



## Research Article

# Challenges and Teaching Methods for Exceptional Learners in Science: Academic Performance and Teacher Perspectives in an Inclusive Junior High School Classroom

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## Abstract

The purpose of this study was to identify the difficulties faced by science teachers in inclusive classrooms. The respondents to this study were the junior high school teachers handling science subjects in 16 selected secondary schools in the Division of Tanjay City. The researcher utilized a descriptive-correlational method of research. A validated researcher-made questionnaire was used as an instrument for determining the challenges encountered by science teachers in dealing with exceptional learners in an inclusive classroom. The statistical tools used in this study were the weighted mean and Spearman rank correlation coefficient. The results showed that the extent of challenges experienced by teachers in teaching exceptional learners in an inclusive classroom is high in terms of teacher preparation, learner motivation and participation, parent involvement and expectations, and time budget. In addition, it is moderate in terms of classroom management and learner behavior. The study also revealed that the academic performance of exceptional learners in science is at a fairly satisfactory level. Furthermore, there is a significant and inverse relationship between the extent to which teachers experienced challenges in terms of learners' motivation and participation, parent involvement and expectations, and the budget of time and the learner's academic performance.

## Keywords

academic performance, challenges, exceptional learners, inclusive classroom, science teachers

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## INTRODUCTION

### Background of the Study

Scientific literacy is the understanding of concepts in science that would be beneficial not only to an individual making everyday life choices but to the immediate society as well. Scientific literacy evolves throughout a lifetime, but its critical stages usually happen in school. Science education aims to develop this among all learners, as it is deemed a necessary skill for 21st-century living. There were many changes in science education upon the implementation of the K–12 curriculum. Most notable would be the shifts from a separate subject approach to spiral progression, from 5-hour per week to 4-hours only in a week of classroom instruction, and from using traditional, teacher-centered methods into active learning, which is a student-centered approach to address the needs of all learners (Virata & Castro, 2019; Dioneda, 2019; Fuente, 2019; Orbe et al., 2018; Tabiolo & Rogayan, 2019).

These shifts are observed in all science classes, even inclusive science classrooms. As ideal as it may seem, however, these changes, especially the implementation of inclusion in the country, are coupled with a myriad of problems on the part of the teacher (Byrne, 2019; Ecoben, 2019; Virata & Castro, 2019; Tabiolo & Rogayan, 2019; Fuente, 2019; Dioneda, 2019). Most of the science teachers in the country lack experience and training in dealing with diverse students in an inclusive classroom. Aside from these, the teachers are still adapting to the new curriculum and thus need to master all content from different fields and incorporate new teaching strategies.

Another issue is the inadequate funding for resources mentioned in the study of Hosshan et al. (2020) on "Inclusive Schooling in Southeast Asian Countries". The reduction of contact time for teaching science also poses another challenge for educators (Virata & Castro, 2019). The learner's abilities, skills, attention, interest, and behavior also affect the teaching and learning process, and thus teachers need to make both academic and behavioral interventions (Slemrod et al., 2018). Moreover, the perceptions of stakeholders (e.g., teachers, students, parents, and administrators) play a role in the success of the implementation of inclusive education.

Based on the statistics presented in the research of Balagtas et al. (2019), students from the Philippines showed dismal performance in science in all the instances where the country participated in the Trends in International Mathematics and Science Study (TIMSS). This is attributed to many other factors, and unfortunately, there is scarce literature to identify and address this. Furthermore, there are an increasing number of exceptional learners with different needs currently enrolled in mainstream classes.

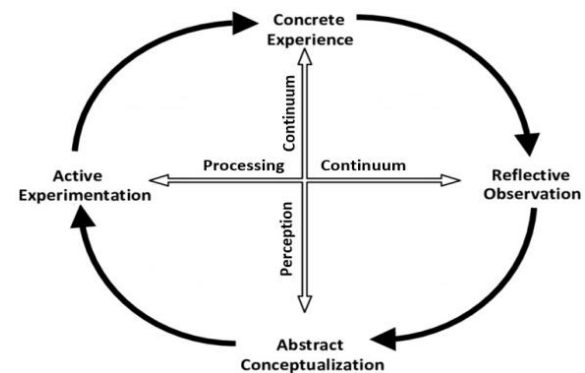
According to the Department of Education (2017), there were 8,443, 84, 232, and 128,230 exceptional learners in high school for school years 2011–2012, 2013–2014, and 2015–2016, respectively. The Department identified that ill-equipped facilities for these types of learners in regular schools remain their main concern.

As noted in the study of Orongan et al. (2020), inadequate facilities in teaching science are one of the challenges science teachers face, among others, which can result in low academic performance among students. Hence, the study aims to determine the challenges encountered by science teachers in an inclusive classroom to address the poor performance of these students and the needs of science teachers to ultimately develop science literacy among exceptional learners.

### Theoretical Framework

The study is anchored on the theory of experiential learning by American educational theorist David Kolb, which focuses on the role of experience in the learning process, which may be referred to as learning from experience. Kolb treats learning as a process where knowledge is gained through grasping experience and transforming these experiences into meaningful ideas based on how a person perceives them (Kolb, 1984). This teaching method is considered one of the best practices for teaching science, specifically in inclusive classrooms (Humaira & Rachmadtullah, 2019; Smith & Rayfield, 2019). There are four stages in experiential learning: concrete experience, reflective observation, abstract conceptualization, and active experimentation (Smith, 2011). This theory is explained in the schematic diagram below. The researcher adapts this theory to emphasize how it is helpful for teachers to understand how students with disabilities learn science concepts, better optimize their classrooms, and help more students learn in ways that work for them. The theory also gives an implication for teachers to provide varied learning opportunities for diverse students in order to cater to the different learning abilities and learning styles present in an inclusive classroom.

