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Learning Gap Analysis: The Case of Academic Track Senior High School Students in Misamis Oriental, Philippines

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Abstract. This study aimed to explore the significant relationship between learning gaps and students' academic performance, focusing on observations made by teachers among students under the academic track. Data were collected through interviews with forty-one responses out of eighteen teachers, encompassed observed learning gaps, factors influencing these gaps, student academic performance (average grade), and interventions. Predominantly, knowledge-related gaps constituted 70.73%, motivational gaps at 29.27%, skills gaps at 34.15%, communication gaps at 12.20%, and environmental gaps at 7.32%. The primary factor contributing to learning gaps, identified by 48.78% of respondents, was a “lack of focus”, while 43.90% cited a “lack of motivation”. Prominent concerns affecting students included family issues (26.83%), frequent class absences (17.07%), learning disabilities (14.63%), antisocial behavior (14.63%), low family income (12.20%), and stress (7.32%). Teacher attitude/personality and the sudden shift to virtual learning due to the pandemic accounted for 4.88% each. Despite existing learning gaps, none of the sampled students scored "74 and below," suggesting an absence of severe underperformance. The most prevalent performance category was "80-84 (Satisfactory)," encompassing 78.05% of respondents. With a Chi-Square value of 20.945 ($p = 0.007$, below the 0.05 threshold), a statistically significant correlation between learning gaps and academic achievement emerged, resulting in the rejection of the null hypothesis. Furthermore, the integrated intervention framework, incorporating various strategies, aims to comprehensively address learning gaps and foster a student-centric approach in closing these gaps.
Keywords: Learning gaps discrepancy, Academic track, factors, performance, interventions

1. Introduction

Every child deserves a high-quality education that challenges them and helps them reach their full academic potential. This is most likely the goal of every classroom, according to parents, teachers, and school administrators. However, putting this ideal into action is not as simple as it appears. In the classroom, every learner aspires to acquire knowledge and develop analytical skills. He has his own behavior, capabilities, attitudes and learning style which are different from his peers (Alia & Dolotallas, 2018). Learning

is based on educational building blocks (in the sense that new knowledge “builds” upon previous concepts that have been taught). Teachers must cover a lot of content each year, and sometimes the class needs to move on to the next chapter (Hegwood, 2022). During recent years, the role of educational resources has undergone a metamorphosis. The changes have not only transformed media, but they have also distributed production of and access to digital resources while altering fundamentally how, when, and for what purposes resources are created and used (Mota, 2021). However, not every student learns at the same pace, which is why what begins with a minor learning gap can eventually become a more serious problem. If a student does not fully understand it, the concepts relayed are likely to be even more difficult to grasp. This is how learning gaps emerge (Christopher & Leemarc, 2021; Pairat et.al., 2024).

The word "learning gap" has been a common term we hear frequently in the world of education. When a student begins to struggle or fall behind in their academic progression, we frequently refer to learning gaps as the reason why they are having difficulty understanding the material. Learning gaps are defined as the difference between what learners should have acquired at a specific grade level and what they have learned up to that time. These learning gaps are frequently accumulating, which means that if they are not addressed quickly, learners will likely fall farther behind because of the skills and knowledge they have lost (Macasinag and Camacho, 2023). Since the learning gap has been an issue in education across the globe, many researchers and educators are trying to find solutions to address the problem to close the identified gap among students. Unfortunately, despite the recommended solution, learning gaps continued to escalate due to several factors. As per advice by several educational experts, identifying learning gaps should be the first step any tutor or academic coach or teacher takes to create individualized plan for the student moving forward. Teachers from any school abide by the curriculum, there are way too many programs and expectations that teachers are required to learn, teach, implement, and then assess. According to Welcome (2021), following the curriculum on how and what to teach is not enough. If we don’t constantly prioritize what’s most important for the students, everyone is going to be hanging on by a thread. If your students have gaps in their learning, we as teachers must focus on targeting our instruction towards closing those gaps one step at a time. He added that once your students’ learning gaps are identified, being able to introduce Tier I interventions for them is the first step. In some cases, Tier II interventions with small groups of students might be required in order to bridge a learning gap. If that’s not the case, identifying individual student needs and moving to Tier III interventions is paramount (Welcome, 2021).

Learning gaps occur at any grade level and are one of education's difficult challenges. Researchers were motivated to conduct these studies because learning these topics will assist any aspiring teacher in dealing with their students struggling with these gaps of learning. This study can assist educators in identifying where students may be lacking essential information and skills, allowing interventions to be implemented to ensure that all students have an equal opportunity to succeed.

