FACTORS AFFECTING SCIENCE ACADEMIC PERFORMANCE AMONG GRADE IV PUPILS OF SAN RAFAEL INTEGRATED SCHOOL

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ABSTRACT

The descriptive-correlational quantitative study aimed to investigate on the factors affecting science academic performance among Grade IV Pupils of San Rafael Integrated School. The study utilized adapted survey questionnaire as research instrument by applying quantitative technique. The study was responded by Grade IV Pupils from two different sections of San Rafael Integrated School and it involved 78 respondents. The study found out that factors and academic performance were insignificant yet it is negligible. Findings of the result revealed that parental support, self-esteem and science interest were not attributed to the respondents as well as physiological aspect and availability of materials. However, though it was revealed that the two variables were not correlated, the researcher still developed an intervention to address the students' self-esteem and science interest, as it is found in a moderate level and considered as less factors. So with that, the researcher called the self-esteem intervention as "Collaborative Strategy", and science interest intervention as "Hands-On Strategy". Hence, the sample lessons and learning competencies were reflected to Science K-12 Curriculum Guide. The study recommends the need for teachers to integrate collaborative learning strategies and creative hands-on activities to improve self-esteem and enrich science interest. School administrators also may assess the availability of materials to be used and must be sought to provide needed science materials and other science laboratory equipment that are mere essential for teaching and learning process.

Keyword: *psychosocial factor, parental support, self-esteem, physiological, environmental, science*

1. INTRODUCTION

Science discipline has been widely recognized as one of the essential branches of the educational system that has been used for many decades to support students to comprehend scientific principles and rules, formulate hypotheses and develop skills that are significant in analyzing and solving daily problems (Bhagat, 2018). The acquisition of scientific process knowledge and skills make students more competent in understanding scientific facts, concepts and discovering new information through experimental activities that leads them to increase their academic performance in schools (Maranan, 2017). Nevertheless, poor achievement in the science field is one of the current issues nowadays (Zhou, 2012). In the findings of the recent study was shown that during national examinations among primary schools, there is a continuation of failure, poor performance, and unceasing dropout from science field (Mabula, 2012). Despite of the increased effort of science education to produce competitive individuals, there are still numerous children perform poorly that have been attributed to several factors which has made it not possible for them to meet the educational standards (Panoy, 2013).

In a global setting, according to Shimbi (2016) cited by Jidamwa (2012) that academic achievement in science subjects has risen from time to time among primary students in Tanzania, East Africa, Africa, and the world at large. Though, educational system aims to promote the academic sector, science courses still continue to be a burden in Ugandan education, according to (Lugonda, 2018 reported by Kiyaga, 2013). Furthermore, based on the results of the 2012 Uganda Certificate of Education (UCE), science subjects continue to do poorly when compared to arts discipline. On the other hand, according to a recent study focusing on factors influencing science academic performance among elementary schools in Moshi municipality (Komba & Kira, 2013), elementary students perform poorly and the factors influencing their poor performance include lack of teachers, un-conducive teaching and learning environments, and poor teaching and learning materials. In addition, lack of resources, learners' socioeconomic situation, parents' participation, huge classes, learners' developmental level, and the curriculum, according to Shimbi (2016) cited by Dhurumraj (2013) are all variables that contribute to low science performance.

In the National setting, based on a recent survey by Rabino (2014), about 46 percent of fourth-grade children achieved at or above the basic accomplishment level in science in 2015, and 38 percent performed at or above the proficient level. According to the findings of the survey, pupils exhibited some basic science knowledge or demonstrated insufficient awareness of scientific concepts and foundational scientific facts. Moreover, he also added that there are many constraints facing science education in Philippine schools that account for the low performance of the Filipino students and it includes the lack of parental support and involvement, the inadequate teaching learning process, insufficient instructional materials and lack of teacher training.

Several studies have explored aspects of psychosocial factors in terms of parental support, science interest and self-esteem; physiological factors and environmental factors that can impact the science academic performance. Some researchers have often looked at the impact of these factors towards academic performance however, they have not always sufficiently explored it. Therefore, the researcher needs to examine the impact of factors influencing science academic performance among Grade IV students in San Rafael Integrated School. Further, the researcher assumed that there are no studies in this locale that centers on the relationship between the factors and science academic performance. With this reason, the researcher decided to conduct the study in order to investigate, provide information on how the factors influencing science academic performance, and also to disentangle the relationship between the two underlying variables of this study. Lastly, the researcher hopes that this study will be successful so that it would be beneficial and be informative to the said locale.

2. REVIEW OF RELATED LITERATURE

This chapter presents and summarizes the review of related literature and studies after the thorough search done by the researchers that provide a rich background relevant to the study. First, the importance of Science. Second, Science in the early childhood classroom. Third, Science education in the Philippines. Fourth, the factors affecting Science academic performance. Fifth, the difficulties encountered in Science learning. Lastly, the ways in enhancing Science literacy.

2.1 The Importance of Science

As highlighted by the Science Curriculum Guide (2012) that the K-12 Curriculum is built around the three basic elements of science. The first is the content of our scientific understanding in terms of science. Science process skills (SPS) and scientific attitudes and values are the other two crucial characteristics. According to Maranan (2017) these elements could be employed both locally and globally. According to Mickens, et.al. (2016) science is one of the essential systems in education by which it generate knowledge through the underlying scientific facts and, (Batomalaque, 2002) by understanding scientific principles that are associated with real-world events to acquire essential science skills, attitudes and values that necessary in analyzing and solving daily problems. Maranan (2017) also highlighted that it is significant to assimilate profoundly the nature of science to nurture student's appreciation with regards to scientific concepts limitations and enable them to investigate critically the products outcome of science and technology. Indeed, Science has always been thought of as a highly objective field (Zhou, 2012). He further discussed in many countries' curriculum texts, the purpose of science education is set up as improving students' basic knowledge, skills, and scientific attitude for them to perform well, according to (Reiss, 2007) , also to grasp important concepts regarding science's nature and activity, as well as certain key conclusions made by science.

Harlen (2010) also indicated that scientific education equips children to participate in informed decisions and appropriate actions that requires a broad comprehension of essential scientific concepts, as well as the development of scientific skills and attitudes that are relevant to students' lives both during and after school so that they can adapt and work productively in a knowledge-driven society. Panoy (2013) inferred that scientific education aims to improve students' capabilities and allow them to apply them in their everyday life. Individuals' personal, social, and global lives may thus be affected by these abilities. Hence, Reiss (2007) stated that it is a crucial tool for the generating of scientific data, conducting scientific research, and solving problems.

