IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

A CORRELATIONAL STUDY ON SCIENCE TEACHERS' PEDAGOGICAL APPROACHES AND GRADE 9 LEARNERS' LEARNING INTEREST IN SCIENCE

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Abstract :

Science teacher's pedagogical approaches play necessary roles in learner learning, motivation and interest as approaches being done by the teacher influences the outcome of the learner's learning. A science teacher must be successful in relaying the concepts of what they are teaching to the learners in order for them to develop background, abstract reasoning skills and critical thinking on science. Teacher's pedagogical approaches may be a factor affecting learner interest in learning science. This study aimed to determine the level of relationship between teacher's pedagogical approach and learner interest in learning science. The study utilized a mixed method involving quantitative type of research to determine the relationship between teacher's pedagogical approaches and learner interest in learning science. Furthermore, the participants of this study were the Grade 9 learners as they have vast experiences in different teachers in their science-related subjects throughout their academic experiences. A total of one hundred eighty-five were selected as participants in the study through a simple-random sampling technique implemented by the researcher in selecting respondents. Significant results of the study showed that there is a positive weak relationship between the teacher's pedagogical approaches and learners' interest in learning science. This is because some interest factors that emerged do not entirely depend on the teachers' pedagogical approaches such as student's curiosity and being intrigued in scientific knowledge.

Keywords: pedagogical approaches, student interest, science

INTRODUCTION

Science is considered as one of the most complex subjects to learn as it requires understanding of basic concepts to application of concepts objectively. The teachers are known to as the standard bearers of education as they are the one who forge and shape the students' future. It is sensible that a teacher must implement strategies that can make students comfortable in learning and shape them for their future. In order to be an effective educator, a teacher should make an adjustment in terms of their pedagogical approaches as each and every student differs in learning style for their students to catch their attention every time that they will be having a class. The teachers are playing the most important part in fostering the young minds to dream and their success depends on how they are forged by the educators.

Moreover, pedagogy is defined as the teacher's techniques and methods of teaching. It may include the way how they teach and what are their teaching methods being executed in order to imply knowledge to the students. The efficacy of their pedagogical approach in

teaching is measured by the students' interest and motivation in learning. It is up to the teacher on how they will foster the students to get their attention and this is where their strategy will play its role.

Pedagogical approach is one of the long-term problems of science teachers as they are not able to figure out how to teach science effectively to their students. As a teacher struggle in their teaching strategy, students lose interest in listening to them and can create problems to the flow of discussion such as distractions and lose focus while the teacher is discussing. As this problem was seen, there may be a relationship in the teacher's pedagogical approach towards the student affecting their learning interest and focus in which teachers may have a problem upon adjusting to their students.

Hence, this study aims to determine if there is a significant relationship between teacher's pedagogical approaches to the learning interest of the students. Specifically, it aims to answer the following: 1.) determine the teacher's pedagogical approaches

being executed by the teacher 2) determine the level of student interest in terms of learning science, and 3) show if there is a significant relationship between the pedagogical approaches of the teacher and the student interest in learning science.

Student Interest in Science

Nyamwange (2016) significant findings suggested that student interest is significant in determining individual's career choices. Interest was most often seen as a driving force in pursuing a good career decisions. A study suggested that, "students with a high cognitive potential for science do not pursue careers as scientists or engineers because they lost their interest during school" (Krapp & Prenzel, 2011, p. 42).

Interest is what promotes long-term information storage and learning motivation, and is the result of the interaction between the learner and their surroundings. It is also seen as the center of how one determines what certain type of information is to select and process in preference to others. Rotgans and Schmidt (2017) defined interest as an essential ingredient to spice up learning. To be specific, interest is associated with recognizable willingness to acquire new specific area of knowledge.

The importance of engaging the students in their education must not be ignored. The increased interest in a subject also increases the student attainment (Hulleman & Harackiewicz, 2009). If the students have high interest in something, they tend to make the best out of themselves and have high attainment. According to Darlington (n. d.), "these investigations should cover not only the importance of the physical environment but also the less tangible aspects of the classroom such as the teaching and learning activities, and the relationships formed between teachers and students." As teacher is the key person that takes part in stimulating and nurturing the interest for a certain subject, there may be usual traits or approaches to teaching which apparently capture the interest of students.