2.Methodology

This study utilized both qualitative and quantitative methods. This method involved researchers integrating elements of both qualitative and quantitative research approaches, such as employing diverse viewpoints, data collection techniques, analysis methods, and inference techniques. The overarching aim was to achieve a comprehensive understanding and verification of the research findings (Schoonenboom and Johnson, 2017). In the collection and analysis of data, quantitative research focused on numbers and statistics, while qualitative research centered on words and meanings. Consequently, the use of both methods facilitated the acquisition of detailed and comprehensive data, along with an interpretation of the data.

2.1 Participants

The study was grounded in the commonly observed learning gaps among students as reported by teachers. The respondents of the study consisted of ten (10) teachers at Lugait Senior High School and eight (8) teachers at Maputi Senior High School under the academic track. Specifically, teachers serving as academic track advisers were chosen to provide responses to the prepared set of questions by the researchers based on predefined criteria. The decision to focus on teachers rather than students was deliberate, considering recent research indicating students may lack awareness of the manifestation of learning gaps among themselves.

2.2 Data collection

By choosing academic track advisory teachers, the researchers aimed to ensure a more objective and unbiased perspective in answering the questionnaire, thus enhancing the reliability and accuracy of the findings of the study. The researchers obtained an approval letter from the school principals and teachers at Lugait Senior High School and Maputi Senior High School, granting permission to conduct the study. Once permission was secured, the researchers elucidated the purpose of the study to the respondents, ensuring alignment with predefined criteria, before commencing data collection. Data collection for this study was facilitated through a checklist questionnaire designed to explore factors contributing to learning gaps among students. The questionnaire also captured students' academic performance by obtaining their average grades. To gain a more understanding, an open-ended question format was employed, requesting respondents, who were the teachers, to articulate observed learning gaps among students and describe the steps taken to address and intervene in bridging these gaps. Following data collection, a thorough analysis was conducted to derive insights into the identified learning gaps, their manifestations, and the efficacy of interventions implemented by teachers. This approach aimed to provide a comprehensive overview of the factors influencing learning gaps and the strategies employed by educators to address them. To obtain the necessary data, the researchers employed two types of questionnaires. The questionnaire comprised two types of questions: a checklist questionnaire and an open-ended questionnaire. The former focused on structured responses, while the latter encouraged qualitative insights. This dual-question format aimed to capture both quantitative and qualitative perspectives, providing a comprehensive understanding of the factors contributing to learning gaps among students. To ensure authenticity, the researchers used mobile phones to record and film participants as they responded to the open-ended questionnaire. This comprehensive approach aimed to gather a rich dataset that encompassed both quantitative and qualitative perspectives, enhancing the study's depth and accuracy.

2.2 Data analysis

The results utilized statistical tools such as mean, percentage, and Chi-Square. Thematic analysis was employed in the first and last statements of the problem to analyze qualitative data. During thematic analysis, researchers utilized codes, which were essential in establishing themes.

3. Findings

The learning gap analysis: the case of academic track senior high school students as basis for intervention program was investigated. The following section presents the results after analysis of the data.

The analysis of the data, as depicted in Figure 1, provides a comprehensive the predominant learning gap is related to knowledge, constituting 70.73% of the observed gaps. This high percentage indicates a substantial need for reinforcing fundamental concepts and content among students. This finding underscores a critical need for

reinforcing fundamental concepts and content within academic curricula. Specifically, two prominent areas of knowledge gaps emerge: struggles in understanding basic mathematical operations, and difficulties comprehending fundamental concepts in chemistry and physics.

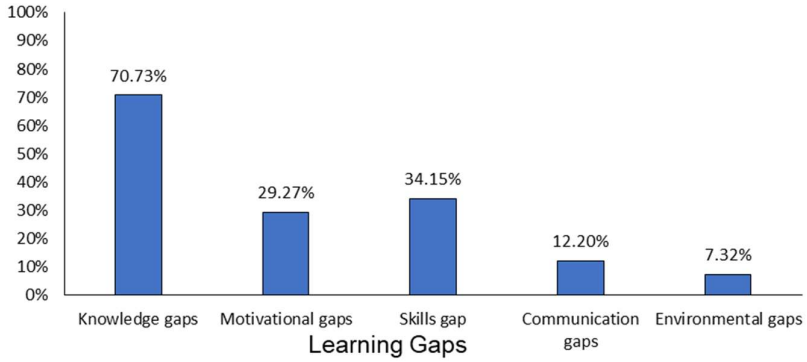

Figure 1. The Percentage Distribution of Identified Learning Gaps observed by Teachers among The Students

Firstly, the challenge in grasping basic mathematical operations suggests a deficiency in foundational numeracy skills among students. Such skills are essential for success across various academic disciplines and real-world applications. Mathematical literacy serves as a cornerstone for problem-solving, critical thinking, and analytical reasoning (Maslihah et.al., 2020). Therefore, addressing this gap is crucial to equip students with the essential skills needed for academic progression and future endeavors. Secondly, the observed struggles in understanding basic concepts in chemistry and physics highlight potential shortcomings in scientific literacy. These subjects play a pivotal role in developing students' understanding of the natural world, scientific phenomena, and principles governing physical processes. Proficiency in chemistry and physics is vital not only for academic achievement but also for fostering scientific inquiry, innovation, and informed decision-making in society (Pellegrino and Hilton, 2012)