According to Karamustafaoglu (2011) students must develop science process skills through the scientific discovery process. Maranan (2017) mentioned that once a child has an acquisition of scientific process skills, they become more competent in understanding scientific facts, concepts and discovering new information through experimental activities that leads them to increase their science academic performances in schools. Further, Karamustafaoglu (2011) highlighted that the skills are divided into two groups: basic and integrated process skills. The basic process skills involve observing, asking questions, classifying, measuring and predicting. The Integrated process skills include, identifying and defining variables, interpreting data, manipulating materials, recording data, formulating hypotheses, designing investigations, making inferences and generalizations.

2.2 Science in Early Childhood Classroom

Worth (2010) emphasized that Science is the general understanding of scientific concepts and basic science components. Hence, it may be especially crucial in early childhood, since it aids in the development of not only a basis for future scientific understanding but also the important learning skills and attitudes. He also stated that if youngsters are given the opportunity to pursue their interests and gain early science skills from a young age, they are more likely to succeed in school. According to Shimbi (2016) that students who enter primary school with little science knowledge perform poorly in comparison to their peers. Moreover, Worth (2010) concluded that playing in the sink, rearing a pet, or going to the playground are all examples of experiences that allow direct manipulation and experience with materials. These kinds of connections with the natural world must take place in the early childhood classroom, allowing children to build skills and problem solving as well as the framework for grasping basic science related matters.

Keller (2012) mentioned that the phrase "children are naturally scientists" is the one we usually hear. National Science Teaching Association (2014) indicated that their desire to make the world a more predictable place motivates them to investigate and form

conclusions and ideas from their observations. They aren't nearly natural scientists when left to their own devices. To develop their inherent interest and activity into something more scientific, children require instruction and supervision. They must engage in rich scientific inquiry and practice science. Yahya & Ismail (2011) supported that parents and teachers are crucial elements in a child's learning at a young age to promote their scientific knowledge through relevant experiences.

2.3 Science Education in the Philippines

Science education is not merely considered at strength. Based on the results from 2014, (De La Cruz, 2022) estimates that the national achievement test (NAT) passing percentage is only 59.21 percent, which is not excellent. Other international surveys, such as the Trends in International Science Study (TIMSS), have repeatedly shown that the Philippines has regularly performed poorly. Thus, TIMSS' studies also revealed that, when it comes to science, many factors contribute to the country's current predicament.

The paucity of educators in the country, the lack of teaching space and science laboratories, the low quality of student's learner's module, and numerous educators noting that the books are obsolete and filled with errors are among these issues. According to Komba & Kira (2013) that a lack of teacher training, un-conducive teaching and learning environments, unaligned curriculum, and (Rabino, 2014) the inadequate teaching learning process and pedagogical strategies are also factors influencing poor performance in elementary schools. As previously stated, the difficulties in Philippine education severely restrict how most public schools can teach science to their students. Given these limitations in science education, it's not a surprise that our students perceive science negatively.

2.4 Factors Affecting Science Performance

Dixson, Worrell, Olszewski-Kubilius & Subotnik (2016) highlighted that psychosocial factors pertains to motivational constructs that are affected by both psychological and social contexts (e.g., mindsets, future orientation, and self-efficacy). Kolo, Jaafar & Ahmad (2017) stated that students' psychosocial factors such as attitude, confidence, self-efficacy, and social interaction all play a significant effect in their academic achievement. Jaiswal & Choudhuri (2017) determined that parent-child connection provides a strong foundation for students' academic performance and achievement. They also stated that the stronger the relationship they develop with regard to educational matters, the higher the academic performance driven by the students. Besides, Leonard (2013) supported that parental social support is typically defined as a notion that parents support their children with care, love, and values while also encouraging their efforts to succeed.

Brunello & De Paola (2010); Scoppa & De Paola (2010) stated that the home environment has a significant influence in a child's growth and is one of the important aspects in a child's upbringing that is favorably associated to their science performance at school. De Planty, Coulter-Kern & Duchane (2007) further indicated that parents are their children's first and most essential teachers, and to enable children to perform well and succeed at school, parents should actively engage in their child's education. Rivera (2010) further said that the more engagement and involvement of parents, the higher the child's performance. As indicated by Ceka & Murat (2016) that in comparison to those whose parental engagement is less helpful, those who have a larger degree of monitoring and supportive mechanisms from their parents will perform well in their academic pursuits. Athey (2007) mentioned that children learn best when they have the opportunity to participate and interact with their surroundings, particularly their parents, who are a crucial component of their environment and serve as their first teacher, and where the earliest learning occurs. Ceka & Murat (2016) mentioned the significant parental roles as emotional supporters, material providers, and interest builders. Yet, Beqja (2012) infers that they are the strongest role model, and great influencer of their children. Children always imitate the behavior of parents as well as their values. However, Kasapi (2013) said that whenever parents play a positive influence on their children's daily living, and most importantly in their education, their future will be more successful.

For instance, according to Althey (2007), parents should let their students discover on their own, listen to their explanations and questions, assist them in finding solutions, and encourage their curiosity. National Science Teaching Association (2014) also highlighted that when the parent doesn't acquire the ability to trigger children science curiosity, then this could not motivate their child to observe, ask questions, experiment, and build their knowledge of natural and human-made phenomena, and couldn't foster children's creativity, critical thinking, problem solving, and resourcefulness like incorporating authentic tasks such like cooking, doing household chores, gardening, repairing a bike or other household object, planning a trip, and other everyday activities.

Walker, Shenker & Hoover (2010) also discussed that parents more engage in their children's education by talking with them about certain events at school, building their curiosity, encouraging them to pursue science and involve practicing interactive homework then, students are more likely to have positive views and attitudes toward science and may leads to science academic success. Rivera (2010) highlighted the active engagement as a parent may usually be overwhelming, frightening or intimidating in participating children related science activities. According to the findings of the study "The impact of parental involvement on student success," parents' attitudes toward academic involvement at home are generally positive (Rahman, 2001). He also stated, based on the six items about parental participation at home, suggesting that parents rarely permitted their child to forgo schoolwork in order to participate in an extracurricular activity. However, Yahya & Ismail (2011) mentioned that there are also parents who place greater standards for their children and want them to be academically competitive and popular as they grow up,

forcing them to be achievers who are not interested in or motivated to pursue a particular subject. This may reduce their thinking skills and motivation to pursue a particular subject. On the other hand, parents may not share the same views on scientific learning as others, and several believe it is more important for them to assist their children learn other abilities, and parents are less confident in helping their children study science than these other disciplines. According to Walker, Shenker & Hoover-Demsey (2010), if parents have negative views in building their science interest then, there is no way that they can support their children's interest and motivation to learn towards science. On the other hand, there are still researches arguing that regardless of their academic performance in the classroom, parents still support their children's education (Wentzel, 2006).