Teacher's Impact on Student Achievement in Science

Gultom et. al (2020) study shows that a teacher must have several teaching skills, namely: (1) questioning skills where they ask students meaningful questions so that they can convey the idea to the student; (2) reinforcement skills where it affects student motivation in taking the subject; (3) variation skills where it is needed to avoid the boredom and have different sets of teaching method to gain interest for other students who cannot take single variety of teaching; (4) explaining skills where students can be completely guided by the teacher in order to have effective learning; (5) learning skills opening and closing lessons refers to the ability of teacher to start lessons and end it effectively; (6) small group discussion guiding skills wherein students are given opportunities to interact, think and practice in relation to mastering concepts and solving problems; (7) small classroom management skills refer to the effort made by the teacher in order to create conducive learning conditions so that the learning process can run efficiently and effectively and; (8) small group and individual teaching skills to assist minorities who do not engage well because of learning difficulties.

These skills are essential in teaching science as it requires critical thinking.

"The common denominator in school improvement and student success is the teacher" (Stronge et al., 2011, p. 351). We all know that a teacher is the primary factor in developing the student's academic knowledge which they will primarily use for their success. Teacher will always be the primary person involved in student's cognitive development aside from the support of parents and other people they can learn as parents entrust them to school to develop their child. Moreover, Mojavezi and Tamiz (2012) study revealed that teacher's self-efficacy positively influences student motivation and achievement. As Vosh and Schauble (2014) mentioned, motivation serves as an energizing function by providing the effort and persistence required to complete a goal or pursue interest.

Furthermore, teacher competencies can positively influence student-student interactions and learning performance and significantly; student-student interactions positively and significantly influence the learning performance, resulting into positive influence student achievement (Costa et al., 2015).

Teaching Methods and Strategies in Science

Teachers must make use of effective teaching strategies to assure conceptual understanding of students in science. Hudson (2013) suggested several aspects of pedagogical practices a teacher can employ in teaching namely: (1) planning based on the given teaching curriculum; (2) timetabling lessons in order to meet the competencies in the curriculum; (3) preparation for teaching; (4) implementing effective teaching strategies; (5) content knowledge or lesson mastery; (6) problem solving; (7) questioning skills necessary for student reflection and realization; (8) classroom management, (9) implementation of plans, (10) assessment of student knowledge, and (11) viewpoints for teaching.

According to Gulistan et al. (2015), they found out that teachers who are teaching science primarily focused on understanding the concepts of science topics such as physics rather than going into deeper understanding with the application such as problem solving which is the least used strategy by the teachers. Moreover, Gulistan et al. (2015) further explained that this scenario explains that a variety of higher cognitive skill teaching strategy are lacking among teachers. This concludes that teaching science subjects is not just about memorizing things over and over but, it also requires abstract reasoning, problem solving and application in order to fully understand the topic.

Hagay & Baram-Tsabari (2015) suggested that there should be a practical, accessible, and flexible way to integrate students' existing interests in science with disciplinary science learning, governed by the respect for their autonomy and needs. Abungu et al. (2014) found out that students who are exposed to inquiry-based teaching approaches enhance student achievement in science subjects as they were able to interpret, measure and observe data involved in investigative activities such as experiments. Minner et al. (2010) study strongly supports this study and also found out that inquiry-based teaching resulted into positive impacts on student content learning and retention. Minner et al, (2010) further emphasized that teaching strategies that actively engage students in learning through scientific investigations are more likely to increase conceptual knowledge than strategies that rely on passive teaching techniques such as teaching only the concepts of topic.

Social interaction plays a crucial role in learning between the students and between teacher (Nguyen et al., 2012). Students must be provided a supportive and interactive environment to such an extent that it will help the children discover more knowledge. Hussain et al. (2011) stated that scientific inquiry method of teaching is more effective than the traditional lecture method teaching. Lecture method may not engage students with the materials they have provided and may fail instructors feedback about their students' learning.

Hussain et al. (2011) also mentioned that one important difference between an effective and ineffective teacher is the methods and materials they use in creating interest of their students in the subject. Miles (2015) stated that teachers are expected to implement a range of instructional strategies that will bring science students academic success.

Rehmat and Bailey (2014) study concluded that technology-integrated teaching in science brought positive results as students improved in their learning. Technology can be utilized in science teaching as students can see figures clearly and additional use of materials such as video presentations can be integrated to help the teacher imply ideas to the students. Ertmer and Ottenbreit-Leftwich (2014) argued that a teacher should remove the mindset of discouraging the importance of utilizing information communications technology (ICT) resources in facilitating the student learning. As the entire world quickly turn into the digital age, the use of ICT is highly demanding for the 21st century learners. In addition, hands-on activities and engagement with technology draws out higher student interest (Swarat et al., 2012). Hayden et al. (2011) concluded that lessons in which it engages students in hands-on investigations, leads to deeper understanding of science and, therefore improving the potential of underrepresented students.