**Figure 1**  
*Schematic Diagram of the Theoretical Framework of the Study*

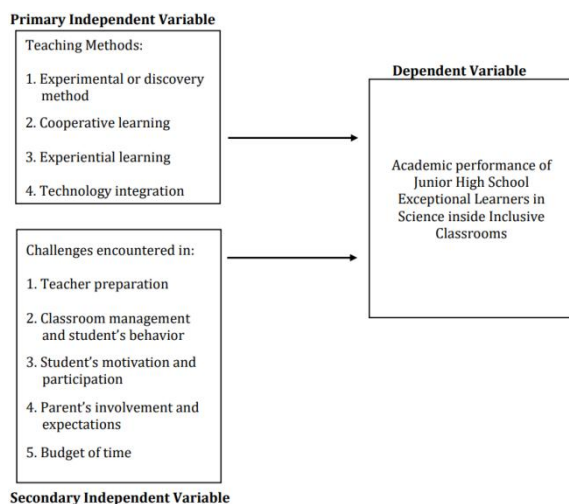




## Conceptual Framework

Figure 2 illustrates the conceptual framework of the study, which serves as a guide for the researcher and gives directions as to where the study will go. The study aimed to determine the problems encountered by science teachers in the implementation of inclusive education in the K–12 curriculum. The conceptual framework of the study consists of the primary and secondary independent and dependent variables.

**Figure 2**  
*Schematic Diagram of the Conceptual Framework of the Study*



Challenges encountered in teacher preparation, classroom management, student behavior, student motivation and participation, parent involvement and expectations, and time budget are considered secondary independent variables. The primary independent variable is the extent of teaching methods used by science teachers in teaching exceptional learners. These independent variables are assumed to influence the dependent variable, which is the academic performance of exceptional learners. The researcher is under the presumption that the variables presented could affect the implementation of inclusive education in the K–12 curriculum. The findings of the study will help in solving, directly or indirectly, the challenges experienced by science teachers in inclusive classrooms.

## Statement of the Problem

The purpose of the study was to identify the challenges faced by science teachers in inclusive classrooms. Specifically, the study sought to answer the following questions:

1. To what extent do teachers experience the following challenges in teaching exceptional learners in an inclusive classroom:
  - a. teacher preparation;
  - b. classroom management and students' behavior;
  - c. student's motivation and participation;
  - d. parent's involvement and expectations; and
  - e. budget of time?

2. What is the academic performance of the junior high school exceptional learners in science?
3. Is there a significant relationship between the extent to which teachers experienced the above-mentioned challenges and the exceptional learners' academic performance?
4. To what extent are the following methods used by science teachers in teaching exceptional learners?
  - a. experimental or discovery method;
  - b. cooperative learning;
  - c. experiential learning; and,
  - d. technology-integration?
5. Is there a significant relationship between the extent to which teachers use different methods in teaching exceptional learners and their academic performance?

## Statement of the Null Hypotheses

- a.  $H_{01}$ : There is no significant relationship between the extent to which teachers experienced the enumerated challenges and the exceptional learners' academic performance.
- b.  $H_{02}$ : There is no significant relationship between the extent to which teachers used the different methods in teaching exceptional learners and their academic performance.

## METHODS

### Research Design

The study utilized a descriptive-correlational design. The descriptive and correlational methods will help to determine if two or more variables are associated with each other, explaining their relationship but not necessarily implying that this relationship is also a cause.

This study is descriptive in the sense that it describes the challenges encountered by science junior high school teachers in an inclusive classroom based on the indicators provided by the researcher in her research instrument. It is also correlational, as the challenges identified were correlated to the academic performance of exceptional learners in inclusive science classrooms. The extent of the teaching methods used by science teachers was also correlated with the academic performance of the students.

### Sample and Sampling Technique

This study employed a purposive sampling of 44 science junior high school teachers from the 16 selected schools in Tanjay City Division. This population represents 30% of the total population of science public school teachers in the said division. The respondents answered a survey questionnaire on the challenges encountered by science teachers in handling exceptional learners.



## Research Instrument

This study made use of a researcher-made questionnaire to determine the challenges encountered by science teachers in an inclusive classroom. The researcher utilized data gathered from related literature and studies in formulating the questionnaire. The questionnaire consists of three parts: Part I indicates the academic performance of exceptional learners; Part II deals with the challenges encountered by science teachers; and Part III involves the teaching methods used by the respondents. The survey item responses for Part II and Part III were rated on a five-point Likert scale.

The researcher asked permission from the dean of Foundation University Graduate School that the instrument be used in the study. The whole questionnaire was presented to three experts in the field of science teaching and inclusive education for content validity and for cross-checking if the items were aligned with the specific problems of the study. The suggestions from the experts were taken into consideration for the final revision of the questionnaire.

To ensure item reliability, a dry run was conducted in different schools from the respondent schools. A total of 30 science secondary school teachers served as the respondents to the dry run. These teachers were not included in the main study. The items were tested for their reliability using the Cronbach's alpha test. In part II of the questionnaire, the results of the Cronbach's alpha test were as follows: teacher's preparation = 0.778; classroom management and exceptional student's behavior = 0.802; student's motivation and participation = 0.777; parent's involvement and expectations = 0.946; and budget of time = 0.791. On the other hand, the Cronbach's alpha values for part III of the questionnaire were as follows: experimental or discovery method = 0.732; cooperative learning = 0.872; experiential learning = 0.774; and technology-integration = 0.848. These items were considered to have internal consistency and were reliable since the accepted value of Cronbach's alpha test is 0.70 and above.

## Data Gathering Procedure

After the design hearing, the researcher considered all the suggestions and corrections of the panel members for the conduct of the study. The researcher asked permission from the Schools Division Superintendent through a letter request. Another set of letters was given to the school heads with the attached endorsement from the Schools Division Superintendent.

The researcher prepared a schedule for the administration of the questionnaires. Clear instructions were given, and control over the administration of the tool and retrieval was carefully made to ensure higher reliability of the responses. After the retrieval, all data were tabulated and analyzed for interpretation.