According to Makgopa & Mokhele (2013), it is the sole responsibility of the parents to create a positive conductive environment, with this, learners do learn well under conditions that are conducive to learning. Yet, he also added that parents must promote an environment in which they feel comfortable, maintain that comfort that is significant for the learner's concentration, and a lack of comfort may result in problems such as poor attentiveness, which obviously leads to poor performance. Lawson (2003) claims that when parents do not provide stable and nurturing home environments, their children come to school ill-prepared, and this obviously makes the teacher's job more difficult.

As mentioned by Jones & Eick (2007) that the notion that science is "fun" appears to be fading during the middle school years. Barton & Tan (2010) added that children get less attractive and often gain a negative attitude in science as they move through the middle stage. Moreover, Nasr (2011) stated that children's attitude towards science learning can affect the acquisition of scientific knowledge and skills. Whenever the student possesses a negative attitude, according to him, they will lose their motivation to learn, engage in scientific activities, experimentation and an interest in focusing on the scientific process, and that may lead them to minimize their desire to understand the world of science education. Hence, children uninterested are likely to skip lectures, not taking notes, not participating in class discussion and are reluctant to actively involve themselves in science-related activities. As per Lamb & et. al. (2011) stated that boosting a student's interest is one way to hold their attention, motivate them to work hard, and help them study science. As indicated by Kpolovie, Joe & Okoto (2014) that one of the most effective ways to achieve academic achievement is to pique a child's interest and promote their active participation in scientific activities, engagement, and learning.

According to Alhadabi (2021) that science interest represents a student's cognitive aptitude for success in the sciences. The more a student's enthusiasm in science, the greater his or her dedication and desire to perform that possibly resulted in academic success. Singh, Granvillie & Dika (2022) discovered that kids who are passionate and interested about science spend more time doing homework and less time watching television. As discussed by Chritidou (2011) that the influences of a good science teacher can often be related to positive science interest. As such, if teachers establish a welcoming science classroom that encourages students to participate in science can have an impact on students' interest and attitudes toward science (Bolshakova, Johnson & Czerniak, 2011). Furthermore, Zacharia & Barton (2014) also supported that attitudes toward science can also be influenced by how science lessons are presented. They also added, students sometimes exhibited good attitudes and enthusiasm in science when they worked on projects that dealt with themes of power, culture, and ideology. Yet, according to Harackiewicz, Durik, Barron, Linnenbrink-Garcia & Tauer (2017) that positive attitudes derive from significant experiences that help to stimulate people's interest in a subject. However, Lamb & et.al. (2011) as cited to Habig (2021) stated that even if children have interest to engage in activities however, if they did not fully acquire essential skills or if their motivation were inconsistent then, there's a probability they will not obtain a good academic achievement.

As stated by Nin (2006) children's self-statistical function could influence children's desire to learn toward science. However, it is often dependent on external sources and it is considered as unstable and can change depending on the feedback received from the others (Baumeister, et al., 2003; Neff & Vonk, 2009). According to Brown (2014) that middle aged children tend to evaluate themselves towards their peers, families and other people that surround them. In some sort, Noronha, Monteiro & Pinto (2018) mentioned that some feel respected, thoughts valued and abilities recognized. According to Hepper (2016) that their self-esteem needs be fulfilled through the positive feedback, praises given by others as resulting in feelings and attitudes of self-assurance, self-worth, capacity, and a sense of being valuable and essential in the world.

Minev (2018) infers that self-esteem has a vital role in children's academic achievement. According to Rubie (2014) that in order to improve students' achievement, the best effective way is to increase their self-esteem. Seifert (2004) also supported that children who obtain greater academic performance usually gain more confidence in contrast to those who have poor confidence in themselves tend to perform less. Thus, according to Vanbuskirk (2021) that when a youngster develops negative feelings toward themselves, their ability to learn about science is hampered, as well as their autonomy to do things on their own. She also stated that children possessed negative self-esteem were afraid to engage in meaningful science experiments and laboratory tasks, yet they were less likely to participate in science learning process, share basic scientific understanding towards their peers, and capable of solving scientific problems. However, Alva & Manuel (2017) investigated on psychosocial, it was discovered that psychosocial levels among nearly all students precisely range between "High" and "Moderate," which simply means that children have positive psychosocial, specifically self-esteem, in all fields, regardless of their academic performance. As per supported by Rubie (2014) cited to Hiddi (2009) that there are children who feel valued, recognized and more confident facing the crowd and negotiating with others even if they perform poorly at school and did not excel in academic fields.

On the other hand, Quist (2022) expounded that physiological aspect are elements that have an impact on the cognition and are connected to the physical body, yet the neurotransmitters that govern your brain activities can be affected when your body's chemistry is improper, for example, owing to inadequate nutrition, dehydration, or alcohol. McLeod (2020) emphasized the essence of physiological needs of young children. Learners' cognition cannot work properly if their needs are not met, which may have an impact on their academic achievement. Nevertheless, according to Enoch (2016) that it didn't directly affect pupils' learning outcomes, but did so mainly impacting their levels of their motivation for achievement.
According to Carracio (2017) that if a student is hungry most of the time or is subjected to conditions that endanger their own existence as human beings due to deprivation, they will be unable to take learning seriously. Furthermore, if students are not properly nourished, dressed, or sheltered, they are more likely to miss school, and even if they do attend, they are more likely to lack the essential concentration to give their lectures their full attention. Additionally, Chard (2019) stated that the effect of not being properly hydrated on children's attention and focus in learning scientific facts and concepts may also have an impact on their development of science literacy abilities and educational outcomes. According to the nationwide study from the Harvard T.H Chan School of Public Health, the findings of the study demonstrated that more than half of the children in the United States are not properly hydrated. It was also discovered that one in four kids drink no water throughout the course of the day and they exhibited negative attitudes, unmotivated to engage learning tasks and unwilling to learn towards scientific concepts, (Perry, Rapinett, Glaser & Ghetti, 2015). Further, there are multiple studies that have connected poor sleep habits to low science cognitive ability and, according to the findings of the study conducted by Lowry (2010) that a person's daytime performance diminishes if they do not obtain enough or good quality sleep. Alertness and vigilance become erratic in quiet surroundings, cognitive and motor responses become delayed, and the likelihood of falling asleep increases. Children may fall asleep in class, resulting in poor science task performance (Edwards, 2008).