Furthermore, teachers who use humor can effectively increase student motivation, reduce anxiety of the students and also effective in stimulation of student thoughts and interest

(Makewa et al., 2011). Ludovice & MacNair (2019) study suggested that educational outcomes can be improved by using relatable humorous examples in transferring knowledge to the students as long as the humor is highly integrated in the lesson.

Statement of Problem

This study aimed to determine if there is a significant relationship between teachers' pedagogical approach and student interest in learning science in the First Congressional District of Schools Division Office I Pangasinan during the school year 2024-2025.

Specifically, it aimed to answer the following questions:

1. What are the pedagogical approaches being executed by the teachers in teaching science?
2. What is the level of Grade 9 students' learners in learning science?
3. Is there a significant relationship between teacher's pedagogical approach and learners' interest in learning science?
4. Based on the findings, what updated pedagogical approaches can be proposed to improve the interest of Grade 9 learners in Science?

METHODOLOGY

This chapter presents the method and procedure employed to answer the research problems identified in the study. More specifically, it discusses the research design, sources of data, instrumentation and data collection and tools for data analysis.

Research Design

The study utilized a mixed method research design. Specifically, a quantitative type of research consisting of descriptive and correlational study. Descriptive and correlational research were done to determine the relationship between teacher's pedagogical approaches and student interest in learning in science among Grade 9l students. In particular, descriptive type of research describes the phenomena being studied. On the other hand, correlational type of research measures relationship of two variables in the study.

Sources of Data

The study was conducted in select secondary schools of the First Congressional District of Schools Division Office I Pangasinan. The school comes across the busy streets in the town and in the municipal hall where important factors that contribute to its development are settled.

Moreover, the study focused on determining the relationship between teacher's pedagogical approaches and student interest in learning science. The chosen participants necessary for this study are the Grade 9 students who are currently enrolled in the academic year 2024-2025. The Grade 9 students were chosen as the respondents due to their long-term experience with different science teachers in their academic experiences and because they have taken science-related subjects.

The researcher wrote a letter to the Schools Division Superintendent seeking permission to obtain the list of the students among the sections in the Grade 9. In order to determine the sample size, Slovin's formula was used. A total of one hundred forty-five (n= 185) students were selected as respondents through probability simple random sampling from the overall population of Grade 12 students which is two hundred thirty-three

(N= *343*). The Slovin's formula is shown as follows:

$$n = \frac{N}{1 + Ne^2}$$

Wherein **n** is the determined sample size, **N** is the total population and **e** is the margin of error.

Instrumentation and Data Collection

In conducting the study, a self-constructed survey questionnaire was used in gathering the data from the participants. The researchers underwent several discussions with the research adviser in formulating the self-made survey questionnaire. It was designed using a four-point Likert scale with 1 (equivalent to strongly disagree) being the lowest and 4 (equivalent to strongly agree) being the highest to determine the pedagogical approaches being executed by the teacher and measure the level of interest in learning science of the Grade 12 students. Each item on the questionnaire used a four-point scale along with their respective descriptive interpretation. The scale is shown as follows:

4.00 – Strongly Agree 2.00 – Disagree
3.00 – Agree 1.00 – Strongly Disagree

The items in the survey questionnaire consists of 15 (fifteen) pre-determined series of statements in each factor. Moreover, it also became the basis in measuring the relationship between the pedagogical approaches of the teacher the respondents have encountered and their interest in learning science. Thus, all the statements in the questionnaire have a total of 30 (thirty) statements.

The data gathering procedure commenced after the proposal has been approved by the research professor. First, the researchers created a self-constructed survey questionnaire that will be used as a tool and was be validated. Second, after the tool has been validated and revised by the research adviser and research teacher, the tool was tested to see if it is reliable and valid to use for the study. The tool underwent reliability analysis to test if it is standard to utilize in the study by the researchers. Furthermore, the tool

must obtain a Cronbach alpha of .750 above to be considered standard. Third, after the tool passed the reliability analysis, the floating of questionnaires were conducted. The researchers wrote a letter to the school principal and school department academic coordinatorseeking permission to formally conduct and administer the study. After the permission is sought and approved, the researchers again wrote permission letters to the advisers seeking permission to float the survey to their respective class advisories. The floating of survey questionnaires in the Grade 12 Senior High School students was conducted through an online survey via Google Forms. Lastly, after the floating of the questionnaires, the researchers tabulated and analyzed the data gathered in the survey questionnaire.