In light of these findings, addressing knowledge-related gaps becomes imperative for educators and educational institutions. Strategies aimed at reinforcing foundational mathematical skills and enhancing conceptual understanding in chemistry and physics should be prioritized (Columbano, 2019). Such interventions may include targeted instruction, differentiated learning activities, and hands-on experiential learning opportunities tailored to meet the diverse needs of students (Gentry et al., 2013) by addressing these knowledge gaps, educators can ensure a solid foundation for academic progression, facilitating students' overall success and competence in their educational journey and beyond.

Simultaneously, the analysis reveals that motivational gaps constitute a significant proportion, accounting for 29.27% of the observed disparities among students. This finding underscores a notable challenge in student engagement and enthusiasm towards learning. Two distinct manifestations of motivational gaps are evident: firstly, a lack of motivation or desire to learn concepts, and secondly, a tendency among students to prioritize passing subjects over understanding them, reflecting a perceived lack of value in learning.

The lack of motivation or desire to learn concepts suggests a disconnect between students' interests and the content being taught (Rone et al., 2023). This may stem from a variety of factors, including disengagement with traditional teaching methods, a perceived lack of relevance of the curriculum to students' lives, or personal challenges outside of the academic environment. Addressing this gap requires educators to adopt strategies that

foster intrinsic motivation, such as incorporating student-centered approaches, providing choice and autonomy in learning tasks, and tapping into students' interests and passions (Ferlazzo, 2023). Similarly, the focus on passing subjects rather than understanding them indicates a surface-level approach to learning, driven primarily by extrinsic rewards such as grades or external pressures. This mindset may hinder deeper comprehension and critical thinking skills essential for long-term academic success and real-world application of knowledge. To counteract this trend, educators must emphasize the intrinsic value of learning, fostering a growth mindset and a culture of curiosity and inquiry within the classroom (Suman, 2023). Additionally, providing meaningful feedback that emphasizes the process of learning rather than just outcomes can help shift students' focus towards understanding and mastery rather than mere achievement (Yang et al., 2021).

Efforts to enhance motivation should encompass a holistic approach that considers both individual student needs and broader classroom dynamics. Incorporating interactive teaching methods, real-world applications, and experiential learning opportunities can help create a positive and inspiring learning environment that engages students and instills a sense of purpose and relevance in their academic pursuits (Rowell and Hong, 2013). By addressing motivational gaps, educators can empower students to become active and enthusiastic participants in their own learning journey, ultimately fostering a culture of lifelong learning and personal growth (Boonstra et al., 2020).

Moreover, the presence of skills gap, representing 34.15% of observed disparities among students, underscores deficiencies in foundational literacy and language skills. These include challenges with reading, spelling, comprehension, vocabulary, and sentence construction. Addressing these gaps requires targeted interventions such as explicit instruction, practice activities, and support tailored to individual student needs (Geel et al., 2022). Implementing targeted skill development initiatives and practical exercises tailored to address these specific areas of the skills gap is crucial for effectively bridging the divide and equipping students with the competencies necessary for academic success.

The presence of communication gaps, comprising 12.20% of observed disparities among students, signifies challenges in both expressing ideas effectively and understanding instructions. One key manifestation of this gap is the difficulty students face in articulating their thoughts clearly and concisely. Such challenges can hinder effective communication, impacting students' ability to convey their ideas accurately and engage meaningfully in academic discourse. These difficulties may arise from various factors, including language barriers, limited vocabulary, or insufficient practice in verbal expression. To address this aspect of the communication gap, educators can implement strategies aimed at improving students' verbal communication skills (Boomer, 2023). This may involve providing opportunities for structured practice in articulating thoughts, such as through class discussions, oral presentations, and debate activities.

While environmental gaps constitute a smaller percentage at 7.32%, their presence highlights aspects within the learning environment that may hinder student progress. One notable manifestation of environmental gaps is the disparities in access to learning resources, including textbooks and technology, both within the school setting and at home. Such discrepancies can arise due to various factors, such as socioeconomic disparities, inadequate funding for educational resources, or geographic limitations (Amin et al., 2023). These disparities may hinder students' ability to fully engage with the curriculum and access supplementary materials necessary for academic success. It is essential to address these environmental factors, which could include improvements in classroom infrastructure and ensuring a conducive and inclusive learning atmosphere.

In the educational landscape, teachers often encounter a range of learning gaps among students, which necessitate tailored interventions to bridge these I disparities. This discussion explains different types of learning gaps observed in the classroom and the corresponding strategies teachers use to address them.