## Data Analysis

The statistical tools that the researcher used in this study are as follows:

Weighted mean. This was used in determining the responses from the Likert scale utilized for sub-problems 1 and 4. A weighted mean was also used in sub-problem 2, which deals with the academic performance of exceptional learners.

Spearman rank correlation. This was used in determining the relationship between the extent to which teachers experienced challenges in handling exceptional learners and the exceptional learner's academic performance. This is utilized in determining the relationship between the extent to which teachers used the different methods in teaching and the learner's academic performance.

The researcher applied the following interpretations to describe the extent of the challenges experienced by science teachers in an inclusive classroom:

Scale	Range	Verbal Description	Extent Equivalent	Explanation
5	4.21 - 5.00	Strongly Agree	Very High (VH)	The problem is experienced by the teacher's 81% - 100% of the time.
4	3.41 - 4.20	Agree	High (H)	The problem is experienced by the teacher's 61% - 80% of the time.
3	2.61 - 3.40	Undecided	Moderate (M)	The problem is experienced by the teacher's 41% - 60% of the time.
2	1.81 - 2.60	Disagree	Low (L)	The problem is experienced by the teacher's 21% - 40% of the time.
1	1.00 - 1.80	Strongly Disagree	Very Low (VL)	The problem is experienced by the teacher's 1% - 20% of the time.

The researcher also applied the following interpretations to the extent to which the teachers are using the different methods in teaching exceptional learners:

Scale	Range	Verbal Description	Extent Equivalent	Explanation
5	4.21 - 5.00	Strongly Agree	Very High (VH)	The method is utilized by the teacher's 81% - 100% of the time.
4	3.41 - 4.20	Agree	High (H)	The method is utilized by the teacher's 61% - 80% of the time.
3	2.61 - 3.40	Undecided	Moderate (M)	The method is utilized by the teacher's 41% - 60% of the time.
2	1.81 - 2.60	Disagree	Low (L)	The method is utilized by the teacher's 21% - 40% of the time.
1	1.00 - 1.80	Strongly Disagree	Very Low (VL)	The method is utilized by the teacher's 1% - 20% of the time.



The proficiency level or academic performance at which the students are performing is based on the following criteria of the DepEd Order No. 8, s 2015:

Rating	Verbal Equivalent	*Explanations
90% and above	Outstanding	The student at this level exceeds the core requirements in terms of knowledge, skills and understanding, and can transfer them automatically and flexibly through authentic performance tasks.
85% - 89%	Very Satisfactory	The student at this level has developed the fundamental knowledge and skills and core understandings, and can transfer them independently through authentic performance tasks.
80% - 84%	Satisfactory	The student at this level has developed the fundamental knowledge and skills and core understandings, and with little guidance from the teacher and/or with some assistance from peers, and can transfer these understandings through authentic performance tasks.
75% - 79%	Fairly Satisfactory	The student at this level possesses the minimum knowledge and skills and core understandings, but needs help throughout the performance of authentic tasks.
74% down	Did Not Meet Expectations	The student at this level struggles with his/her understanding; prerequisite and fundamental knowledge and/or skills have not been acquired or developed adequately to aid understanding.

To identify the degree of relationship between two variables, the researcher will use the following descriptions:

Value of r	Strength of Relationship
Between $\pm 0.50$ to $\pm 1.00$	$\pm$ strong relationship
Between $\pm 0.30$ to $\pm 0.49$	$\pm$ moderate relationship
Between $\pm 0.10$ to $\pm 0.29$	$\pm$ weak relationship
Between $\pm 0.01$ to $\pm 0.09$	$\pm$ very weak relationship

### Ethical Considerations

Ethics is considered in this study since it involves people in the data-gathering procedure. In asking permission from the Schools Division Superintendent, principals, and teacher participants, the letter request included the details of the study as well as an orientation on what they have to do. The contact number and email of the researcher were also provided for them to raise concerns and questions about the conduct of the research. The teachers were asked to sign the written agreement of assurance of anonymity and confidentiality of data. In terms of anonymity, the questionnaire did not include any part wherein there was direct identifiable information about the respondents and their schools. For confidentiality, all data collected was kept strictly private in a sealed container by the researcher. The researcher only accessed the data upon tallying results using offline MS Excel and sending the sheet through private email to the statistician. There is no information displayed in the data analysis and presentation that can identify the individuals included in the data set. As a method of disposing of data, the questionnaires will be properly disposed of by the researcher so that any information cannot be read or reconstructed, and the electronic file will be erased after 3 years.

## RESULTS AND DISCUSSION

### The Extent of Challenges Faced by Teachers in Teaching Exceptional Learners in an Inclusive Classroom

**Table 1**  
*Extent to Which Teachers Experience Challenges in Terms of Preparation in Teaching Exceptional Learners in an Inclusive Classroom (n=48)*

Indicators	w $\bar{x}$	Verbal Description	Extent Equivalent
1. The necessary skills in handling exceptional learners based on their individual abilities are still to be enhanced.	4.02	Agree	High
2. There are only limited language tools and means for adaptive communication available that will help create a functional and united classroom.	3.98	Agree	High
3. The instructional materials to cater the needs of my exceptional learners are not adequate.	3.96	Agree	High
4. My confidence in teaching science to exceptional learners needs to be enhanced.	3.92	Agree	High
5. There are only few opportunities for any training relevant to inclusive education.	3.92	Agree	High
6. My skills in planning activities that will cater the needs of my exceptional learners are still lacking.	3.88	Agree	High
7. The guidelines of the implementation of Inclusive Education are still to be familiarized.	3.79	Agree	High
8. My training in making lesson plans aimed at developing the skills of my exceptional learners are not adequate.	3.73	Agree	High
9. There were no SPED classes offered during pre-service education.	3.69	Agree	High
10. My patience in treating exceptional learners needs to be developed.	3.63	Agree	High
11. My skills in encouraging exceptional learners to participate in all activities in the classroom are still to be developed.	3.60	Agree	High
12. Most of the trainings I attended lack thorough discussion of knowledge about Inclusive Education.	3.50	Agree	High
13. Identifying exceptional learners in my class is quite difficult.	3.38	Undecided	Moderate
<b>Composite</b>	<b>3.77</b>	<b>Agree</b>	<b>High</b>

Table 1 shows the extent to which teachers experience challenges in terms of preparation when teaching exceptional learners in an inclusive classroom.