Tools for Data Analysis

The gathered data from the respondents were computed and analyzed by descriptive statistics and bivariate correlation. Moreover, the demographic profile of the respondents are computed with the use of percentage formula to show population information. The data were also extracted through the use of basic statistics such as mean and standard deviation under descriptive statistics. Furthermore, the data gathered through the survey questionnaire was extracted through the use of mean to interpret data to be analyzed along with their respective descriptive interpretation. Standard deviation was used to show the spread of distribution in the scores in the statements of the survey questionnaire. Lastly, in the bivariate correlation, Pearson's correlation coefficient was used in determining the relationship of variables in study.

Percentage formula is shown as follows:

$$\% = \frac{f}{N} \times 100$$

Wherein **%** is the percent, ***f*** is the frequency and **N** is the number of cases.

Mean formula is shown as follows:

$$\mu = \frac{\Sigma xi}{n}$$

Wherein **μ** is the mean, ∑**xi** is the summation of index scales and n is the number of cases.

Standard Deviation formula is shown as follows:

$$\sigma = \sqrt{\frac{\Sigma(xi - \mu)^2}{n}}$$

Wherein, $\boldsymbol{\sigma}$ is the standard deviation, $\boldsymbol{\Sigma(xi - \mu)^2}$ is the index score subtracted by the mean squared and $\boldsymbol{n}$ is the number of cases.

Pearson's r coefficient formula is shown as follows:

$$r = \frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum(x_i - \bar{x})^2 (y_i - \bar{y})^2}}$$

Wherein $\boldsymbol{r}$ is the correlation coefficient, $\boldsymbol{x_i}$ is the values of the x-variable in a sample, $\bar{\boldsymbol{x}}$ is the mean of the values of the x-variable, $\boldsymbol{y_i}$ is the values of the y-variable in a sample and $\bar{\boldsymbol{y}}$ is the mean of the values of the y-variable.

After the r coefficient was obtained, the data underwent hypothesis testing. The two-tailed significance levels of the variable pairs were compared to the alpha level. For this study under social science, the typical set alpha level is at 0.05. If the results of the computed significance level obtained a value lesser than 0.05 or equal to 0.05, the researchers then will have to reject the null hypothesis (**H₀**) and accept the alternate hypothesis (**H₁**). Whereas, if the significance level is greater than 0.05, the researchers then will have to accept the null hypothesis (**H₀**) and reject the alternate hypothesis (**H₁**).

The researchers utilized Statistical Program for Social Sciences (SPSS) version 25 data extraction. Moreover, the study employed descriptive statistics and bivariate correlation to analyze the quantitative data collected. In order to measure the pedagogical approaches of the teacher encountered by the students and the level of student's interest in learning science, the researchers employed a four-point grading scale for the descriptive part which is the standard and convenient for this study. The scale is shown as follows:

Scoring Guidelines for Mean Variables

SCORING GUIDELINES FOR MEAN VARIABLES	
Range	**Interpretation**
4.00 – 3.26	Strongly Agree
3.25 – 2.51	Agree
2.50 – 1.76	Disagree
1.75 – 1.00	Strongly Disagree

In the bivariate correlational part of research, the Pearson's correlation coefficient interpretations were used to determine the strength of the relationship between teacher's pedagogical approach and student's interest in learning science. The interpretations are shown as follows:

Pearson Correlation Coefficient Interpretation

PEARSON'S CORRELATION COEFFICIENT INTERPRETATION GUIDELINES

Range	Interpretation
+ 1.0 (-1.0)	Perfect positive (negative) Relationship
+ 0.90 to + 1.0 (-0.90 to -1.0)	Very Strong positive (negative) Relationship
+ 0.70 to + 0.90 (-0.70 to -0.90)	Strong positive (negative) Relationship
+ 0.50 to + 0.70 (-0.50 to -0.70)	Moderate positive (negative) Relationship
+ 0.30 to + 0.50 (-0.30 to -0.50)	Weak positive (negative) Relationship
0.00 to + 0.30 (0.00 to -0.30)	Very Weak positive (negative) Relationship
0.0	No Relationship

RESULTS AND DISCUSSION

This chapter was devoted to the presentation, analysis and interpretation of the data gathered relative to sub-problems in the study.

