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CHALLENGES ENCOUNTERED BY JUNIOR HIGH SCHOOL SCIENCE LEARNERS IN THE POST-PANDEMIC ERA: BASIS FOR AN ACTION PLAN

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Abstract: *This study assessed the perceived challenges encountered by the Junior High School learners of Roosevelt National High School during the post-pandemic era for School Year 2022-2023. With the help of a questionnaire adopted from the research of Sadera et al. (2020), data were gathered using a descriptive survey research approach. Percentage and frequency were used in SPSS to quantify the respondents' profile factors after the data were encoded, examined, and evaluated. To ascertain the degree of variation as indicated in the study's hypothesis.05, One-way ANOVA was used. The study's findings revealed that most respondents are male, aged 14-16, mostly from Grade 8, and have a general average of 75-79 in Science. Additionally, the study showed that obstacles faced by students in Science include those related to motivation, cognitive ability, subject content, teaching medium, learning environment, curriculum, instructional resources, and parental support. It was also found that there are no variations in the perceived challenges encountered by the respondents when grouped according to their profile variables. However, there are exceptions, such as Grade Level for the Subject Matter Content and Grade Level, Age, and General Average for the Medium of Instruction and Parental Support. Based on the findings, an action plan was drawn to minimize the students' difficulties in Science education.*

Keywords: *Perceived Challenges, Science Education, Descriptive Survey Research Design, Olongapo City, Philippines*

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INTRODUCTION

Science is one of the most significant sources of knowledge. It contributes to our society in several ways, such as by creating new knowledge, improving education, and elevating living standards (Harris et al., 2020). The latest big thing over the last fifty years has been little. Science, technology, and society have all undergone radical change because of the shrinking of information and electronics to nanoscale levels (Jiang et al., 2019). Currently, engineers and scientists are building actual nanoscale machines. New gadgets that can move through, feel, and modify the nanoscale world are being developed using techniques ranging from lithographic patterning to the co-optation of biological machinery. For humans, Science and technology make life simpler and more comfortable. We can save time and money thanks to Science and technology.

Technology and Science enable new ways of comprehending things. Science provides solutions for everyday issues and aids in our quest to unravel the universe's greatest mysteries. Hence, one of the most significant sources of knowledge is Science. Eddy (2019) stated that Science has caused changes in human morality and fundamental beliefs by fundamentally altering our means of communication, ways of working, homes, food, clothing, and even the length and quality of our lives. How society allocates its financial resources to support scientific research influences which types of research are encouraged and which are discouraged (Habig & Gupta, 2021). The interests and needs of society have a direct impact on scientists, who frequently focus their studies on issues that will benefit society. It concludes that Science is also essential in the educational sector. Studying Science enhances knowledge, problem-solving abilities, critical thinking, and skills in various other academic fields. Hadzigeorgiou and Schulz (2019) explained that Science also holds the key to the future of technology. Additionally, Science requires interpersonal interaction and teaches kids patience and tenacity. The study of Science aids our comprehension of the world around us. Science is regarded as one of the most complicated academic disciplines to master. Many students shy away from pursuing scientific courses due to the intimidating nature of the field. Even those who enroll frequently drop out, suffer academically, or change their majors early in their careers. Karampelas (2021) mentioned that one

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issue is the tremendous cognitive and psychological demands that science education places on students. Because of this, learning science requires substantially more work than learning other academic topics. This is a challenging endeavor for students who frequently lack the requisite skills while enrolling in science courses. These students thus struggle to comprehend the ideas being taught. Sadera et al. (2020) noted that insufficient in-service training for science teachers is another challenge in science education. Some disciplines are compartmentalized and taught by solitary faculty members inside and across departments (Park & Ha, 2022). Students typically need more motivation and have more faith in their learning ability (Lee, 2022). Several student groups still experience achievement gaps in math and Science. One of the issues in science education is the changing demographics. The class has many students (Le et al., 2021). Wisanti et al. (2021) noted that students pursuing science education tend to focus on passing exams. Improving the school's physical conditions would create fewer laboratory opportunities (Sharatchandra Singh, 2022). There needs to be more time for science education despite the rigorous curriculum.

