed improvements in student performance and confidence. Initially, many students demonstrated shyness, low self-esteem, and minimal class participation, largely due to their negative self-perceptions. This aligns with findings by [24], which indicate that negative self-perception adversely affects learning capabilities. The implementation of diverse techniques, however, led to positive changes.

Furthermore, it is recommended that educators understand and engage with their students to identify individual strengths and weaknesses. Providing consistent support—such as constructive feedback, attentive listening, and fostering an environment where peer feedback is encouraged—helps students process feedback positively and build confidence over time.

Effective activity planning and organization are also critical. Ensuring that all students are actively involved, whether as presenters or attentive listeners, promotes inclusivity and confidence. Incorporating peer feedback sessions, QA periods, and quizzes after activities can maintain engagement and reinforce learning.

This study underscores the importance of recognizing that no single strategy suits all students, given variations in learning styles, cognitive abilities, and prior experiences. Employing diverse teaching methods tailored to student needs is essential for building confidence and academic performance.

Limitations of the study include its focus on a single class, absence of a control group, and lack of formal psychometric tools to measure confidence. Future research should examine longitudinal effects across diverse student populations.

5 Conclusion

In many current educational contexts, instructors often deliver lectures without fully assessing how well students grasp the material, reserving judgment until final evaluations reveal low performance. Therefore, it is increasingly crucial for educators to understand and address students' learning needs in order to help them reach their full potential. This study demonstrated that presentation, feedback, and role-playing strategies were particularly effective among the various methods employed, although other techniques also contributed significantly to building student confidence.

The enhancement of confidence was closely linked to improvements in academic performance and the development of essential skills such as speaking, communication, and problem-solving. This was evident through active student engagement and high achievement in academic tasks, exemplified by a pass rate of approximately 90% in the Microcontroller and Microprocessor module—a notable improvement compared to the typical pass rate of less than 60%.

Furthermore, feedback from peers, family members, and teachers played a vital role in fostering confidence, as it encouraged students to overcome fear of mistakes and learn constructively from others. Educators are advised to remain dynamic and employ diverse teaching methods tailored to students' learning abilities, thereby enhancing their confidence. For instance, students with higher confidence levels are more likely to participate actively, embrace challenges, and respond positively to criticism, all of which contribute to academic success.

Therefore, the implementation of presentation, feedback, and public speaking techniques led

to marked improvements in students' self-confidence and classroom participation. Educators are encouraged to adopt such strategies while remaining responsive to the diverse needs of learners. Further research is recommended to explore the long-term effects and broader applicability of these findings. Additionally, following the COVID-19 pandemic, the education system has seen a shift toward hybrid, online, and technology-driven teaching methods; future studies could examine how these evolving practices influence student confidence and learning outcomes.

For future work, I recommend the following areas:

1. Contextual adaptability: It is quite often felt to localize and contextualize the study across diverse cultures and institutions settings.
2. Students' perception can be studied to understand how students perceive self-confidence and its impact.
3. Measurement of the Impacts to evaluate the self-confidence of the students.
4. Sustainability of interventions on how long the intervention lasts and when to again intervene.

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