The Relationship between Teachers' Pedagogical Approaches and Students' Learning Interest in Science

The Table 1 showcases the mean factor of the pedagogical approaches being executed by the teacher that the participants have encountered. Among the fifteen (15) statements, thirteen (13) were rated Agree and two (2) were rated Strongly Agree. The participants' responses mean averaged to 3.09 (*s* = .617) valued to a rating description of Agree. Moreover, statement number one (1): "Our teacher uses technology-integrated teaching method like PowerPoint presentations and video presentations in order to further emphasize the lesson." obtained the highest mean rating of 3.55 (*s* = .499) with the valued of descriptive rating of Agree. On the other hand, statement number twelve (12): "Our teacher uses motivational techniques (e. g. highest scorers get incentives such as additional points in exam) in order for us to strive hard towards science subject." obtained the lowest mean of 2.74 (*s* = .759) with the value of descriptive rating Agree.

Table 1. Pedagogical Approaches Executed by the Teacher

Item	Mean	Std. Deviation	Interpretation
Our teacher uses technology-integrated teaching method like PowerPoint presentations and video presentations in order to further emphasize the lesson.	3.55	.499	Strongly Agree
Our science teacher allows us to master basic concepts of the lesson before we proceed to a more complex level of the lesson.	3.10	.630	Agree
Our science teacher uses real-life examples and analogies in order to understand the lesson.	3.11	.593	Agree
Our teacher is approachable and we can freely ask questions without hesitation.	2.99	.711	Agree
Our science teacher engages us in group activities so that we can learn together with my classmates.	3.02	.675	Agree
Our science teacher provides resources (e. g. handouts, modules and other reading materials) to learn more and further understand the lessons.	3.16	.630	Agree
Our teacher provides activities relevant to the lesson.	3.28	.528	Strongly Agree
Our teacher engages us in laboratory activities in order to see the real picture of what they are teaching.	2.81	.793	Agree
Our teacher asks us questions that is something related to the topic as an introduction in order for us to picture the concept and to get the gist of the lesson instead of directly telling what we need to learn in order for us to think critically.	3.25	.484	Agree
Our teacher always gives us lectures before, while and after discussing.	3.04	.654	Agree
Our teacher repeats the explanations until everyone gets it.	3.02	.675	Agree
Our teacher uses motivational techniques (e. g. highest scorers get incentives such as additional points in exam) in order for us to strive hard towards science subject.	2.74	.759	Agree
Our teacher engages us in discussions by asking questions to have an interactive learning environment.	3.17	.488	Agree
Our teacher gives us topics to report to study it with ourselves and share it with the class.	2.90	.696	Agree
Our teacher assesses (e. g. quizzes, group activities, graded recitations) us every chapter we finish in order to what we have learned during their discussions.	3.20	.498	Agree
DESCRIPTIVE RATING	**3.09**	**.617**	**Agree**

The Table 2 exhibits the mean factor of the students' interest in science. Among the fifteen (15) statements, there were fourteen (14) statements that were rated Agree and one (1) was rated Strongly Agree. The participants' responses mean averaged to 3.01 (*s* = .668) valued to a rating description of Agree. Consequently, item number seventeen (17): "The wonders of scientific knowledge (e. g. how the earth rotates, how human digest food and how plant grows food) made me interested to further learn from it." obtained the highest mean rating of 3.22 (*s* = .608) with the descriptive rating of Strongly Agree. On the other hand, item number twentysix (26): "I enjoy learning science in school that's why I want to take up science courses in college." obtained the lowest mean of 2.65 (*s* = .807) with the value of descriptive rating Agree.

Table 2 *Student Interest in Science*

Item	Mean	Std. Deviation	Interpretation
I like to engage discussions related to science.	3.11	.659	Agree
The wonders of scientific knowledge (e. g. how the earth rotates, how human digest food and how plant grows food) made me interested to further learn from it.	3.26	.608	Strongly Agree
I actively listen in our science subject discussions.	3.01	.590	Agree
I watch science-related educational videos to increase my knowledge in science.	2.96	.671	Agree
I dream of becoming engaged in scientific field someday (e. g. doctor, engineer, chemist).	2.89	.952	Agree
I share what I have learned in school about science to other people like my family, friends and classmates.	2.95	.623	Agree
I like reading books, articles and other reading materials related to science.	2.78	.691	Agree
I get decent scores and grades in our science subjects.	2.97	.556	Agree
I enjoy doing laboratory activities (e. g. experimentations).	3.05	.686	Agree
I am intrigued and inspired by people who are engaged in scientific field (e. g. physicists, engineers, chemists).	3.05	.678	Agree
I enjoy learning science in school that's why I want to take up science courses in college.	2.65	.807	Agree
I want to discover something beneficial to humanity (e. g. inventing new technology, ways to save energy) someday that is why I build my interest in science.	2.90	.767	Agree
Science helped me to understand the world around me that is why I am interested to learn more about it.	3.17	.583	Agree
My curiosity on how everything else in this world works led me to know more about science.	3.18	.540	Agree
Everything that exist around me is science and I want to further learn more about it.	3.25	.610	Agree
DESCRIPTIVE RATING	**3.01**	**.668**	**Agree**

