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Article

Influential Factors and Academic Performance in Special Education Environment

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Abstract: This study investigates the extent of influential factors on academic performance within an Individualized Education Program (IEP) and examines the relationship between these factors and learners' performance in English, Mathematics, and Science. The findings indicate a highly positive evaluation of the IEP's goals, instructional strategies, and monitoring and feedback processes. Specifically, the clarity and specificity of goals, suggesting that the goals are well-defined, measurable, and tailored to the individual needs of students. Similarly, the quality of instructional strategies, reflects strong satisfaction with evidence-based approaches that are personalized to the learner's styles and consistently implemented. Monitoring and feedback processes were also rated positively, indicating regular progress checks and detailed feedback, which contribute to effective adjustments in the IEP. Despite these positive evaluations, the analysis of learners' performance in core subjects reveals that the clarity of goals, instructional strategies, and feedback processes do not significantly correlate with academic performance, as indicated by low r-values and p-values exceeding 0.05. This suggests that other variables may play a more critical role in influencing academic outcomes. These findings underscore the need to explore additional factors that impact student performance, beyond the scope of the IEP's current focus.

Keywords: Individualized Education Program (IEP), Academic performance, English, Mathematics, Science performance

Introduction

Special education environments are designed to support students with disabilities, offering personalized learning plans that promote equitable access to education (Basham et al., 2020). These environments ensure that all students, regardless of their abilities, can participate meaningfully in the educational system. Special education plays a pivotal role in fostering inclusivity by addressing individual learning needs through tailored instructional approaches (Bryant et al., 2019). Studies highlight that an inclusive education system, integrating

special and mainstream education practices, can lead to optimal educational outcomes (Hornby, 2020). Ensuring equitable access in SPED settings is crucial for empowering students with disabilities to achieve independence and success (Zai et al., 2020).

Students in special education settings often face unique challenges, including learning disabilities, behavioral issues, and developmental disorders (Hurwitz et al., 2022). These conditions can impede academic progress unless adequately addressed through individualized supports and interventions. Learners with disabilities may also encounter social barriers, such as stigma and exclusion, which further complicate their educational experiences. The need for a comprehensive approach to address the diverse needs of students is critical, as traditional teaching methods may not suffice in supporting their growth (Ramirez et al., 2021). Behavioral challenges and developmental disorders can lead to difficulties in maintaining inclusive classroom environments, necessitating specialized strategies for both teaching and classroom management (Obiakor et al., 2022).

Academic performance in special education is influenced by numerous factors, including the type of disability, the quality of instructional methods, and the level of support provided. The diversity of student needs in SPED settings makes it essential to develop flexible teaching strategies that accommodate varying learning styles. Research underscores the importance of understanding how classroom environment, instructional approaches, and external factors, such as family support, impact academic outcomes (Gomez-Najarro, 2020). Tailored interventions that consider individual student characteristics and learning conditions are essential for promoting success in SPED settings (Moreno-Fernández et al., 2019).

A significant academic performance gap exists between students in special education and those in mainstream education. This gap is often attributed to factors such as inadequate inclusion practices, insufficient teacher training, and the varying needs of learners with disabilities (Arnaiz Sánchez et al., 2019). Inclusion policies that integrate students with disabilities into mainstream classrooms can sometimes exacerbate this gap if not properly managed, as general education teachers may lack the expertise needed to address complex student needs (Trainor et al., 2019). Classroom environment, teacher qualifications, and inclusion practices must be carefully aligned to reduce disparities in academic outcomes (Molina Roldán et al., 2021).

Identifying the factors that most influence academic outcomes in special education is essential for improving instructional strategies and policies. Understanding the roles of teacher competency, classroom management, and individualized support allows educators to adapt to the diverse needs of learners (Hornby, 2020). Effective intervention strategies rely on a nuanced understanding of each student's needs and a commitment to inclusive teaching practices that foster a supportive learning environment (Page et al., 2021).