As shown, teachers have a high degree of difficulty experiencing challenges in terms of teacher preparation based on the composite mean of 3.77. This implies that the teachers lack the skills, confidence, and training opportunities relevant to inclusive education. Limited language tools and means for adaptive communication, as well as the inadequacy of materials, are also implied. These results conform with the study of Sharma et al. (2013) that teachers in the Asia-Pacific region continue to rate their teacher preparation, such as pre-service education, training, skills, and knowledge in inclusive education, as inadequate and thus see inclusion as difficult to implement in their science classrooms. Respondents in other studies also see their preparation as insufficient since most do not have experience dealing with learners with disabilities and thus have low confidence in teaching such learners. Additionally, it was mentioned that inclusion mainly depends on the resources available for teachers to use, and if materials are scarce, it would affect how teachers generally feel about their preparation. It is imperative to note that communication is key to handling exceptional learners effectively and that teachers trained during pre-service teach better (Rodriguez & Abocejo, 2018). Effective communication skills are expected of teachers in the Philippines, as it is one of the competencies in the Philippine Standards for Teachers (Gepila, 2020). However, teachers in the country would report that it is difficult to communicate with exceptional learners, especially those with disabilities (Cahapay, 2021; Dela Fuente, 2021).

**Table 2**  
*Extent to Which Teachers Experience Challenges in Terms of Classroom Management and Behavior of Exceptional Learners in an Inclusive Classroom (n=48)*

Indicators	w $\bar{x}$	Verbal Description	Extent Equivalent
1. The exceptional learners SOMETIMES do not work with their classmates during group/collaborative activities.	3.75	Agree	High
2. There exceptional learners have a harder time grasping information and instructions.	3.71	Agree	High
3. The exceptional learners at times failed to follow the rules and routines established inside the classroom.	3.38	Undecided	Moderate
4. The exceptional learners exhibit disruptive behaviors most of the time.	3.25	Undecided	Moderate
5. I lack strategies in motivating my exceptional learners to participate in class and show interest for the subject.	3.21	Undecided	Moderate
6. I lack the strategies in managing the disruptive behaviors of my exceptional learners.	3.15	Undecided	Moderate
7. I lack skills in arranging classroom facilities and instructional materials to sustain the interests of exceptional learners.	3.13	Undecided	Moderate
<b>Composite</b>	<b>3.37</b>	<b>Undecided</b>	<b>Moderate</b>

Table 2 presents the extent to which teachers experience challenges in terms of classroom management and the behavior of exceptional learners in an inclusive classroom. Generally, the teachers experienced a moderate extent of challenges in terms of classroom behavior, as evident on the composite score of 3.37. This implies that the teachers are undecided on the following: whether or not they lack skills in arranging classroom facilities and instructional materials and lack strategies for managing disruptive behavior and motivating students to participate in class. The respondents, however, reported that they agree that exceptional learners have communication problems with their classmates and have a hard time grasping information coming from classmates and teachers. This situation could be attributed to the underlying behavioral problems of exceptional learners. The results are similar to the findings of Sari et al. (2009), as their teacher respondents were also undecided about their self-efficacy towards implementing classroom management inside their inclusive classrooms. It was discussed that an underlying reason for this could be that teachers lack prior experience, skills, and information dealing with exceptional learners. The study of Gador et al. (2019) also pointed out that teachers who have problems in terms of classroom management also reported that they do not have adequate experience to deal with them.

**Table 3**  
*Extent to Which Teachers Experience Challenges in Terms of Motivation and Participation of Exceptional Learners in an Inclusive Classroom (n=48)*

Indicators	w $\bar{x}$	Verbal Description	Extent Equivalent
1. I still need to introduce new and fun activities all the time.	4.15	Agree	High
2. There are exceptional learners who prefer to work alone than work in groups or with peers.	3.83	Agree	High
3. There is not enough time for the exceptional learners to do their tasks in our science class.	3.65	Agree	High
4. The exceptional learner lacks the will to decide for themselves or choose their preferred activity.	3.48	Agree	High
5. The students do not appreciate the motivational quotes or motivational stories I use to inspire them.	3.38	Undecided	Moderate
6. The learner does not try again even when given another chance to give the correct answer or do the correct move.	3.21	Undecided	Moderate
7. The social and tangible rewards I give to learners who participated in class do not have any effect on the exceptional learners.	3.02	Undecided	Moderate
<b>Composite</b>	<b>3.53</b>	<b>Agree</b>	<b>High</b>

Table 1.3 reveals the extent to which teachers experience challenges in terms of the motivation and participation of exceptional learners in an inclusive classroom.



Teachers, as revealed in the table, have a high extent of experiencing challenges in terms of motivation and participation of learners, as seen from the computed composite  $w$  of 3.53. Although three indicators were of moderate extent (teachers were unsure if students appreciated motivational quotes or stories, tried again at giving correct answers, or were affected by social and tangible rewards), these were outweighed by four other indicators of high extent. This implies that teachers agree that they need to introduce new and fun activities all the time, allow opportunities for some who prefer to work alone, make wise use of allotted time, and be mindful of the students who lack the will to decide. Teachers need to be creative in presenting the lesson, patient in waiting for the learners to finish their tasks, and persistent in giving encouragement to exceptional learners.