Meijer, Habekothe & Wittenboer (2010) conducted a research on fourth graders' assessments of their school performance and sleep/wake patterns. Those who struggled to get out of bed in the morning expressed a lack of motivation to succeed in school. Children who felt more rested were more driven to do their best, had a better student self-image, and were more responsive to teacher influence. Nevertheless, as mentioned by Enoch (2016) as cited to Wyse (2014) that numerous children from urban areas were full at all times, have adequate sleep and have a well conditioning, however, few of them did not take the study seriously and often missed out of schools. Moreover, the World Health Organization (2018) mentioned that middle aged children are at hand of their parents, they support them in emotional and financial needs, provide adequate basic needs, and secure the proper nutrients in order to obtain an optimal physiological functioning. Yet, teachers and schools are required to incorporate healthy eating habits and physical activity across the curriculum in fun and creative ways (Science Association Health, 2021).

Omolo (2020) that environmental factors have a significant impact on an individual's physical and psychological capabilities. As a result, many pupils are said to be unable to reach their full potential due to insufficient environmental stimulation. Orlu (2013) discovered that the environment highly influences performance and that improper maintenance of fixtures and insufficient materials led to lower student's performance. Gilavand (2022) discussed that one of the numerous environmental elements that influenced science students' learning achievement is a lack of science materials, which might disrupt the science learning process.

Gado (2005) stated that the learning experiences that must be acquired by the children might hinder when there is insufficient science instructional materials to be utilized. However, based on the study in Moshito Primary School, (Yadar, 2007 & UNESCO, 2008) detailed that teaching/learning materials such as textbooks, audio-visual resources, computer and software, computer technology, science laboratory equipment and materials for experiment were provided by school but with limited time, considering the total population within the school, and that could affect science acquisition skills and their science performance. However, Adeogum (2011) cited to Mupa (2015) indicated that even the school provided materials to be utilized as enriching the teaching and learning, still there are children who are reluctant to participate in class due to their attitudes, self-efficacy and motivation to learn.

Mutai (2006) asserted that science learning also highly deepened when there are enough reference materials such as textbooks, according to (UNESCO, 2017) which are frequently seen as the primary script that forms the teaching and learning processes, calculators and other supplementary materials as it enrich teaching, engage students in multi-dimensional learning, build students' abilities to apply their knowledge (Elliott & Corrie, 2015), and are thus critical for science literacy outcomes (Read, 2015). Tuimur (2015) said that using it in the classroom can help in the teaching and learning process by effectively explaining new concepts, resulting in a greater ability to comprehend the concepts being taught by the students. Mupa & Isaac-Chinooneka (2019) that a lack of textbooks and materials has a negative impact on effective teaching. Adeogum (2011) further said, if fundamental instructional resources are insufficient, effective teaching cannot take place in the classroom.

2.5 Difficulties Encountered in Science Learning

Based on the student's performance in National Achievement Tests which show that aside from Mathematics, according to Inspire and Fascinate with Science (2009), science continues to be the most difficult field of study in basic education. Based on the Science National Achievement Test, it resulted that in the year of 2010-2011, elementary pupils got a mean percentage of score (MPS) of 68.2 which further means it is below the minimum competency level of 75 percent and it needs remediation from the subject. Moreover, in the year of 2018 PISA results also revealed that the Philippines got a score of 357 in Science that means it is significantly lower than the OECD average of 489 (Huang, Xin, Tili, Yang, Zhang, Zhu & Jemni, 2022). Nevertheless,

Science learning motivation may influence one's desire to learn new skills and knowledge. This is in line with Kaptan & Timurlenk's (2012) study which found that one of the major obstacles in learning science nowadays is a lack of enthusiasm and interest among students. According to another study by Schulze & Lemmer (2017), motivated learners are one step ahead of their classmates when it comes to learning. The rate at which students spend their interest, effort, and attention in learning is referred to as motivation.

In the 2010-2011 National Elementary Achievement Test (NEAT), students correctly answered less than half of the Science questions with 48.61 percent (Demet, 2021). Children have difficulty formulating conclusions after conducting experiments, have low retention of ideas and scientific knowledge, limited reasoning and analytical skills, lack of laboratory knowledge, inability to design/use materials, and a lack of interest in and attitude toward science (Sunga & Hermosisima, 2016). They also highlighted, one of the obstacles in scientific learning is a difficulty with children's cognitive abilities.

2.6 Ways in Enhancing Science Literacy

Children need to have an acquisition of critical thinking skills in the practice of science by which they can directly find the problem and seek an appropriate solutions for problems, create decisions, obtain scientific information, critical questioning and question formulation, nurture construction reliable knowledge, argumentation-defending ideas and debate, use in rejecting-accepting hypotheses, clarifying discrepancies and concluding true statements (Santos, 2017).

Fortunately, Science is a huge part of our daily lives and thus, it's beneficial for children to grapple with real-life problems and relate these problems to scientific theory. Science Education Program (2015) highlighted that indulging children in real-life case studies will uplift (1) collaboration. When students interact and problem-solve collaboratively with their peers or groups, they develop crucial lifelong science knowledge and skills. Srinivas (2011), on the other hand, believed that it gives children the opportunity to share their thoughts with their classmates, present and defend their ideas, discuss various viewpoints and questions, and, most significantly, it keeps them engaged. Significantly, Kelley (2018) claimed that it allows high-achieving pupils to work together with their low-achieving colleagues to complete scientific-related activities. For instance, (2) Peer-to-peer instruction engages students and teaches them about themselves, others, and the world. Peer interaction among youngsters, according to Ullah (2018), is beneficial in learning new science skills, scientific information, and problem-solving solutions. They also added that peer tutoring supports students build science abilities such as managing and planning learning experiences, working in groups, giving and receiving feedback on scientific-related tasks, and lastly evaluating their own learning**.** (3) Science projects frequently have long-term goals and involve students in experiments. Science Education Program (2015) discussed that the youngsters begin with a query or hypothesis, conduct an experiment, and then draw scientific conclusions. They encourage autonomous thought and have improved interpersonal skills. Because most data is gathered visually and then written down for later teacher assessment, field research journals place the student in the middle of the experiment. (4) Inquiry-based, Bulba (2012) stated that it challenges students' understanding by including them in scientifically oriented investigations in which they learn to prioritize evidence, evaluate explanations against alternative explanations, and articulate and justify their decisions. This strategy, according to Guido (2017) , helps children absorb knowledge throughout the day, promotes a deeper grasp of science subjects, and empowers children to take charge of their own learning. Unless there are glitches, children should be able to understand a subject using their own methods and thinking processes. Experiential learning, which places students at the center of the learning experience, follows the same premise.

