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Teachers' Attributes and Their Students' Research Productivity

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ABSTRACT

Teachers play a significant role in the intellectual development of students in various techniques, assessments, and methods to improve student skills in school's subjects. This study therefore, focuses on the effects of research teachers' personal and professional attributes and their senior high school students' research productivity. The respondents' attitudes toward research were also looked into. These were correlated together with the students' performance in research as evidenced by their outputs. The population of the study is comprised of 11 public and 4 private secondary schools in Cebu City. A total number of 36 research teachers with their corresponding students comprising 111 were selected through purposive sampling techniques. The reliability of the tools using Cronbach Alpha is generated above 0.783, 0.808, and 0.811 which means good and acceptable. Multiple statistical procedures, simple frequency and percentages, weighted means, and descriptive inferential analysis were employed to obtain stronger validity to the study. The results of the study identified that students' level of research productivity are categorized as "Beginning" and having desirable attitudes towards research. Likewise, teachers have positive attitudes towards doing research and its benefits to their teaching practice and students' learning process. Using the Pearson r and multiple regressions; the results of the study identify negligible relationship and no significant difference between most of the teacher factors and student research output. However, the teachers' attitudes are statistically significant in relation to student's output while the teachers' output and students' output have significant difference. Reliable research trainings and providing teaching materials are recommended to address these gaps.

Keywords: attitudes, teachers' attribute, research productivity, correlation,

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INTRODUCTION

The performance of school faculty members determines the quality of their students' training and the school's image. Research plays a vital role in this relationship since research performance boosts the school's standing. Moreover, research improves the teacher's expertise and thereby the training of their students, an aspect which is very important since the education quality has become a major issue not only in higher education (Horodnic & Zait, 2015), but also in a specialized upper-secondary education of a core curriculum tracks from the approved Republic Act No. 10533 or the Enhanced Basic Education Act of 2013. Practical research is one of the learning areas of the core curriculum (Avilla, 2016).

According to Salleh (2014) teachers are superheroes in the classroom because of the challenging nature of the work as they learn, unlearn, and relearn. Hence, despite busy teaching, job-related duties, and classroom management-conduct of research is a must for teachers in facing new and more challenges and toward becoming better practitioners Ediger & Rao (2005) noticed that as teachers always monitor and assess the students, teacher observation proved to be a good tool for assessing student achievement. In fact, it was found that teacher characteristics have relationship with students' achievement (Enwelim, 2016) Likewise, Radmacher & Martin (2001) submitted the characteristics of teachers as experiences, professional, pedagogical and personal attributes as factors that will produce better learning atmosphere as well as self- assured students' engagement in the learning process.

In the Philippines, the Department of Education has issued an order to all of its school heads, supervisors, and teachers for the adoption of "the Basic Education Research Agenda" which promotes the conduct of education research (DepEd, 2016) in the country. The purpose of which is to identify teachers' and department's concerns and problems, and to recommend solutions based on the results and findings made. With professional growth and development as one of the key result areas for the individual teacher's performance commitment and review, doing action research has already become part of the annual performance appraisal for all teachers. But many teachers in both elementary and secondary schools were uninterested and demotivated about the importance of doing research.

However, a number of studies have been conducted on the factors that enable successful research. Knowledge of these factors is critical to determining the appropriate allocation of research and development resources. Although the most influential factor on research productivity is unquestionably the chief researcher's personal capability (Kwon et al. 2015; Hess, 1997; Stephen, 1996). Salfi & Saeed (2007) found that a large number of factors affect the achievement or success interaction of students. A teachers' academic and professional qualification, experience, age, assessment interval, training, and many other factors all affect student's learning discourse and all should function properly for the quality of education. In many research studies, the effect of teachers' qualifications on students' learning achievement has been estimated and several efforts were made to

know whether teachers' qualifications putting under the category of independent variables might have any direct or indirect effect on student achievement. For example, the study of Ekici (2017) revealed that the levels of reluctance to help researchers of male teacher candidates are higher when compared to female teacher candidates of preschool. Negative attitudes towards research who do not take course of scientific research methods are higher when compared to other candidates who take the research methods course. Overall, teacher candidates' attitudes towards research do not vary by age, grade level, and the academic success average.

MAIN PROBLEM

The main problem of the study is to determine the contribution of teacher's attributes to the students' research outputs among Senior High School research teachers from the Second Semester of School Year 2017-2018 to First Semester of School Year 2018-2019.

Specifically, the study aimed to find out the answers to the following sub-problems:

1. What are the teachers' attributes in terms of the following:
   1.1 Personal Attributes
   1.2 Professional Attributes

2. What is the performance level of the students as evidenced by their research outputs in terms of:
   2.1 Title Formulation and Introduction/Rationale;
   2.2 Body of the Paper;
   2.3 Conclusion and Recommendations;
   2.4 References and Citations;
   2.5 Quality of Sources; and
   2.6 Writing Style?

3. What are the teachers' attitudes towards research?

4. What are the students' attitudes towards research along the following dimensions:
   4.1 Love for Research;
   4.2 Fear for Research;
   4.3 Usefulness of Research;
   4.4 Difficulties in Research;
   4.5 Importance of Research; and
   4.6 Benefits of Research?

5. Are there a significant correlations between the students' research outputs and they are:
   5.1 Teachers' attributes;
   5.2 Teachers' attitudes towards research; and

6. Is there a significant relationship between students' research output and and their teachers' attitudes towards research?

   Ho: There is no significant relationship between the students' research outputs and their teachers' attributes.

Figure 2.1 shows the conceptual framework or the relationships on the changing qualities that are involved in this research study. In this inquiry, it is understood that teachers' attributes are the input variables. They are categorized as to personal and professional attributes. These were surveyed through questionnaire, informal interviews, and statistical treatment. The level of teachers' toward research are specified factors involving their attitudes on Love for Research; Fear for Research; Usefulness of Research; Difficulties in Research; Importance of Research; and Benefits of Research. These are the dependent variables that were assumed to be influenced with the profile variables of being research teachers. Likewise, students' attitudes towards research were analyzed according to their degrees of agreement.

