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GENERATING THE THEORY ON RESEARCH TEACHING: A METASYNTHESIS

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ABSTRACT

This study aims to generate a theory using the thematic analysis that would explain the phenomenon of teaching research in Senior High School in the Philippines. The researcher used the metasynthesis approach through a seventeen (17) review of researches related to the arts of teaching research. The steps include: framing of questions for a review, identifying relevant work, assessing the quality of studies, summarizing the evidence, and interpreting the findings. For the qualitative papers, a checklist from Critical Appraisal Skills Program (CASP) was used to assess the quality of each paper and the overall strength of evidence. From the conducted thematic analysis, three (3) themes surfaced: (1) Involve me and I learn by doing; (2) I may not like research, but I can learn; and (3) I come, I like, and I inspire. From the analysis of themes, three propositions were formulated: (1) Teaching practices are related to the students' research productivity; (2) Students' research productivity is influenced by their attitudes and teachers' attributes; and (3) Teaching research requires creativity, and aspiration of the teacher. The generated theory from analyzing the propositions stated that: *Teachers' attributes and their creative teaching practices lead to students' positive attitudes towards research and research productivity*. The creativity of the research teacher is seen as the major determinant of students' development of research skills.

Keywords: creativity, pedagogy in research, proposition, qualitative research, systematic review, thematic synthesis, theory generation

INTRODUCTION

Man‟s progress over the years to a large extent, has depended on research. Through research, the quality of man‟s life has improved from traditional to modern. Hence, life becomes not only more meaningful but enriching as well. Educators and educational administrators continue to conduct research to improve the quality of education especially on instruction. Studies on the different methods or strategies in teaching various subject areas and grade levels have been conducted to determine the best practices or approaches which are more appropriate (Calmorin & Calmorin, 2007).

Indeed, research activity is considered as one of the high-impact educational practices for it offers the opportunity to develop vital skills and attitude for lifelong learners (Imafuku et al., 2015). In addition, many research teachers agree that research is an important function in society, global economy and in various disciplines. Since a research methods class normally requires students to think critically, detail oriented, curious, and adept in finding new ways of writing and rewriting (Sirakaya- Turk, et al., 2011; Inocian, Paňares, & Ysatam, 2013). Likewise, Vizcarra (2003) had seen that it is vital for development. Practically, everything that is now enjoyed by man emanated from simple theories that were developed through research.

However, some teachers handling research subjects are uncertain and reluctant in facilitating research activities. According to Saleem, Saeed, & Waheed (2014), if only postgraduate students have positive attitude towards research, they will complete the research pleasantly and the output will be of good quality.

At present, the Department of Education of the Philippines has just started with the new K to 12 curriculum in 2010 with the birth pangs which go with it. Based on its curriculum guides, this course develops critical thinking and problem solving skills through quantitative and qualitative researches (K to 12 SHS, Applied Track Subject, 2013). However, missing in the literature are researches on the best practices related to teaching research in the Philippines‟ Senior High Schools. There have been studies linking the teachers‟ attitudes and attributes and students‟ research

productivity but they have little bearing with basic educational outcomes. Nonetheless, it is assumed that there is an underlying link between teachers" quality and students"‘ research productivity. That is, the more effective teachers are more likely to teach practical research more effectively than other teachers. The researcher deemed it necessary to know more the best practices in teaching research to improve learning in other context to make an impact on the students.

General Objective

To address this gap of knowledge, this research is conducted to generate a theory by investigating some practices which gave good results in terms of students" learning outcomes and desirable attitudes and attributes that are most influential in the teaching learning process in the basic education. This systematic review of studies sets out to identify and evaluate relevant practices in local, national, and international research initiatives related to the effectiveness of teaching research to senior high school students.

Specific Objectives

The usual manner of theory generation is to use ideas in order to develop interpretations that go beyond the limits of our own data and that go beyond how previous scholars have used those ideas. In this regard, this study was conducted with the following purposes:

Appraise the reliability and validity of previously published researches; and

Synthesize the research practices to innovate the pedagogy and investigate if it was able reinforce the teachers"‘ creativity in practical research subjects.

