

Senior High School Teachers' Attitude and Pedagogical Practices towards Statistics and Probability

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Abstract – This study aimed to examine the senior high school teachers' attitudes and pedagogical practices towards teaching Statistics and Probability. The study made use of descriptive correlational method of research. Results showed that male teachers outnumbered the female teachers in public schools, while in private schools suggest otherwise. Most respondents belong in the age group 21 - 25 and 26-30. Greatest percentage of the respondents have been teaching Statistics and Probability for two years and the respondents' educational attainment varies from being bachelor to doctorate degrees. The ABM strand is the most taught strand, and majority of the respondents' training have attended are of local level. Moreover, findings of the study showed that teachers in both public and private schools have positive attitude towards Statistics and Probability. It can also be gleaned that teachers always practice exploratory learning, while they also practice direct teaching on usual basis. There is no significant difference between male and female in terms of attitude and pedagogical practices. No significant difference was also found between teachers in public and private schools in terms of attitude and pedagogical practices. The profiles of the respondents are not significantly related to their attitude and pedagogical practices. In addition, attitude has no significant relationship with the pedagogical practices in teaching Statistics and Probability.

Keywords – Attitude, Pedagogical Practices, Senior High School Teachers, Statistics and Probability

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INTRODUCTION

Learning mathematics is important to almost all fields of endeavor in today's diverse society. Despite its usefulness and wide application, it is perceived by most students as boring, difficult, not very practical and abstract [1].

There are various branches of mathematics that need to be learned by students. One of them is Statistics and Probability. The subject provides a wide range of applications like weather forecasting, life expectancy, sports, games and recreational activities, and so on. The teaching-learning of Statistics and Probability increasingly occupies an important place in higher education institutions due to the current need of professionals trained in dealing with large amount of information, processed in minimum time, and with mastery of techniques of data analysis that support decision-making based on inference of sample data [2].

According to Bhargava & Pathy [3], the positive attitude helps teacher to develop a conducive learner friendly environment in the classroom. This is also casts a fruitful effect on learning of the students and shapes students leaning experience. A positive attitude lets you relax, remember, focus, and absorb information as you learn.

As a teacher, you will sometimes experience stress that carries with you all the way home. It can lead with negative attitude. According to Marroquin [4], negative attitude can impair academic achievement and increase students' psychological disorders and physical symptoms of stress.

On the other hand, pedagogical practices refer to the various kinds of resources, materials, methods, principles and explanations during the teaching-learning process. Pedagogy is important because it gives teachers an insight into the best practices for a classroom setting. It allows them to understand how different students learn so they can tailor their lesson to suit these needs. As a result, this will improve the

quality of their teaching as it will be well received by students.

Meanwhile, Estrada and Batanero [5] stated that many in-service teachers have not received specific education in Statistics and Probability or teaching the said subject, and may therefore feel uncomfortable when confronted with the necessity of teaching it. These teachers may consider themselves not well prepared, or may not value the formative role of statistics and probability as a topic for their students to learn.

Researches of Kapur [6] and Atnatu [7] show that attitudes and pedagogical practices towards Statistics and probability are really significant in producing an effective and innovative teaching and learning method to bring interest towards the subject. Similarly, these are needed for teaching Statistics and Probability to be successful.

Considering these results, there is a need to strengthen teachers' attitudes towards statistics, since these attitudes have a significant effect on their teaching of statistics, and attitudes of their students [5]. Moreover, there is no research related to Senior high school teachers' attitudes towards Statistics and Probability and their pedagogical practices. Thus, we conducted this study to fulfil this need.

Groth and Meletiou-Mavrotheris [8] recommended that statistics teachers' cognitive and affective characteristics may be developed by learning from teaching practice, immersion in statistical content, and use of technological environments. On the other hand, Capuno et al. [9] revealed that there was a negligible positive correlation between the attitudes and academic performance of the respondents in terms of their self-confidence, enjoyment, and motivation while there was a weak positive correlation between the value of math and their academic performance in math. Also, he concluded that students' attitudes and their study habits are significant factors that affect their performance in mathematics and strongly recommended the utilization of the enhancement plan in the teaching of mathematics to the students.