The Table 3 shows the bivariate correlation between pedagogical approaches executed by the teachers and students' interest in learning science. As presented below, the pedagogical approaches executed of the teachers and students' interest in learning science suggests weak correlation (r = .383). On the other hand, the p value (p = 0.000**)** is lower than the set alpha level (α = 0.05) which manifests a significant relationship between the two variables. Hence, this suggests that the null hypothesis (H_0) must be rejected and accept the alternate hypothesis (H_1).

H_1: There is a significant relationship between teacher's pedagogical approaches and student interest in learning science.

H_0: There is no significant relationship between teacher's pedagogical approaches and student interest in learning science.

Table 3 Pearson's r showing the Relationship between Teacher's Pedagogical Approaches and Student's Interest in Learning Science

Teacher's Pedagogical Approaches	Student Interest in Learning Science
Pearson Correlation (Pearson's r)	**.383**
Sig (2-tailed)	**.000**
n	**185**

Moreover, the Table 4 showcases the summary of the factors' mean with their respected interpretations. The data manifests that the pedagogical approaches of the teachers obtained an average mean of 3.09 interpreted as Agree and Student interest in learning science obtained an average mean of 3.01 interpreted as Agree respectively.

Table 4 Summary of Mean Score per Factor

Factors	Mean	Interpretation
1. Pedagogical Approaches of the Teacher	3.09	Agree
2. Student Interest in Learning Science	3.01	Agree

Teachers' pedagogical approaches are believed to affect students' interest in learning. When the teacher manifests ineffective teaching methods, students tend to lose focus on the subject and may show negative attitude towards the subject. The negative attitude of the students towards a subject may be a result of student's loss of interest which may lead to weak aptitude. Moreover, the teachers are very accountable for the enhancement of the students' skills. This means that if a teacher is effective, the students will manifest great interest towards science.

Pedagogical Approaches of the Teacher in Science

Significant results showed that the teachers mostly integrate technology in their teaching method like PowerPoint and video presentations to further emphasize their lessons. Moreover, it also shows that teachers provide activities that are relevant to the lesson, provide learning resources such as handouts and inquiry-based teaching methods are also being implemented to the students.

Rehmat and Bailey (2014) study concluded that technology-integrated teaching in science manifested positive results as students improved in their learning. The use of technology in the 21st century education is very relevant as the growth of technological interests are arising and as well as made it through education. Integrating technology in science teaching can help increase students' interest and can be supported by traditional methods of teaching. Many teachers today use PowerPoint presentations and video presentations to further enhance their students' learning experience.

Ergül et al. (2011) study concluded that inquiry-based pedagogical approaches enhance students' science processing skills and attitudes. Moreover, inquiry-based teaching was able to stimulate excitement to the students (Shamsudin et al., 2013). The use of inquiry-based teaching method is very applicable in science teaching as it guides students towards a certain knowledge that is needed to be implied. Moreover, it stimulates students' critical thinking and enables them to easily pick up concepts that they need in order to understand the gist of the lessons they tackle. As their mind gets tickled as they think, they tend to think deeper and different possibilities emerge to their mind.

Bang and Luft (2013) stated that the value of technology should be redefined in order to have an enhanced inquiry-based science teaching. The integration of technology in teaching is depends on how it will be utilized by the teacher. Teachers should have proper training when integrating technology in teaching to give them ideas on how they can manage to teach effectively with the use of technology.

Wongkietkachron et al. (2014) findings suggested that taking handouts are essential and cannot be taken away from the students which could reduce students' capability to concentrate and understand lectures. Wongkietkachron et al. also mentioned that providing students handouts do not mean they are being spoon-fed but rather to help students to have a quality improvement on lectures. Providing students learning resources can be of help for them to easily focus and quickly comprehend and understand lectures as taking notes can make a student lose focus while listening to the discussion of the teacher. It can help students to focus more on lectures without being worried about taking notes.