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The findings of this study have the potential to influence educational policies, curriculum development, and teaching practices for special education. Highlighting the most impactful factors, educators, administrators, and policymakers can make informed, data-driven decisions to improve academic outcomes for learners in SPED environments. Integrating evidence-based strategies into school programs will not only enhance the quality of education for students with disabilities but also promote a more inclusive learning environment for all students. Furthermore, adopting these recommendations will help create a more equitable education system that benefits both SPED and mainstream learners.

Methodology

The descriptive research method was utilized in this study to examine the influential factors affecting the academic performance of students at Ormoc City SPED Integrated School in the Ormoc City Division. The research employed a structured questionnaire adapted from the works of Gargiulo & Bouck (2020), Yell et al. (2013), Vaughn et al. (2020), Ainscow & Sandill (2010), Loreman (2017), and Glanz et al. (2015). These sources were selected to address key themes such as individualized education programs that help the school to provide quality education. The data collection process involved distributing the questionnaires to the parents of students for completion, ensuring anonymity and confidentiality. The study applied a 5-point Likert scale to measure responses, ranging from "strongly agree" to "strongly disagree," to assess the extent of the influential factors. Statistical software was employed to analyze the collected data, using a significance level of 0.05 to test the relationship between influential factors and students' academic performance. The INPUT-PROCESS-OUTPUT (IPO) model guided the research framework, focusing on identifying inputs (influential factors), processes (data collection and analysis), and outputs (findings and an intervention plan). The results provided a foundation for crafting an intervention plan aimed at fostering a globally competitive environment in the special education setting. This methodology ensured a systematic approach to understanding how various factors impact academic outcomes, thus contributing to the improvement of teaching strategies and learning conditions in SPED environments.

Results and Discussion

Table 1. Clarity and Specificity of Goals

Clarity and Specificity of Goals	Mean	VD
The goals in the IEP are clearly defined and easy to understand.	5	SA
The goals are specific and measurable.	5	SA
The goals are tailored to the student's individual needs.	5	SA
The goals are realistic and achievable within the specified timeframe.	4.93	SA
The goals are reviewed and updated regularly based on the student's progress.	4.93	SA
Grand Mean	4.97	SA

The data presented in the table evaluates the extent to which the clarity and specificity of goals in an Individualized Education Program (IEP) influence academic performance. The results show very high satisfaction across all evaluated criteria, with each statement receiving a mean score close to or at 5, corresponding to "Strongly Agree" (SA). Specifically, the goals being clearly defined, easy to understand, specific, measurable, and tailored to the student's individual needs all received a perfect mean score of 5. Additionally, the goals being realistic, achievable, and regularly reviewed based on the student's progress scored slightly lower, with a mean of 4.93, but still within the "Strongly Agree" range. The grand mean of 4.97 indicates a consistent perception that the goals within the IEP are highly effective in being clear, specific, and well-suited to supporting student success. This suggests that stakeholders perceive the IEP goals as well-constructed and highly beneficial in guiding academic performance.

Table 2. Quality of Instructional Strategies

Quality of Instructional Strategies	Mean	VD
The instructional strategies are evidence-based and effective.	4.80	SA
The instructional strategies are clearly described in the IEP.	4.90	SA
The instructional strategies are tailored to the student's learning style.	4.77	SA
The instructional strategies are consistently implemented by educators.	4.8	SA
The instructional strategies include necessary accommodations and modifications.	4.83	SA
Grand Mean	4.82	SA

The data in the table assesses the quality of instructional strategies as outlined in an Individualized Education Program (IEP) and their impact on academic performance. All aspects of instructional strategies received high ratings, with mean scores ranging from 4.77 to 4.90, indicating a strong agreement (SA) among respondents regarding their effectiveness. The highest mean score of 4.90 was given to the clarity with which instructional strategies are described in the IEP, suggesting that stakeholders find the documentation of these strategies to be thorough and understandable. Instructional strategies being evidence-

based, effective, consistently implemented, and tailored to the student's learning style also received strong ratings, with scores close to 4.80. The inclusion of necessary accommodations and modifications in instructional strategies was also highly rated at 4.83. The grand mean of 4.82 reflects a consistently high level of satisfaction with the quality of instructional strategies, underscoring their perceived effectiveness in supporting individualized learning and academic success.