Science has always been taught in Philippine schools, from elementary to university. Scientific curriculum distinguishes daily science and technology application (Sadera et al., 2020). Success requires a science foundation in today's science- and technology-driven global information world. Science education is also necessary to survive in the volatile, unpredictable, complicated, unclear, upsetting, and diversified (VUCAD2) environment, the new education norm. Modern education is questionable due to globalization and technology. Philippine students must embrace learning in a VUCAD2 environment (Jun et al., 2022). Lack of financing for teacher salaries and professional advancement, student disinterest in academics, math and science success gaps, large class sizes, poor schools, and a tough curriculum with little time for science teaching are the main challenges. Science education, especially basic education, falls behind other nations, according to Palines and Cruz (2021). International and local studies show that Filipino students have weak memory, critical thinking, and analysis. The National Achievement Test and Trends in International Mathematics and Science Study consistently score low, and many Grade 6 and fourth-year students in certain schools cannot apply their perceptions to real-life problem-solving scenarios or formulate an inquiry to clarify a problem or situation (Rogayan Jr. et al., 2021). Science education has several issues. This is supported by many studies. Science education is affected by inadequate instructional materials, teacher preparation, and opposition to innovative science teaching (Locion et al., 2022). There are not enough science teachers, students who lack motivation and confidence in their ability to learn science, many students in each class, broken lesson connections, insufficient lab facilities and equipment, and insufficient time for science instruction despite the rigorous curriculum. In addition, Pradana et al. (2024) stressed the need of digital literacy in schooling. Their review reveals that localised digital learning can considerably improve students' problem-solving and digital literacy. It is consistent with the Philippine K–12 science curriculum, which emphasizes scientific literacy and develops students into informed and active citizens who can make decisions about science's applications to social, health, and environmental issues (Aranda, 2022). STEM education was crucial to national productivity. Science education is weak in our country. The 2014 National Achievement Test has a 69.21% passing rate for grade six students. Leonardo and Cha (2021) indicated that secondary school passing rates were 46.38% in 2010, a worrying trend. TIMSS and other global assessments found the Philippines consistently underperforming. Nationwide science education is precarious (Diate & Mordeno, 2021). Many scientific variables contribute to the nation's situation. Some of these include the national teacher shortage, the lack of science laboratories and classroom space, the low quality of the learner's module, and instructors' concerns that the texts are outdated and inaccurate. Palines and Cruz (2021) stated that Philippine education issues significantly limit how most public schools may teach science. Given these

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science education restrictions, Filipinos view science as expected. Budrikis (2020) also noted that scientific teaching resources and infrastructure were lacking. Cultural differences like language difficulties and low parental involvement complicate education. These issues severely influence learning and must be addressed promptly. Students' academic performance and resource accessibility are linked. Lack of resources may reduce student productivity (Sadera et al., 2020). Insufficient learning facilities hurt students' performance. Galoyo (2021) listed the lack of classroom resources, particularly teaching materials, appropriate learning materials like textbooks and modules, science teacher preparation and training, religious and political opposition to cutting-edge science instruction, the need to meet standards and prepare students for standardized assessment, and the dramatically rising amount of information available online as a source as some of the challenges. Research shows that science education is difficult for students. The Philippines' poor score in the 2022 Program for International Student Assessment (PISA) suggests pupils are five to six years behind in acquiring competencies, according to the Department of Education. In 2022, the Philippines scored 355 for math, 347 for reading, and 373 for science, 120 points behind the average. For the second time, the Philippines placed in the bottom 10 of 81 nations in reading comprehension, arithmetic, and science in 2022 PISA. As shown by their Quarterly Examination Mean Percentage Scores, Roosevelt National High School within the Schools Division of Bataan students struggle in science. The researcher wants to know what obstacles Junior High School science students face in the new regular education. The study's findings will form an action plan to solve science learning difficulties. According to the researcher, the study sought to uncover science class challenges. This study also assessed its impact on learning. Unlike Sadera et al.'s (2020) study, which took place in a conventional classroom, the current study was done after the pandemic, which affected students' science learning. The first study had 123 responses from Zambales schools, while the present survey has 400 from the researcher's school. According to the current study, the previous study focused on curriculum, instructional resources, medium of instruction, and parental support, while Roosevelt National High School junior high students struggle with challenging science classes that use scientific terminology and weak problem-solving skills.

FRAMEWORK

The theoretical framework presented in the study is Attribution Theory (1958). This idea provided insights and helped the researcher become more familiar with the questionnaire used in the study. The focus of attribution theory is on how people make sense of events and how this influences their perceptions and actions (Lee & Hall, 2020). According to the notion of attribution, people attempt to explain why others behave in a certain way or assign causes to behavior (Hsieh, 2019). Attribution is a three-step process that begins with perception or observation of the behavior, followed by a belief that the behavior was performed on purpose, and finally followed by a decision about whether the person believes the other person was forced to perform the behavior (in which case the cause is attributed to the situation), or not (in which case the cause is attributed to the other person) (Maymon et al., 2018).

Previous studies have emphasized how perceived experiences in Science education affect the learners. The rapid development of science and technology is a tremendous challenge for humanity in keeping up with the quick pace of societal progress, particularly in emerging and third-world nations (Harris et al., 2020). The most sensible environmental education foundation is Science, taught in primary and secondary schools (Sadera et al., 2020). The main reasons for students' poor performance in science classes include a lack of support for a scientific culture reflected in the curriculum's