Teachers in the Philippines generally encounter challenges in terms of promoting the engagement and participation of the students (Valdez & Dominado, 2020). According to Daniel and Cooc (2018), teachers' perceptions influence the motivation and participation of students with disabilities. When teachers have a positive outlook on motivating exceptional learners, there will also be an increased frequency of participation in group activities and classroom discussions (Daniel & Cooc, 2018). In contrast, Moriña Díez (2019) argues that even if teachers reported knowing and implementing varied strategies for motivation and participation, they would still find other ways to motivate learners with disabilities, thinking that it would make a difference for such learners, and added that students with disabilities do not necessarily need other methods for motivation or participation as they could be motivated the same way as their fellow classmates in an inclusive classroom.

**Table 4**  
*Extent to Which Teachers Experience Challenges in Terms of Involvement and Expectations of Exceptional Learners' Parents in an Inclusive Classroom (n=48)*

Indicators	$w\bar{x}$	Verbal Description	Extent Equivalent
1. Parents of my students seldom attend parent's meeting regularly.	4.08	Agree	High
2. Parents have less time in helping their children making their take-home activities or projects.	4.00	Agree	High
3. Parents are sometimes on denial of the behaviors of their children.	3.83	Agree	High
4. Parents of exceptional learners show little concern on how their children are doing in school.	3.75	Agree	High
5. Parents showed limited support to the needs of the exceptional learners.	3.73	Agree	High
6. Parents show less encouragement on their children to be in school.	3.67	Agree	High
7. Parents of exceptional learners are all working and have less time to reach out to the exceptional learners at home.	3.60	Agree	High
<b>Composite</b>	<b>3.81</b>	<b>Agree</b>	<b>High</b>

Table 4 indicates the extent to which teachers experience challenges in terms of the involvement and expectations of exceptional learners' parents in an inclusive classroom. It is shown that teachers have a high degree of experience experiencing such challenges, as revealed by the composite score of 3.81. Teachers agree that parents seldom attend meetings, have less time assisting children with take-home activities and projects, are in denial of their children's behaviors, and show little concern for how their children are doing in school. The table implies that the help of parents is essential for the learners to achieve their tasks in school and that parents need to be supportive of their children's endeavors. Parents must also acknowledge that there are different needs for their child, and these have to be given full support.

The results are synonymous with the findings of Hsiao et al. (2018), wherein parents seldom participate in or attend events in school, and generally all parents are affected by the stress of dealing with and supporting their children's education. The authors explained that the stress is caused by a feeling of vulnerability when they realize the permanent nature of being disabled (Hsiao et al., 2018). The same result was also found in a study done in the Philippines, where parents and other family members did not fulfill their role as support systems for differently abled students (Cruz & Calimpusan, 2018). The aforementioned study added that parents of exceptional learners have a higher level of stress than other parents, no matter what category their child falls into, and would exhibit behaviors that would likely decrease their parenting effectiveness. These parents may overreact to their children's behavior, react less sensitively, ineffectively apply coping strategies, or even decrease their support for their children. In a study by Koller et al. (2018), some parents even tend to rely solely on service providers such as teachers, caregivers, etc. as people who would be able to meet the inclusion needs of their children and not themselves.

**Table 5**  
*Extent to Which Teachers Experience Challenges in Terms of Budget of Time in Teaching Exceptional Learners in an Inclusive Classroom (n=48)*

Indicators	$w\bar{x}$	Verbal Description	Extent Equivalent
1. The time for students to do the experiments/activities for each lesson is limited.	4.15	Agree	High
2. There is no enough time for individual tutorial for exceptional learners.	4.13	Agree	High
3. The time to work one-on-one with students especially the exceptional learners who are having difficulties with the lesson or activities is not enough.	4.13	Agree	High
4. The time for students to grasp the science concepts for each lesson is not enough.	4.04	Agree	High
5. There is limited time to give the appropriate assessment for each lesson.	4.04	Agree	High



6.	There are too many competencies required by DepEd to cover in time.	3.96	Agree	High
7.	The budget of time is not enough to finish my lessons.	3.79	Agree	High
<b>Composite</b>		<b>4.03</b>	<b>Agree</b>	<b>High</b>

Table 5 reflects the high extent to which teachers experience challenges in terms of budget and time in teaching exceptional learners in an inclusive classroom, as indicated in the composite score of 4.03. As determined from the table, teachers agree that there is not enough time for experiments or activities, individual tutorials, one-on-one work with students having difficulties with the lesson or activity, or to grasp science concepts. Moreover, there is limited time to give appropriate assessments for every lesson. The teachers must allot extra time and effort to their exceptional learners since the latter are slow at grasping the learning that they need to acquire.

According to Symeonidou and Mavrou (2020), time is essential in giving assessments to learners with disabilities in mainstream classes since teachers have to provide individualized support for these learners. However, there is limited research about time on assessments specifically for exceptional learners, and this has been considered a problem for several years (Chakraborty & Kaushik, 2019). As discussed by Chakraborty and Kaushik (2019) in their findings, learners with disabilities need appropriate time to answer classroom assessments, and teachers likewise need the time to prepare and conduct the appropriate assessments and make all necessary accommodations such as different fonts, larger spaces between lines or prints, the use of a keyboard, and others.

As mentioned in the study of Virata and Castro (2019), the budget of time for teaching science will not be adequate since the allotted time for the subject was reduced. Teachers will somehow report this observation since there are too many activities needed for every lesson for scaffolding, enrichment, and enhancement (Virata & Castro, 2019). The same situation was also presented by Ochieng and Murungi (2019), who stated that there are not enough teachers employed. The authors discussed that with attrition and increased enrollment each year, the student-teacher ratio is imbalanced, and teachers would not have time to manage, handle, and support learners with disabilities. It is noted that time constraints affect teachers' practice and learning opportunities for students with disabilities.