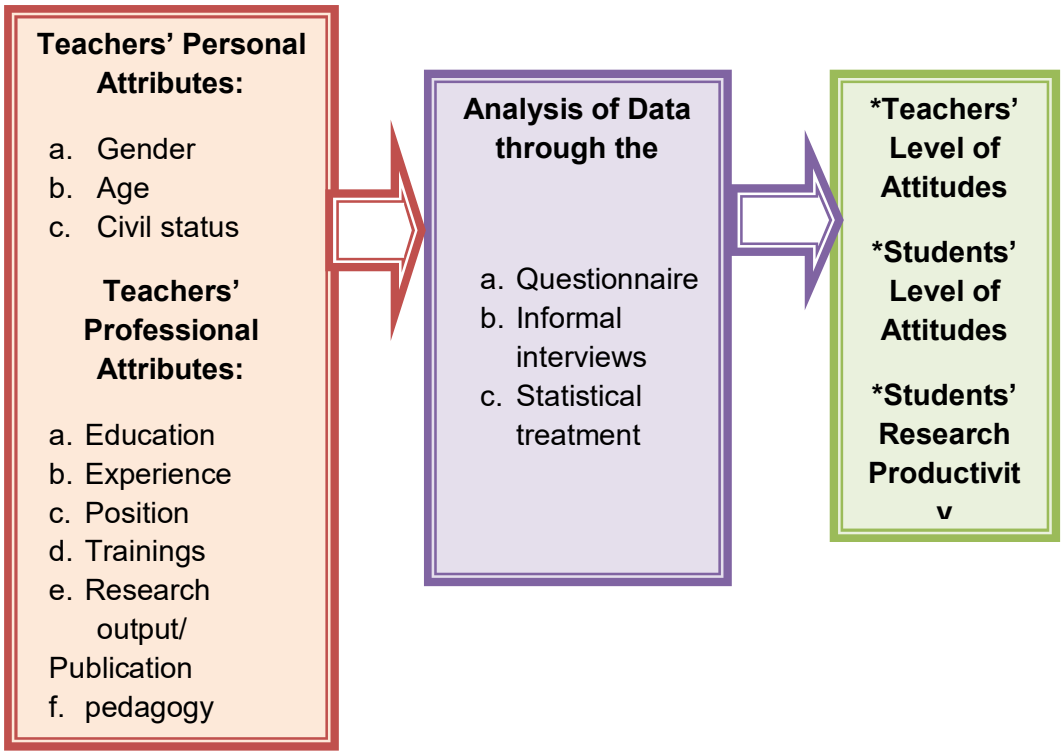

Figure 2.1 Conceptual Framework of the Study

Finally, their research productivity was the furthermost dependent variable as evidenced by their skills. The researcher deemed it important as readings of related studies revealed relationships between the teachers' attributes and their students' productivity in research.

LITERATURE REVIEW

Teachers face many diverse situations while teaching, which makes them to change the class structures, teaching approach to gain a better result. Researcher teachers must be ready to recognize critical parts of educational process, then employ educational research which would help to make educational settings better places for learning any subject. As they assess themselves in their personal level of teaching, they of course thought of the previous benchmark for individual teacher's evaluation replacing the Revised Performance-evaluation Monitoring System (RPMS) by virtue of DepEd order 42 s. of 2017.

Several literatures also proved the relationship between students' research productivity and teachers' attitudes; as well as students' perceptions towards research. According to Horodnic & Zait (2015), intrinsic motivation is positively correlated with research productivity, whereas extrinsic motivation is negatively correlated using the Tobit regression model. Measuring student's attitudes towards research is essential to investigate. Nor (2017) concluded that majority of the participants' view that knowledge of research is valuable. The students also believed that they can benefit from the research. However, the participants representing 85.2% have problems to see their supervisors which had affected their learning and conducting the research. Bakshi & Golshan (2016) reported similar findings to other studies; results of the study indicated that trained teachers have gained more enhanced knowledge, developed pedagogical content information and enhanced research skills. Harland & Kinder in Haider & Hussain (2014) suggested that in student achievement, well qualified teachers always developed significant differences and their students were impartial, tolerant, adoptable, and challenging.

Other factors such as gender, age, funding, and scientific equipment also play important roles in research productivity. Gender has long been known to be associated with significant differences in research productivity, with gender-related differences in research productivity assumed to be the result of sociological factors, especially females' tendency towards occupying relatively lower positions in power hierarchies (Kwon et al., 2015). Likewise, teacher-educator's research productivity and their background and professional characteristics, attitudes, motives, obstacles and time devoted to research indicate significance for predicting research productivity as to their academic degree, rank, administrative position, desire to develop new knowledge and perceived insufficient research competence and self-confidence (Abu Alhija & Majdob, 2017).

Since some faculty members in the senior high level who are teaching research are coming from the higher educational institutions, it could be of great help in the basic education in augmenting its research capacity. As what was concluded by Pamatmat's (2016) study that the research attitude of the teaching personnel in one Philippine state university reveals their research competence, research efficacy, their belief in the usefulness of research in their lives and their

involvement in research all contribute to the development and sustainability of the university towards excellence in terms of instructional quality, research and publication, institutional qualification and extension and linkages.

Gallego, Georgantzis, Montaner, & Amaral (2012) found a nonlinear and positive relationship between research output and teaching quantity on teaching quality. This indicates that research and administrative duties affect teacher's teaching even in the basic education. On the other hand, the study of Shkedi (2010) revealed that exposure of teachers to qualitative research literature during the course of their pre-service training and in-service training could make this literature an indispensable part of the teachers' professional world, could contribute to raising their professional level, and could reinforce their status as professionals. This highlights to those senior high school teachers who underwent series of mass training and hopefully applied what they have learned when they are already in their respective stations.

Are good researchers also good teachers? This investigation of Palali, Elk, Bolhaar, & Rud (2017) measured the relationship between research quality and teaching quality. They found that being taught by teachers with high quality publications leads to higher grades for master students. Teachers having a higher qualification or have an advanced degree in their teaching subject have a positive effect on student achievement (Rice, 2003). However, Gallego et al. (2012) conclude that the higher organizational capability of researchers does not compensate the fact that students perceive them as less knowledgeable than instructors than instructors that do not research.