shortcomings, an ineffective teaching and learning process, a lack of instructional materials, and inadequate teacher preparation (Jun et al., 2022). Recent worldwide research has revealed that secondary school students in several Western European nations lack enthusiasm for Science and technology (Jiang et al., 2019). In contrast, Palines and Cruz (2021) stated that pupils in non-Western European nations like India are typically significantly more interested in Science. In other words, interest in Science is highest in non-OECD nations, where scientific education performs the lowest. However, within nations, the pupils who performed higher had a greater interest in Science. For students following a typical science path, lecture-based instruction works best since it communicates complex and new knowledge conventionally and comfortably (Rogayan Jr. et al., 2021). Instruction must include both verbal and visual communication of information to the student. Using graphic organizers, students can follow along with the lecture and work with the instructor to develop their grasp of each idea. Additionally, it enables the teacher to formally evaluate the student's knowledge as the session goes along (Locion et al., 2022). Although average PISA test scores and developmental stage are substantially connected with young pupils' lack of interest in Science, neither factor fully explains why this is the case. Eddy (2019) stated that researchers have put forth different possible explanations for this seeming lack of interest in Science in Western European nations. These ideas, however, do not adequately account for the disparity between the levels of scientific interest in developed and less developed nations (Park & Ha, 2022). Due to the initiatives and movements in science education that emerged in Western Europe and North America, curricula in Asia and Africa are frequently analogous to those in Western Europe (Orion, 2019). Although students might not see them that way, these curricula are probably just as out-of-date—if not more—than those in Western Europe (Lee, 2022). Science generally piques students' interest under ten, but that interest either drops or stabilizes as they age. Students generally have their minds made up regarding Science by the time they are 14 years old, and they hold those beliefs for the rest of their lives. Sadera et al. (2020) noted that students at this age are unlikely to be aware of postmodernist critiques of Science or possess sophisticated opinions on how Science operates or how modern science differs from the science taught in school. Costa and Broietti (2021) emphasized that concerns regarding the results of science teaching in schools are frequent. For instance, Roche et al. (2020) stipulated that industry lobbyists claim that more highly qualified scientists, technicians, and engineers are required if any nation is to successfully compete in the world's technologically advanced marketplaces (Sharatchandra Singh, 2022). Regardless of their future goals, too few young people continue to study Science in school since it is no longer required. As a result, fewer people apply for science degrees, lowering the number of science graduates (Aranda, 2022). It specifically highlighted several key issues, including the low number of women choosing to major in science-related fields, student complaints about the quality of science education, the dearth of competent and passionate science professors, and the negative perception of science-related occupations among young people. Leonardo and Cha (2021) presented that technology and Science play a major role in the country's development. However, we already understand that many people cannot access Science and technology. Wisanti et al. (2021) added that natural resource depletion, rising poverty, starvation, and illiteracy in numerous countries globally are some of the long-lasting issues facing civilization today. Karampelas (2021) mentioned that the absence of resources and infrastructure for science teaching was one of several problems. Due to these difficulties, learning is significantly impacted, which must be addressed immediately (Le et al., 2021). Academic effectiveness among students and resource accessibility are inextricably linked. Students who attended institutions with insufficient facilities for instruction and learning performed worse than their peers who attended institutions with adequate facilities (Diate & Mordeno, 2021). Due to the requirement for science education to be proactive, pertinent, and capable of preparing students for life in the present

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and the future, these changes challenge science educators to reconsider the epistemology and pedagogy used in science classrooms today. Palines and Cruz (2021) clarified that the lack of classroom resources, appropriate textbooks, the preparation and training of science teachers, religious and political opposition to cutting-edge science instruction, the need to meet standards and prepare students for standardized exams, and the dramatically rising amount of information available via the internet as a source are just a few of the difficulties in the field of science education. Given these and other issues, Budrikis (2020) added that it is crucial to comprehend, acknowledge, and develop teenage learners' strengths while customizing education to address the unique difficulties this age group faces (Habig & Gupta, 2021). These courses are important in school curricula because of their involvement in scientific and technical growth, a prerequisite or requirement for national development (Barantes & Tamoria, 2021). However, concerns with limited and sub-standard learning resources, culture, belief, class size, students' overall attitudes, and poor reading habits limit the teaching of these pertinent subjects. All levels of education's science curriculum are considered impractical and abstract. Students in general classes often fail to recognize the presence of science in their everyday surroundings and the wide applicability of the scientific method in various contexts (Sadera et al., 2020).