Table 1. Types of Learning Gaps Observed by Teachers among the Students and their Corresponding intervention

Types of Learning Gaps Observed by Teachers Among the Students	Corresponding Intervention Used by the Teachers
Knowledge Gaps: ● Struggle to understand basic mathematical operation ● Struggle to understand basic chemistry and physics concepts.	● Break down mathematical concepts into smaller, more manageable steps, providing clear explanations and demonstrations. ● I provided additional resources such as video tutorials, simulations, or interactive online modules to supplement classroom instruction and accommodate different learning styles.
Motivational Gaps: ● Students lack of motivation or desire to learn concepts. ● They focused on just passing the subject than understanding them. Students do not give value in learning.	● I make lessons fun by connecting them to students' interests and real-life experiences, and I encourage hands-on activities and group discussions. I emphasize learning for personal growth and success, helping students set goals, take ownership of their learning, and value effort over grades. I also show how learning can help them achieve their dreams and make a positive impact in their communities.
Skills Gaps: ● Slow readers/ unable to read ● Unable to spell ● Inability to understand what they have read ● Limited vocabulary/ sentence construction	● For slow readers or students unable to read, I provide personalized support through one-on-one reading sessions, where we work on building foundational reading skills such as phonics and sight words. ● To support students unable to spell, I implement regular spelling practice sessions. ● As part of my instructional approach, I integrate explicit reading comprehension strategies into our lessons. For instance, I guide students in predicting what might happen next in a text, summarizing key information to ensure understanding, encouraging them to ask questions to deepen their comprehension, and prompting them to clarify any confusing parts. ● In my classroom, I incorporate vocabulary-building activities like word walls, vocabulary journals, and context clues exercises to help students expand their word knowledge.
Communication Gaps: ● Difficulties in articulating their thoughts. ● Students find it challenging to express their ideas clearly and concisely.	● I help students struggling to express their thoughts by teaching them how to organize ideas, starting with brainstorming and simple outlines. I create a supportive environment where they feel comfortable expressing themselves without fear of judgment, and I give constructive feedback to improve their communication skills over time.
Environmental Gaps: ● Disparities in access to learning resources such textbooks, technology both school and at home. ● Limited availability in terms of learning materials.	● As a teacher, I understand the importance of access to learning resources for all students. To address limited availability of materials, I provide support by allowing students to use my printer and paper when needed, especially if other teachers require printed materials. This ensures that all students have equal opportunities to access the resources they need to succeed in their studies. Additionally, I collaborate with colleagues and school administrators to find long-term solutions to improve access to learning materials for all students.

Teachers identify knowledge gaps when students struggle to grasp foundational concepts. For instance, some students have difficulty with basic mathematical operations or understanding elementary principles in chemistry and physics (Maslihah, 2020). To tackle these issues, teachers break down complex topics into smaller, manageable steps, offering clear explanations and practical demonstrations. Moreover, additional resources such as video tutorials, simulations, and interactive online modules are provided to cater to diverse learning styles, enhancing comprehension and retention of knowledge.

Another common issue is the lack of motivation among students, who often focus solely on passing rather than truly understanding the material. Teachers employ various methods to ignite interest and instill a genuine desire to learn. They create engaging lessons that relate to students' personal interests and real-world experiences, fostering a more enjoyable and meaningful learning environment. Through hands-on activities and group discussions, teachers encourage students to take ownership of their learning, emphasizing personal growth and effort over grades. They also inspire students to set goals and visualize how education can contribute to achieving their aspirations and making a positive impact in their communities.

In addition, teachers also encounter skills gaps, which manifest in students' struggles with reading, spelling, comprehension, or vocabulary. To support slow readers, personalized one-on-one sessions focus on foundational skills like phonics and sight words. For students who find spelling challenging, teachers incorporate regular practice sessions. Reading comprehension is improved through explicit strategies, such as predicting, summarizing, asking questions, and clarifying. Vocabulary-building activities, like word walls and vocabulary journals, aid in expanding students' word knowledge, thereby enhancing their ability to construct sentences effectively.

Communication gaps arise when students have difficulty articulating their thoughts clearly and concisely. Teachers address these gaps by teaching students to organize their ideas through brainstorming and simple outlines. A supportive classroom environment, where students feel safe to express themselves without fear of judgment, is crucial. Teachers provide constructive feedback to help students refine their communication skills over time, fostering a culture of open dialogue and mutual respect.

Lastly, environmental gaps refer to disparities in access to learning resources, such as textbooks and technology. These gaps can significantly impact a student's ability to succeed academically. Teachers mitigate these challenges by providing additional resources, like printing services, to ensure all students have equal opportunities to access the materials they need. Moreover, teachers collaborate with colleagues and school administrators to find long-term solutions to improve resource availability, promoting equity and inclusivity in education.