As Swarat et al. (2012) stated that there is a need to place more emphasis on the role of activity in constructing interesting environment in learning. Moreover, the implementation of problem-based learning was found out to be effective in enhancing students' creative thinking skills, problem solving skills and learning outcomes (Khoiriyah & Husamah, 2018). Students also develop their skills in learning activities as it develops their background knowledge. Teachers should provide effective and interesting activities in order for the students to be highly engaged and increase their skills that they need to develop.

Level of Student Interest in Science

The results emerged from the participants suggested that their interest in learning science were high. Some of the relevant driving force that sparks their interests are their curiosity, amusement in scientific knowledge and high interests in engaging laboratory activities such as experimentation.

Weible & Zimmerman (2016) stated that curiosity is an integral aspect of learning science. Curiosity in science is said to be related to information-seeking behaviors such as what is being seen and observed in learning environments (Jirout & Klahr, 2012). Moreover, it can be also defined as a desire for a content-specific knowledge about natural phenomena (SpektorLevy et al., 2013). As emerged in this study, curiosity is one of the factors that sparks their learning interest in science. When someone tends to be curious, they will ask questions and look for a specific answer to satisfy their questions. For example, when someone tends to ask how a machine works, Physics kicks into action. Once it was answered, it may possibly lead to another question which keeps branching. Hence, being curious and having a freedom to scrutinize their curiosities was influential in the interest in science (Maltese & Tai, 2010).

Furthermore, laboratory activities stand out has having great potential to foster optimal engagement, but as often failing to live up to this potential (Schmidt et al., 2017). Karpudewan and Meng (2017) study concluded that there is a positive relationship between the attitude towards learning science to learning environment and laboratory learning environment. Laboratory activities as stated by the respondents is one of their interests why they want to learn science. We all know that many scientific knowledge developed across from laboratories and likewise an area for learning scientific knowledge. Students further develop their skills in laboratories as they can see realistically the essence of what they are learning.

The Relationship between Teacher's Pedagogical Approaches and Student's Interest in Learning Science

The results showed that there is a positive weak correlation relation between teachers' pedagogical approaches and student's interest in learning science. Moreover, Winter and Foster (n.d.) study found out that there is a connection with teacher's pedagogy in their learning engagement. The student engagement can be derived to their interest as engagement is one of the products of quality teaching as well as an indicator of emerging interest towards the subject. This can be a possible evidence that a student who actively participates have high interest in the subject because they create an interactive environment.

Moreover, parents entrust their children to the teachers to give them the best education in preparation for their future and as a teacher, it is their duty to provide the best learning experience to forge the student as they move up the learning ladder. The role of teachers would be clearly identified in the students' effective learning by their participation in the classroom (Aziz & Kazi, 2019). The effectivity of teacher is seen in when the students actively participates in the class. This is why effective teaching methods are needed to be implemented in order to develop their interest and engage them actively in discussions to have an interactive learning environment. Heck (2009) study concluded that teacher effectiveness is positively associated with achievement levels of the student along with the quality of the school's academic organization and teaching processes. The teacher also determines the achievement of the student. Student achievement is one of the greatest fruits of effective teaching. Student contests highly tests the effectivity of student's learning aside from obtaining honor roll in the school as they are exposed to others who are also highly skilled. In addition, student interest also influences future educational opportunities and career choices (Krapp, 2000). When students have high interest in something, they will further hone their skills and may become part of their career as they will have high aptitude towards the thing that they engage in.

However, as far as the findings suggest weak correlation between the two variables, there may be other different sources of interest students have. The pedagogical approaches executed by the teacher indicators show that they have encountered all of the

approaches included in the statements in which inquiry-based teaching and technology-integrated teaching are the highest. Although it can be observed that the level of students' interest were high, it resulted into weak correlation with the pedagogical approaches. Moreover, one of the highest items in the student interest predictor is their curiosity which is a predictor that is either related or not related to the pedagogical factors but in their own driving force to learn science. As Luce & Hsi (2014) argued, by understanding the nature of curiosity expression and interest, how it changes as time goes by, and how it relates to science learning experiences, interventions can be done in order for students to reignite or refuel their curiosity.

Summary

The study presents an analysis of the pedagogical approaches implemented by science teachers and the level of interest Grade 9 learners have in science. The results show that most participants rated their teachers' pedagogical methods positively, with 13 out of 15 statements rated as "Agree" and two rated as "Strongly Agree." The highest mean rating was obtained for the use of technology in teaching, such as PowerPoint and video presentations, which helped emphasize the lesson. However, motivational techniques, such as offering incentives, received the lowest rating. Overall, the participants' average mean score for pedagogical approaches was 3.09, which was interpreted as "Agree."