Moreover, Estrada and Batanero [5] mentioned that previous knowledge of statistics as well as good learning experiences are the main influence on teachers' attitude. Mathematics can be an interesting and involving activity not only for the mathematicians but also for the teachers and students. Involving activities such as Mathematical exploration and investigations can be a significant part of the mathematics curriculum. Pedro da Ponte [10] cited the following reasons why involving activities plays an important role in mathematics curriculum: first, they constitute an essential part of the mathematician's work; second, they favour the involvement of the student in work carried out in the mathematics class, indispensable for a

significant learning; third, they provide multiple entry points for students at different levels of mathematical competence; fourth, they stimulate holistic thinking; fifth, they can be integrated naturally in every part of the curriculum and lastly, they promote complex thinking but reinforce learning elementary concepts.

Furthermore, Kapur [6], cited that highly effective pedagogical practices are the keys to improve students' learning throughout the school. School administrators and leaders take a strong leadership role, encourage the use of research-based teaching practices in all classrooms to ensure that every student is engaged, challenged and learn successfully. The use of effective teaching methods, including explicit instruction in order to maximize student learning should be understood by all the teachers.

On the other hand, Pedro da Ponte [10], stated that two main styles of mathematics teaching with analysis of different kinds of tasks, roles and communication patterns in different grade levels are called direct teaching and exploratory learning. He also compared the characteristics of each styles. These are the following:

Table 1. Two Main Styles of Teaching Mathematics

Direct Teaching	Exploratory Learning
Tasks: - Standard task: Exercise, - The situations are artificial, - For each problem there is a strategy and a correct answer	Tasks: - Variety: Explorations, Investigations, Problems, Projects, Exercises, - The situations are realistic, - Often, there are several strategies to deal with a problem.
Roles: - Students receive "explanations", - The teachers and the textbook are the single authorities in the classroom, - The teacher shows "examples" so that they learn "how to do things"	Roles: - Students receive tasks to discover strategies to solve them, - The teacher asks the student to explain and justify his/her reasoning, - The student is also an authority
Communication - The teacher poses questions and provides immediate feedback (sequence I-R-F). - The student poses "clarification" questions	Communication - Students are encouraged to discuss with colleagues (working in groups or pairs), - At the end of a significant work, there are discussions with all class, - Meanings are negotiated

OBJECTIVES OF THE STUDY

The study aims to investigate the pedagogical practices and attitude of senior high school teachers towards Statistics and Probability. Specifically, it aims to: (1) describe the attitude of SHS teachers towards Statistics and Probability; (2) describe the pedagogical practices of SHS teachers towards Statistics and Probability; (3) determine the significant difference among the SHS teachers on their attitude towards Statistics and Probability when compared in terms of their sex, and type of school currently employed; (4) determine the significant difference among the SHS teachers on their pedagogical practices on Statistics and Probability when compared in terms of their sex, and type of school currently employed; and (5) determine the significant relationship between the attitude and pedagogical practices of SHS teachers in the municipality of Magalang.

MATERIALS AND METHODS

Research Design

This study made use of descriptive-correlational research design. Descriptive-correlational studies describe the variables under consideration and assess their relationship that occur naturally between and among them [11]. In this research, the attitude and pedagogical practices of senior high school (SHS) teachers towards Statistics and Probability were investigated. Furthermore, correlation test was also run to check if there is a relationship between the attitude and pedagogical practices of the respondents.

Participant of the Study

The research population consist of all the senior high school teachers both in public and private schools handling Statistics and Probability classes in the Municipality of Magalang, Pampanga which includes six public SHS teachers and three private SHS teachers. Complete enumeration was employed since every member of the population is reachable.

Instrument

To determine the attitude of the teacher respondents, the study adopted and modified a 20-item five-point scale attitude questionnaire by Alken [12] from Guilford College. Attitude scales were constructed to measure two aspects of the appreciation and use of mathematics - designed to assess the degree of enjoyment of mathematics and to measure recognition of the importance and relevance of mathematics. These

were item-analyzed, the reliabilities of the scales were .95 and .85 respectively [12].