In summary, teachers play a pivotal role in identifying and addressing various learning gaps. Through targeted interventions, they create an inclusive educational environment that supports all students in reaching their full potential.

Table 2 shows the analysis of factors affecting learning gaps among students, reveals a range of challenges that contribute to disparities in educational outcomes. The most prevalent factor, Lack of Focus, identified by 48.78% of respondents, indicates a significant challenge among students in maintaining attention and concentration during academic endeavors. This issue may stem from various factors such as distractions in the classroom, personal disengagement, or underlying attention disorders. For instance, students may struggle to focus due to excessive use of digital devices, external noise, or lack of interest in the subject matter (Limniou, 2021). Addressing this issue requires implementing targeted interventions, such as incorporating interactive teaching methods, providing frequent breaks, or offering mindfulness exercises to help students develop concentration skills and improve their focus in academic settings (Dgebuadze, 2017).

Following closely, Lack of Motivation, identified by 43.90% of respondents, underscores the importance of fostering a positive and enthusiastic approach to learning among students. Motivation plays a crucial role in driving academic success, and its absence may be attributed to factors such as a lack of clear goals, disengagement with the curriculum, or personal challenges outside of school (Curry et al, 2021). For example, students may lack motivation due to feelings of inadequacy, fear of failure, or limited recognition of the relevance of academic pursuits to their future goals. Implementing motivational programs, providing personalized support, and offering opportunities for student voice and choice in learning activities can help address this challenge and cultivate a more motivated and engaged student body (Gieras, 2020).

Family issues emerge as a notable factor affecting 26.83% of students, highlighting the profound impact of familial dynamics on students' emotional well-being and academic performance. Family-related challenges such as parental divorce, financial instability, or caregiver responsibilities may disrupt students' ability to focus on their studies and engage effectively in the learning process (Emery et al., 2019). For instance, students experiencing family issues may exhibit signs of emotional distress, withdrawal, or inconsistent attendance. In such cases, creating a supportive and empathetic classroom environment, offering access to counseling services, and collaborating with families to provide additional support can help mitigate the impact of family-related stressors on students' academic success.

"Frequently misses the class," identified as a contributing factor by 17.07% of respondents, can stem from various reasons such as health issues, family responsibilities, or disengagement with school. For example, students may miss class due to chronic illnesses, lack of reliable transportation, or caregiving responsibilities at home. Addressing attendance issues requires a multifaceted approach that involves identifying and mitigating barriers to regular class attendance (Schmidt, 2023). "Learning disability," impacting 14.63% of students, presents challenges related to processing information, understanding instructions, and completing academic tasks. Providing accommodations such as extended time on tests, preferential seating, or access to assistive technology can help support students with learning disabilities and ensure equitable learning opportunities.

"Antisocial behavior," affecting 14.63% of students, may manifest as disruptive behavior, defiance towards authority, or social withdrawal. This behavior may stem from underlying emotional or behavioral issues, peer influences, or a lack of social skills. For example, students may exhibit antisocial behavior due to feelings of insecurity, past traumas, or challenges in forming positive relationships with peers and teachers. Addressing antisocial behavior requires implementing strategies to promote positive social-emotional development, such as social skills training, conflict resolution techniques, and individualized behavior support plans (De Wit-De Visser et al., 2023) "Economic factors such as low family income level," impacting 12.20% of students, underscore the role of socio-economic conditions in shaping educational experiences. Students from low-income households may face challenges such as limited access to educational resources, inadequate nutrition, or unstable housing situations (Munir, 2023).

The most prevalent factor, identified by 48.78% of respondents, is a "Lack of Focus." This suggests that a significant portion of students may struggle with maintaining attention and concentration during their academic endeavors. Addressing this issue may require targeted interventions such as improved classroom engagement strategies and support for students in developing concentration skills.

"Stress" is identified by 7.32% of respondents, suggesting that a subset of students experiences heightened stress levels that can hinder their ability to engage effectively in learning. For instance, students may exhibit symptoms of stress such as irritability, restlessness, or fatigue, particularly during high-pressure situations such as exams or deadlines. Implementing stress-management programs, such as relaxation techniques,

mindfulness practices, and promoting a culture of self-care and well-being can help students cope with academic stressors more effectively (Sawyer, 2023). Creating a supportive environment where students feel comfortable seeking help and expressing their concerns can also contribute to reducing stress levels and promoting overall resilience.

Finally, "Teacher's attitude/personality" (4.88%) and "Due to pandemic and sudden switch to virtual" (4.88%) are identified as contributing factors. These findings highlight the significance of the learning environment and the need for understanding and flexibility, especially in the context of unforeseen challenges like the pandemic-induced shift to virtual learning. For example, a teacher's demeanor, communication style, and approachability can significantly impact students' motivation, engagement, and overall learning experience (Cinches et al., 2017). Similarly, the sudden transition to virtual learning may pose challenges such as technological barriers, social isolation, and difficulties in adapting to new instructional methods (Namiri et al., 2022). Recognizing the importance of teacher-student relationships, fostering a positive classroom climate, and providing support and resources to navigate virtual learning environments are essential in addressing these factors and promoting student success amidst changing circumstances.

