Time for a Reality Check: Research Management Skills of Elementary and Secondary School Teachers

Teody Lester V. Panela
College of Education, Northwest Samar State University, Philippines

ABSTRACT

Research is a fundamental function of every institution. This research study employed a Two-Tiered Research Design to identify and explore the duties, and determined the current research management skills among teachers. Tier I involved the conduct of focus group discussion using a scripted questionnaire to further assess the respondents' consistency in their answers. Tier II involved survey research design, specifically in-person or face-to-face survey research design to report the teachers' current research management skills and level of comfort in conducting research and teaching the research subject. From the data analyses, it was found out that teachers' level of research management is low, comfort level in teaching research is average though there is a gradual decrease of science investigatory output. The result showed significant relationship between the teachers' management skills, level of comfort in the teaching of research and the number of science investigatory projects. As it was revealed in the study, concerned agency should provide support and development program for the teachers especially in areas of research and instructional contact with students. The agency should invest into teacher trainings and seminar as well as innovative research activities for the improvement of research management skills of teacher.

KEYWORDS: Research Management Skill, Attitude, Research, Elementary, Secondary, Teacher

I.   INTRODUCTION

The need to develop students' scientific research skills during their high school studies is an answer to the challenges faced in the secondary education level (Brew, 2013). The goal is to have competitive students with strong thinking skills, intellectual analysis, creativity and flexibility, and the capability to create and replicate knowledge. As a learning process, research resulted from conception during the freshmen year of students and not as culmination of their academic journey. The reality is, most of the students start their training in research during their postgraduate studies and not from the secondary level that makes the students think that research is more like a requirement to pass and eventually complete their studies that a foundation of their high school studies. Research is a fundamental function of every institution and is not only linked to teachers but also to the learning of the students (Rojas, 2007). The research-based learning is one of the strategies best suited to develop research skills, and learning is built on real scenarios that link teachers and students in a knowledge-building process inspired by the process of scientific research. Benefits from participation in research projects involve the nurturing of a scientific mentality and the need to become scientist in the future (Hunter, Laursen, & Seymour, 2005). Moreover, students indicated that getting immersed in research projects facilitated their learning (Ward, Bennett, & Bauer, 2003).But with the question remains, what does it take to teach research? Does a teacher prioritize teaching research or gives more emphasis to nonteaching-related activities? Is there a prioritization happening with basis to the urgency of producing quality researches? These are the questions that made me delve on the topic of teaching of the Research subject and how are they coping up with the demands of producing quality science investigatory projects. From the recently concluded Division Science Fair, the number of participating schools does not add up to the expected number of schools. Out of 29 expected elementary schools, only two (2) were able to join. Likewise, only 5 high schools out of 81 were able to join. The number is quite alarming, considering that teachers expected to coach students were trained on crafting science investigatory projects.

Finally, there is a need to look closely into how the teachers utilize trainings received, trainings related to crafting science investigatory projects. The present study is, in the sense, a means by which the it will respond to the need of increasing the outputs generated for science investigatoryprojects by assessing the perceptions of elementary and high school teachers for School Year 2018 – 2019, hence the conduct of the study.

II.   FRAMEWORK OF THE STUDY

Fundamental beliefs and values about an education experience is reflected by a strong and good theoretical foundation of learning and teaching. When assessing cognition and skills, one has the capability to change how others look at a certain academic transaction, the teaching and learning process. Constructivism Learning Theory is the active creation of new knowledge based on one's prior experience (Dewey, 1916; Piaget, 1972; Vygotsky, 1978; Bruner II, 1990). A learner actively constructs their own knowledge: the mind of the student facilitates outside world inputs to determine what they have and how they have learned. Learning is an active work and not passive reception of teaching.

Savery and Duffy (1996) pointed out that Constructivism centers around four principles that should be included to learning environments:
1.   Learning is an engaged and active process
2.   Learning is about knowledge creation
3.   Learning revolves around a person's thinking skills
4.   Learning includes negotiation

One of the goals of science education is to teach the process of thinking effectively, that is emphasizing on the hypothesizing, manipulating outputs from the natural world and reasoning based on data and extensive and thorough research (Ozgelen, 2012). Simply it denotes that students' research skills create new scientific knowledge from previous experiences. They create new meaning in experiences and learn from those experiences. Crafting knowledge from experimentation and observation and applying it to problem solving.