On the other hand, the survey instrument for the pedagogical practices of teachers was adopted and modified from the Teaching Perspectives Inventory (TPI) that measures teachers' profiles on five contrasting views of what it means "to teach." The inventory can be utilized in aiding self-reflection, developing statements of teaching philosophy, engendering conversations about teaching, and recognizing legitimate variations on excellence in teaching. TPI is a free, self-report, self-scoring inventory that advocates diverse understanding of teaching and provides respondents with a more explicit vocabulary for reflecting on their own teaching and that of others. Responses which are gathered in a span of ten years for more than 100,000 respondents in more than 100 countries has provided a rich databank for analysis of the instrument's reliability, validity, and utility in promoting conversations about teaching that are respectful of disciplinary and professional signature pedagogies as well as cultural and social variations on how teaching is understood and valued [13].

Data Collection Procedure

The study was conducted at nine schools which offered senior high school curriculum in the municipality of Magalang – composed of six public high schools and three private high schools. Among these senior high schools, seven different tracks are offered – General Academic Strand (GAS), Home Economics Strand, Information and Communication Technology (ICT) Strand, Accountancy, Business and Management Strand (ABM), Science, Technology, Engineering, and Mathematics (STEM) Strand, Agri-Fishery Arts Strand, and Humanities and Social Sciences Strand (HUMSS). The questionnaires were created via Google form and were sent to each respondent.

Data Analysis

Descriptive and inferential statistical tools were employed to analyse the results of the study using Statistical Program for the Social Sciences (SPSS) software. Frequency and Percentage were used as statistical tools in determining the teachers' profile. Mean was used in interpreting the pedagogical practices and attitude towards Statistics and Probability. In addition, ranking was also used in interpreting the pedagogical practices towards the said subject. T-test for independent samples was used in

finding the difference between teachers' profile in terms of their attitude and pedagogical practices on Statistics and Probability. Lastly, to determine the relationship on the SHS teachers' profile on their attitude and pedagogical practices on Statistics and Probability and relationship between the attitude and pedagogical practices of SHS teachers in the municipality of Magalang, the Spearman's rho was used.

Ethical Considerations

The researchers forwarded a letter of request to the different administrators and principals of public and private high schools in Magalang. This is to inform the target teacher-respondents of the research undertaking and the importance of their participation in the study.

Upon approval of each school, the attitude and pedagogical practices questionnaires were administered online to the SHS teachers handling Statistics and Probability. They were assured of confidentiality and anonymity as respondents and that all procedures of the research ensured protecting data and the names of the participants. All data collected was only exclusively available and accessible to researchers.

These ethical principles and guidelines were observed in the conduct of the study to build credibility and integrity not only of the processes or procedures undertaken but also to the results and findings presented in this research paper.

RESULTS AND DISCUSSION

Type of School by Sex of Respondents

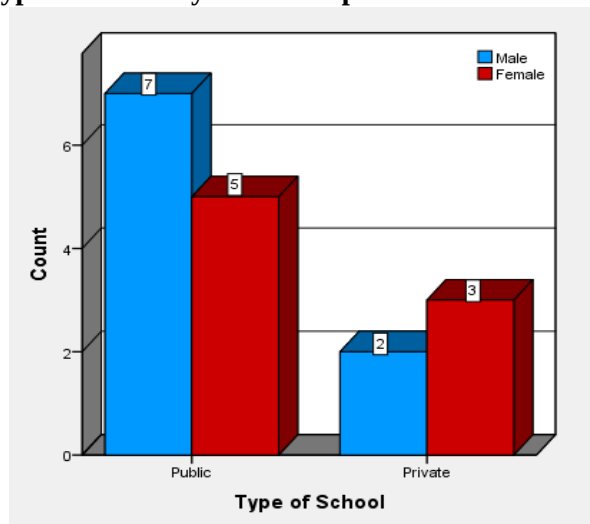


Fig. 1.1. Type of School by Sex of Senior High School Teachers

Figure 1.1 revealed that majority of the SHS teachers are teaching in the public school. Most of the teachers in public school are male while in the private school are female.