When it comes to gender differences in research attitudes, the study of Saleem, Farid, & Akhter (2015) revealed that significant differences exists between research attitudes of male and female students. Male students possessed relatively more positive research attitude as compared to that of the females. The data of Affandi, Amiruddjn, Che, &Zainudin (2015) reported that academics has high level of research knowledge, positive attitudes and high awareness level towards research practice in the polytechnics. Likewise, students' attitudes and behaviors are predicted by teaching practices most proximal to these measures, including teachers' emotional support and classroom organization. However, teachers who are effective at improving students' scores often are not equally effective at improving students' attitudes and behaviors (Blazar & Kraft, 2017).

A research-intensive environment offers a better learning experience for students. One potential answer to this dilemma lies in research-related teaching. Magi & Beerkens (2015) observed that research active teachers are more likely to incorporate research outcomes into teaching, to engage students in research groups, and co-publish with students. The results show the benefit of protecting the research-teaching nexus for individual academics and the need to cultivate a commitment to both research and teaching in order to capitalize on the research-intensive environment especially in the teaching of practical research to the senior high school students. Belgrave & Jules (2014) asserted that lecturer should provide

the students with both academic and life knowledge during instruction in research thereby encouraging them to use their critical thinking skills and apply their knowledge of linguistics research to real-life events.

In the same vein, the study of Shams (2013) showed that low student teacher attitudes have negative impact on the pupils based on the five factors namely: research usefulness, research anxiety, positive attitudes, relevance to life, and research difficulties. In addition, the paper of Clark (2005) promoted a consultant role of researchers on teacher thinking in relation to teacher educators. The author claimed that research on teacher thinking can improve teacher preparation by encouraging thoughtful teacher educators to ask better questions of themselves and of their arts.

Another underlying evidence of a quality teacher researcher is the length of experience. Teacher performance varies at all levels of experience. Individual teachers tend to improve with experience, but not all teachers begin their careers with the same skills or rise to the same level. As one study of more than a half-million students concluded, "experience is not significantly related to achievement following the initial years in the profession (Kane, Rockoff, & Staiger, 2006).

Research productivity and teaching effectiveness results that both analyses, teachers of social science courses were the only group for which there were consistent though modest relationships between the number of published articles and student ratings of instructor effectiveness (Centra, 2002). Furthermore, Kini&Podolsky (2016) found that teaching experience is positively associated with student achievement gains throughout a teacher's career. As teacher gains experience, their students are more likely to do better on other measures of success beyond test scores, such as school attendance. (Haider & Hussain, 2014) identified that teachers' in service-training mainly related to the opportunities provided to practicing teachers to enhance their skills, knowledge, and innovative approaches to improve their instructional effectiveness in the classroom situation. Furthermore, Darling-Hammond (in Haider & Hussain, 2014) found the relationship between teaching experience and student achievement that there was no significant difference between the performances of students taught by teachers who has less than five years and more than five years of experience.However, Zuzovsky (2008) reported that there is a positive relationship between teachers' effectiveness and their years of experience on students' achievement.

For the students' side regarding their attitudes productivity towards research, a significant difference was found in the attitudes with respect to the type of program and prior areas of specialization. Low student teacher attitudes have negative impact on the pupils (Butt & Shams, 2013). Similarly, cultural variations have significant relationship with the specification of the field of research, selection of research problem, choice of research supervisor, research tool, and data gathering procedure (Saleem, Saeed, & Waheed, 2014). In contrast, Barriers for undertaking research included time restrictions, and a lack of mentorship. Very few students achieve publication (Escobar, Velez, Garcia, & Isaza, (2017).

Comprehending the attitudes of the students towards research would bridge the gap between the research supervisor and his ward. Three important training areas are in article writing and publications, identifying journals for publication and communication skills. Providing proper training can help the students to complete their research degree with a quality research in stipulated time (Muthuswamy, Vanitha, Suganthan, & Ramesh, 2017). Even in health and allied sciences, medical students have generally positive attitudes towards science and scientific research in medicine.

METHODOLOGY

This study used mixed method employing descriptive survey, correlational designs, and multiple regression analysis. Table 2.1 shows the sample population of the study. The participants of this study consisted of 11 research teachers at the public and 4 from private schools within Cebu City. A total of 15 schools having 36 research teachers with their respective students were selected from the Junior High Schools and Senior High Schools since they have been experienced in teaching for several years. The study used purposive sampling method because the respondents have personal knowledge in the subject, thereby reducing potential sampling errors.

Table 2.1: Sample Population of the Study

	Name of School	Teachers	Students
1	Abellana National School	4	12
2	Apas National High School	3	9
3	Cebu City Don Carlos A. Gothong MNHS	3	9
4	Cebu City National Science High School	3	9
5	Cebu Eastern College	2	6
6	City Central National High School	1	3
7	Don Sergio Osmeňa Sr. MNHS	5	15
8	Lahug Night High School	1	3
9	Marianne Childhood Education Center	1	3
10	Matilda L. Bradford Christian School	2	6
11	Mabolo National High School	3	9
12	Pit-os National High School	1	3
13	Ramon Duterte Memorial National High School	3	9
14	University of San Carlos- South Campus	3	9
15	University of the Philippines-Cebu	2	6
	Total	**36**	**111**

The above inclusion criteria are considered important by the researcher since analysis of further data followed its corresponding descriptions and correlations. However, some teachers who are teaching Research 1 and 2 or Creative Investigations in junior high schools in the special science classes were also part in this study since their teaching loads are equivalent to the required minimum number of hours set by the authority as reflected in their class program

Instrument

The data collection tool for this study used a descriptive correlational survey in the form of a questionnaire. The content of the questionnaire covered six parts, namely;

Part I is an item to find out personal information of research teacher participants in terms of demographics. A checklist on teachers' research based knowledge and principles of teaching and learning. As an informant instrument, the research teachers were asked to evaluate their extent of pedagogy in Practical Research subjects. Reliability coefficient shows an r-value of 0.783. The result implied as acceptable.

Part II- is also a checklist on teachers' attitudes toward research practice adapted from the study of Ulla et al., (2017.) Specifically, this portion used the ordinal scale to indicate the position of data regarding the respondent's according to their degrees of agreement. The coefficient of reliability was computed as 0.808 which is considered as good reliability.

The tool in Part III in measuring the attitude of students' towards research practice was adapted from the study of Mutuswamy et al., (2017). The average mean value was computed in verbal descriptions of level of desirability. The reliability of this questionnaire using Cronbach Alpha is generated 0.811 which means good.