Furthermore, Science media, according to Clements & Sarama (2008); Linebarger & Piotrowski (2009) that it has the potential to help children and parents build science knowledge and show parents how to support children's explorations in ways that promote thinking and conceptual understanding. Media, for example, can assist parents in comprehending what science is and why it is vital. Neuman, Flynn, Wong & Kaefer (2020) indicated that media can also model what science looks like for young children and their adults, as well as how parents can enrich and extend their children's experiences in ways that encourage science exploration and thinking, as well as children's confidence in their ability to do science and their perceptions of themselves as scientists.

3. METHODOLOGY

3.1 Research Design

The major methodological framework the researchers used in this study was a quantitative correlational study. According to Babbie (2010) quantitative methodology is best suitable when researchers aim to determine whether, and to what degree, a relationship exists between two or more variables within a population or a given sample. Adding to this idea, Cresswell (2013) asserted that quantitative methods emphasize objective measurements and statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, surveys, etc.

3.2 Research Instrument

The researcher employed adapted questionnaires as a main tool for the data gathering process. The said questionnaires of the three factors were derived from different resources; In *Psychosocial Factors* corresponds with *Parental support* was developed by Amponsah, M. (2019) has six (6) questions, *Self-Esteem* patterned from The Six-Item State Self-Esteem (SSES-6) by Webster,

G., et. al. (2020) consisted of twenty (20) questions, and *Science Interest* from "Interest in Science Scale" developed by Fraser (1984) contained with ten (10) questions, *Physiological Factor* from "Measuring Maslow's Hierarchy of Needs" patterned by Lester (2013) has sixteen (16) questions, and *Availability of Materials* was based from "School Questionnaire from TIMSS (2007).

3.3 Respondents of the Study

The study was responded to by the Grade IV Pupils of San Rafael Integrated School of school year 2021-2022.

4. RESULTS AND DISCUSSION

This chapter outlines the presentation of the results and discussion of the findings that were generated by the Grade IV Pupils of San Rafael Integrated School; deduced from each corresponding research instrument employed in every statement of the problem. These covered the level of Science academic achievement, level of the factors; significant relationship between the factors and Science academic performance of the said respondents of San Rafael Integrated School.

4.1 Level of Science academic performance

Shown in Table 4 is the statistical findings on the Science raw grades in the second quarter of Grade IV respondents. The result infers that the science performance of the respondents is below the passing rate of 75 which means it did not meet expectations.

Table 4. Level of Science academic performance of the respondents

	Standard Deviation	Mean
Science Grade in Second Quarter	7.290	74.48

Through the findings, the data revealed that students have low achievement in science and perform poorly as they obtain below average in accordance with the grading scale. Further, in concordance on the student's performance in National Achievement Tests which showed that aside from Mathematics, science continues to be the most difficult aspect in basic education (Inspire and Fascinate with Science, 2009). In the year 2000, findings regarding the National Elementary Achievement Test (NEAT), students correctly answered less than half of the Science questions (48.61 percent). Based on the findings, Science Education Institute, Department of Science and Technology (2011) stated that children have difficulty formulating conclusions after conducting experiments, have low retention of ideas and scientific knowledge, limited reasoning and analytical skills, lack of laboratory knowledge, inability to design/use materials, and a lack of interest in and attitude toward science. Sunga & Hermosisima (2016) stressed a problem with the children's cognitive ability that can be regarded as one of the challenges in science learning.

Based on the Science National Achievement Test, it resulted that in the year of 2010-2011, elementary pupils got a mean percentage of score (MPS) of 68.2 which further means, it is below the minimum competency level of 75 percent and it needs remediation from the subject. Moreover, in the year of 2018 PISA results also revealed that the Philippines got a score of 357 in Science that means it is significantly lower than the OECD average of 489 (Huang, Xin, Tili, Yang, Zhang, Zhu & Jemni, 2022).

Moreover, based on the results from 2014, De La Cruz (2022) estimated that the national achievement test (NAT) passing percentage is only 59.21%, which is not excellent. Other international surveys, such as the Trends in International Science Study (TIMSS), have repeatedly shown that the Philippines has regularly performed poorly. Thus, TISS' studies also revealed that, when it comes to science, many factors contribute to the country's current predicament. The paucity of educators in the country, the lack of teaching space and science laboratories, the low quality of student learner's modules, and numerous educators noting that the books are obsolete and filled with errors are among these issues.

4.2 Level of psychosocial factor of the respondents

Shown in Table 5 are the statistical findings on the level of Psychosocial Factor among Grade IV respondents as measured through parental support, self-esteem and science interest. The result obtained with interpretation is moderate which further means that the psychosocial factors of grade 4 respondents are manifested sometimes.

Table 5. Level of psychosocial factors of the respondents

Indicators	Standard Deviation	Mean	Remarks
1. Parental Support	0.44	4.17	High
2. Self-Esteem	0.34	3.16	Moderate
3. Science Interest	0.38	3.32	Moderate
Overall	**0.38**	**3.32**	**Moderate**

Shown in Table 6 are the statistical findings on the level of Psychosocial Factor among Grade IV respondents as measured through parental support. The result gained a verbal interpretation of high which denotes that the support given by their parents are manifested most of the time. This further means that the majority of parents engage in their children's education in which they significantly monitor studies at home, school performance, encourage children to take studies seriously, provide materials support, allot time to do homework, and provide with emotional support.

Table 6. Level of psychosocial of the respondents: parental support

Descriptions	Standard Deviation	Mean	Remarks
1. Parents monitor studies at home	.9949	4.29	Very High
2. Parents monitor school performance	1.30	3.97	High
3. Parents encourage to take studies seriously.	.8477	4.33	Very High
4. Parents provide with materials supports.	.7840	4.33	Very High
5. Parents allot time to do homework.	.8451	4.01	High
6. Parents provide with emotional support.	.9959	4.09	High
Overall	**.4351**	**4.17**	**High**

According to the findings of the study conducted by Rahman (2001) regarding "*The effects of parental involvement on student's success",* they supported that parents are generally positive about their attitudes regarding academic involvement at home. In addition, he also added, the six statements about parental behaviors relating to involvement at home, suggesting that parents rarely permitted their children to forgo schoolwork in order to participate in an extracurricular activity. Walker, et.al. (2010) also stated that parents are likely to participate in their children's education and converse them about school events, building their curiosity, encouraging them to pursue science and involve practicing interactive homework. Rivera (2010) highlighted that the active engagement as a parent may usually be overwhelming, frightening or intimidating in participating children related science activities.

