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RESEARCH CAPABILITY OF GRADE 12 STUDENTS

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Abstract: **This study was conducted to know the level of quantitative research capability of Grade 12 students in the Municipality of Murcia. Moreover, this study also aimed to determine what areas in research did the students find it easy and difficult to do and how they were able to survive it. A mixed method research design was adopted in this study, a stratified random sampling was used to elicit information from the 241 respondents out of 608 Grade 12 students in the three-pioneer public secondary senior high school implementers in the Municipality of Murcia. The questionnaire sought information on respondents' senior high track. A focus group discussion was then conducted to the eight participants who fall at the top 4 and bottom 4 of the survey. Among the findings of this study was that academic track students outperformed technical-vocational-livelihood track students in all areas of a research paper. This study also revealed that Chapters 1 and 5 are the easiest areas in terms of the major parts of a research paper for the students while Chapters 2, 3 and 4 were difficult for them. Finally, this study concluded that teachers, great resources, and the survival instincts of the students helped them accomplished their research output.**

Keywords: **research capability, research areas, major parts of research, senior high school.**

1. INTRODUCTION

Research is widely recognized as an important tool for solving man's various problems and in making life more colourful and convenient (Faltado, et. al., 2016). Moreover, the purpose of research is to serve man and the goal of research is good. Hence, due to research man becomes progressive because man is utilizing the products of research.

Research serves as a solution to societal problems that are apparent from community and level up to different government and non-government agencies. Thus, most government and non-government agencies are developing research agenda in order to find solutions to prevailing problems observed in the society (Juan, Mariño and Wilfredo, 2016).

The Department of Education as an agency of the government implemented the K to 12 curriculum which aims to provide sufficient time for the mastery of concepts and skills, develop lifelong learners, and prepare graduates for tertiary education, middle-level skills development, employment, and entrepreneurship. One of the salient features of this curriculum is it is learner-centered, inclusive and research-based.

In this curriculum, all senior high school students, regardless of their track, need to undergo quantitative research writing. This is the result of the mandate that states that curriculum shall be relevant, responsive and research-based (Republic of the Philippines, 2013).

Writing a research output, as observed, is difficult for the students. The formulation of each component in every chapter of the research output becomes a burden on the part of the students.

Hence, this study is based on the premise that research capability of senior high school students is a great factor in the accomplishment of their research output. The overall aim of this investigation is to serve as basis in planning for the enhancement training program on the research capability of the senior high school students.

1.1 Literature Review:

Research is widely recognized as an important tool for solving man's various problems and in making life more colourful and convenient (Faltado, et al., 2016). It is a serious and diligent quest for knowledge that must be promoted because its results have far-reaching benefits. It expands that the field of knowledge further, discovering and generating new concepts, practices, and understanding. These in turn redound to application that advance socio-economic enterprises and benefit communities (Formeleza and Pateña, 2013).

Juan, Mariño and Wilfredo (2016) reiterated that research serves as a solution to societal problems that are apparent from community and level up to different government and non-government agencies. Thus, most government and non-government agencies are developing research agenda in order to find solutions to prevailing problems observed in the society.

Recognizing the importance of research, the Department of Education (DepEd) come up with the K to 12 curriculum that would prepare learners developed life skills and self-actualization and prepare them for the world of work, entrepreneurship and higher education. This curriculum has four features namely: a.) learner-centered, inclusive and research-based; b.) standard and competence-based, seamless, and decongested; c.) inclusive, culture-responsive and culture-sensitive, integrative, contextualized, relevant and responsive; d.) flexible, ICT-based, and global (Ocampo, D., USEC DepEd, 2014).

Since one of the salient features of K to 12 Curriculum is it is research-based, in line with this, all senior high school students, regardless of their track, need to undergo qualitative and quantitative research writing.

In a research paper, the methodology part in writing a research output is supposed to be the easiest part because the method of research is already established *(no author).* However, that is not the case according to Bocar (2011). Most of the time research work is found to be a tedious and very tiring work to do, especially in the formulation of research questions; however, students cannot get away from this work because most often this is an academic requirement.

Bocar (2011) study revealed that in conducting a research investigation, the administration of questionnaire and retrieval of the same is a means of gathering the data; nevertheless, visibility and availability of the respondents found to be very difficult for the student-researchers.

On the other hand, Beverly (2011) revealed that the easiest part of a quantitative research for some students would be in the gathering of data based on the study. Researching the right questions floating questionnaires to a specific population and tabulating them would be easy but time consuming.