However, examining the literature on academic challenges encountered by learners reveals several gaps and shortcomings. The study by Sadera et al. (2020) revealed that students encounter various challenges and difficulties when learning, including issues related to student motivation, cognitive ability, instructor traits, medium of instruction, subject matter content, learning environment, instructional resources, curriculum, and parental support. The t-test comparison revealed that, unlike their female counterparts, male students encounter greater difficulties in accessing instructional materials and parental support. According to the research, junior high school students' primary concern with studying Science is the instructional materials and delivery method. In contrast, their most significant problem is teacher qualities and student motivation. According to the survey results, the nine kids have few difficulties learning Science. The transcripts of the interviews, however, showed that junior high school pupils face various challenges related to cognitive ability, curriculum, instructional resources, and learning environment. Mateen's (2019) study revealed that most learners love learning and studying science subjects. Science offers practical applications that make use of cutting-edge technology in real-world situations. A person is motivated to examine discoveries since Science is intriguing. Reasoning ability is improved. Science education helps students grow intellectually and socially, fostering a sense of responsibility for safe workplace practices. Laboratory exercises better pique students' interests. By enhancing their capacity for creative thought, students with a background in Science have more scientific knowledge and skills. Students' decision-making abilities improve when they have a basic understanding of Science. The study addresses several further questions about the perceived challenges experienced by learners in science education. On this premise, the paper addresses issues concerning students' challenges. The input depends on the student's profile variables, such as age, sex, and General average in Science subjects. In addition, perceived challenges experienced by learners in Science education, including student motivation, cognitive ability, teacher characteristics, subject matter content, medium of instruction, learning environment, instructional materials, curriculum, and parental support, will be gauged. The questionnaire adopted from the study of Sadera et al. (2020) will be used to gather data. The data will be treated using statistical methods. It will serve as a basis for interpretation to make a reliable and factual output. Furthermore, this process will be the phase in which the study application will be carried out. The output is an Action Plan that will address the perceived challenges experienced by learners in Science education.

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OBJECTIVES OF THE STUDY

The study aimed to assess the perceived challenges encountered by Junior High School learners at Roosevelt National High School during the post-pandemic era for School Year 2022-2023. This study will utilize a descriptive survey research design. A questionnaire adopted from the study of Sadera et al. (2020) will be used to gather data. The researcher will use percentages and frequencies to quantify the respondents' profile variables. The researcher will use Means to determine the final weight of each item in the survey questionnaire. One-way ANOVA will determine the degree of variation as mentioned in the study's hypothesis at a significance level of .05. The results of this study will be helpful to school administrators as they plan and implement successful learning environments for their students and learners, which will help them address the academic challenges they experience. Science teachers can increase students' motivation to learn Science using learner-appropriate strategies, approaches, and methodologies. The study will help parents guide their children in coping with the challenges they face in school. Future researchers can use the results of this study to examine other factors affecting the learners' academic performance in the different subject areas.

METHODOLOGY

Research Design

The study utilized a descriptive research design. Descriptive research refers to a quantitative research technique that aims to collect measurable information for the population sample's statistical analysis. It is a well-liked instrument for market analysis that enables gathering and describing the characteristics of the demographic category (Sadera et al., 2020). As stated in the study of Basilio & Bueno (2019), descriptive survey research is designed in an organized way to describe facts, features, qualities, and traits of a given population or area of interest factually. This type of research design is used to collect, describe, and explain true information that defines existing important events or patterns of things, to identify and give a good reason for problems, current conditions, and practices, to make comparisons and processes of figuring out the worth, amount, or quality of something. Using the survey questionnaire from Sadera et al. (2020) as a tool, the design will be used statistically to describe and analyze the perceived challenges encountered by Junior High School learners of Roosevelt National High School during the post-pandemic era for School Year 2022-2023.

Research Site

The study was conducted at Roosevelt National High School, which is part of the Schools Division of Bataan (SDO Bataan). It is located at Purok 2-A, Roosevelt, Dinalupihan, Bataan.

Participants

This study will focus on assessing the perceived challenges encountered by Roosevelt National High School's junior high school learners during the post-pandemic era for School Year 2022-2023. The study's respondents will be four hundred (400) Junior High School learners from different grade levels of Roosevelt National High School. The implications of the findings will be considered as a means of designing an action plan to help learners address the challenges they have experienced. The study will be time-limited from May to December 2023.

Instrumentation

The researcher adopted the questionnaire from the study of Sadera et al. (2020) to gather the needed data for the study. The tool provides context and measurement needed to help schools evaluate

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the difficulties students face in Science education. Part I of the questionnaire surveyed the respondents' profile variables, which include Age, gender, grade level, and general average of the learners in Science. Part II dealt with the perceived challenges experienced by learners in Science education regarding student motivation, student cognitive ability, teacher characteristics, subject matter content, medium of instruction, learning environment, instructional materials, curriculum, and parental support. In rating the statements, the researcher used a 4-point Likert Scale. Since the instrument was adopted from an identified source and it was available online, validation was no longer needed. The tool was constructed and validated by professors from a university in Zambales. It was utilized to assess the perceived challenges encountered by learners in Science education. In checking the readability, clarity of words used, reliability of style, and likelihood of target participants being able to answer the questions, the questionnaire was piloted in Jose C. Payumo Jr. Memorial High School under the Schools Division of Bataan. The Cronbach-alpha test was conducted to ensure the reliability of the questionnaire. The Cronbach's alpha value is 0.801, which is considered good and suggests a solid internal consistency among the items on the scale. The researcher and the adviser considered their recommendations and suggestions. Furthermore, the instrument was checked and validated by the researcher's adviser. The researcher obtained approval for the study from the Schools Division Superintendent (SDS) of Bataan. The researcher requested the parents' permission after the approval letter was signed. Participants received a letter outlining the study's objectives and were asked to sign and return a consent form after reading it. No respondent was subjected to coercion or any other form of undue influence to complete the questionnaire. Participants were made aware of the academic nature of the study and advised that their responses should be kept anonymous to allay any fears on their behalf. The privacy rights and protection of study participants were assured. Adequate confidentiality of the data from the research was ensured. Recognition of other authors' works in any section of the dissertation using the APA reference method. The anonymity of individuals and organizations involved in the research was maintained. This research conformed to the Data Privacy Notice to protect sensitive information. It informs participants about the purpose of collecting their personal information, the intended use, and the measures taken to protect it. It also provides the respondents with legal rights regarding their data.