Review of Literature

The systematic review process employs literature review methods to select only those studies that meet specific criteria which reasonably confirm the rigor of the evidence produced by a previously published study. Qualitative systematic reviews aim to increase understanding on a wide range of issues that are not best measured quantitatively. A systematic review refers to a literature review associated with a clearly formulated research question that uses systematic explicit methods to identify, select, and critically appraise relevant research from previously published studies related to the question at hand (The Cochrane Collaboration, 2005). In addition, uncovering assumptions and processes within the teaching of research practices require a careful selection of studies by using the following steps: 1) Search strategy; 2) Identification of studies; 3) Inclusion criteria; 4) Selection of papers; 5) Data extraction; 6) Quality appraisal; and 7) Sources of data (Anderson, 2011). Notably, bringing together and integrate the findings of multiple qualitative studies employ thematic synthesis into three stages as indicated by Thomas & Hurden (2008), coding of text line-by-line; development of descriptive themes; and the generation of analytical themes.

METHODOLOGY

The researcher utilized the metasynthesis approach applying a systematic review of 17 studies relating to an applied subject: Practical Research in senior high schools. As with quantitative studies, the results from a single qualitative study should rarely be used to guide practice. A systematic review of all relevant studies is required. The following steps are derived from the article of Khan, Kunz, & Antes (2003). Table 1 sows the number of studies, particular research title, best practices, and research samples.

Table 1: Title of the study, author/s, and year of publication, best practices, and research samples.

Study	Title of the Study	Best Practices	Research Samples
1	Researching the Research Culture in English Language Education in Vietnam (Hiep, 2006)	Conducting and writing research output with the following formats: Introduction, Conclusion, and Recommendations.	N= 7 teachers
2	Promoting Action Research in Singapore Schools (Soh, 2006)	Conducting series of workshops through: Symposium and reflections	N= 13 teachers
3	Research Experiences of Undergraduate Students at a Comprehensive University (Tan, 2007)	Narrating inquiry for gathering information through story telling: Semi-structured interview, organized transcripts, and data sorting to categories and themes	N= 35 students
4	Teaching Research Methods: Learning by Doing (Aguado, 2009)	Writing questions, developing propositions, determining the case, binding the case and a discussion and triangulation.	N= 13 students
5	The Research Teaching Nexus: A Case Study of Students"‘ Awareness and Experiences (Healy et., 2010)	Surveying systematically, analyzes passive and active experiences, exploring the impact on their teaching and learning.	N= 200 students
6	An Emerging Role of Teacher-Researches in Hong Kong through a School-University Collaborative Research Project (Chow et. al, 2010)	Engaging from induction to graduation, inquiry into disciplinary, professional and community-based problems and issues.	N= 32 teachers

7	Developing Capacity for Research and Teaching in Higher Education (Mugimu & Nakabugo, 2013)	Training faculty and teaching outputs, publications, consultancy, supports and competencies	N= 123 teachers
8	English Teachers‟ Research Engagement: Level of Engagement and Motivation (Merani, 2015)	Interviewing through preferred language, flexibility of interaction, transcribed and fully content analyzed.	N= 24 teachers
9	Teaching Research Writing to Female Undergraduates in Saudi Arabia (Alshery, 2014)	Interviewing semi-structured: local-ethical considerations, framed questions, note taking, data analysis concentrated on the subjective meanings.	N= 20 students
10	How do Students‟ Perceptions of Research and Approaches to Learning Change in Undergraduate Research? (Imafuku et. al, 2015)	Examining the perceptions: familiarization of transcripts, compilation of significant elements, condensation, preliminary grouping, comparison of categories, and labeling, contrastive comparison of categories.	N=14 students
11	Strengthening the Link between Research and Teaching: Cultivating Student Expectations of Research-Informed Teaching Approaches (McLinden et. al, 2015)	Teaching can be: research-led, research-oriented, research-based, and research-informed.	Teachers and students
12	From Research to Praxis: Empowering Trinidadian Primary School Teachers via Action Research (Bissesar, 2015)	Introducing quantitative and qualitative methodologies, expecting of problem to resolve, working on the research purpose, methodology, background, population, definition of terms, literature review, data collection, discussion of findings and recommendations.	N=83 student-teachers
13	Ecuador‟s Efforts to Raise its Research Profile: The Prometeo Program Case Study (Hoof, 2015)	Granting study program abroad with the following qualifications: PhD degree, extensive research publication record, coordinator of scientific research.	N= 32 professors
14	Teaching Research: A Programme to Develop Research Capacity in Undergraduate Medical Students at the University of KwaZulu-Natal, South Africa (Wyk & Mahomed, 2016)	Developing research capacity through data collection, assessing its impact, documentary analysis, ethical approval for the ongoing evaluation.	N= 212 students
15	The Challeneges of Practioner Research: A Comparative Study of Singapore and NSW (Ellis & Loughland, 2016)	Employing Schatzki‟s practice theory: pre-figuration and modeling, interrogating re-conceptualizing, and transforming traditional forms,	N= 50 teachers
16	Philippine Classroom Teachers as Researchers: Teachers‟ Perceptions, Motivations, and Challenges (Barrera & Acompanado, 2017)	Exploring research through: reflective practice, motivations of master teachers, and reflecting some challenges.	N= 108 students
17	Somali Undergraduate Students‟ Attitudes towards Research (Nor, 2017)	Assessing attitudes toward research: data analysis using Statistical Package for Social Sciences (SPSS), summarizing the text, describing and interpreting, drawing conclusions and recommendations.	N=42 teachers