1.1. Age of Respondents

Figure 1.2 showed that there are equal number of respondents in the age of 21-25 and 26 – 30 which is where the greatest number of respondents belonged while the ages 31-35 and 36 – 40 are considered as the least number of respondents.

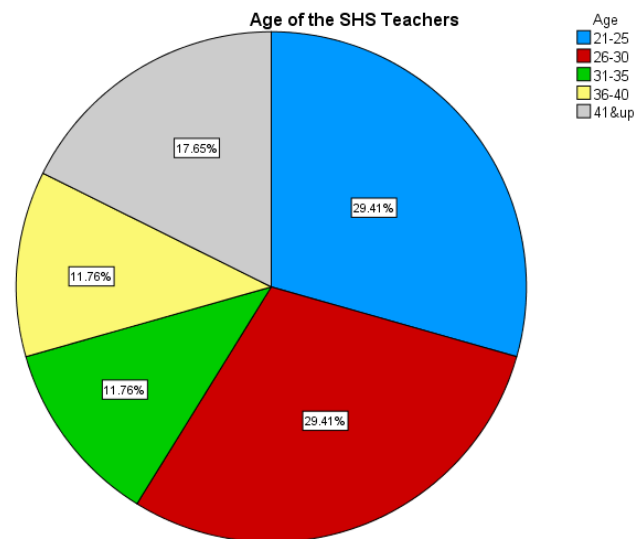


Fig. 1.2. Age of Senior High School Teachers

Years of Teaching Statistics and Probability, High Educational Attainment, Strand Taught, and Number of Seminars/Trainings on Statistics and Probability of Teachers

Figures 1.3. – 1.6. revealed that majority of the respondents had already been teaching statistics and probability for 2 years. Moreover, five (5) SHS teachers were bachelor's degree, also five (5) respondents have units in Doctoral degree, three (3) were master's degree holder, two (2) were doctoral degree holder and also two (2) have units and currently enrolled in master's degree.

Furthermore, most of the respondents taught Accountancy, Business and Management (ABM) strand while the least number of respondents taught Information and Communication Technology (TVL) and Industrial Arts strands. Lastly, most of the respondents attended only local trainings/seminars on Statistics and Probability.