Therefore, the data underscores the diverse array of challenges students face, emphasizing the need for a comprehensive and individualized approach to address learning gaps. Educational institutions should consider implementing targeted interventions, support programs, and a holistic support system to foster an inclusive and conducive learning environment for all students.

Table 2. Frequency and Percentage Distribution of Factors that Influences the Occurrence of Learning Gaps among Students

Factors Affecting Learning Gaps	Frequency	Percentage
Lack of Focus	20	48.78%
Lack of Motivation	18	43.90%
Family issue	11	26.83%
Frequently misses the class	7	17.07%
Learning disability	6	14.63%
Antisocial	6	14.63%
Low family income level	5	12.20%
Stress	3	7.32%
Teacher's attitude/personality	2	4.88%
Due to pandemic and sudden switch to virtual	2	4.88%

Figure 2 provides a comprehensive overview of the percentage distribution of academic performance among respondents who reported experiencing learning gaps. Starting from the highest performance category, it's noteworthy that 14.63% of respondents scored within the "85-89 (Very Satisfactory)" range, surpassing basic expectations despite facing learning gaps. This finding highlights the resilience and potential for success among students, indicating that effective strategies exist for overcoming learning challenges. Studying the factors that contribute to their success could provide valuable insights into methods for academic excellence that can be easily applied in similar situations, even when there are learning gaps.

Moving to the "80-84 (Satisfactory)" range, a significant majority of 78.05% of respondents achieved satisfactory performance levels despite experiencing learning gaps. This suggests that many students are effectively navigating their learning challenges, meeting basic academic expectations. Understanding how these students are managing to succeed despite obstacles could inform broader approaches to supporting students facing similar challenges.

In the "75-79 (Fairly Satisfactory)" range, a smaller percentage of 7.32% of respondents fell into this category. While their performance remains within an acceptable range, it's worth exploring whether specific learning gaps contribute to this moderate level of achievement. Targeted support measures may further enhance their performance and help bridge any identified gaps.

Notably, there were no students falling below the "74 and below (Did not meet the expectation)" threshold. This absence suggests that, despite facing learning gaps, none of the students in the sample scored at a level signifying severe academic under-performance. However, it's essential to recognize that absence in this category does not necessarily indicate absence of struggles; rather, it may reflect effective interventions or support systems in place to prevent extreme academic challenges.

Overall, the distribution of performance categories indicates varying levels of success among students facing learning gaps. While some excel despite obstacles, others may benefit from targeted support to enhance their performance. Understanding the factors contributing to student success across different performance categories can inform tailored interventions and strategies to promote academic achievement for all students, regardless of learning challenges they may face.

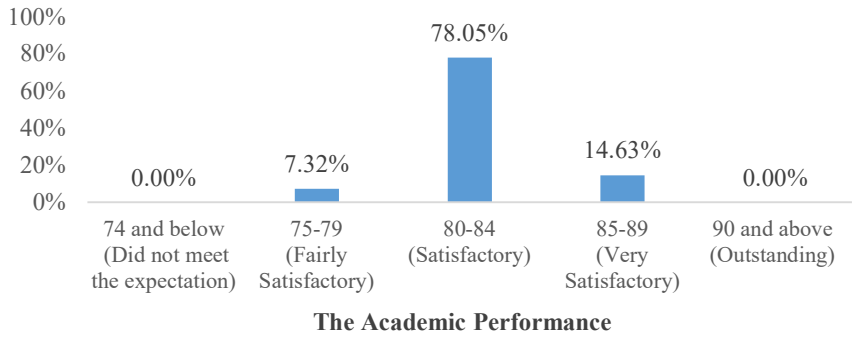

Figure 2. The Academic Performance of the Students

Table 3 presents the statistical analysis of the relationship between learning gaps and academic performance, The statistical analysis conducted using the Chi-Square (X^2) test provides strong evidence of a significant connection between learning gaps and academic performance.

Specifically, the Chi-Square value of 20.945 and the associated p-value of 0.007 both fall below the standard threshold of 0.05, leading us to reject the null hypothesis. This suggests that the link observed between learning gaps and academic performance is highly unlikely to occur by random chance.

This significant relationship highlights how the challenges students face in their learning experiences directly affect their academic outcomes. Learning gaps encompass various difficulties, such as struggles with focus, motivation, and family-related issues. These challenges clearly hinder students' ability to meet academic expectations, as indicated by the results of the Chi-Square test.