Moreover, the explanations from the data collected have challenged the researcher to discover the essence of these qualitative studies that are important in the place studied. Eventually, the context of the research teacher in the senior high school may follow these practices in order for them to cope up with a good quality students‟ research output.

Figure 1.1 shows the flow of the selection of studies from the 66 identified journals, titles and abstracts were screened. Nineteen (19) studies were excluded since the topics do not match with the focus of inquiry, thus narrowing to forty seven (47).

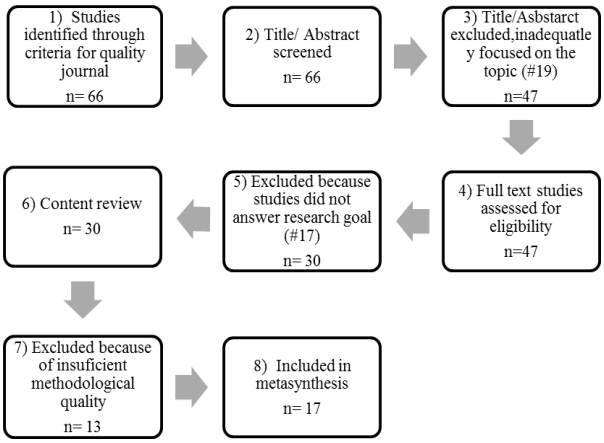

Figure 1: Flow Chart of the Selection of the Studies

These full text studies were assessed again for eligibility. However, seventeen (17) of the studies did not answer the research goal. Hence, the researches further narrowed the list to thirty (30). Their contents were continuously reviewed. But thirteen (13) articles of methodological quality did not passed the criteria of systematic review. Finally, only seventeen (17) studies are qualified to be included in meta-synthesis.

The literature revealed common challenges around teaching research methods for both students and teachers. From the outsourced literature review, the researcher has eliminated first those studies that have no relationship based on the title, abstracts, and content that did not fit the criteria. The researcher used set a criteria set called Critical Appraisal Skills Program (CASP), a qualitative research checklist with 10 questions to help make sense of qualitative research (Anderson, 2011).

DATA ANALYSIS

The researcher then analyzed the data thematically. The following steps were done: 1) coding of text 'line-by-line'; 2) development of 'descriptive themes'; and 3) the generation of 'analytical themes'. While the development of descriptive themes remains 'close' to the primary studies, the analytical themes represent a stage of interpretation whereby the reviewers 'go beyond' the primary studies and generate new interpretive constructs, explanations or hypotheses (Thomas & Hurden, 2008). The following themes were extracted:

Theme 1: Involve me and I learn by doing

The studies revealed that learners" involvement to the whole process is crucial to their learning on how to conduct research. The students perceived clear benefits to their learning from staff research, enthusiastic staff, and reflected glory of being taught by well- known researchers (as stated in Study 5).According to Kilburn et al. (2014), making research visible is about using active student- centered learning to ground students on abstract principles of research methods. Active learning is broadly defined as any teaching method which gets students actively involved as opposed to transmissive modes of teaching through lecture (Keyser, 2000 as cited in Kilburn 2014). As what pointed out in Study 4, that students gain an appreciation of the fruits and frustrations involved in the research process, and learn to be more critical consumers of research projects.