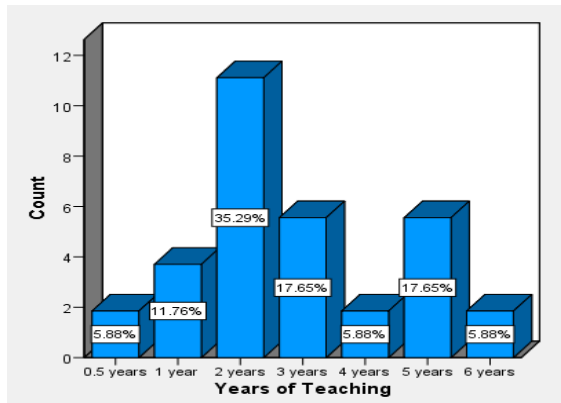


Fig. 1.3. Years of Teaching

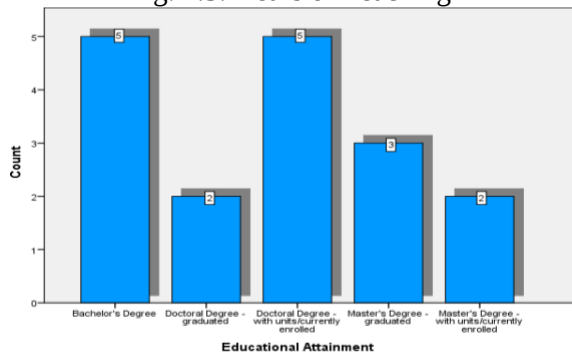


Fig. 1.4. Highest Educational Attainment

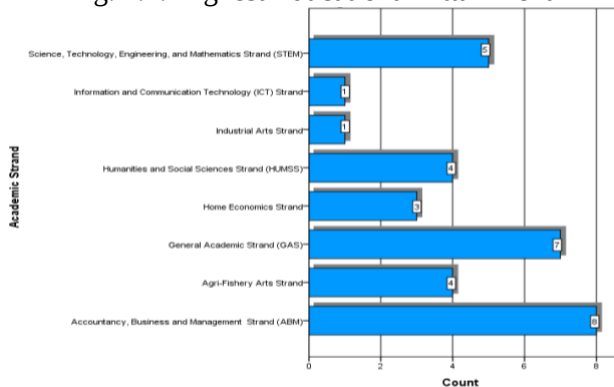


Fig. 1.6. Strand Taught

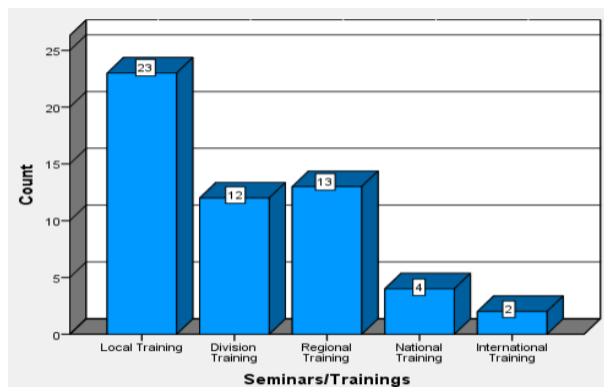


Fig. 1.6. Number of Seminars/Trainings

Attitude Towards Statistics and Probability of SHS Teachers

Most of the respondents, as indicated in the Table 2, agreed with the positive attitudes towards Statistics and Probability. The highest mean score was for the statement “Statistics and Probability is very interesting to me, and I enjoy it” ($M = 4.35$), followed by “Statistics and Probability is fascinating and fun” ($M = 4.29$), “I really like Statistics and Probability” ($M = 4.18$), “Statistics and Probability makes me feel secure, and at the same time it is stimulating” ($M = 4.11$), “The feeling that I have toward Statistics and Probability is a good feeling”, “Statistics and Probability is something which I enjoy a great deal” ($M = 4.11$), “I feel a definite positive reaction to Statistics and Probability” ($M = 3.88$), “Statistics and Probability is a subject in school which I have always enjoyed studying” ($M = 3.82$), “I feel at ease in Statistics and Probability, and I like it very much” ($M = 3.76$).

However, there was an associated low mean value for the negative statements from the viewpoint of the respondents. Therefore, the respondents do not agree from the negative attitudes towards Statistics and probability. The lowest mean values belonged to the statement “I do not like Statistics and Probability, and it scares me to have to take it” ($M = 1.41$) followed by “My mind goes blank, and I am unable to think clearly when working Statistics and Probability” and “Statistics and Probability makes me feel uncomfortable, restless, irritable, and impatient” ($M = 1.47$), “When I hear the word Statistics or Probability, I have a feeling of dislike and “I approach Statistics and Probability with a feeling of hesitation, resulting from a fear of not being able to do it” ($M = 1.65$), “It makes me nervous to even think about having to do a Statistics and Probability problem” and “I have never liked Statistics and Probability, and it is my most dreaded subject” ($M = 1.76$), “I am always under a terrible strain in a Statistics and Probability class” and “I feel a sense of insecurity when attempting Statistics and Probability” ($M = 1.88$), “Statistics and Probability makes me feel as though as I’m lost in a jungle of numbers and can’t find my way out” ($M = 1.94$). The findings imply that most of the respondents agreed with the positive attitudes rather than negative attitudes towards Statistics and Probability. This is supported by the study of Estrada, et al. [14] which suggest that teachers’ attitudes towards probability and its teaching are generally positive in all of the components they have considered.