Part IV is a rubric for assessing the students' research outputs which was adapted from the private senior high school's text book (Cristobal & Cristobal, 2017). The indicators for each student's group output were measured using a total score of 100. Its coefficient reliability of internal consistency is 0.795. This means an acceptable instrument.

Data Gathering Procedure

The results obtained from the questionnaire were tabulated through the use of frequency counts and percentages. These percentages were combined in order to interpret and describe the findings. Likewise, the data from descriptive analysis of mean score were analyzed through Pearson r using SPSS 16. In determining the significance among the identified research teachers' attributes, the Multiple Regression was used with Analysis of Variance (ANOVA).

Ethical Considerations

For ethical consideration, all the information and personal details from the teacher and student participants in this study were treated with utmost confidentiality. Before the researcher have selected and identified the participants, a request letter was sent to the schools division superintendent and school principals for approval. For the private schools, a separate letter was sent to the administrator then to the school principal and be delegated to the middle administrators/coordinators. Upon the approval, the researcher together with the school heads had informed the teachers about the purpose of the research. The selection of teacher participants was made possible through the help of the school heads. While an assent/consent form

was furnished to one of the state university. All of the participating teachers were teaching different subjects, but specifically practical research for sureness.

Results and Discussion

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) program. Frequency counts and percentages, and mode were used to present data in Table 2.2 comprising the categories of respondents' attributes.The first category of the study indicates the gender of the high school research teachers by ticking the appropriate space they belonged. The purpose was to find out the number of males and females who actually participated in the study. Since the gender profile is predominantly females having 58.33%, it is a woman's world in so far as teaching practical research is considered in senior high school. They were very much eager to improve their pedagogical whether qualitative, quantitative or mixed methods since they were given this teaching load filled with challenges and excitement.

Table 2.2: Teachers' Personal and Professional Attributes

Category	Factors	Frequency	Percent (%)	Mode
Gender	Male	15	41.67	Female
	Female	21	58.33	
Age	21-30	11	30.56	31-40 years old
	31-40	15	41.67	
	41-50	8	22.22	
	51-60	1	2.78	
	61 above	1	2.78	
Civil Status	Singe	12	33.33	Married
	Married	24	66.67	
Academic/ Professional Qualification	BSEd / B.A	2	5.56	MAEd with Ed.D units
	BSEd / B.A with M.A.units	6	16.67	
	MAEd / MEd	12	33.33	
	MAEd/MEd with EdD/Phd units	12	33.33	
	Ed.D / Ph.D / Dev.Ed			

		4	11.11	
Years of Teaching Experience	1-5	8	24.32	6-10 & 11-15 experience
	6-10	10	27.03	
	11-15	10	27.03	
	16-20	4	10.81	
	21 above	4	10.81	
Classification / Position	Teacher 1	3	8.33	Master Teacher I
	Teacher 2	6	16,67	
	Teacher 3	3	8.33	
	Master Teacher 1	16	44.44	
	Master Teacher 2	1	2.78	
	*Instructor**	3	8.33	
	*Professor**	4	11.11	
Relevant Days of Training	1-3	10	19.61	4-6 days
	4-6	28	54.90	
	7-9	13	25.49	
Research Output/s	Journal Article	3	7.14	Thesis/ Dissertation
	Thesis / Dissertation	24	57.14	
	Action Research	9	21.43	
	Paper Presentation/Congress	6	14.29	
Level of Research-based knowledge	Beginning Teacher	3	8.11	Proficient Teacher
	Proficient Teacher	21	56.76	
	Highly Proficient Teacher	10	27.02	
	Distinguished Teacher	3	8.11	

Private School Teachers*

The second category shows the majority of them falls under the age bracket 31-40. This goes to show that the respondents' maturity in teaching is enough aside since they have been in the profession for a decade and some have taught already in the junior high school levels until such time when they are teaching research.

Representing 66.67% fall within the marital bliss. It pictures out that having a family while teaching practical research would remind these teachers to manage their time and of course, they could relate and guide their senior high school students as their second children especially in spending study habits as well as their learning styles.

The highly qualified teachers to teach research are those who are full fledge masters' degree holders with doctoral units. Having a tie of frequency 12 and represented by 33.33%. It is evident that the teachers have more interest in obtaining professional qualification. The reason behind the higher trend of obtaining the post graduate program is the opportunities for promotion thereby leading to increase their salary grades. It is good for teaching practical research in the senior high school students since the teachers has already an intensive research experience such as theses and dissertations.

The teachers held varying teaching experiences, with a tie of frequency of 10 in a bracket of 6-10 and 11-15. It is in the teaching of practical research that gives quality to teaching experience in particular. It is this type of experience that helps prepare teachers to teach this subject. This particular experience can be reflected by their level of pedagogy as to beginning, proficient, highly proficient, and or distinguished according to the Philippine Professional Standard for Teachers.

Since majority of the respondents are coming from public senior high schools, they were surely trained in the so called Mass Training of Teachers (MTOT) in different subject areas in the senior high level as to Core, Applied, and Specialized subjects sponsored by the Department of Education. Their four to six relevant trainings implied the need for teachers to be trained more along Practical Research subjects.

Majority of the research teachers have finished their theses / dissertations having a frequency of 24. Although action research was well encouraged by DepEd, the results signify that research is doable only for teachers according to the respondents' training and time duration especially for master teachers and professors. The findings of Ulla, Barrera, & Acompanado (2017) reported challenges such as lack of financial support, research knowledge and skills, and heavy teaching loads.

The last category reveals the pedagogical knowledge and skills of teachers in teaching research according to the Philippine Professional Standards for Teachers (PPST) claimed by the respondents themselves. Having the frequency of 21,

majority of them acclaimed to be a Proficient Teacher. Haider & Hussain, (2014) study is aligned in this investigation since it also identified that teachers' in service-training mainly related to the opportunities provided to practicing teachers to enhance their skills, knowledge, and innovative approaches to improve their instructional effectiveness in the classroom situation.

Tables 2.3 show the level of attitudes of students toward research subjects. The six dimensions were used and adapted from the study of Muthuswamy et al. (2017). These following factors are Love for Research; Research Fear; Research Usefulness; Difficulties in Research; Importance of Research; and Benefits of Research.