Table 3. Monitoring and Feedback

Monitoring and Feedback	Mean	VD
The IEP includes clear methods for monitoring the student's progress.	4.83	SA
Progress monitoring is conducted regularly and consistently.	4.70	SA
Feedback on the student's progress is detailed and informative.	4.83	SA
Adjustments to the IEP are made based on progress monitoring data.	4.80	SA
Students are also provided with feedback to help them understand their progress.	4.80	SA
Grand Mean	4.79	SA

The data in the table evaluates the effectiveness of monitoring and feedback mechanisms within an Individualized Education Program (IEP). All aspects of monitoring and feedback received high ratings, with mean scores ranging from 4.70 to 4.83, indicating strong agreement (SA) on their effectiveness. The highest mean scores of 4.83 were given to the clarity of methods for monitoring progress and the detail and informativeness of feedback provided, suggesting that these elements are particularly well-executed in the IEP process. Regular and consistent progress monitoring, as well as the provision of feedback to students to help them understand their progress, both received a mean score of 4.80. This indicates that these practices are generally well-regarded, though slightly less so than the clarity and detail of the feedback mechanisms. The lowest, yet still strong, score of 4.70 was given to the regularity and consistency of progress monitoring. The grand mean of 4.79 reflects an overall high level of satisfaction with the monitoring and feedback processes within the IEP, emphasizing their perceived importance in supporting student progress and adapting educational plans as needed.

Table 4. Learners Academic Performance

Subject	Grade	VD
English	82.78	Satisfactory
Mathematics	85.85	Very Satisfactory
Science	85.88	Very Satisfactory

The data in the table outlines the academic performance of learners across three subjects: English, Mathematics, and Science. The grades

indicate varying levels of achievement, with English receiving a grade of 82.78, which is classified as "Satisfactory." This suggests that while students are meeting basic expectations in English, there may be room for improvement. In contrast, both Mathematics and Science received higher grades, 85.85 and 85.88 respectively, both classified as "Very Satisfactory." These scores indicate that learners are performing well in these subjects, exceeding basic expectations and demonstrating a stronger grasp of the material. Overall, the data suggests that learners are performing adequately in English and excelling in Mathematics and Science, highlighting these areas as particular strengths in their academic performance.

Table 5. Significant Relationship Between the Extent of Clarity and Specificity of Goals to English Performance

Constructs	r-value	t-value	P value	Remarks	Decision
Clarity and Specificity of Goals	0.197	1.24	0.223	Not Significant	Do not reject
Quality of Instructional Strategies	-0.201	-1.27	0.213	Not significant	Do not reject
Monitoring and Feedback	0.235	1.49	0.144	Not significant	Do not reject

The data in the table examines the relationship between various educational constructs specifically the clarity and specificity of goals, the quality of instructional strategies, and the effectiveness of monitoring and feedback and students' performance in English. The results show that none of the constructs have a statistically significant relationship with English performance, as indicated by the P-values, all of which are above the common significance threshold of 0.05. Specifically, the clarity and specificity of goals have an r-value of 0.197 and a t-value of 1.24, with a P-value of 0.223, indicating no significant relationship. Similarly, the quality of instructional strategies has an r-value of -0.201 and a t-value of -1.27, with a P-value of 0.213, also showing no significant effect on English performance. Lastly, monitoring and feedback have an r-value of 0.235 and a t-value of 1.49, with a P-value of 0.144, which again indicates no significant relationship. Consequently, the decision in all cases is to not reject the null hypothesis, meaning there is no evidence from this data to suggest that these factors significantly influence English performance. This suggests that other variables not captured in this analysis might be influencing English performance more strongly.

The data in the table explores the relationship between the clarity and specificity of goals, the quality of instructional strategies, and the effectiveness of monitoring and feedback, specifically in relation to students' performance in Mathematics.