Leonard (2013) also stated that parental social support is a notion that they support their children with care, love, and values while also encouraging their efforts to succeed. Ceka & Murat (2016) mentioned the significant parental roles as emotional supporters, material providers, and interest builders, and yet, they are the strongest role model, and great influencer of their children (Beqja, 2012). Then, whenever parents play a positive influence on their children's daily living, and most essentially in their education, their future will be more successful (Kasapi, 2013).

Shown in Table 7 are the statistical findings on the level of psychosocial factor of grade IV respondents as measured through self-esteem. The result obtained a verbal interpretation of moderate which infers that the self-esteem of the grade IV respondents are manifested sometimes. Based on the result, it was found out that half of the respondents felt confident about their abilities, worried about whether be regarded as success or failure, frustrated or rattled about performance, having trouble understanding things that have read, feeling of being respected and admired, satisfied with weight, self-conscious, feeling of displeased about self, worried about the perception of others toward self, feeling inferior to others, feeling unattractive, feeling of having scholastic ability, feeling of not doing well, and worried about looking foolish.

Table 7. Level of psychosocial factor of the respondents: self-esteem

Descriptions	Standard Deviation	Mean	Remarks
1. Confident about the abilities.	0.81	3.40	Moderate
2. Worried about whether be regarded as success or	1.14	2.61	Moderate

failure.			
3. Satisfied with the body looks right now	1.02	4.15	High
4. Frustrated or rattled about performance.	1.19	2.61	Moderate
5. Having trouble understanding things that have read.	1.03	2.69	Moderate
6. Feeling of being respected and admired.	1.21	3.01	Moderate
7. Dissatisfied with weight.	1.33	2.87	Moderate
8. Self-conscious.	1.37	2.69	Moderate
9. Feeling of being smart than others.	1.17	4.00	High
10. Feeling of displeased about self	1.30	2.79	Moderate
11. Feeling good about self	0.92	4.26	Very High
12. Pleased with appearance right now.	1.13	4.10	High
13. Worried about the perception of others toward self.	1.25	2.63	Moderate
14. Feeling confident in understand things.	1.09	4.08	High
15. Feeling inferior to other at this moment.	1.28	2.87	Moderate
16. Feeling unattractive.	1.15	2.68	Moderate
17. Feeling concerned about the impression make	1.10	3.99	High
18. Feeling of having scholastic ability right now than others.	1.17	2.65	Moderate
19. Feeling of not doing well.	1.18	2.77	Moderate
20. Worried about looking foolish.	1.11	2.78	Moderate
Overall	**0.34**	**3.16**	**Moderate**

This further means that the grade IV respondents, according to (Brown, 2014), that some of them tend to evaluate themselves towards their peers, families and other people that surround them. For instance, the same observation was emphasized with Noronha, Monteiro & Pinto (2018) that children in a middle age, some feel respected, thoughts valued and abilities recognized. Additionally, Baumeister, et al., (2003); Neff & Vonk, (2009) also supported that self-esteem is often dependent on external sources. On that account, self-esteem is considered as unstable and can change depending on the feedback received from the others. Seifert (2004) also indicated that children who obtain poor confidence in themselves tend to perform less. Vanbuskirk (2021) explained that children who possessed negative self-esteem were afraid to engage in meaningful science experiments and laboratory tasks, yet they were more unlikely to participate in the science learning process, share basic scientific understanding towards their peers, capable of solving scientific problems that leads them to poor performances in the field of science.

Shown in Table 8 are the statistical findings on the level of psychosocial factor of grade IV respondents as measured through science interest. The result obtained in verbal interpretation is moderate and this further denotes that the science interest of the grade IV respondents are manifested sometimes.

Kpolovie, Joe & Okoto (2014) published the first issue of 2011 of the International Journal of Science Education, which focused on the outcomes of the 2006 Programme for International Student Assessment (PISA). The Organization for Economic Cooperation and Development (OECD) sponsors the test, which is given to students in OECD and other member nations every three years. According to the findings of the study, students in OECD countries (51 percent) expressed an interest in spending their life pursuing science and other laboratory activities. In concordance with the result in the present study, some children also show negative attitude and interest with the interpretation moderate wherein children get bored when watching TV at home, some of them dislike reading books, some of them get bored while talking to friends about science, some of them get bored while listening to radio about science, and dislike reading science newspapers.

Table 8. Level of psychosocial factor of the respondents: science interest

Descriptions	Standard Deviation	Mean	Remarks
1. Wants to belong to a science club.	1.20	4.06	High
2. Get bored when watching science programs on TV at home.	1.34	2.68	Moderate

3. Wants to be given a science book or a piece of science equipment as a present.	0.75	4.49	Very High
4. Dislike reading books about science during holidays.	1.29	2.65	Moderate
5. Wants to do science experiments at home.	1.19	4.01	High
6. Talking to friends about science after school would be boring.	1.35	3.18	Moderate
7. Enjoy having a job in a science laboratory during school holidays.	1.03	4.15	High
8. Listening to talk about science on the radio would be boring.	1.28	2.65	Moderate
9. Enjoy visiting a science museum on the weekend.	1.09	4.18	High
10. Dislike reading newspaper articles about science.	1.39	2.61	Moderate
Overall	**0.38**	**3.32**	**Moderate**

As mentioned by Jones & Eick (2007) that the conception that science is "fun" appears to be fading during the middle school years. According to Barton & Tan (2010) that students get less attractive and gain a negative attitude in science as they move through the middle stage. Nasr (2011) indicated that children uninterested are likely to skip lectures, not taking notes, not participating in class discussion and are reluctant to engage in science-related activities.

On the hand, majority of children also exhibited positive attitude towards science in which they want to belong to a science club, want to be given a science book or piece of science equipment as a present, want to do science experiments, enjoy having a job in a science laboratory, and enjoy visiting a science museum. Nasr (2011) also supported that a child with a positive attitude will boost their motivation to learn, engage in scientific activities, experimentation and an interest in focusing on the scientific process, and that may lead them to maximize their desire to understand the world of science.