Table 2.3: Students' Level of Attitudes toward Research

Factors	Mean Value	Average Mean	Verbal Interpretation
Love for Research			
I love research	2.91		Positive
I enjoy research	2.83		Positive
I like research	2.78	**2.89**	Positive
I am interested in research	2.88	**Positive**	Positive
Research is interesting	3.05		Positive
Fear for Research	**Mean Value**	**Average Mean**	**Verbal Interpretation**
Research makes me nervous	3.14		Positive
Research makes me anxious	3.21		Positive
Research scares me		**3.04**	
I make mistakes in			

research	2.77	**Positive**	Positive
Research is complicate	3.00		Positive
	3.08		Positive

Usefulness of Research	**Mean Value**	**Average Mean**	**Verbal Interpretation**
Research is usefulness for my study	3.38		Very Positive
I am inclined to study the details of research	3.44	**3.3**	Very Positive
Knowledge from research is useful as writing	2.96	**Positive**	Positive
Research is useful to every student	3.42		Very Positive

Difficulties in Research	Mean Value	Average Mean	Verbal Description
Research is stressful	3.54		Very Positive
Research is a complex subject	3.13		Positive
Research is difficult	3.21	**2.93**	Positive
Research is insecure	2.38	**Positive**	Negative
I have trouble with arithmetic	2.57		Positive
I find it difficult to understand the concepts of research	2.75		Positive

Importance of Research	**Mean Value**	**Average Mean**	**Verbal Description**
Research is connected to my major/strand	3.26		Very Positive
Research is very valuable	3.50		Very Positive
Research should be very important in my student training	3.54	**3.38**	Very Positive
Research-oriented thinking plays an important role in life.	3.23	**Very Positive**	Positive

Benefits of Research	Mean Value	Average Mean	Verbal Description
Research acquired knowledge is as useful as arithmetic	3.31		Very Positive
Most students benefit from research	3.33	**3.24**	Very Positive
I will employ research approaches in my strand/major	3.03	**Positive**	Positive
The skills I have acquired in research will be helpful to me in the future	3.27		Very Positive

Average Mean Value: 2.89 (Positive)

Legend: 3.25-4.00 Very Positive (VP)
2.50-3.24 Positive (P);
1.75-2.49 Negative (N);
1.00-1.74 Very Negative (VN)

The level of attitudes along Love for Research of research students revealed an agreeable level along all statements especially in interesting of research with the highest mean value of 3.05. The respondents also love, enjoy, like, and interested research. In this case, like for learning is established when the lesson was well understood by the students with the lowest mean value of 2.78. In broad sense, they have positive attitudes to love research having an average mean value of 2.89. Meaning to say, the value of students' affection and interest on topics during series of activities in research class is effective. Likewise, their participation satisfies their teachers' teaching style as they focus on every part of practical research methods.

For the second factor, all of them agreed that they have fear in research. With the highest mean of 3.21, they were anxious in research. The results indicate a tense from the students' part during classroom activities especially when the lesson was not that really contextualized by the teachers. However, they admitted in making mistakes as they had experienced during research works as attributed by their obtained least mean value of 2.77. Their dread in research shows that they all agreed of being nervous, anxious and the feeling of complications based on the average mean value of 3.04. The above results imply that making mistakes in research has a great impact. Teaching research may be informed to students at hand and be oriented from time to time the challenges and trials are parts of crafting meaningful scholarly work.

The third factor indicates the students' level of attitudes along research usefulness. With the highest average mean of 3.44, this means that majority of them were very positive in this area except for the knowledge in writing stage in research with a lowest mean value of 2.96 wherein they simply agreed. It is worth mentioning that research writing needs to be more given emphasis by the teacher since the result point towards several teaching strategies and techniques as well as other factor to consider like the medium of communication which is English. This is an evident with the computed average mean value of 3.3. The study of Shams (2013) is opposed with this finding since low student teacher attitudes have negative impact on the pupils. Meaning to say, their inclination to values the art of writing is necessary in learning research based on its principles and applications. Its usefulness can also be measured during consultation time with their respective mentors.

The level of attitudes along difficulties in research is manifested as the fourth factor. It was found out the respondents were positive in dealing research as a stressful activity. One of its difficulties is in the quantification of data for they have trouble with arithmetic. This is proven with its highest mean value 2.57. Their insecurities show undesirable level towards research with a mean value of 2.38. Overall, the difficulties, complexities, and statistical part of research shows that they agree having an average mean value of 2.93. The study of Butt & Shams (2013) confirms this result having a significant difference in the student attitudes with

respect to the type of program and prior areas of specialization in relation to research. This goes to show that the adjectival remarks when it comes to difficulties have varying degrees due to the teachers' area of specialization and intensive training in handling a particular research subject according to data needed.

The fifth factor presents the level of attitude of the respondents in dealing with the importance of research. They strongly agree and bring together very positive attitudes such as the importance of research as part of their training, how valuable is this to them, and its relation to their track or major. The computed highest mean value of 3.54 shows relevant trend in their responses because they considered this as an important aspect in their training. Whereas, it is only desirable for them when they were asked if they were research-oriented on how research plays an important role in their everyday life based from the computed least mean value of 3.26 in relation to their chosen strand or major. With an average mean value of 3.38, students have the tendency to know more the meaning of research as they continue to rediscover new knowledge that can actually help in understanding and answering their queries or investigations. Its relevance in the present study connote students' varying concept of attitude towards research is multi-dimensional.

As far as the benefits of research are concerned particularly to the senior high schools, most of them strongly agree or have very positive attitude on the merits of research. In this item, they believed that they could benefit from research and could acquired knowledge useful as arithmetic. They adhered to the fact that they could acquire skills in research that are helpful to them in the future. Their desire to employ research approaches in their respective strand or major is proven by its computed highest mean value 3.31 even if they agreed with the employment of research approaches in their major or strand. Its average mean value of 3.24 indicates their propensity between very desirable to desirable levels of attitude towards the benefits of research. This is an indication of passion and empowerment to learn research as cited by Nor (2017) that majority of the participants' view that knowledge of research is valuable. The students also believed that they can benefit from the research. In other words, students came into realization that whatever strand or track they enrolled, research plays an important role at present and in their future career with great appreciation.