Table 6. Significant Relationship Between the extent of Quality of Instructional strategies to Mathematics

Constructs	r-value	t-value	P value	Remarks	Decision
Clarity and Specificity of Goals	0.023	0.14	0.886	Not Significant	Do not reject
Quality of Instructional Strategies	-0.125	-0.78	0.442	Not significant	Do not reject
Monitoring and Feedback	0.235	1.49	0.145	Not significant	Do not reject

The analysis reveals that none of these constructs show a statistically significant relationship with Mathematics performance, as evidenced by P-values well above the 0.05 threshold. For clarity and specificity of goals, the r-value is 0.023 with a t-value of 0.14 and a P-value of 0.886, indicating no significant correlation. The quality of instructional strategies shows a slightly negative r-value of -0.125 with a t-value of -0.78 and a P-value of 0.442, suggesting no significant impact on Mathematics performance. Similarly, monitoring and feedback, despite having a higher r-value of 0.235 and a t-value of 1.49, also fail to reach significance with a P-value of 0.145. As a result, the decision in each case is to not reject the null hypothesis, indicating that there is no significant evidence to support that these factors are related to Mathematics performance.

Table 7. Significant Relationship Between the Extent of Monitoring and Feedback to Science

Constructs	r-value	t-value	P value	Remarks	Decision
Clarity and Specificity of Goals	0.130	0.81	0.425	Not Significant	Do not reject
Quality of Instructional Strategies	0.066	0.41	0.685	Not significant	Do not reject
Monitoring and Feedback	0.302	1.95	0.058	Not significant	Do not reject

The data in the table assesses the relationship between the constructs of clarity and specificity of goals, the quality of instructional strategies, and monitoring and feedback in relation to students' performance in science. The findings indicate that none of these constructs demonstrate a statistically significant relationship with science performance, as all P-values exceed the 0.05 threshold. Specifically, the clarity and specificity of goals show an r-value of 0.130 with a t-value of 0.81 and a P-value of 0.425, indicating no significant correlation with science performance. The quality of instructional strategies also shows no significant relationship, with an r-value of 0.066, a t-value of 0.41, and a P-value of 0.685. Monitoring and feedback, while having the highest

r-value of 0.302 and a t-value of 1.95, comes close to significance but still does not meet the threshold, with a P-value of 0.058. Although this suggests a potential relationship, it is not statistically significant, leading to the decision to not reject the null hypothesis. In summary, the data suggests that these factors, as measured, do not have a significant impact on science performance. Other factors, not captured in this analysis, might have a more substantial influence on students' success in science.

Discussion

The findings indicate a highly positive evaluation of the influential factors affecting academic performance within an individualized program (IEP). The clarity and specificity of goals are rated very strongly, indicating that the goals are clearly defined, specific, measurable, and tailored to the student's needs. The quality of instructional strategies is also rated very highly, suggesting that the strategies are evidence-based, clearly described, tailored to individual learning styles, and consistently implemented. Additionally, the monitoring and feedback processes are rated positively, indicating that progress is regularly monitored, feedback is detailed, and adjustments to the IEP are made as necessary. Overall, the results reflect strong satisfaction with the IEP's goals, instructional strategies, and monitoring and feedback processes, all contributing effectively to the academic performance of students.

The analysis of learners' academic performance across English, Mathematics, and Science reveals generally satisfactory to very satisfactory outcomes, with average grades of 82.78 in English, 85.85 in Mathematics, and 85.88 in science. However, the investigation into the significant relationships between the clarity and specificity of goals, quality of instructional strategies, and monitoring and feedback with academic performance in these subjects indicates no statistically significant correlations. The r-values for all constructs across the subjects are relatively low, and the p-values exceed the standard significance level of 0.05, leading to the conclusion that there is no significant relationship between these factors and performance in English, Mathematics, or Science. As a result, the hypotheses tested were not rejected, suggesting that other factors may be influencing academic performance in these areas.

Conclusion

While the evaluation of the individualized education program (IEP) demonstrates a high level of satisfaction with the clarity and specificity of goals, the quality of instructional strategies, and the effectiveness of monitoring and feedback, these factors do not show a statistically significant relationship with students' academic performance in

English, Mathematics, and Science. The lack of significant correlations suggests that while the IEP is well-regarded, other factors beyond the clarity of goals, instructional strategies, and feedback may play a more critical role in influencing academic outcomes. This highlights the need for further investigation into additional variables that could impact student performance, as well as the potential refinement of the IEP to better address these factors.

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