**Table 6**  
*Summary on the Extent to Which Teachers Experience Challenges in Teaching Exceptional Learners in an Inclusive Classroom (n=48)*

Indicators	w $\bar{x}$	Verbal Description	Extent Equivalent
Teacher Preparation	3.77	Agree	High
Classroom Management and Learner's Behavior	3.37	Undecided	Moderate
Learner's Motivation and Participation	3.53	Agree	High

Parent's Involvement and Expectations	3.81	Agree	High
Budget of Time	4.03	Agree	High

Table 6 depicts the summary table on the extent to which teachers experience challenges in teaching exceptional learners in an inclusive classroom. Results show that teachers have a high degree of experience with challenges, firstly in terms of budget of time ( $w = 4.03$ ), secondly, parent involvement and expectations ( $w = 3.81$ ), thirdly, teacher preparation ( $w = 3.77$ ), and lastly, learner motivation and participation ( $w = 3.53$ ). On the other hand, teachers have a moderate degree of experience experiencing challenges in classroom management and learner behavior ( $w = 3.37$ ). This implies that teachers are not prepared to manage a classroom of children with behavioral problems. The reason could be that teachers have not experienced this situation during practice teaching or during their early years of teaching.

In a relevant study, general education teachers and even special education teachers felt unprepared or underprepared to handle the varied behaviors of exceptional learners since their pre-service did not focus on the applications of effective classroom management practices, which were tackled only incidentally. In addition, during pre-service for teachers, only universal management strategies were introduced and not specific skills and strategies for encouraging and discouraging behavior. This is supported by Gilmour et al. (2019), as it was taken as an underlying reason for all teachers in their study reporting that they are unprepared to handle behavior problems in their classrooms. Unfortunately, if this major problem is not addressed, there will be a continuous deleterious effect on the classroom environment, which will affect students' social and academic performance and outcomes as well as the teacher's self-efficacy, attrition, and burnout.

### Academic Performance of the Junior High School Exceptional Learners in Science

**Table 7**  
*Academic Performance of Exceptional Learners in Science (n=48)*

Rating	Verbal Description	Frequency	Percent
90% - 100%	Outstanding	10	20.83
85% - 89%	Very Satisfactory	3	6.25
80% - 84%	Satisfactory	1	2.08
75% - 79%	Fairly Satisfactory	30	62.50
74% and Below	Did Not Meet Expectations	4	8.33
<b>Total</b>		<b>48</b>	<b>100.00</b>
<b>Mean</b>			<b>79.92</b> <b>(Satisfactory)</b>

*Note.*  $sd = 7.18$

Table 7 exhibits the academic performance of exceptional learners in science. Most of the respondents' students (62.50%) had fairly satisfactory academic performance, with ratings ranging from 75% to 79%. The other ratings are represented in lesser groups, as only 20.83% of the population answered outstanding, 8.33%







did not meet expectations, 6.25% were very satisfactory, and 2.08% were satisfactory. Overall, the academic performance of exceptional learners is satisfactory since, as mentioned in the previous tables, they have a hard time understanding information, concentrating on the lesson at hand, and are slow at processing information, with the exception of gifted and talented learners. The 10 outstanding learners found in the table are gifted learners who meet the criteria for exceptional learners in this study.

Generally, exceptional learners, excluding gifted and talented learners, have low science academic achievement (Slemrod et al., 2018). This is particularly observed in the results of standardized tests in science, wherein students with learning disabilities generally have lower marks than their peers. Exceptional learners classified as gifted or talented, on the other hand, have a generally higher IQ than their fellow classmates and thus have high academic performance (Grigorenko et al., 2020). According to Kapur (2018), there are various factors affecting the academic performance of learners with disabilities in the science subject that may occur not only within the school but also outside. As discussed in the study, parents and their source of security, as well as the social circle of the child, influence how learners with disabilities learn and ultimately affect the child's academic performance.

### Relationship Between the Extent to Which Teachers Experienced the Challenges and the Exceptional Learners' Academic Performance

**Table 8**  
*Relationship Between the Extent to Which Teachers Experienced the Challenges and the Exceptional Learners' Academic Performance (n=48)*

Variables Correlated to Learners' Academic Performance	Comp. $r_s$	p-value	Decision	Remark
Teacher Preparation	-0.268	0.065	Fail to reject $H_{01}$	Not significant
Classroom Management and Learners' Behavior	-0.268	0.065	Fail to reject $H_{01}$	Not significant
Learners' Motivation and Participation	-0.502	0.000	Reject $H_{01}$	Significant
Parent's Involvement and Expectations	-0.624	0.000	Reject $H_{01}$	Significant
Budget of Time	-0.478	0.001	Reject $H_{01}$	Significant
<b>Overall</b>	<b>-0.540</b>	<b>0.000</b>	<b>Reject <math>H_{01}</math></b>	<b>Significant</b>

Table 8 shows that there is a significant relationship between the extent to which teachers experienced the challenges in the following variables and the learners' academic performance: (a) learners' motivation and participation ( $p = 0.000 < \alpha = 0.05$ ; strong); (b) parents' involvement and expectations ( $p = 0.000 < \alpha = 0.05$ ; strong); and (c) budget of time ( $p = 0.001 < \alpha = 0.05$ ; moderate). It is also shown that the  $r_s$  values have a negative sign. The findings imply that teachers of exceptional learners with lower academic performance perceived greater challenges in (a) learners' motivation and participation, (b) parents' involvement and expectations, and (c) the budget of time.

The results coincide with other studies showing that there is a significant relationship between learners' motivation and academic performance; as discussed by Rubrica (2018), Filipino students who were unmotivated and did not participate in class had lower academic achievement than their classmates. According to Chu et al. (2019), the teachers who reported having unmotivated learners in science expressed that even if they had employed different strategies, these still did not have any effect on students. In terms of parent involvement and expectations, the study had the same results, with Kumar and Salal (2019) stating that there is a significant relationship between parent support and the academic performance of learners with disabilities. If students do not receive ample support from stakeholders, they will generally have low academic performance. Based on the results of the study by Nguyen et al. (2018), there is a significant relationship between time allocation and the academic performance of learners. In the Philippines, teachers reported that there is not enough time for learners to learn science since the budget for the subject has been significantly reduced and there are too many lessons to cover (Virata & Castro, 2019).