III.   REVIEW OF LITERATURE

A thorough knowledge of research can equip a learner with the skills among other – creative thinking, making inferences, critical thinking, and analytical reading but just the same, cannot be activated without teacher's prodding (Dapiawen, n.d.).In like manner, the need for a good understanding of research principles and developing research projects is increasingly required for teacher (Moriarty, 2018). It is important to know that one cannot teach research if he/she is incapable of doing research. Teachers must be equipped with necessary research know-how to impart fundamental information to students. Motivation at an early age could trigger a positive academic development in the field of research.According to (Morris, 2018), teachers need to navigate their student to hone the following information literacy skills:
1.   Clarify – information one is looking for, keywords and synonyms.
2.   Search – simple terms, be more specific and use quotation mark.
3.   Delve – look beyond the first few results.
4.   Evaluate – do not believe everything you read.
5.   Cite – write information in own words or quote and say who and where it is from.

The need for the teacher to do research is also a necessity. Salleh (2014) said that teachers should do research because it can help them face new challenges and become better practitioners. He further expanded the idea that research conducted by teacher would give them broader outcomes, broader pedagogies, increase teacher learning and development, produce knowledge and improve practice, and increase building capacity for teacher research.To sum it up, the above literature discussed the benefits of doing research for both the teacher and the learner. Not only did it focus on the effects but also to the overall personal, professional and pedagogical development of an individual in relation to research management. The foregoing studies help the researchers in establishing the rationale and the concepts in the conduct of the study.

IV.   METHODOLOGY

This research study involved three main variables namely, the teachers' research management skills, level of comfort in teaching and performing research and the output of science investigatory projects. The variables were collected with the aid of a questionnaire, semi-structured interview, focus group discussion, field observation and documentary analysis of rate of submission and completion of science investigatory projects from the respondents.This research study was conducted in schools of Eastern Visayas (Region VIII), Philippines. Full-time teachers served as respondents for the study. This study resorted to stratified random sampling in recruiting full-time teachers for the two tiers.The goal was to have all 87 full-time teachers as respondents for the study.

This research study employed a Two-Tiered Research Design to identify and explore the duties, and determined the current research management skills among teachers.Tier I involved the conduct of focus group discussion using a scripted questionnaire to further assess the respondents' consistency in their answers. Respondents were randomly selected to be a part of the focus group. Such method also collected feedbacks from the respondents. Responses were recorded and transcribed for comparison. Tier II involved survey research design, specifically in-person or face-to-face survey research design to report the teachers' current research management skills and level of comfort in conducting research and teaching the research subject.For Tier 1, coding and thematic analysis of qualitative data were used. The following steps represent Colaizzi process for phenomenological data analysis (Speziale, Streubert, & Carpenter, 2010).For Tier 2, to identify response rate, frequency count, weighted mean, percentage were used. To identify the degree of correlation of the three main variables, Pearson's R Product Moment Correlation was utilized thoughtfully.The data analysis will be facilitated using Microsoft Excel Data Analysis and SPSS.

V.   RESULTS AND DISCUSSION

Based on Table 1, teacher-respondents have very low-level research utilization with a weighted mean of 1.49. Likewise, research knowledge is interpreted as low with a weighted mean of 2.48 and research capability is interpreted as average with a weighted mean of 2.54. In general, grand weighted mean for the level of research management skills is 2.17 with an interpretation of low.

Table 1. Level Research Management Skills of Teachers

Dimensions	Mean	Interpretation
Research Knowledge	2.48	Low
Research Capability	2.54	Average
Research Utilization	1.49	Very Low
Grand Mean	**2.17**	
Interpretation	**Low**	

In relation to the findings from the Tier 1 of the study, the research knowledge is illustrated in the following participants' statements:
(1) "It is a pain teaching something that you do not know in the first place."
(2) "Why would I bother myself teaching a subject I am not interested at, better have my students read handouts because, honestly speaking, I really don't know anything about it."

Furthermore, the research capacity is illustrated in the following participants' statements:
(1) "I just paid someone during my undergraduate to make a thesis for me, goes to show that I don't have any capacity doing and teaching research."
(2) "I don't even bother update my research sources and ability, I just stick to what I am comfortable at, it is easier that way"
Lastly, the research utilization is illustrated in the following participants' statements:
(1) "I find research useful in the ideal world, but on real life situations not so much, trust my instinct more."
(2) "I am just being practical, why research on things you are used to, routine activities fit me more."