Table 2. *Attitude Towards Statistics and Probability of SHS Teachers*

Statements	M	VI
1. I am always under a terrible strain in a Statistics and Probability class.	1.88	Disagree
2. I do not like Statistics and Probability, and it scares me to have to take it.	1.41	Strongly Disagree
3. Statistics and Probability is very interesting to me, and I enjoy it.	4.35	Strongly Agree
4. Statistics and Probability is fascinating and fun.	4.29	Strongly Agree
5. Statistics and Probability makes me feel secure, and at the same time it is stimulating.	4.11	Agree
6. My mind goes blank, and I am unable to think clearly when working Statistics and Probability.	1.47	Strongly Disagree
7. I feel a sense of insecurity when attempting Statistics and Probability.	1.88	Disagree
8. Statistics and Probability makes me feel uncomfortable, restless, irritable, and impatient.	1.47	Strongly Disagree
9. The feeling that I have toward Statistics and Probability is a good feeling.	4.11	Agree
10. Statistics and Probability makes me feel as though as I'm lost in a jungle of numbers and can't find my way out.	1.94	Disagree
11. Statistics and Probability is something which I enjoy a great deal.	4.11	Agree
12. When I hear the word Statistics or Probability, I have a feeling of dislike.	1.65	Strongly Disagree
13. I approach Statistics and Probability with a feeling of hesitation, resulting from a fear of not being able to do it.	1.65	Strongly Disagree
14. I really like Statistics and Probability.	4.18	Agree
15. Statistics and Probability is a subject in school which I have always enjoyed studying.	3.82	Agree
16. It makes me nervous to even think about having to do a Statistics and Probability problem.	1.76	Strongly Disagree
17. I have never liked Statistics and Probability, and it is my most dreaded subject.	1.76	Strongly Disagree
18. I am happier in a Statistics and Probability class than in any other class.	3.29	Undecided
19. I feel at ease in Statistics and Probability, and I like it very much.	3.76	Agree
20. I feel a definite positive reaction to Statistics and Probability.	3.88	Agree

Pedagogical Practices Towards Statistics and Probability of SHS Teachers

Pedagogical Practices towards Statistics and Probability of SHS teachers are presented in the Table 3. Pedagogical practices were categorized into two groups: Direct Teaching and Exploratory Learning. For the Direct teaching, the statement "I teach my students the fastest way in finding the correct answer to a given problem" got the highest rank with a mean of 3.56, followed by "I first taught my students how to solve a given problem in Statistics and Probability before letting them do it on their own." ($M = 3.53$), and "I provide my students the formula in solving Statistics and Probability problems" ($M = 3.41$). However, the statement "I rely on the textbook in correcting the answers of my students" got the lowest mean of 2.24 and obtained the lowest rank. These results show that speed in computation and finding the correct answer is prioritized by teachers in teaching statistics and probability. They still practice in their classroom that students imitate the way how their teachers solve problems. However, it also says that they rarely rely

on textbooks which signifies mastery and confidence of the teachers on the subject matter. The result was in line with the results of creating effective teaching and learning environments by the Organization for Economic Co-operation and Development (OECD) [15] which states that teachers some countries frequently employed structuring teaching practices to students.

Meanwhile, when it comes in Exploratory Learning statement "I engage the whole class in the discussion of the lesson" got the highest rank with a mean of 3.88, which is followed by "I encourage my students to consider alternative procedures for solutions", and "I provide sample problems to make my students think critically and creatively" with the same mean of 3.76. On the other hand, statement "I practice with my students to solve non-routine open-ended problems" got the lowest mean of 3.00 and obtained the lowest rank. These results show that teachers always allow their students to explore solutions to problems, but these problems are usually routinary and have only one correct answer.

Table 3. *Pedagogical Practices Towards Statistics and Probability of SHS Teachers*