This finding aligns with established educational theories, such as socio-ecological theory, which emphasize the complex interplay of factors influencing academic achievement (Shams, 2018). According to this theory, students' academic performance is influenced by a combination of individual traits, family dynamics, school environments, and broader societal contexts. Consequently, learning gaps across these areas are expected to have a noticeable impact on academic outcomes.

The statistical significance of this relationship underscores the importance of taking a comprehensive approach to addressing learning gaps in education. By understanding and addressing the root causes of these gaps, whether they involve issues with focus, motivation, family circumstances, or other factors, educators and policymakers can implement targeted interventions to improve student academic performance. These interventions may include using effective teaching strategies to enhance student engagement, providing support services to address family-related stressors, and making systemic changes to create a supportive learning environment.

Ultimately, by actively addressing learning gaps, educators can help ensure that all students have equal opportunities to succeed academically and reach their full potential.

Table 3. Relationship between Learning Gaps and Academic Performance

Relationship	Chi Square (X^2)	p-value	remarks
Learning Gaps			
	20.945	0.007	Significant
Academic Performance			

The implementation of a comprehensive intervention strategy encompasses various components, each targeting specific aspects of student development and academic success. Remedial instruction plays a pivotal role in addressing individual learning gaps, providing tailored support to students encountering academic challenges (Sinha et al., 2024). This personalized approach allows educators to identify and bridge foundational knowledge and skill deficiencies, ensuring a strong academic foundation. Concurrently, communication skills enhancement interventions foster an environment where students not only absorb knowledge but also refine their abilities to articulate ideas effectively. This emphasis on communication contributes to a holistic educational experience, preparing students for successful interactions in academic and real-world contexts (Sugito et al., 2017).

Moreover, strategies promoting student engagement and motivation are integral to sustaining a positive and participatory learning atmosphere. By aligning lessons with student interests and incorporating motivational activities, educators stimulate a sense of enthusiasm, potentially reducing the risk of disengagement (Gieras, 2020). Individualized support and monitoring mechanisms, including one-on-one discussions and home visitations, underscore the importance of recognizing and addressing unique student needs. These interventions strengthen the teacher-student relationship, creating a support network that extends beyond the classroom.

Instructional strategies and differentiation further enhance the intervention framework by accommodating diverse learning styles and addressing specific challenges. This approach allows educators to tailor their teaching methods to match individual learning preferences, ensuring that each student receives instruction in a manner conducive to their academic growth. It was concluded that determining the student's present ability is beneficial to develop effective intervention materials. It was suggested that the school leaders and program specialists should develop faculty and student support programs ideally to uplift the student's literacy (Pocaan et al., 2022). Reading intervention programs contribute to literacy development, fostering a culture of daily reading practices and a deeper understanding of diverse texts.

Basic needs support is a fundamental component, acknowledging that addressing students' non-academic needs is crucial for effective learning (Balzer et al., 2020). By providing resources such as meals, textbooks, and transportation assistance, educators create an environment where students can focus on their studies without the burden of unmet basic needs.

Simultaneously, interventions that minimize distractions, such as confiscating gadgets during class, contribute to creating a focused and disciplined learning environment. While this strategy may be met with some challenges, it underscores the importance of maintaining an atmosphere conducive to effective learning.

Teachers employ a multifaceted approach to address learning gaps, starting with private discussions to understand individual challenges and tailor support accordingly. Remedial classes play a pivotal role, incorporating reinforcement, memory verse activities, and the removal of distractions to create a focused learning environment. Additionally, fostering a positive learning atmosphere involves small group discussions, written reflections, and aligning lessons with student interests. Comprehension strategies are emphasized, with instructors guiding students in various approaches to build fundamental skills for better understanding and retention.

Recognizing the diverse needs within the student population, tailored approaches such as remedial reading and peer tutoring are implemented to address non-readers and slow learners (Sari, 2023). Motivational strategies, including rewards for meeting deadlines and countering procrastination, aim to enhance students' motivation and time management skills. Individualized support takes the form of observing and monitoring students, providing remediation, and engaging in private talks with both students and parents.

Efforts to enhance vocabulary and reading skills involve word-awareness activities, context clues, regular reading sessions, and memory verse activities. Strategies also extend to real-life applications of knowledge, with math problems related to practical situations and oral presentations assigned to improve communication skills. Differentiated instruction, guided by pre-assessments to identify gaps, ensures a targeted and individualized approach to teaching (Sari, 2023). Home visitation underscores a commitment to reaching students in their personal environments, providing additional support beyond the classroom.