Theme 2: I may not like research, but I can learn

This pertains to encouraging students and teachers to reflect upon their attitudes towards research process to enable them to position themselves in the bigger picture or reflective learning. Most of the time, research work is found to be tedious and tiring to do; however, teachers and students cannot get away from this task because often this is an academic requirement. They may not like research, but initially they can learn.

A number of researches have been conducted to explore the attitude towards research and the results showed that are generally not positive. Students think that it is tough and dry to study research. They lack basic research skills ranging from searching and evaluating literature sources to paraphrasing and giving citations (Stated in Study 16).

Theme 3: I come, I like, and I inspire

As the new batch of teachers handling Practical Research in the senior high school students, they tend to like and inspire their teaching experience since they have a strong foundation and a thorough grasp of the teaching learning theories and principles even if they have been teaching for several years from their area of specialization. This meaningful improvement of their competency and update on current trends, techniques, and approaches in the teaching profession is a description from several studies (Stated in Studies 4, 6, 11, & 15).

It becomes evident in Theme 3 that learning how to teach research offers a great of help to teachers in their attempt to understand senior high school students and how they learn effectively. To be effective, teaching research must be based on the capacity of students" learning. Overall, the findings of the last theme concerned with how the research teachers acquired learning and change their patterns of behavior, how this process takes place most effectively and appropriately in different classroom situations.

Since teaching was considered as a form of imparting knowledge and skills to the students, it is therefore important to know mastery of subject matter in research methods need to be acquired by the research teachers. The succeeding propositions were enumerated based from the themes mentioned. These are statements that affirm something that is capable of being true or false (Breslin, Gilmour, & Weber, 2011).

Proposition 1. Teaching practices are related to students' research productivity.

Based on Themes 1and 2, both teachers and students would not, and should not take the matter of research writing lightly. It is too serious a responsibility to belittle with. An important thing to say with justified sense of righteousness that in the conduct of research in whatever form, teachers" and students" integrity among other things are at stake. Towards the completion of the research projects, some students had exciting and fulfilling experiences, whereas others had frustrating yet fulfilling experiences (Tan, 2007). Then one participant in Study 3 said in part:

> *"We gained recognition for our work. Other experts would like to try our results or findings. Some of us had penetrated refereed journals. Our works were accepted for publication by international journals. Some of us had the chance to present our outputs in a public forum."*

John Dewey in Higgins, Baumfield, & Leat (2001) advocated this section claiming that certain materials and methods are not enough in proving the effectiveness of individuals at other times. There must be reason for thinking that they will function in generating an experience that has educative quality with particular individuals at a particular time. This indicates the amount of learning time devoted to an applied subject like practical research. It is related to teacher‟s task orientation and content coverage, thereby providing students with the greatest opportunity to learn the material to be assessed.

In general, research as a practice encompasses many different traditions, movements, and methodologies and includes, as Cochran-Smith & Lytle (2009) in Study 17 have identified, teacher-research, practitioner inquiry, problem- based inquiry, action research, and action learning. Therefore, students‟ research productivity may be measured with the interest of research practitioner. All variants of practitioner share the following characteristics:

> *They view the practitioner as a researcher; professional contexts are the sites of the study; they are blurred boundaries between inquiry and practice; community and collaboration are important; and they act to make new knowledge public and have this new knowledge lead to improved practice (Letts, 2013, p.478 as cited in Study 17)*

Proposition 2: Students' research productivity is influenced by their attitudes towards research and by their teachers' attributes.

Based on Themes 2 and 3, Proposition 2 relates the offering of applied research subjects in a particular semester. Since the main goal of practical research in the senior high school level is to develop the critical thinking skills of the students, any enrichment activity to use between the research teachers and the students must be evaluated to what extent the choice was successful in that context and whether any alternatives offer the possibility of great success considering that the students‟ focus in developing their research projects focused on their specific area of tracks. Dewey‟s learning by doing can be successful when there is a focus on teaching thinking serving as a catalyst for professional development and allows many of the effective teaching behaviors through the research teachers‟ direct attention on students‟ learning and their developing understanding of particular content standards.