As mentioned by Chritidou (2011) the influences of a good science teacher can often be related to positive science interest. As such, if teachers establish a welcoming science classroom that encourages students to participate in science can have an impact on students' interest and attitudes toward science (Bolshakova, Johnson & Czerniak, 2011). Furthermore, Zacharia & Barton (2014) also supported that attitudes toward science can also be influenced by how science lessons are presented. They also added, students sometimes exhibited good attitudes and enthusiasm in science when they worked on projects that dealt with themes of power, culture, and ideology. Yet, according to Harackiewicz, Durik, Barron, Linnenbrink-Garcia & Tauer (2017) that positive attitudes derive from significant experiences that help to stimulate people's interest in a subject.

4.3 Level of physiological factor of the respondents

Shown in Table 9 are the statistical findings on the level of physiological factor of grade 4 respondents. The result obtained a verbal interpretation of high and it denotes that the physiological factors of the grade IV respondents are manifested most of the time.

This further means that majority of students gain a regular sleep at night; very high , wake up the same time; very high and have refreshed each mornings; high, maintain physical exercise; high, eat nutritious food; very high, fruits; very high, vegetables; very high, some of them have dessert, have breakfast; very high, have snacks in the morning; very high, have lunch; very high, have snacks in the afternoon, have snacks in the evening; high, some of them maintained a well-balanced diet, consumed eight glasses of water per day; very high. According to WHO (2018) middle aged children are at hand of their parents, they support them in emotional and financial needs, providing adequate basic needs, and secure the proper nutrients in order to obtain optimal physiological functioning.

Table 9. Level of physiological factors of the respondents

Descriptions	Standard Deviation	Mean	Remarks
1. Sleep early at night	0.58	4.64	Very High
2. Wake up at about the same time each morning.	0.92	4.47	Very High
3. Get a satisfactory amount of sleep and wake	1.17	4.17	High

up refreshed most mornings.			
4. Maintain proper physical exercise early in the morning.	1.53	3.40	High
5. Like to eat nutritious food or dishes every meal.	0.82	4.56	Very High
6. I eat fruit at least twice per day.	0.68	4.50	Very High
7. Eat vegetables	0.79	4.47	Very High
8. Have dessert after any meal.	1.30	3.32	Moderate
9. Have breakfast every morning.	0.77	4.64	Very High
10. Have snacks in the morning.	1.14	4.35	Very High
11. Have lunch	1.04	4.50	Very High
12. Have snacks in the afternoon.	0.92	4.17	High
13. Have snacks in the evening after dinner.	1.37	3.51	High
14. Have a well-balanced diet.	1.28	3.31	Moderate
15. I follow a diet with many rules.	1.40	2.96	Moderate
16. Consume 8 glasses of water a day.	0.95	4.50	Very High
Overall	**0.46**	**4.09**	**High**

Moreover, it is evident that teacher and school required to incorporate healthy eating habits and physical activity across the curriculum in fun and creative ways (Science Association Health, 2021). Through this, physiological aspects of the pupils were satisfied. McLeod (2018) emphasized the essence of physiological needs of young children. Learners' cognition cannot work properly if their needs are not met, which may have an impact on their academic achievement. Nevertheless, according to Enoch (2016) that it did not directly affect pupils' learning outcomes, but did so mainly impacting their levels of their motivation for achievement.

Additionally, Chard (2019) stated that the effect of being properly hydrated on children's attention and focus in learning scientific facts and concepts may also have an impact on their development of science literacy abilities and educational outcomes. Meijer et al. (2010) stated that children who felt more rested were more driven to do their best, had a better student self-image, and were more responsive to teacher influence. Hence, Caraccio (2017) also indicated that if students are not properly nourished, dressed, or sheltered, they are more likely to miss school, and even if they do attend, they are more likely to lack the essential concentration to give their lectures their full attention.

4.4 Level of environmental factor of the respondents

Shown in Table 10 are the statistical findings on the level of environmental factors of grade IV respondents as measured through availability of materials. The result gained a verbal interpretation of moderate which infers that the availability of science materials to support science learning of Grade IV respondents are manifested sometimes. This further means that the school has limited materials and science tools and equipment used for teaching and learning process.

Based on the findings of the result, majority of children observed that school provides textbook materials as reference and the school provides audio-visual resources for delivery of instructions, however, with regards to library resources relevant to science instruction with the mean of low and it denotes that school does not provide sufficient library resources to be utilized in science learning process. On that account, Gado (2005) stated that the learning experiences that must be acquired by the children might occur when there is insufficient science instructional materials to be utilized.

Table 10. Level of environmental factors of the respondents: availability of materials

Descriptions	Standard Deviation	Mean	Remarks
1. The school provides instructional materials (e.g. textbook).	0.67	4.71	Very High
2. The school provides audio-visual resources for delivery of instructions.	1.12	3.73	High
3. The school provides computer technology for teaching and learning (e.g. computer, tablets, and so on).	1.28	3.62	Moderate
4. The school provides calculators for science instructions.	1.11	3.27	Moderate
5. The school provides computer software	0.98	3.17	Moderate

application for science instructions.			
6. The school provides library resources relevant to science instructions.	1.14	2.53	Low
7. The school provides science laboratory equipment and materials for experiments.	0.97	3.89	Moderate
Overall	**0.61**	**3.84**	**Moderate**

The results are similar to findings of Yadar (2007) which detailed that teaching/learning materials such as computer and software media, computer technology, science laboratory equipment and materials for experiment were provided by school but with limited time, considering the total population within the school, and that could affect academic performance. For instance, Mutai (2006) claimed that science learning is deepened when there are enough reference materials such as textbooks, calculators, and other science materials. Hence, Mupa & Isaac-Chinooneka (2019) indicated that a lack of textbooks and materials has a negative impact on effective teaching. Adeogum (2011) further said that if fundamental instructional resources are insufficient, effective teaching cannot take place in the classroom.

4.5 Significant Relationship of Factors and Academic Performance of the Respondents

The main reason why this study was conducted is to determine if there are any underlying relationships among the factors including psychosocial, physiological, environmental factors towards Science academic performance responded by the Grade IV pupils.