Table 4 Teachers Implemented to Help Students' Bridge the Learning Gap

Interventions	Application of the Intervention
Remedial Instruction	Remedial class to reinforce fundamental concepts, ensuring that students have a strong foundation upon which to build more advanced knowledge. Peer tutoring for slow learners
Communication Skills Enhancement	Encourage individual performance to enhance communication skills. Follow lectures with performance tasks for practical application
Student Engagement and Motivation	Reinforcement, motivate students to take down notes, help students establish a consistent study routine for efficient time.
Individualized Support and Monitoring	Observe and monitor students, offering remediation, private talk with the students and parents. Home visitation.
Instructional Strategies and Differentiation	Use pre-assessments to identify gaps and customize interventions for differentiated instruction and extra support.
Reading Intervention	Strengthen reading habit, reading tutorials, explaining memory verses, poem (read and then analyze the message of the poem) enhance vocabulary by introducing terms in context, read diverse texts to discuss new words, and enhance fluency through regular reading aloud in small groups or individually.
Basic Needs Support	Aid with basic needs such as meals, school supplies, textbooks, and transportation, especially students who are in need, so that he will be encouraged to continue.
Minimizes Distractions	Establishing clear rules regarding gadget use and confiscating gadgets to minimize distractions, allowing students to concentrate on the lesson and class activities.

Furthermore, the inclusion of psycho-educational support reflects an understanding of the importance of addressing both psychological and educational aspects to comprehensively support students. In summary, these interventions collectively represent a holistic and varied approach by teachers, aiming to create an inclusive and supportive learning environment for all students. The emphasis on real-life application, communication skills, and understanding individual needs contributes to a comprehensive strategy for addressing learning gaps effectively.

Based on the above results, the intervention program proposed by the researchers are the following:

Targeted Remediation

Conduct focused remedial sessions for students who need extra help with fundamental concepts, particularly in math and reading. This might include reviewing basic skills, conducting practice exercises, and using interactive tools to reinforce learning. Schedule regular sessions after school or during lunch breaks, with a small group of students who require additional support. Engage peer tutors or teaching assistants to work with these students.

Communication Development

Enhance students' communication skills through activities that require public speaking, group discussions, and presentations. Integrate communication tasks into the curriculum, such as class debates, storytelling sessions, and role-playing activities. Provide feedback and guidance to improve clarity and confidence in speaking.

Engagement and Motivation

Increase student engagement by incorporating a variety of teaching methods and encouraging active participation. Use hands-on projects, group work, and multimedia resources to make lessons more engaging. Encourage students to maintain organized notebooks and set personal study goals. Offer small rewards for consistent effort and participation.

Individualized Support

Provide personalized attention to students who need it, including one-on-one sessions with teachers, counseling, and communication with parents. Monitor students' progress closely and identify those who might benefit from additional support. Arrange private meetings with students to discuss their challenges and goals. Involve parents through regular communication and, if necessary, arrange home visits to discuss the student's needs and progress.

Flexible Instruction

Adapt teaching methods to accommodate different learning styles and abilities. Begin with pre-assessments to understand each student's strengths and areas for improvement. Customize instruction, accordingly, offering alternative resources and additional support as needed. Include hands-on activities, visual aids, and collaborative projects to engage a wide range of learners.

Reading and Vocabulary Building

Foster a love of reading and enhance vocabulary through diverse reading materials and activities. Establish a classroom reading corner with a variety of books. Organize reading sessions where students can choose books of interest. Implement vocabulary-building exercises, such as word games and context-based learning. Encourage regular reading aloud to improve fluency.

Support for Basic Needs

Ensure students have access to basic resources, like meals and school supplies, to reduce barriers to learning. Partner with local organizations to provide meals, school supplies, and transportation for students in need. Create a discreet support system so students can receive help without stigma.

Minimizing Distractions

Create a focused learning environment by reducing distractions such as gadgets. Establish clear rules about gadget use during class and confiscate them when necessary. Provide alternative activities, like brain games or puzzles, to keep students engaged during breaks. Foster a classroom culture that values attention and respect.

The proposed intervention program aims to provide a comprehensive approach to supporting students' academic and personal growth, ensuring that every student has the tools and encouragement they need to success.

4.Conclusion

The results suggest that learning gaps in education often stem from a mix of knowledge deficits, motivational issues, skills shortages, communication challenges, and environmental factors. The significant knowledge gap, especially in math, chemistry, and physics, implies a need for reinforced foundational learning. Motivational gaps indicate that student engagement is critical, with nearly half of the observed learning disparities linked to a lack of focus and motivation. Family issues, class attendance, learning disabilities, and socioeconomic conditions also play pivotal roles in affecting learning outcomes. Teachers' attitudes and the shift to virtual learning during the pandemic further influence these gaps. The Chi-square analysis shows a significant correlation between learning gaps and academic achievement, reinforcing the idea that addressing these gaps is key to improving educational outcomes. Effective solutions like remedial instruction, communication skills enhancement, individualized support, and basic needs assistance are necessary to close these gaps. A holistic approach that considers students' academic, emotional, and environmental needs is crucial for a successful learning environment.

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