In a study conducted by Abarro, J. and Mariño, P. (2016) on the Research Capabilities of Public Secondary and Elementary School Teachers in the Division of Antipolo City, it revealed that the public secondary and elementary school teachers are moderately capable in writing a research proposal and publishable research paper or article.

The study also revealed that the research capabilities of those teachers were affected by sex, civil status, and research seminars/trainings attended and not age, position and by the highest educational attainment Abarro, J. and Mariño, P. (2016).

Furthermore, Abarro, J. and Mariño, P. (2016) on their study on the *Research Capabilities of Public Secondary and Elementary School Teachers in the Division of Antipolo City* disclosed that the level of research capabilities of public elementary and secondary teachers in writing a research proposal is moderately capable and less capable in applying the American Psychological Association (APA) format in texts and bibliographical citations. Abarro, J. and Mariño, P. (2016) stressed that these results implied that teachers shall be provided with trainings especially on the application of American Psychological Association (APA) in writing a research proposal.

In addition, in a study conducted by Avance (2017) entitled Master Teachers' Perception on their Research Capabilities: Basis for the Development of a Training Program revealed that majority of the master teachers have not yet conducted any research and have not attended trainings in any trainings in research be in the division, regional, national and international level.

Formeloza and Pateña (2013) study on the research competence of Maritime faculty members and students revealed that the over-all assessment was moderately competent with a composite mean of 3.41 and 3.26.

In addition, in a study conducted by de la Cruz (2016) on the *Research Capability of Ilocos Sur Polytechnic College* towards the 162 faculty members of the college revealed that as to process, the researchers are competent along conceptual skills, moderately competent in computational skills and technical skills.

1.2 Purpose of the Study:

The main purpose of this investigation is to serve as basis in planning for the enhancement training program on the research capability of Grade 12 students in the three-pioneer public secondary senior high school implementers in the Municipality of Murcia, S.Y. 2017-2018.

Specifically, it sought to answer the following questions:

1. What is the level of research capability of Grade 12 students in quantitative in terms of the technical aspects, major parts of research paper, and producing the other parts of research paper when taken as a whole and when grouped according to senior high tracks?

2. Is there a significant difference in the level of research capability of Grade 12 students in quantitative in terms of the technical aspects, major parts of research paper, and producing the other parts of research paper when grouped as to senior high tracks?

3. What are the research areas where the students find it easy to do?

4. What are the research areas where the students find it difficult to do?

5. How did the students survive in doing research?

6. Based on the findings of the study, what trainings may be proposed to help augment the research capability of senior high school students?

2. METHOD

2.1 Research Design:

The research design most appropriate in this investigation is the mixed method. According to Creswell, J. W., & Plano Clark, V. L. (2011), as a method, it focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches, in combination, provides a better understanding of research problems than either approach alone.

Since the present research calls for the information to be collected through a survey on the level of research capability of the Grade 12 students in the three pioneer public secondary senior high school implementers in the Municipality of Murcia, S.Y. 2017-2018 and the use of focus group discussion in determining about the research areas in which the students find it easy and difficult to do and how they were able to survive it, the mixed method was adopted.

2.2 Respondents of the Study:

The respondents of the study were the 241 out of 608 Grade 12 students in the three-pioneer public secondary senior high school implementers in the Municipality of Murcia, school year 2017-2018. These students were chosen through stratified proportional random sampling. Table 1 shows the profile of the respondents of the study.

TABLE 1: Profile of the Respondents of the Study

Groupings	f	%
Entire Group	241	100
Senior High Tracks		
Academic	116	48
Technical-Vocational Livelihood	125	52

2.3 Data Collection Methods:

The researcher asked permission from the school head of the three-pioneer public secondary senior high school implementers in the Municipality of Murcia to conduct the study on the chosen sample.

The researcher personally administered the test on the level of research capability to the respondents of the study. A focus group discussion was then conducted to 4 respondents who fell on the bottom level and also 4 respondents who fell at the top level of the survey.

The data was tallied, tabulated, and analyzed using a computer software. Thematic analysis was used in analyzing the qualitative results of the study.

2.4 Analysis of Data:

Problem 1 which aimed to determine the level of the research capability of Grade 12 students used mean and standard deviation. To determine the significant difference in the research capability of Grade 12 students in quantitative when grouped as to senior high tracks, *t-test* was used. To determine the research areas where the students find it easy and difficult to do, thematic analysis was used. And to determine how the students survived in writing their research output, thematic analysis was used.

3. FINDINGS

What is the level of research capability of Grade 12 students in quantitative in terms of the technical aspects, major parts of research paper, and producing the other parts of research paper when taken as a whole and when grouped according to senior high tracks?