Table 11. Significant relationship of factors and academic performance of the respondents

Independent Factors	Dependent Factor	Pearson r Coefficient	p-value	Interpretation
Psychosocial	Grade in Science	−0.016	0.886	The relationships between science grade and psychological, physiological and environmental factors are negligible and this characteristic, however, cannot be attributed to the entire population. As such, more respondents can validate this finding.
Physiological		−0.043	0.706	
Environmental		0.002	0.987	

Through the findings of the result, it was revealed that the significant relationship between the two variables utilized in the study are insignificant as it is beyond the cut-off range of significance. Thus, this further means that the factors and science academic performance are negligible and cannot be attributed to the whole respondents in the above mentioned locale. For instance, some researches also mentioned, that parental support, self-esteem, science interest, physiological needs and availability of materials are not the primary factors that influences science performance, hence, among elementary schools in Moshi municipality, according to (Komba & Kira, 2013) that the essential components influencing their poor performance are lack of teachers training, un-conducive teaching-learning environments, unaligned curriculum, and (Rabino, 2014) said that inadequate teaching learning process and pedagogical strategies are also the factors.

Findings from the present study demonstrated that the remarks of the level of the factors is insignificantly correlated to the below average of science academic performance. This further means that the assumed indicators are not essential factors that influence Grade 4 respondents of the San Rafael Integrated School to obtain low science performance. Fortunately, it is clearly shown that parental support manifests most of the time wherein parents have great extent of monitoring. Supportive mechanisms on their child's learning progress; self-esteem and science interest manifested sometimes depending on the external sources; physiological needs were met always; and the instructional materials were provided sometimes depending on the availability in school.

4.6 Implication to Science Education

Panoy (2013) inferred that Science Education aims to improve students' capabilities and allow them to apply them in their everyday life. Considering that their individuals' personal, social, and global lives may thus be affected by these abilities. Reiss (2007) inferred that it is a crucial tool for the generating of scientific data, conducting scientific research, and solving problems.

The findings of this quantitative study imply that a lot has to be done in the elementary schools, more particularly in fourth graders in order to uplift the high performance standards in all across the science discipline. Maranan (2017) mentioned that a learner's academic performance must be visible and yet evident in each science period. The result in the present study revealed that the majority of parents support their children's education. Rahman (2001) supported that parents are generally positive about their attitudes regarding academic involvement at home. Through this, Shenker & Hoover (2010) teachers may highly encourage parents to continue and be more engaged in children's school related activities, monitor learning progress at home and involve homework-based activities to surely enable their child to cope with learning difficulties, motivate them to pursue science and perform excellently in science-related tasks. Rivera (2010) further said that the more engagement and involvement of parents, the higher the child's performance. As indicated by Ceka & Murat (2016) that in comparison to those whose parental engagement is less helpful, those who have a larger degree of monitoring and supportive mechanisms from their parents will perform well in their academic pursuits.

Although, it was revealed in the present study that the factors were not essential elements that influence the academic performance, however, in accordance with each statistical findings on every indicator, still it was found out that half of the respondents obtained negative self-esteem. Brown (2014) stated that some children tend to evaluate themselves towards their peers, families and other people that surround them. Baumeister, et al., (2003); Neff & Vonk, (2009) also supported that self-esteem is considered as unstable and can change depending on the feedback received from others. With this, teachers and parents may provide positive treatment, feedback and praises to each child in order for them to be motivated to learn, engage and to succeed. According to William-Pierce (2011) providing positive encouragement and praise verbally can greatly affect students' motivation to learn and yet, praise for exerting effort and for improvement can foster their confidence and esteem. It is significant that they feel respected, seen and recognized (Palmera, 2007).

Further, the finding of the study shows that only half of the children gained science-interest. Jones & Eick (2007) said that the conception that science is fun appears to be fading during the middle school years. Barton & Tan (2010) stated that students get less attractive and gain a negative attitude in science as they move through the middle stage. Therefore, school teachers may allow children to engage in hands-on activities to trigger their curiosity as well as uplift their interest to learn science. Many studies have demonstrated that hands-on technique of learning increases students' interest and enthusiasm in learning Science and other disciplines (Norman, 2015). Considering that, whenever a child independently think critically and work through a subject matter, it will increase their interest, desire, and ability to be motivated (Blandford & Knowles, 2009).

The result of the study also demonstrated that the majority of children satisfied their physiological needs. Considering that, World Health Organization (2018) highlighted that middle aged children are at hand of their parents, they support them in emotional and financial needs, provide adequate basic needs, and secure the proper nutrients in order to obtain optimal physiological functioning. Therefore, the school educational sectors may continue and maintain the implementation of eating habits and physical activity in creative and fun ways to ensure that children will foster concentration and uplift motivation to learn and engage. McDonnell, Probart, Weirich & Hartman (2004) mentioned that the integration of the school breakfast program securely allowed pupils to be actively involve across the science related matters. According to Quendler (2004) a recent study exhibited that school Breakfast Program participation has been shown to boost academic performance and minimize absenteeism and tardiness. It also alleviates hunger and improves children's capacity to succeed in school. Also, Trudeau & Shephard (2008) stated that physical activity programs enable children to enhance concentration and motivation.

Moreover, the findings of the study revealed that school has only limited instructional science materials for sustainable teaching and learning development. Gado (2005) stated that the learning experiences that must be acquired by the children might hinder when there is insufficient science instructional materials to be utilized. Having this, the educational sector, school administrators and parents may ensure that the school is well equipped in providing sufficient science materials and tools for teaching and learning processes that are required for effective and efficient implementation of curriculum. Mutai (2006) claimed that science learning is deepened when there are enough reference materials such as textbooks, calculators, and other science instructional materials.

5. CONCLUSION

The study concluded the following:

1. The Science academic performance of Grade IV pupils is below the passing rate which means it did not meet expectations. This further means that students have low achievement in science and perform poorly as they obtain below average in accordance with the grading scale.
2. The level of psychosocial factors of Grade IV pupils were manifested sometime as it yielded the following verbal interpretation: parental support was manifested most of the time, however self-esteem and science interest were manifested sometimes.
3. The level of physiological factors of Grade IV pupils were manifested most of the time. As such, the majority of children were satisfied with their physiological aspects.

4. The level of environmental factors of Grade IV pupils were manifested sometimes. On that account, the majority of children observed that school provided limited instructional science materials to be used in science teaching and learning process.

5. The significant relationship between the factors and Science academic performance yielded insignificant and this further infers that the two variables utilized in the study is negligible and this characteristic, however, cannot be attributed to the whole respondents.

6. Out of the result of the study, the researcher proposed an intervention to boost self-esteem and science interest of the said respondents. The researcher also created an action plan in tabular form to guide and help teachers to visualize the wholesome of the intervention to undertake. Hence, the researcher also developed an intervention name for self-esteem as "Collaborative Strategy", and for science interest as "Hands-on Strategy". These interventions will greatly support each child to uplift his/her willingness to learn, motivation to engage and to succeed.

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