In terms of student interest in science, the results showed that the majority of participants expressed a high level of interest in the subject. Fourteen out of the fifteen statements regarding student interest were rated "Agree," with one rated "Strongly Agree." The highest mean score was related to the curiosity about scientific phenomena, such as how the Earth rotates or how plants grow food. On the other hand, the lowest mean score was associated with the intention to pursue science courses in college, indicating a slight gap between general interest and future academic plans in the field. The overall average mean score for student interest was 3.01, interpreted as "Agree."

The relationship between pedagogical approaches and student interest in science showed a weak positive correlation ($r = .383$), suggesting that while teaching methods may influence student interest, the connection is not strong. The statistical significance of this correlation ($p = 0.000$) indicates a meaningful relationship, leading to the rejection of the null hypothesis. Despite the weak correlation, the data suggests that effective teaching strategies, such as technology integration and inquiry-based learning, can positively affect student engagement and interest in science, even though other factors, such as intrinsic curiosity, also play a significant role.

Finally, the study highlights the importance of teachers' pedagogical methods in shaping students' interest and engagement in science. The results suggest that technology integration, inquiry-based teaching, and relevant learning resources contribute to a more engaging and effective science learning environment. While a weak correlation was found between teaching approaches and student interest, factors like curiosity and laboratory activities were strong motivators for students. Effective pedagogical strategies are essential for fostering student engagement, and teachers' ability to provide an interactive and stimulating learning experience is crucial in sustaining student interest in science.

Conclusion

The study aimed to show the significant relationship between the pedagogical approaches of the teachers and students' interest in learning science. Based on the data gathered, the outcomes of the study showed that there is a positive weak relation between the two variables being observed. Moreover, the level of the interest of the students are high and the pedagogical approaches stated in the survey are likely to have been encountered already by the participants. Some of the pedagogical approaches involves the integration of technology in teaching and inquiry-based approach method in which can be combined by the teacher to innovate approaches in teaching. Some of the driving force of the students to learn more about science is their curiosity and engaging in scientific activities such as laboratory activities.

To sum up, this study provided an idea on how related the pedagogical approaches of the teachers to the interest of students in learning science. The teacher plays a big role in the development of students in building their future. As for students, their interest is also important in forging their competence in science. The teachers may execute every pedagogical approach their hands can get but aptitude still lies within the student. Furthermore, teachers are not the only one who provides interest in the learning of the student but also the students themselves develop their own interest in the subject in different ways. Hence, this study provides a call to improve science teaching in the schools in order for others who does not have interest to spark and further boost their interest in science. Moreover, to become a science-competent institution and can be of great help to those who are not that interested in science and those who lack necessary competence in science cope up and can get along with others.

Recommendations

Based on the results, the researchers made the following suggestions and recommendations:

1. **For the parents.** When their children manifest interest in science, they should support their children and guide them towards their knowledge development. As a parent, they have the responsibility to check their children's progress and may approach the teacher if they see that their children experience difficulty in order to be followed up by the teacher. They can also engage their children in science learning science by introducing to them science-related channels on television or in their mobile phones as early as possible to build interest as early as possible.
2. **For the students.** Students should continue to develop their interests in science. They can also forge their knowledge with the use of the resources available and foster themselves to engage in scientific field. As we go through the digital age, there are many sources of information that can be seen around the internet wherein one can hone their knowledge such as science-related educational videos on the internet.
3. **For the science teachers.** Science teachers should develop and hone their teaching methods in order to have an effective teaching and to effectively imply knowledge to the students for them to develop their interest. Aside from that, they should also continue learning more about the things that they need to teach. The combination of being knowledgeable, skillful and effective teaching is the best trait of a science teacher.
4. **For the school administrators.** School administrators must see to it that their teachers are performing well in terms of their teaching methods. They should provide training that can further enhance their skills in teaching such as workshops and seminars. This will be of great help in bringing a strong image in the school as many students will move to enhance their scientific knowledge.

5. **For the school.** The school being a science-competent institution can become one of the reasons why other students should enroll in the school and can be one of the expertise of the school. The school should develop science competence in all levels especially if they offer STEM (Science, Technology, Engineering and Mathematics) courses. The school may utilize growing demand of scientific knowledge as the world widely uses the products of science and is widely advancing quickly to their advantage to increase its quality and have more students who have high scientific interest study in their institution.

6. **For the future researchers.** This study may serve as a future reference as this study needs more validation in order to emphasize the relation between the pedagogical approaches of the teacher and the interest in learning science of the students.

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