Table 2: Research Capability of Grade 12 Students

Groupings	Technical Aspects			Major Parts of Research			Other Parts of Research		
	Mean	VI	SD	Mean	VI	SD	Mean	VI	SD
A.Entire Group	3.09	Competent	0.39	3.13	Competent	0.28	2.84	Competent	0.32
B.Senior High Tracks									
Technical-Vocational Livelihood	2.88	Competent	0.43	3.04	Competent	0.33	2.75	Competent	0.35
Academics	3.30	Highly Competent	0.19	3.23	Competent	0.17	2.94	Competent	0.25

As shown in Table 2, the level of quantitative research capability of Grade 12 students in terms of the technical aspects when taken as a whole and when grouped as to technical-vocational-livelihood track was "competent" with means ranging from 2.88 to 3.09, while the level of quantitative research capability along technical aspects of Grade 12 students who belong to the academic track is "highly competent" (M=3.30, SD=0.19). The standard deviations which ranged from *0.19* to *0.43* indicated narrow dispersion of responses.

Table 3: Quantitative Research Capability of Grade 12 Students in Terms of the Major Partsof a Research Paper

Items	TVL Track			Academic Track		
	Mean	Interpretation	SD	Mean	Interpretation	SD
Introduction	3.05	Competent	0.30	3.19	Competent	0.17
Literature Review	2.95	Competent	0.34	3.08	Competent	0.22
Methodology	3.06	Competent	0.31	3.25	Competent	0.16
Results and Discussion	3.04	Competent	0.33	3.23	Competent	0.17
Conclusions and Recommendations	2.95	Competent	0.39	3.06	Competent	0.23

Generally, as gleaned from Table 3, the level of quantitative research capability of Grade 12 students both in the Technical-Vocational-Livelihood (TVL) and Academic tracks on the major parts of research paper in terms of writing an introduction, literature review, methodology, results and discussions, and conclusions and recommendations have means ranging from 2.95 to 3.25 verbally interpreted as competent.

In a research paper, the methodology part in writing a research output is supposed to be the easiest part because the method of research is already established *(no author).* True enough, result of this study revealed that among the five major parts of research, the Grade 12 students from both tracks obtained the highest mean rating in writing research methodology (M=3.15).

Contrary to the results of the findings of this study, Formeloza and Pateño (2013) study revealed that the respondents of their study have the least competency on the methods.

However, the Technical-Vocational-Livelihood track and Academic track students got the same lowest mean scores both in literature review and writing conclusions and recommendations.

In writing a research paper, literature review is an essential part of research writing. The findings revealed that the students need further training or enhancement in order to develop their ability to judge multiple tasks, from finding and evaluating relevant materials to synthesizing information from various sources.

On the other hand, the Grade 12 students both in the Technical-Vocational-Livelihood Track and Academic Track are competent in formulating conclusions and recommendations. Faltado, et. al (2016) reiterated that some people think that conclusions and recommendations are the main parts of research paper because it reveals the importance of the research as well as recommends new ways of resolving the issue.

Is there a significant difference in the level of research capability of Grade 12 students in quantitative in terms of the technical aspects, major parts of research paper, and producing the other parts of research paper when grouped as to senior high tracks?

TABLE 4: t-test result for Significant Difference in the Research capability of Grade 12 Students when Grouped as to Senior High Tracks

Senior High Tracks	Mean	SD	df	t-ratio	p
Technical-Vocational and Livelihood	2.90	0.29	239	-8.751**	0.000
Academics	3.16	0.15			

***p<0.01*

As shown in Table 4, findings revealed that the research capability of the Grade 12 students is statistically significantly different, *(t*(239)= -8.751, *p*<0.01*)* at the 0.05 alpha level. This implies that senior high tracks have an impact the research capability of the Grade 12 students. This further implies that students who enrolled in Academic Track manifests the skills better than those who enrolled in the Technical-Vocational-Livelihood Track having mean scores of 3.16 and 2.90 respectively.

Table 5: t-test Result for Significant Difference in the Research Capability of Grade 12 Students in Terms of the Technical Aspects when Grouped as to Senior High Tracks

Technical Aspects	Mean	SD	df	t-ratio	p
Technical-Vocational and Livelihood	2.89	0.43	239	10.007**	0.000
Academics	3.30	0.19			

***p<0.01*

Table 5 illustrates the t-test result for significant difference in the research capability of Grade 12 students in terms of the technical aspects when grouped according to senior high tracks.