Data Collection

The researcher requested permission from the Schools Division Superintendent of Bataan. The letter of request, along with the attached authorization to conduct the study, was forwarded to the School Head of Roosevelt National High School, Sir Romualdo G. Comia. Having secured permission, the researcher administered the questionnaires to the respondents.

In gathering data for the study, the researcher followed the following procedures: The researcher sent a letter to the Schools Division Superintendent of the Division of Bataan for permission and recommendations for the study's conduct. Another letter was sent to the School Head requesting authorization to conduct the study. Upon approval, the researcher sent consent to the parents of the respondents. Four hundred students from Grades 7-10 served as study respondents. The researcher utilized a printed copy of the questionnaire among the respondents to ensure a 100% retrieval rate. The questionnaires were retrieved while the data were tallied, tabulated, and interpreted accordingly. The data gathered were consolidated and processed through Microsoft Excel (2019) and Statistical Package for Social Sciences version 20 (SPSS v 20), respectively. The data collected was tabulated. Variables were arranged accordingly. The researcher used Percentage and Frequency to quantify the respondents' profile variables. The researcher used Means to determine the final weight of each item in the survey questionnaire. One-way ANOVA was used to determine the degree of variation, as

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mentioned in the study's hypothesis, at a .05 significance level. This statistical method examines the means of more than two independent groups to ascertain whether there is a significant difference between them.

RESULTS AND DISCUSSION

Theme 1. Analysis of Variance between Profile Variable and Challenges Encountered. The Table provided the results of a statistical analysis ANOVA (Analysis of Variance), examining the influence of different profile variables on various aspects of education, such as student motivation, cognitive ability, teacher characteristics, subject matter content, medium of instruction, learning environment, instructional resources, curriculum, and parental support.

As can be gleaned in the Table, profile variables (Sex, Age, Grade Level, General Average) do not significantly influence student motivation since the f-values were below critical values, and p-values were above the significance level of 0.05. Likewise, factors such as student cognitive ability, teacher characteristics, learning environment, instructional resources, and curriculum are considered. Grade Level was the only significant factor influencing subject matter content, with a p-value of 0.003 below the 0.05 threshold. These findings suggest that students' grade level has a notable impact on their understanding of subject matter content. Mateen (2019) stated in a study that students' grades impact the subject matter in the Science subject.

Sex and Age did not significantly impact the medium of instruction. However, Grade Level and General Average were significant, with p-values of 0.047 and 0.048, respectively. These suggest that the two factors play a role in determining the medium of instruction. Dahlia et al. (2016) mentioned that the medium of instruction affects students' grades in Science subjects. Also, there is significant variation in the perception of the medium of instruction and grade level of students in Science (McDermott, 2023).

Age, Grade Level, and General Average were significant factors influencing parental support, with p-values of 0.029, 0.001, and 0.967, respectively. These suggest that the three factors are likely to impact parental support substantially. In the study by Smokoska (2020), it was found that variables such as age, grade level, and general average in Science significantly impact parental support for learners. These findings suggest that most profile variables examined have no significant impact on various aspects of education. However, there are exceptions such as Grade Level for Subject Matter Content and Grade Level, Age, and General Average for Medium of Instruction and Parental Support. These findings can be helpful for educators and policymakers in tailoring educational strategies to suit the needs of students better.

In science education, an action plan is a strategy framework that outlines the objectives, stages, and deadlines necessary to improve the standard of instruction in science teaching and learning. These extensive plans offer a clear route for accomplishing goals in scientific education, making them essential resources for educators, educational institutions, and legislators. Action plans have various effects on scientific education (Theresa, 2021). They simplify collaboration among stakeholders on shared objectives by providing a clear and quantifiable means of defining educational goals.