The future exploration of the relationships between attitudes and student achievement in research is an important area that still needs to be examined by collecting data at various points (Papanastasiou, 2005). However, this is still basically hypothesized that the concept of attitudes is multidimensional in nature. In addition, by using information teacher-researchers may be able to identify specific modifications to attitudes, skills and behaviors to facilitate the learning of research and foster a deeper appreciation of this subject. For example, the study of Krefting in Baxter & Jack (2008) indicated that novice researchers should also plan for opportunities to have either a prolonged or intense exposure to the phenomenon under study within its context so that rapport with participants can be established and so that multiple perspectives can be collected and understood and to reduce potential for social desirability in interviews. Some of the students‟ qualitative comments: (Study 14)

> *“I improved presentation skills; it was great publishing our research in journal; I felt like we made a difference during the health promotion intervention; and I valued the constructive feedback from peers and lecturers on our health promotion and intervention.”*

In the same vein, the findings in Study 5 showed that many of the students perceived benefits to their learning from staff research, including being taught by enthusiastic staff, enhanced staff credibility, and the reflected glory of being taught by well-known researchers. They also perceived benefits for future employment from their participation in research activities. As narrated by one of the group participants from Study 3:

> *“Our outside consultant was very much interested in the result of our work. He was approachable as our mentor. We got tips from him; hence, we could get the data easily.”*
>
> *“In our case, we realized not only at the end that some data are missing, and so we had to set new appointments with our interviews. We had to convince them that the interview was very necessary and urgent. This experience though difficult to handle, was resolved through the advice of our advisor.”*

Good attributes of the research advisor and students and the quality of the mentoring relationship enhanced the completion of the students‟ research. Katz & Coleman in Study 3 mentioned that effective mentoring relationships were char-

acterized by attributes such as mutual respect, caring, accessibility, compatibility, and support.

Proposition 3. Teaching research requires creativity, and aspiration of the teacher.

The effectiveness of the teacher is the major determinant of student academic progress which has been derived from Theme 3. Aspiration in teaching refers to the desire of research teachers to carry out the instructional objectives. This could be evident in series of activities for every lesson in practical research subjects. According to Sanders & Horn (1998), teacher effects on student achievement have been found to be both additive and cumulative with little evidence that subsequent effective teachers can offset the effects of ineffective ones.

Co-learning between staff and students and may both enhance student lead to a greater synergies between research and teaching (Stated in Study 5). One group from the inquiry in Study 3 narrated:

> *"We could follow the procedure well and understand what we are doing because our advisors and other consultants were approachable, meticulous, patient, supportive, competent, goal oriented, good critics, and empowering. They love to do research very much and are very skillful."*

However, there were also a number of teacher training institutions which were neither committed to research nor resourced to carry out research (Thwala, 2014). This signifies that the best curriculum is worthless without proper pedagogy. This is somewhat true from the findings of Kapenda & Kasanda (2008) that most teachers are mere consumers of research findings and not producers of research knowledge.

In broad-spectrum, the last proposition may hold correct since aspiration in teaching research can be of good effect when the method used is supplemented by another method. Therefore, the best learning takes place when greater number of intelligences are stimulated and utilized in the research process. In other words, senior high school students are endowed with creative ability to some degree, and this potential is capable of development with the aspired practical research teacher.

Theory Generated:

Based on the above propositions, the researcher generated the following theory: Teachers" attributes and their creative teaching practices lead to students" positive attitudes and research productivity. The constructs involved are: Creativity in teaching research is measured through a teaching effectiveness tool and the research outputs of the students. Teachers become more initiators of pedagogical changes and improvements rather than recipients of ready-made proposals. Their attributes are the combined characteristics of being practical research teachers as to their personal and professional aspects.

CONCLUSION AND RECOMMENDATION

In this study, creative teaching practices are seen to involve in making learning more interesting and effective by using creative approaches in the classroom. Furthermore, students" attitudes may be nurtured when they deal with research procedures and activities to content which is relevant to their real needs. Moreover, the researcher hope that future endeavors will continue to explore best practices among research teachers in the basic education. Finally, based on the theory generated, the following hypotheses may be validated by the succeeding researchers as to: students" research output is influenced by their teachers" attributes and attitudes; research outputs create meanings from a passionate and committed teacher; and the lived experiences and qualities of research teachers have some influence to their students" research outputs.

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