Statements	M	VI	Rank
A. Direct Teaching			
1. I make my students follow a prescribed formula in answering a problem.	3.18	Usually	8
2. Paper-and-pencil test serves as the main tool of assessing my students.	3.12	Usually	10
3. I provide my students the formula in solving Statistics and Probability problems.	3.41	Always	3
4. I first taught my students how to solve a given problem in Statistics and Probability before letting them do it on their own.	3.53	Always	2
5. I teach my students the fastest way in finding the correct answer to a given problem.	3.56	Always	1
6. I give assignments similar to the exercises presented in my class.	3.29	Always	5.5
7. I demonstrate the procedure and let my students imitate this procedure in solving a problem.	3.29	Always	5.5
8. I teach my students to focus on speed and accuracy in Statistics and Probability.	3.12	Usually	10
9. I consistently give assignments that apply to a formula in Statistics and Probability.	3.12	Usually	10
10. I rely on the textbook in correcting the answers of my students.	2.24	Rarely	15
11. I practice my students with routine computations and algorithms.	3.35	Always	4
12. I introduce my lessons through formal presentations.	2.88	Usually	12
13. I do most of the time talking and presenting the lesson in my class.	2.59	Usually	13
14. I provide exercises to be done by each student alone.	3.24	Usually	7
15. I do not allow my students to discuss with their seatmates during seat work	2.29	Rarely	14
TOTAL MEAN	3.08	Usually	
B. Exploratory Learning			
1. I encourage my students to consider alternative procedures for solutions.	3.76	Always	2.5
2. I use alternative assessment procedures for my students such as reflection journals and portfolios.	3.12	Usually	13
3. I allow my students to discuss their answers with their classmates during exercises.	3.41	Always	6.5
4. I require my students to explain their reasons for their answers during board exercises and written exams.	3.53	Always	5
5. I provide problems in class where students can explore and reason out.	3.41	Always	6.5
6. I give my students assignments that require investigation and exploration.	3.06	Usually	14
7. I provide sample problems to make my students think critically and creatively.	3.76	Always	2.5
8. I give my students assignments, problem sets, investigative works, and other forms of assessments.	3.24	Usually	10
9. I encourage my students to develop their own unique solutions to a problem.	3.18	Usually	12
10. I provide class time for my students to work together in groups, experiment on their own and discuss with one another their solutions and answers.	3.29	Always	8
11. I give assignments that will inquire about investigative work.	3.24	Usually	10
12. I allow my students to explain their solutions and answers in class.	3.65	Always	4
13. I practice with my students to solve non-routine open-ended problems.	3.00	Usually	15
14. I introduce my lessons by giving my students guided questions	3.24	Usually	10
15. I engage the whole class in the discussion of the lesson.	3.82	Always	1
TOTAL MEAN	3.34	Always	

Additionally, the total mean score of Exploratory Learning is higher than the Direct Teaching. This implies that teachers always focus their effort on how to improve student learning through different classroom interventions and encourage their students to investigate and explore solutions rather than rely on textbooks. The results confirm Pedro da Ponte's [10] study which revealed that Math explorations and investigations can be a significant part of the mathematics curriculum because these promote holistic thinking and provide multiple entry points at different levels of math competence for the learners.

Difference Among the SHS Teachers on their Attitude Towards Statistics and Probability

The study revealed that the attitude of male and female teachers towards Statistics and Probability are not significantly different, $t(15) = 1.000$, $p = .333$. This finding seems to be aligned with the result of the study

conducted by Atnafu [7], showed that no statistically significant difference in the attitude towards Statistics and Probability in terms of sex. Likewise, attitude of teachers from public and private schools towards Statistics and Probability are also not significantly different since the p-value was greater than 0.05 level of significance, $t(15) = 1.177$.

Table 4. T-test Results for Attitude Base on Gender and Type of School

Profile	<i>N</i>	<i>M</i>	<i>t</i>	<i>p</i>
Sex				
Male	9	2.8889	1.0000	.333
Female	8	2.7875		
Type of School Currently Employed				
Public	12	2.8792	1.177	.257
Private	5	2.7500		

* $p < .05$; ** $p < .01$

Table 5. T-test results for Pedagogical Practices Based on Gender and Type of School

Practices	Profile	<i>N</i>	<i>M</i>	<i>t</i>	<i>p</i>
Sex					
Direct Teaching	Male	9	3.1778	1.254	.229
	Female	8	2.9583		
Exploratory Learning	Male	9	3.3481	-0.638	.533
	Female	8	3.4167		
Type of School Currently Employed					
Direct Teaching	Private	5	2.9067	-1.239	.234
	Public	12	3.1444		
Exploratory Learning	Private	5	3.3200	-0.730	.477
	Public	12	3.4056		

* $p < .05$; ** $p < .01$

Difference Among the SHS teachers on their Pedagogical practices Towards Statistics and Probability