Table 1

Analysis of Variance between profile variable and challenges encountered

Challenges	Profile Variables	f-value	Sig.	Decision

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Student motivation	Sex	.945	.496	Accept H_o: Not significant
	Age	1.093	.363	Accept H_o: Not significant
	Grade Level	1.582	.088	Accept H_o: Not significant
	General Average	.968	.483	Accept H_o: Not significant
Student cognitive ability	Sex	1.587	.074	Accept H_o: Not significant
	Age	.918	.545	Accept H_o: Not significant
	Grade Level	1.558	.083	Accept H_o: Not significant
	General Average	1.123	.334	Accept H_o: Not significant
Teacher characteristics	Sex	1.002	.449	Accept H_o: Not significant
	Age	.906	.547	Accept H_o: Not significant
	Grade Level	.821	.638	Accept H_o: Not significant
	General Average	1.261	.234	Accept H_o: Not significant
Subject matter content	Sex	1.037	.417	Accept H_o: Not significant
	Age	1.276	.196	Accept H_o: Not significant
	Grade Level	2.158	.003	Reject H_o: Significant
	General Average	1.125	.323	Accept H_o: Not significant
Medium of instruction	Sex	1.823	.034	Reject H_o: Significant
	Age	1.254	.234	Accept H_o: Not significant
	Grade Level	1.737	.047	Reject H_o: Significant
	General Average	1.730	.048	Reject H_o: Significant
Learning environment	Sex	1.334	.178	Accept H_o: Not significant

	Age	1.178	.286	Accept H_o: Not significant
	Grade Level	1.249	.232	Accept H_o: Not significant
	General Average	.466	.956	Accept H_o: Not significant
Instructional resources	Sex	1.157	.304	Accept H_o: Not significant
	Age	.999	.455	Accept H_o: Not significant
	Grade Level	1.581	.076	Accept H_o: Not significant
	General Average	.636	.845	Accept H_o: Not significant
Curriculum	Sex	1.405	.141	Accept H_o: Not significant
	Age	.389	.982	Accept H_o: Not significant
	Grade Level	1.017	.436	Accept H_o: Not significant
	General Average	1.066	.387	Accept H_o: Not significant
Parental Support	Sex	.960	.497	Accept H_o: Not significant
	Age	1.830	.029	Reject H_o: Significant
	Grade Level	2.651	.001	Reject H_o: Significant
	General Average	.440	.967	Accept H_o: Not significant

These plans encourage accountability by assigning different people and organizations specific roles and responsibilities, enabling them to perform the required actions. Action plans also aid in efficiently distributing resources, ensuring the availability of the necessary monetary and human resources for successful implementation. These plans are essential for raising the standard of science education because they provide provisions for curriculum improvement, professional development, and the promotion of equal access to science education. They support innovation and economic success by helping create a globally competitive and scientifically literate workforce (Krainer, 2021).

The study's implication is geared toward developing an action plan to minimize the academic challenges encountered by students in Science. A well-crafted action plan can significantly reduce the academic obstacles that science students must overcome. Most of all, it enables teachers and educational institutions to pinpoint the difficulties that students have, whether related to comprehension, engagement, or resources. Action plans allow the implementation of focused tactics and interventions by precisely outlining these obstacles. Action plans can address the underlying

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reasons for academic difficulties and offer customized solutions that increase student performance and create a more enjoyable science learning environment by promoting a comprehensive approach to science education. When faced with obstacles at school, having an action plan can be very helpful, particularly for students who will find it easier to handle the current issues with learning because it can result in a more effective and tangible solution.

CONCLUSION

Significant findings of the study revealed that most of the respondents are male, in the age bracket of 14-16, Grade 8, and have a general average of 75-79 in Science. Also, the study revealed that students experience challenges in Science, along with issues related to student motivation, cognitive ability, teacher characteristics, subject matter content, medium of instruction, learning environment, instructional materials, curriculum, and parental support. It was also found that there are no variations in the challenges in science education when grouped according to their profile variables. However, there are exceptions such as Grade Level for Subject Matter Content and Grade Level, Age, and General Average for Medium of Instruction and Parental Support. The results of this study will be helpful to school administrators as they plan and implement successful learning environments for their students and learners, which will help them address the challenges they experience. Science teachers can motivate students to learn science subjects by using strategies, techniques, and methods tailored to the learners' needs. The study will help parents guide their children in coping with the challenges they face in school. Future researchers can use the results of this study to examine other factors affecting the learners' academic performance in the different subject areas. There are several delimitations to this approach. The study's respondents will be four hundred (400) Junior High School learners of Roosevelt National High School. The implications of the findings will be considered as a means of designing an action plan to help learners address their perceived challenges. The study will be time-limited from May to December 2023. It based its conclusion on the profile attributes of the respondents, including Age, sex, grade level, and overall average in Science. In addition, perceived challenges experienced by learners in Science education, including student motivation, cognitive ability, teacher characteristics, subject matter content, medium of instruction, learning environment, instructional materials, curriculum, and parental support, will be gauged.

TRANSLATIONAL RESEARCH

The study's findings will support school administrators in creating and implementing effective learning environments for their students and learners, enabling them to meet better the obstacles they face. By employing strategies, approaches, and methods appropriate for their pupils, science teachers can assist students in becoming motivated learners of science subjects. Parents can use the study's recommendations to help their kids deal with the difficulties they face in school. Future investigators and researchers can utilize the study's outcomes to investigate other variables influencing the students' academic achievement across many topic areas.