Students' Research Outputs

Students tend to see research in general, a subject matter that is very difficult to their current lives and their future needs. Therefore, to picture out the students' performance level as evidenced by their research output.

Table 2.4 depicts the summary level of students' research skills as evidenced from their projects. With a total sample of n=111, all research students are "Proficient". Their expertise in Title Formulation and introduction/ rationale is the indicator with the highest percentage of achievement of 78.2 while the indicator,

"Quality of Sources," has the lowest percentage of achievement of 3.28 and is verbally interpreted also as "Proficient".

Table 2.4: Students' Performance Level based on their Research Outputs as Rated by their Teachers

Indicator	No. of Points	Mean	% of Achievement	Description
Title Formulation & Introduction / Rationale	15	11.73	78.2	Proficient
Body of the Paper *Statement of the Problem *Scope & Delimitation of the Study *Significance of the Study *Paradigm *Review of Related Literature	40	30.72	76.8	Proficient
Conclusion / Recommendation	10	7.03	70.3	Proficient
References & Citations	4	2.43	60.75	Proficient
Quality of Sources	6	3.59	59.83	Proficient
Writing Style	25	18.74	74.96	Proficient
Total	**100**	**12.37**	**70.14**	**Proficient**

Legend:

80-100 (Advanced)
60-79 (Proficient)
40-59 (Approaching Proficient)
20-39 (Developing)
0-19 (Beginning)

The results indicate that the most fundamental part of research is well understood by the students. Their skills in stating the problem helped them clarify various essential elements of research such as the major variables, the general and specific objectives, and the appropriate methodology. Since research is time consuming but worthwhile undertaking, the students' knowledge in clarifying its significance is one of their tasks to consider. Their ability and confidence in reading articles should be boosted based on read articles from different published materials. A difference of about one percent in the making of body of the paper were mastered by the students having a mean value of 76.8 signifying that their gifted knowledge in practical research is plausible for their teachers' teaching practices. These results indicate the value of students' acquaintance and mastery of research competencies is an enjoyable and meaningful experience across different strands in the senior high school applied subjects.

Teachers' Attitudes to Doing Research

From the presented data of statements 1 to 10, it can be noted that teacher-participants were very positive about doing research; its positivity effect to their classroom teaching and their students' were learning. The findings of teachers' attitudes, including needs and challenges in doing research are reflected in Table 2.5.

Table 2.5: Teachers' Attitudes toward Research

Statements	Strongly Agree/Agree (N=37)	Strongly Disagree/ Disagree	Mean	Description
1. Doing research is valuable to the teaching and learning process for me as a teacher.	100%	0	3.76	VP
2. Doing research is valuable to the teaching and learning process for my students.	100%	0	3.70	VP
3. Doing research will positively impact my students' learning.	100%	0	3.70	VP
4. Doing research project will develop positively	100%	0	3.70	VP

	my teaching.				
5.	**I view myself as a teacher-researcher.**	89.19%	10.81%	3.56	VP
6.	**Doing research will develop and enhance my skills professionally.**	100%	0	3.78	VP
7.	**Doing research encourages critical self-reflection.**	100%	0	3.65	VP
8.	**Doing research enable teachers to examine and explore classroom and school problems and their solutions.**	100%	0	3.70	VP
9.	**Doing research engages teacher into more systematic examination of instruction or teaching practice.**	100%	0	3.54	VP
10.	**Doing research helps teachers to acquire new knowledge for classroom teaching.**	100%	0	3.73	VP
11.	**I do not have enough knowledge to do research.**	45.95%	54.05%	2.22	N
12.	**I find research as time consuming.**	72.97%	27.03%	2.84	P
13.	**I am so busy with my own teaching practice and personal life to do research.**	62.16%	37.84%	2.73	P
14.	**I do not have much support from the school to do research.**	45.95%	54.05%	2.59	P
15.	**I have no interest to do**	10.81%	89.19%	1.86	N

research at all.				
16. I am not motivated to do research.	21.62%	78.38%	2.03	N
17. I have a low proficiency in English that hinders me to do research.	8.11%	91.89%	1.73	VN
18. I do not see the importance of doing research in my professional life.	5.41%	94.59%	1.57	VN
19. There is an insufficient reference material (journals, research books, research reports etc.) in the library.	59.46%	40.54%	2.73	P
20. There is a shortage of training and seminar on research activities.	81.08%	18.92%	2.97	P
21. There is insufficient budget in the school to undertake research.	72.97%	27.03%	2.89	P
22. There is lack of recognition to conduct research activities.	59.46%	59.46%	2.08	N
23. Heavy teaching loads affect the practice of research.	94.59%	5.41%	3.38	VP
24. There is lack of clear role of teachers in the school to conduct research.	78.38%	21.62%	2.89	P
25. Teachers' involvement in action research should be one criterion of promotion.	86.49%	13.51%	3.16	P

Legend:

3.25-4.00 Very Positive (VP)
2.50-3.24 Positive (P);
1.75-2.49 Negative (N)
1.00-1.74 Very Negative (VN)

The data presented below shows that majority of the teacher-respondents believed that doing research is valuable and have positive impact to the teaching and learning process both for them and their students. They also believed that doing research would enhance their professional skills, encourages them critical self-reflection, engages them to into a more systematic examination of instruction or teaching practice, enables them to examine and explore classroom and school problems and their solutions, and helps them acquire new knowledge for classroom teaching. However, 10.81% of the teacher-respondents did not see themselves as teacher-researchers.

It can be observed from the statements 11 to 25 that teacher-respondents had some disagreements on some items in the questionnaire pertaining to the challenges they faced in doing research. Most of the respondents agreed that heavy teaching load affects the practice of research. Furthermore, 86.49% of them agreed that teachers' involvement in action research should be one criterion of promotion; while another 81.08% agreed that there is a shortage of training and seminar on research activities. As presented above, the teacher-respondents also revealed some of the reasons why doing research is a challenge for them. Among these reasons include being busy with their own teaching practice and personal life, lack of clear role of teachers in the school to conduct research, do not have enough knowledge to do research, do not have much support from the school, insufficient budget, no motivation to do research, and lack of recognitions.

The data also showed that the teacher- respondents disagreed to the statements that they did not see the importance of doing research in their professional life. They also disagreed that they have a low proficiency in English that hinders them to do research. Furthermore, 89.19% of the teacher-respondents disagreed that they have no interest to do research at all; while 40.54% also disagreed that there is insufficient reference materials in their library.