The other variables, like teacher preparation ( $p = 0.065 > \alpha = 0.05$ ) and classroom management and learners' behavior ( $p = 0.065 > \alpha = 0.05$ ), have no significant relationship with the learners' academic performance. This finding may imply that regardless of learners' academic performance, the teachers' (a) preparation and (b) classroom management and learners' behavior are the same. Teacher preparation was deemed not significant in the academic performance of exceptional learners, specifically those with mental disorders, as it was found out in the study of Goldman and Gilmour (2021) that the learners had low academic performance under both general and special education teachers. This was also the finding of Koller et al. (2018), in that even if the teachers received training and courses on effectively implementing inclusion, there was still no effect on the learners' performance. According to Goldman and Gilmour (2021), a reason for such results could be that teachers focused only on academic-related preparations and not on non-academic aspects of exceptional learners. There is also no significant relationship in terms of classroom management or the learner's behavior and the learner's academic performance based on the study of Morgan et al. (2019).

### The Extent of Science Teachers' Utilization of Methods for Teaching Exceptional Learners

**Table 9**  
*Extent to Which Teachers Used Experimental or Discovery Method (n=48)*

Indicators	$w\bar{x}$	Verbal Description
1. I let students describe what they have observed/experienced.	4.17	High
2. I allow my students to discover facts for them to construct their own knowledge based on their understanding of the concepts under investigation.	3.94	High

3.	I give the students divergent questions or problems.	3.92	High
4.	I let students discover/explore on their own to answer the problem.	3.92	High
5.	I give experiments for students to do that require critical and creative thinking to solve the problem.	3.92	High
6.	I provide adequate learning environment for the exceptional learners to be actively engaged during laboratory activities.	3.71	High
<b>Composite</b>		<b>3.93</b>	<b>High</b>

Table 9 displays the extent to which teachers used the experimental or discovery method in teaching exceptional learners. The respondents have a high degree of use of experimental or discovery methods, as shown in the composite score of 3.93. The teachers resorted to this method since it is very applicable to learners who have comprehension difficulties with routine tasks and who need learning experiences that are fresh and new, as offered in the experimental or discovery method. This result coincides with that of Ibañez and Delgado-Kloos (2018), as it was found out that the experimental or discovery method is the most used method in teaching science, technology, engineering, and mathematics subjects. Using this method has improved learners' academic performance (Großmann & Wilde, 2019).

**Table 10**  
*Extent to Which Teachers Used Cooperative Learning Method (n=48)*

	Indicators	w $\bar{x}$	Verbal Description
1.	I provide my students with activities that motivate them to work as a team.	4.23	Very High
2.	I let students explore and decide as a group.	4.23	Very High
3.	I form teams with diverse students in every class activity.	4.19	High
4.	I encourage exceptional learners to work in their groups.	4.19	High
5.	I let the students assign roles for every group member to ensure no one is left without a job.	4.17	High
<b>Composite</b>		<b>4.20</b>	<b>High</b>

Table 10 discloses the extent to which teachers used the cooperative learning method in teaching exceptional learners. The respondents have a high extent of use of the cooperative learning method due to the composite score of 4.20. According to Rabgay (2018), this method has emerged as one of the most effective methods in teaching science since various studies revealed that students taught had better academic achievement. This was also the method highly suggested in the study of Raguindin et al. (2021), as it is necessary for promoting inclusion among students. Specifically, this method was deemed successful for accommodating even learners with cognitive or neurodevelopmental disorders and disabilities (Yoro et al., 2020). Moreover, cooperative learning was designed to promote inclusion, which makes it appropriate for use by teachers handling exceptional learners (Ticha et al., 2018).

**Table 11**  
*Extent to Which Teachers Used Experiential Learning Method (n=48)*

	Indicators	w $\bar{x}$	Verbal Description
1.	I let students apply or try out what they have learned.	4.08	High
2.	I give time for all students to experience the task at hand.	4.02	High
3.	I let students generate new ideas or modify a concept based on what they have experienced/realized.	4.02	High
4.	I let students reflect on what they have experienced.	3.98	High
5.	I give varied activities to accommodate the learning styles of exceptional learners.	3.77	High
<b>Composite</b>		<b>3.98</b>	<b>High</b>

Table 11 reports the extent to which teachers used experiential learning in teaching science to exceptional learners. Teachers have a high degree of freedom to use the method, as shown in the composite score of 3.98. Based on the study of Kang and Martin (2018), science teachers are likely to use this method since they are taught that inside inclusive science classrooms, they would act as guardians or mediators aside from understanding exceptional learners. Moreover, the experiential learning method allows learners with disabilities to grasp science concepts through apprehension rather than comprehension, which makes such a method beneficial not only for the student but for the teacher as well (Smith & Rayfield, 2019).

**Table 12**  
*Extent to Which Teachers Used Technology-Integration Method (n=48)*

	Indicators	w $\bar{x}$	Verbal Description
1.	I used varied tools in delivering instruction.	3.94	High
2.	I let students use devices when needed.	3.94	High
3.	I use varied teaching models and technology in different ways.	3.83	High
4.	I let students help exceptional learners in class in using technology.	3.77	High
5.	I use social media in giving assignments, projects, reinforcement or enhancement activities.	3.65	High
6.	I help students in manipulating the computer/technology.	3.40	Moderate
7.	I encourage exceptional learners to manipulate the computer/technology I am using.	3.38	Moderate
<b>Composite</b>		<b>3.70</b>	<b>High</b>

Table 12 describes the extent to which teachers applied the technology-integration method in teaching science to exceptional learners. Teachers have a high degree of integration of technology in teaching exceptional learners, as revealed in the composite score of 3.70. This finding conforms with the studies of Heberer (2021), Shadel (2019), and Emre (2019), wherein teachers prefer to use technology integration in teaching science to learners with disabilities. It has been proven that technology-enhanced classrooms increase student achievements and also make classes more engaging, especially for exceptional learners.