For this research to be implemented effectively, the researcher must communicate it to the people who will benefit from it. On the other hand, to inform the people concerned who will benefit from this research, such as school administrators, teachers, learners, and parents, awareness sessions, seminars, workshops, parent-teacher conferences, and student activities will be conducted. The administrator and teacher should implement the action plan provided based on the study's findings to determine if it will help reduce challenges encountered by junior high school students in Roosevelt National High School in studying science subjects. Additionally, pamphlets or infographics informing

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the school about the research and its findings should be distributed to provide the school's constituents with further information.

LITERATURE CITED

Aranda, M. R. R. (2022). Learning Challenges in the New Senior High School English Curriculum in the Philippines. International Journal of Learning, Teaching and Educational Research, 21(11), 315–333. https://doi.org/10.26803/ijlter.21.11.18

Barantes, A. K. A., & Tamoria, J. R. (2021). LARO (Learners Active Response to Operant) lessons in improving the basic science process skills of elementary pupils. JPBI (Jurnal Pendidikan Biologi Indonesia), 7(1), 11–24. https://doi.org/10.22219/jpbi.v7i1.15510

Basilio, M. B., & Bueno, D. C. (2019). Research Skills and Attitudes of Master Teachers in a Division towards Capability Training. Online Submission,166. https://doi.org/10.17758/ERPUB3.UHO119421

Budrikis, Z. (2020). Physics in a time of COVID-19. Nature Reviews Physics, 2(4), 177. https://doi.org/10.1038/s42254-020-0166-8

Costa, S. L. R., & Broietti, F. C. D. (2021). Scientific Practices in Science Education Publications: An Analysis of Research Contexts. Science Education International, 32(4), 282–291. https://doi.org/10.33828/sei.v32.i4.1

Dahlia Romero Domingo. (2016). CONTENT AREA EFFECTIVENESS: ENGLISH VS FILIPINO MEDIUM OF INSTRUCTION. PEOPLE: International Journal of Social Sciences; https://www.semanticscholar.org/paper/CONTENT-AREA-EFFECTIVENESS%3A-ENGLISH-VS-FILIPINO-OF-Domingo/d31d4ee2f0df4f3fdc32366661952d64308e2fbe

Diate, K., & Mordeno, I. C. (2021). Filipino Physics Teachers' Teaching Challenges and Perception of Essential Skills for a Supportive Learning Environment. Asia Research Network Journal of Education, 1(2), 61–76.

Eddy, S. L. (2019). Recent research in science teaching and learning. CBE Life Sciences Education, 18(1), 1–3. https://doi.org/10.1187/cbe.18-12-0250

Galoyo, F. (2021). Difficulties Encountered by Calaca Senior High School Learners in Science Subjects: An Input to Game Based Learning Strategy (GBLS). International Journal of Research in Engineering …, 4(8), 83–87. http://www.journals.resaim.com/ijresm/article/view/1185%0Ahttp://www.journals.resaim.com/ijresm/article/download/1185/1133

Habig, B., & Gupta, P. (2021). Authentic STEM research, practices of science, and interest development in an informal science education program. International Journal of STEM Education, 8(1). https://doi.org/10.1186/s40594-021-00314-y

Hadzigeorgiou, Y., & Schulz, R. M. (2019). Engaging Students in Science: The Potential Role of "Narrative Thinking" and "Romantic Understanding." Frontiers in Education, 4(May), 1–10. https://doi.org/10.3389/feduc.2019.00038

Harris, J. L., Al-Bataineh, M. T., & Al-Bataineh, A. (2020). One to One Technology and its Effect on Student Academic Achievement and Motivation. Contemporary Educational Technology, 7(4), 368–381. https://doi.org/10.30935/cedtech/6182

Hsieh, S. T. (2019). From the perspective of attribution theory and its success aspects, we examine how and why nostalgia influences the introduction of new IT systems. Journal of Internet Technology, 20(6), 1961–1971. https://doi.org/10.3966/160792642019102006025

Jiang, Q., Hou, L., & Hou, L. (2019). Research on the Influence of Science and Technology Advancement and Social Progress on the Ideological and Political Education Work in Colleges and Universities. 328(Ichssd), 87–90. https://doi.org/10.2991/ichssd-19.2019.17

Jun, I., Geverola, R., Mutya, R. C., Bañados-Siason, L. M., & Bonotan, A. (2022). Challenges and struggles of public senior high school science teachers during the new normal. Journal of Research, Policy & Practice of Teachers & Teacher Education, 12(1), 49–68. https://doi.org/10.37134/jrpptte.vol12.1.4.2022

Karampelas, K. (2021). Trends on science education research topics in education journals. European Journal of Science and Mathematics Education, 9(1), 1–12. https://doi.org/10.30935/scimath/9556

Krainer, K. (2021). Implementation as interaction of research, practice, and policy. Considerations from the Austrian initiative IMST. ZDM – Mathematics Education, 53(5), 1175–1187. https://doi.org/10.1007/s11858-021-01300-y