Based on the findings, it can be said that although teacher-respondents faced many challenges and problems in doing research studies, they believed that lessening their teaching loads should be a motivating factor for them to engage in research work.

Relationship between the Students' Research Output, and the Teachers' Attributes.

Table 2.6 to 2.9 presents the significant relationships between the different variables and students' output. Using Pearson r, all decisions to retain or not to retain null hypothesis was made at the 0.05 level of significance.

Table 2.6: Relationship between Teachers Personal Attributes to Students' Research Output

Predictors	N	r	P- value (0.05)	Descriptive Meaning	Interpretation
Teachers' Gender	36	-.152	.376	Negligible Correlation	Not Significant
Teachers' Age	36	-.175	.308	Negligible Correlation	Not Significant
Teachers' Civil Status	36	-.045	.797	Negligible Correlation	Not Significant
Teachers' Attitudes	36	.354*	.034	Low Positive Correlation	Significant

**Correlation is significant at the 0.05 level (2-tailed)*

Legend:
±1.00 (Perfect Positive or Negative Correlation)
±.81 - ±.99 (Very High Positive or Negative Correlation)
±.61 - ±.80 (Substantial Positive or Negative Correlation)
±.41 - ±.60 (Moderately Positive or Negative Correlation)
±.21 - ±.40 (Low positive or Negative Correlation)
±.01- ±.20 (Negligible Correlation)
±.0 (No Correlation)

The result on the relationship between research teachers' age and students' out on Table 2.6 shows an r value of -.152 which signifies no correlation. However, the p-value of .376 is lesser than $\alpha = .05$. This failed to reject Ho1. Teachers' gender is not related to students' output. This means that gender has nothing to do with the students' output. This negates to the result of the study of Ekici (2017), wherein the levels of reluctance to help researchers of male teacher candidates are higher when compared to female teacher candidates of preschool. In other words, masculinity or feminist in teaching research in relation to students' project are about the same.

Furthermore, teachers' gender in association with instructing how to create a very satisfactory project depends on the students' understanding whether they prioritize research as an applied subject over the core and specialized ones.

Analysis of the second variable, it shows that there is no significant relationship exists ($r = -.175$, $p = .308 < .05$) between students' research skills and teachers' age. This means that age has no influence to students' research output. In contrast, the findings of Salfi& Saeed (2007) found that professional qualification experience and age and many other factors all affects students' learning discourse and all should function properly for the quality of education. From the result obtained, the correlation value was lower than the p- value. Therefore, the null hypothesis Ho1 is accepted. This also signifies that young or old teachers in practical research can influence granting that they are diligent enough the positive learning environment inside the classroom, specifically in making follow-up on revising the contents of research paper.

Civil status analysis shows no significant relationship since the computed r value of -.045 is lower than the critical value at .05 level of significance with its corresponding p- value < at .05. This failed to reject the null Ho. This means that civil status has nothing to do with the students' research productivity. The study of Shams (2013) goes against this trend wherein low student teacher attitudes have negative impact on the pupils' research usefulness. Furthermore, the love of one's job may be considered a symbiotic relationship of good teaching and learning since research teachers' act as second parents to their students.

The last variables shows significant relationship between students' output and teachers' attitudes toward research for the reason that the computed $r = .354$ is greater than critical value at $\alpha = .05$ with it corresponding $p = .034$; Therefore, Ho is rejected. Their teachers' attitudes have direct influence between teaching and learning research. This is congruent to the findings of Saleem et al. (2014), where cultural variations have significant relationship with the specification of the field of research, selection of research problem, choice of research supervisor, research tool, and data gathering procedure. In other words, the impact of teaching research in the basic education has a significant trend to the millennial students especially when they could possibly relate with their chosen topics with great interest.

Table 2.7 provides the reflection of relationship between students' research output and their teachers' professional attributes.

Table 2.7: Relationship between Students' Research Output and Teachers' Professional Attributes

Predictors	N	r	P- value	Descriptive Meaning	Interpretation
Teachers' education	36	-.329	.050	Low Negative Correlation	Not Significant
Teachers' experience	36	-.203	.235	Negligible Correlation	Not Significant
Teachers' position	36	-.305	.070	Low Negative Correlation	Not Significant
Teachers' training	36	-.111	.521	Negligible Correlation	Not Significant
Teachers' output	36	-.245	.149	Low Negative Correlation	Not Significant

Correlation is significant at the 0.05 level (2-tailed)

Legend:
±1.00 (Perfect Positive or Negative Correlation)
±.81 - ±.99 (Very High Positive or Negative Correlation)
±.61 - ±.80 (Substantial Positive or Negative Correlation)
±.41 - ±.60 (Moderately Positive or Negative Correlation)
±.21 - ±.40 (Low positive or Negative Correlation)
±.01- ±.20 (Negligible Correlation)
±.0 (No Correlation)

Educational attainment of research teachers and students' output shows low negative correlation. This is attested by its computed rvalue -.329 which is lower than the critical value at α .05. This consequently failed to reject the Ho1. Probably, pursuing their masters' or doctoral degree would have been a great help since they could refresh their knowledge and skills in research practices. Therefore, influence of teachers' education and students' research productivity are almost the same. An opposing result to the findings of Abu Alhija&Majdob (2017) that teacher educators' research productivity and their academic degree indicate significance for predicting research productivity. However, it is an advantage for teachers to influence their students by informing them how far they have reached the portals of education based on the postgraduate degrees which involved intensive practice in research.

There is no significant correlation also emerged between students' research output and their teachers' experience. With the computed r value of -.203 which is lower than its p value at α .05, teachers' experience has no direct influence on their students' performance level in research subject. Ho1 is accepted. The findings of this study are closely linked by the report of Kane et. al. (2006) that experience is not significantly related to achievement following the initial years in the profession.

The same result shows low negative correlation between the students' research output and their teachers' position. With its r value of -.305 and its p- value is lesser than α .05. This means that position and students' output has no influence with each other .This leads to the acceptance of Ho. Abu Aljha & Majdob (2017) findings resisted since they found that rank and administrative position are desires to develop new knowledge and perceived research insufficient and research competence and self-confidence. The teacher's position is not a guarantee for the students to produce a quality research output. However, their knowledge in research methods will be added when they continue their post-graduate study since this is the level of intensifying research practice like thesis and dissertation writing.