**Table 13**

*Summary of the Extent to Which Teachers Used the Different Methods in Teaching Exceptional Learners (n=48)*

Variables	WX	Verbal Description
Experimental or Discovery Method	3.93	High
Cooperative Learning	4.20	High
Experiential Learning	3.98	High
Technology-Integration	3.70	High

Table 13 summarizes the extent to which teachers used the different methods in teaching exceptional learners. Teacher respondents have the highest extent of using cooperative learning methods ( $w = 4.20$ ) among the four methods. This is followed by the experiential learning method ( $w = 3.98$ ), the experimental or discovery method ( $w = 3.93$ ), and finally the technology integration method ( $w = 3.70$ ). The following methods are deemed learner-centered and promote cooperation among learners, which makes the learners feel that they are part of a group and thereby encourages them to work with others.

The cooperative learning method is considered the most widely utilized inside inclusive classrooms since it promotes inclusion and allows exceptional learners to work with their peers, eliminating barriers between groups (Ticha et al., 2018). In addition, teachers will opt for experimental and experiential methods since these methods are learner-centered and allow students to make their own meaning from the stimulus they receive. Meanwhile, technology integration allows accommodation for different types of exceptional learners, which makes teaching easier for teachers (Kohli et al., 2018).

### Relationship Between Teachers' Use of Different Methods in Teaching Exceptional Learners and Academic Performance

**Table 14**

*Relationship Between the Extent to Which Teachers Used the Different Methods in Teaching Exceptional Learners and Their Academic Performance (n=48)*

Variables Correlated to Learners' Academic Performance	Comp. $r_s$	p-value	Decision	Remark
Experimental or Discovery Method	0.179	0.225	Fail to reject $H_{02}$	Not significant
Cooperative Learning	-0.258	0.077	Fail to reject $H_{02}$	Not significant
Experiential Learning	-0.089	0.545	Fail to reject $H_{02}$	Not significant
Technology-Integration	0.105	0.481	Fail to reject $H_{02}$	Not significant
<b>Overall</b>	<b>-0.071</b>	<b>0.634</b>	<b>Fail to reject <math>H_{02}</math></b>	<b>Not significant</b>

Table 14 reflects that all p-values are greater than the level of significance (0.05). This finding will not warrant rejection of the null hypothesis. This means that there is no significant relationship between the extent to which teachers used the different methods to teach exceptional learners and their academic performance.

This finding may connote that regardless of the teachers' utilization of the different methods, the learners' academic performance does not vary. In the Philippines, Casinillo and Guarte (2018) found out in their study that the teaching methods used by their teacher-respondents did not have any relationship with the academic performance of 294 student-respondents. This finding is similar to the results of the study by Cimermanova (2018), which found that different teaching methods have no effect on the academic achievement of learners. The study used methods such as technology integration, cooperative learning, and forms of independent learning, including experiential and discovery methods. According to Magulod (2019), the students' learning styles and preferences affect their grades, not the teaching method alone. Casinillo and Guarte (2018) also discussed that students' performance is influenced by other factors, which include the learner's knowledge, interest, and capability.

On the other hand, the utilization of different methods does not necessarily lead to improvement in teaching and learning; employing different teaching methods did not have an effect on the final exam passing rates of the students. According to Podolsky et al. (2019), even teacher experience in using the different methods does not guarantee that such a method would be effective. Based on the study of Darsih (2018), these methods only work when teachers maintain engagement, keep students interested, and give them autonomy and responsibility for their own learning.

## CONCLUSION AND RECOMMENDATIONS

### Conclusion

The extent of challenges experienced by the teachers in teaching exceptional learners in an inclusive classroom is high in terms of teacher preparation, learner motivation and participation, parent involvement and expectations, and budget of time. In addition, it is moderate in terms of classroom management and learner behavior. Thus, the academic performance of exceptional learners in science is at a fairly satisfactory level. In addition, there is a significant and inverse relationship between the extent to which teachers experienced the following challenges and the exceptional learners' academic performance: (a) learner's motivation and participation; (b) parent's involvement and expectations; and (c) budget of time. The extent of utilization of the following methods in teaching exceptional learners is high: experimental or discovery methods, cooperative learning, experiential learning, and technology integration. Furthermore, there is no significant relationship between the extent to which teachers used the different methods in teaching exceptional learners and their academic performance.



## Recommendations

The Department of Education (DepEd) may conduct seminars and trainings for teachers, parents, and other stakeholders involved to tackle and address the challenges experienced by the teachers in their respective schools. The school faculty and staff must convene on other factors affecting the academic performance of their students and create appropriate interventions to improve academic achievement. In addition, the science teachers may utilize the period for independent or cooperative learning (ICL) to allow students to do learning on their own or with others by providing necessary assistance or materials, assess their teaching methods, and identify practices that would make their teaching effective. The Department of Education should consider employing specialists to identify or diagnose exceptional learners and their needs.

Furthermore, tertiary education institutions may revisit their curriculum, especially in the College of Education

program, to add special education subjects for pre-service teachers to be ready for the real classroom situation. The teachers must make use of combinations of experimental or discovery methods, experiential learning, cooperative learning, and technology integration, as seen in the ready-made instructional plans. Using different methods in a lesson is found to be effective in teaching learners with exceptionalities when used appropriately. Researchers must conduct more studies about exceptional learners in the Philippines for a comprehensive understanding of their nature and how to deal with them in the national context.

## IMPLICATIONS

The findings of the study indicate that there are a variety of challenges that teachers face in inclusive classrooms. These challenges need to be addressed in order to make meaningful strides toward improving the academic performance of students.

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#### Author(s)' Statements on Ethics and Conflict of Interest

<b>Ethics Statement</b>	The author/s hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. The author/s take full responsibility for the content of the paper in case of dispute.
<b>Originality and Plagiarism Assessment</b>	The manuscript has a similarity assessment of less than 20% in accordance with the publication ethics in terms of originality and plagiarism and the plagiarism policy of the journal.
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