Le, L. T. B., Tran, T. T., & Tran, N. H. (2021). Challenges to STEM education in Vietnamese high school contexts. Heliyon, 7(12), e08649. https://doi.org/10.1016/j.heliyon.2021.e08649

Lee, H. (2022). Pedagogical and Epistemological Challenges of Pre-Service Science Teachers Teaching Socioscientific Issues. Asia-Pacific Science Education, 8(2), 301–330. https://doi.org/10.1163/23641177-bja10050

Lee, S. Y., & Hall, N. C. (2020). Understanding procrastination in first-year undergraduates: An application of attribution theory. Social Sciences, 9(8). https://doi.org/10.3390/SOCSCI9080136

Leonardo, M. D. F., & Cha, J. (2021). Filipino Science Teachers' Evaluation on Webinars' Alignments to Universal Design for Learning and Their Relation to Self-Efficacy amidst the Challenges of the COVID-19 Pandemic. Asia-Pacific Science Education, 7(2), 421–451. https://doi.org/10.1163/23641177-bja10035

Locion, J. P., Johncarlo C. Sison, Sean Bazel C. Suarez, Meriel T. de Jesus, Jennesa C. Pelande, & Maryknoll S. Uy. (2022). The Academic Experiences of Senior High School Students in the Midst of Pandemic. East Asian Journal of Multidisciplinary Research, 1(6), 1017–1032. https://doi.org/10.55927/eajmr.v1i6.684

Mateen, M. (2019). Problems faced by students during teaching science at elementary level in private schools in karachi. Academic Research International, 10(4). http://www.savap.org.pk/journals/ARInt./Vol.10(4)/ARInt.2019(10.4-08).pdf

Maymon, R., Hall, N. C., Goetz, T., Chiarella, A., & Rahimi, S. (2018). Technology, attributions, and emotions in post-secondary education: An application of Weiner's attribution theory to academic computing problems. In PLoS ONE (Vol. 13, Issue 3). https://doi.org/10.1371/journal.pone.0193443

McDermott, A. (2023). English is the go-to language of science, but students often do better when taught in more tongues. Proceedings of the National Academy of Sciences of the United States of America, 120(40). https://doi.org/10.1073/pnas.2315792120

Orion, N. (2019). The future challenge of Earth science education research. Disciplinary and Interdisciplinary Science Education Research, 1(1), 1–8. https://doi.org/10.1186/s43031-019-0003-z

Palines, K. M. E., & Cruz, R. A. O. Dela. (2021). Facilitating factors of scientific literacy skills development among junior high school students. Lumat, 9(1), 546–569. https://doi.org/10.31129/LUMAT.9.1.1520

Park, E., & Ha, M. (2022). Coping with Challenges and Uncertainty in Scientific Research: Case Studies of Two Postdoctoral Researchers in an Epigenetics Laboratory. Asia-Pacific Science Education, 8(2), 391–423. https://doi.org/10.1163/23641177-bja10052

Roche, J., Bell, L., Galvão, C., Golumbic, Y. N., Kloetzer, L., Knoben, N., Laakso, M., Lorke, J., Mannion, G., Massetti, L., Mauchline, A., Pata, K., Ruck, A., Taraba, P., & Winter, S. (2020). Citizen Science, Education, and Learning: Challenges and Opportunities. Frontiers in Sociology, 5(December), 1–10. https://doi.org/10.3389/fsoc.2020.613814

Rogayan Jr., D. V., Rafanan, R. J. L., & De Guzman, C. Y. (2021). Challenges in STEM Learning: A Case of Filipino High School Students. Jurnal Penelitian Dan Pembelajaran IPA, 7(2), 232. https://doi.org/10.30870/jppi.v7i2.11293

Sadera, J. R. N., Torres, R. Y. S., & Rogayan. Jr., D. V. (2020). Challenges Encountered by Junior High School Students in Learning Science: Basis for Action Plan. Universal Journal of Educational Research, 8(12A), 7405–7414. https://doi.org/10.13189/ujer.2020.082524

Sharatchandra Singh, T. (2022). PROBLEMS OF TEACHING SCIENCE AT HIGHER SECONDARY LEVEL Objectives and methodology. 1–3. https://www.stjosephuniv.edu.in/gjaecsma

Smokoska, L. (2020). An Investigation of Parental Involvement and Student Academic An Investigation of Parental Involvement and Student Academic Achievement in Middle School Achievement in Middle School. https://thekeep.eiu.edu/cgi/viewcontent.cgi?article=5788&context=theses

Theresa, A. (2021). Students' Anxiety in Research: Basis for Action Plan in Research Development. International Journal of Research in Engineering, Science and Management, 4(8), 197–199. https://journal.ijresm.com/index.php/ijresm/article/view/1221

Wisanti, Ambawati, R., Putri, E. K., Rahayu, D. A., & Khaleyla, F. (2021). Science online learning during the covid-19 pandemic: Difficulties and challenges. Journal of Physics: Conference Series, 1747(1). https://doi.org/10.1088/1742-6596/1747/1/012007