Research skills of students and training of teachers had also been observed in the third variables as no significant relationship. The computed r= value -.111 is lesser than critical value at α = .05. This serves as a proof that relevant numbers of teachers' seminar and training have nothing to influence to their students' performance in research. For that reason, Ho1.2 was failed to be rejected. Relevant trainings should be spearheaded by research experts and eventually reechoed during in-service trainings or Learning Action Cell (LAC) session for teachers. Horodnic & Zait (2015) found in their study that research improves the teacher's expertise and thereby the training of their students, an aspect which is very important since the education quality has become a major issue not only in higher education.

In the case of teachers' students' research skills and teachers output, the fifth predictor shows no significant relationship because the computed r- value -.010 having a p- value .954 < 0.05. This shows a low negative correlation of the two variables Therefore, it failed to reject the Ho1.2. It means that there is a need for research teachers to show a simplified model of thesis in order to be run as an activity and the output is kept at the library for future researchers. This goes to show that there has no direct control quality production between the mentors' output and their advisees' output in teaching and learning practical research. The findings of Horodnic & Zait (2015) disconfirm this because they found out that intrinsic motivation is positively correlated with research productivity.

To strengthen the relationship on predicting the students' output as dependent variable from the given independent variables represented by the teachers' attributes, the multiple regression analysis was also used in this study. Tables 2.8 to 2.10 present the computations to determine the relationship of the teachers' profile and their students' research skills.

Table 2.8: Multiple Regressions on Students 'Output and Teachers' Personal Attributes

Multiple R	R Square	Adjusted R Square	Standard Error	Observation
.107	.011	-.116	1.431	36

The above data shows that only 10.7 percent of the variation on students' research output explained by the combined variations of all the independent variables such as teachers' gender, age, civil status, and attitudes. In other words, only 1.1% among the independent variables has contributed to the productivity of students' research output. The remaining 98.9% of the independent variables can be found from other predictors. The constant variance of error means a must against the predictors due to normality of the error distribution. It means that those teachers who have positive attitude towards research, female and married, and on the age of early adulthood needs extra mile on understanding their students in research individually based on their performance and evaluation.

This insignificant correlation between research teachers' personal attributes and their students' research outputs is reflected on Table 2.9.

Table 2.9: ANOVA Model of Multiple Regression Analysis

Model	Sum of Squares	df	Mean Square	F	Significant
Regression	.737	4	.184	.090	.985
Residual	63.485	31	2.048		
Total	64.222	35			

a. Predictors: (Constant) Research teachers' age, gender, civil status, and attitudes towards research.
b. Dependent Variable: Students' research output

This would mean that for one to have a good performance, respondents need to have a worthy perception of this applied subject and concentrate on the least mastered skills in the curriculum guide. In fact, as reflected in ANOVA result, the model is not significant because the computed F is lower than the critical value at α .05. In other words, the predictors and the dependent variables have no significant difference.

Moreover, looking closely on the different independent variables as shown in Table 2.10, the R Square value in the model are significant at α=0.05

Table 2.10: Multiple Regressions on Students 'Output and Teachers' Professional Attributes

Multiple R	R Square	Adjusted R Square	Standard Error	Observation
.265	.070	-.122	1.435	36

About 70 percent of the variance in total teachers' professional attributes is explained by independent variables. There is a weak correlation between the identified teachers' profile and performance in research of senior high school students. This means that the small relationship between the identified profile of the teachers and their students' research outputs requires intensive and creative pedagogy in practical research subjects and evaluate the results with proper interpretation through making action research. Hence the null hypothesis is accepted. Nevertheless, Salfi& Saeed (2007) found that a large number of factors affect the achievement or success interaction of students. A teachers' academic and professional qualification, experience, age, assessment interval, training, and many other factors all affect student's learning discourse and all should function properly for the quality of education. This is one of the ultimate goals of students' engagement in research class.

Table 2.11 shows the ANOVA result on the teachers' professional attributes and their students' research output.

Table 2.11: ANOVA Model of Multiple Regression Analysis

Model	Sum of Squares	df	Mean Square	F	Significant
Regression	4.516	6	.753	.366	.895
Residual	59.706	29	2.059		
Total	54.222	35			

a. Predictors: (Constant) Research teachers' education, position, output, experience, training, and pedagogy
b. Dependent Variable: Students' research output

With the critical F value of .366 based on the degree of freedom above, the df is 6 and 29. Since the computed F is lower than the critical value that is 2.39 at α 0.05, it

means that there is no significant difference between the constant variables (research teachers' professional attributes) with their dependent variable (students' output). This result is in contrary to the study of Abu Alhija&Majdob (2017) who reported previously that teachers' research productivity and their background and professional characteristics, attitudes, motives, obstacles and time devoted to research indicate significance for predicting research productivity as to their academic degree, rank, administrative position, desire to develop new knowledge and perceived insufficient research competence and self-confidence. In this context, the senior high school students would find more engaging since the teachers' quality in teaching research is fully developed.

Conclusion

Based on the findings of the study, the following conclusions were drawn: The performance of senior high school students in practical research is independent to some degrees of association with other predictors like their teachers' personal and professional attributes. The technicality of this study would be of great help to practical research teachers as they delve into several statistical tools since this subject demands critical judgment on appraising their students' research productivity. Therefore, as research practitioners they may continue to read and reflect upon their growth as creative professionals and research their own and the students' creative learning within and beyond the classroom.

Recommendations

From the findings of the study, gaps may be addressed to improve attitudes, performance, and interest in teaching and learning practical research career and to uphold the Department of Education's standing as a provider of credible research training. The DepEd's standard for deploying research teachers have a responsibility to produce for the nation very high quality teachers by admitting competent teacher-researcher. While the government and training institution must endeavor to provide the necessary facilities and environment conducive for the production of quality students' research outputs. The research-teachers may also endeavor up their level of teaching by making use of relevant and appropriate teaching materials that will help transmit knowledge more meaningfully to the senior high school students. Teachers may join and continue their masters' degree and attend research conferences. Such activities among others will help to increase teachers' pedagogical content knowledge and creativity in research methods.

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