The study revealed that the pedagogical practices on both direct teaching and Exploratory Learning of male and female teachers towards Statistics and Probability are not significantly different since their p-value was greater than 0.05 level of significance. Similarly, there were also no significant difference among the SHS teachers from public and private schools on their pedagogical practices both direct teaching and Exploratory Learning towards Statistics and Probability

Significant Relationship on the SHS teachers' profile on their attitude and pedagogical practices on Statistics and Probability

Table 6 shows the relationship on the SHS teachers' profile on their attitude and pedagogical practices on Statistics and Probability. The study revealed that profile of respondents in terms of age, years of teaching in Statistics and Probability, educational attainment, and numbers of seminars/trainings on Statistics and Probability are not significantly related on their attitude and pedagogical practices since all the p-values are greater than 0.05 level of significance.

Table 6. Relationship of Respondents Profile vs Attitude and Pedagogical Practices

Profile	Parameter	Coefficient	p	Interpretation
Age VS	Attitude	-.295	.251	Not Significant
	Direct Teaching	.196	.452	Not Significant
	Exploratory Learning	.154	.554	Not Significant
Years of Teaching VS	Attitude	-.207	.424	Not Significant
	Direct Teaching	-.145	.577	Not Significant
	Exploratory Learning	-.133	.610	Not Significant
Highest Educational Attainment VS	Attitude	-.433	.083	Not Significant
	Direct Teaching	.182	.484	Not Significant
	Exploratory Learning	.082	.754	Not Significant
Number of Seminars/ Trainings on Statistics and Probability VS	Attitude	-.263	.308	Not Significant
	Direct Teaching	-.236	.361	Not Significant
	Exploratory Learning	-.028	.916	Not Significant

* $p < .05$; ** $p < .01$

Significant relationship between the attitude and pedagogical practices of SHS teachers in the municipality of Magalang

No significant relationship was found between the attitude and pedagogical practices (Direct Teaching and Exploratory Learning) of SHS teachers in the municipality of Magalang.

Table 7. Relationship of Attitude vs Pedagogical Practices

Variables	Coefficient	p	Interpretation
Attitude VS Direct Teaching	-.023	.931	Not Significant
Attitude VS Exploratory Learning	-.130	.620	Not Significant

* $p < .05$; ** $p < .01$

CONCLUSIONS

Based on the findings of the study, the following conclusions were drawn:

1. Greatest percentage of Senior high school teachers of Magalang are males in public schools, while in private schools suggest otherwise. Most respondents belong in the age group 21 - 25 and 26-30. Greatest percentage of the respondents have been teaching Statistics and Probability for two years and the respondents' educational attainment varies from being bachelor to doctorate degrees. The ABM strand is the most taught strand, and majority of the respondents' training have attended are of local level.
2. Senior high school teachers of Magalang have positive attitude towards Statistics and Probability.

3. Senior high school teachers of Magalang always practice exploratory learning while they also usually practice direct teaching.
4. Attitude of male and female teachers towards Statistics and Probability are not significantly different Likewise, attitude of teachers from public and private schools towards Statistics and Probability are also not significantly different.
5. The study revealed that the pedagogical practices on both direct teaching and exploratory learning of male and female teachers towards Statistics and Probability are not significantly different. Similarly, there were also no significant difference among the SHS teachers from public and private schools on their pedagogical practices both in direct teaching and in exploratory learning towards Statistics and Probability.
6. Profile of respondents in terms of age, years of teaching Statistics and Probability, educational attainment and numbers of seminars/trainings on Statistics and Probability are not significantly related with their attitude and pedagogical practices.
7. No significant relationship was found between the attitude and pedagogical practices (Direct Teaching and Exploratory Learning) of SHS teachers in the municipality of Magalang.

RECOMMENDATIONS

The following recommendations are offered based on the conclusions drawn:

1. Wider range of respondents may be considered and other demographic profiles may also be taken into account.

2. Capability building on teaching Statistics and Probability may be explored to improve the attitude and pedagogical practices of the teachers.
3. The involved activities in teaching Statistics and Probability may be explored as it may play an essential role in the students' learning.
4. Further research on the same field using additional variables like Knowledge and Pedagogical Knowledge may be considered.

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