The teacher's comfort level in teaching Research subject also comes into play as it showed a significant finding. Most of the teachers are not comfortable in teaching research in terms of their physical comfort, environmental comfort and teaching and learning comfort. As shown on table 2, teaching and learning comfort had the lowest mean of 2.13 interpreted as low, while physical comfort and environmental comfort interpreted as average got the following weighted means, 3.01 and 2.54, respectively.

Table 2. Comfort Level in Teaching Research Subject among Teachers

Dimensions	Mean	Interpretation
Physical Comfort	3.01	Average
Environmental Comfort	2.54	Average
Teaching and Learning Comfort	2.13	Low
Grand Mean	**2.56**	
Interpretation	**Average**	

In relation to the findings from the Tier 1 of the study, the physical comfort is illustrated in the following participants' statements:
(1) "it is physically taxing already to do all paper works; I don't see including research activities anytime soon."
(2) "My body is ready to teach research yet my brain has a mind of its own."

Furthermore, the environmental comfort is illustrated in the following participants' statements:
(1) "I want to impart more research knowledge and practices yet I can seem to relate it to my environment, lacking necessary equipment."
(2) "Doing sophisticated research is not applicable if you teach in a far-flung area; better stick to planting cabbage and harvesting sweet potato."

Lastly, the teaching and learning comfort is illustrated in the following participants' statements:
(1) "I just do not see myself loving the research subject nor enthusiastic in teaching it."
(2) "I don't even understand some terms on the book, applicability of the design and most especially, the right statistical tool."
(3) "With multiple and confusing sources, one could simply hope for a manual or a book that can summarize and provide the things to know in crafting science investigatory projects."

Outputs for science investigatory project showed a trend of gradually decreasing in the past three years. As shown in Table 3, there is a decrease in participation from schools and science investigatory project. This year, 2018 marked the lowest participation with only 2 out of 29 elementary schools and 5 out of 81 secondary schools.

Table 3. Number of Submitted Science Investigatory Projects

School Level	Expected	2016	2017	2018
Elementary	29	11	9	5
Secondary	81	5	3	2
Total	**120**	**16**	**12**	**7**

Table 4 discussed the correlation between the three main variable of the study. as shown on the table, correlation is >.800 with 86 degrees of freedom, so all are highly significant. Since the computed p-value is less than .05 level of significance, therefore all three null hypotheses are rejected. Therefore, there is a significant relationship on the teacher-respondents' level of research management skills and the number of science investigatory projects. Likewise, there is a significant relationship on the teacher-respondents' level of comfort in the teaching of research and the number of science investigatory projects. Finally, there is a significant relationship on the teacher-respondents' level of research management skills and their level of comfort in the teaching of research.

Table 4. Number of Submitted Science Investigatory Projects

		Level of Research Management	Comfort Level in Teaching Research	Science Investigatory Project Output
Level of Research Management	Pearson Correlation	1	.817	.803
	Sig. (2-tailed)		.039	.012
	N	87	87	87
Comfort Level in Teaching Research	Pearson Correlation	.817	1	.823
	Sig. (2-tailed)	.039		.022
	N	87	87	87

VI. CONCLUSION

The following conclusions were drawn based from the findings above:
1. The teachers' level of research management is low.
2. The teachers' comfort level in teaching research is average.
3. There is a gradual decrease of science investigatory output.
4. There is a significant relationship on the teacher-respondents' level of research management skills and the number of science investigatory projects.
5. There is a significant relationship on the teacher-respondents' level of comfort in the teaching of research and the number of science investigatory projects.
6. There is a significant relationship on the teacher-respondents' level of research management skills and their level of comfort in the teaching of research

VII. RECOMMENDATIONS

Based on the findings of the study the following were the recommendations:
1. As it was revealed in the study, concerned agency should provide support and development program for the teachers especially in areas of research and instructional contact with students.
2. The agency should invest into teacher trainings and seminar for the improvement of research management skills of teachers.
3. The agency should also focus on innovative research activities.
4. Continual education and training of teachers can increase their impact on research teaching with students.
5. Creation of a centralized research manual dedicated to Science Investigatory Projects should be considered.
6. Since the study is limited to one locality, future studies can be conducted in other cities or municipalities needed to validate the said study.

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