This study found that research capability of Grade 12 students when grouped as to senior high tracks is statistically significantly different, *(t*(239)= -10.007, *p*<0.01*)* at the 0.05 alpha level.

The finding showed that the research capability of the Grade 12 students was influenced by their senior high track. Hence, the hypothesis that states that there is no significant difference in the research capability of the students in terms of the technical aspects is rejected.

This shows that senior high tracks have a bearing in the research capability of Grade 12 students in terms of the technical aspects in accomplishing a research paper.

The finding also implies that academic track students had better research writing skills compared to technical-vocational-livelihood students.

Table 6: t-test Result for Significant Difference in the Research Capability of Grade 12 Students in Terms of the Major Parts of Research Paper when Grouped as to Senior High Tracks

Major Parts of Research Paper	Mean	SD	df	t-ratio	p
Technical-Vocational and Livelihood	3.04	0.33	239	-5.501**	0.000
Academics	3.23	0.17			

***p<0.01*

Table 6 shows the result of the significant difference in the research capability of Grade 12 students in terms of the major parts of research paper when compared as to senior high tracks.

Findings revealed that the research capability of Grade 12 students in terms of the major parts of a research paper when grouped according to senior high tracks is statistically significantly different, ($t(239)=-5.501$, $p<0.01$) at the 0.05 alpha level.

Table 7: t-test Result for Significant Difference in the Research Capability of Grade 12 Students in Terms of Producing Other Parts of Research Paper when Grouped as to Senior High Tracks

Producing Other Parts of Research Paper	Mean	SD	df	t-ratio	p
Technical-Vocational and Livelihood	2.75	0.35	239	-4.726**	0.000
Academics	2.94	0.25			

***p<0.01*

As reflected in Table 7, the probability value on research capability of Grade 12 students when grouped according to senior high tracks is lesser than 0.05 level of significance which is enough to reject the null hypothesis, ($t(-4.726)$, $p<0.01$). This implies that senior high tracks have an impact in the research capability of the Grade 12 students in terms of producing the other parts of a research paper.

This result further implies that Grade 12 academic students manifested better skills in terms of producing the other parts of a research paper which obtained a mean rating of ($M=2.94$) compared to technical-vocational-livelihood students ($M=2.75$).

Parallel to the study conducted by Abarro and Mariño(2016)on the research capabilities, it revealed that there are some factors that truly affect the capabilities of teachers. Those were affected the sex, civil status, and research seminars/trainings attended by the teachers.

What are the research areas where the students find it easy to do?

The third objective of this study was to find out what areas in research which they found it easy to do. The focus group discussion started with a brief introduction among the participants to make them feel comfortable all throughout the discussion.

The accounts of the participants revealed that in producing the major parts of a research paper, they found it easy to write some parts of the Chapter 1 and Chapter 5. In addition, in producing other parts of a research paper, summarizing conclusion and recommendations were easy for them. The specific research areas in which the participants find it easy to do in writing their quantitative research output were Chapters 1 and 5.

Beverly (2011) revealed that the easiest part of a quantitative research for some students would be in the gathering of data based on the study. Researching the right questions floating questionnaires to a specific population and tabulating them would be easy but time consuming.

What are the research areas where the students find it difficult to do?

The fourth objective of this investigation was to identify research areas in which the students find it difficult to do. Findings revealed that students find it difficult to accomplish analysis and interpretation of data. Results also showed that literature review and methodology which includes the data-gathering procedure had been difficult for the students. Correct grammar usage has also been difficult for them.

These hardships experienced by the students were not a surprise. According to Bocar (2011), most of the time research work is found to be a tedious and very tiring work to do; however, students cannot get away from this work because most often this is an academic requirement.

Bocar (2011) study revealed that in conducting a research investigation, the administration of questionnaire and retrieval of the same is a means of gathering the data; nevertheless, visibility and availability of the respondents found to be very difficult for the student-researchers.

How the students accomplished their research output were reflected in Table 8.

Table 8: Summary on How the Students Survived Research

How the Students Survived Research	*Participants*
1. Wind Beneath their Wings	*"Recel", "Hosue"*
2. Great Resources	*"Maya", "Ana", "Mio', "Maki", "LM"*
3. Survival Instincts	"*Tala", "Mio", "Hosue" "Maya"*

The thematic insights are Wind Beneath their Wings: Helpful Teachers, Great Resources: Educational Websites, Relevant Books, Teacher's Thesis and Survival Instincts: determination and persistence towards success. The eidetic insight revealed the ways on how the students survived research were really effective

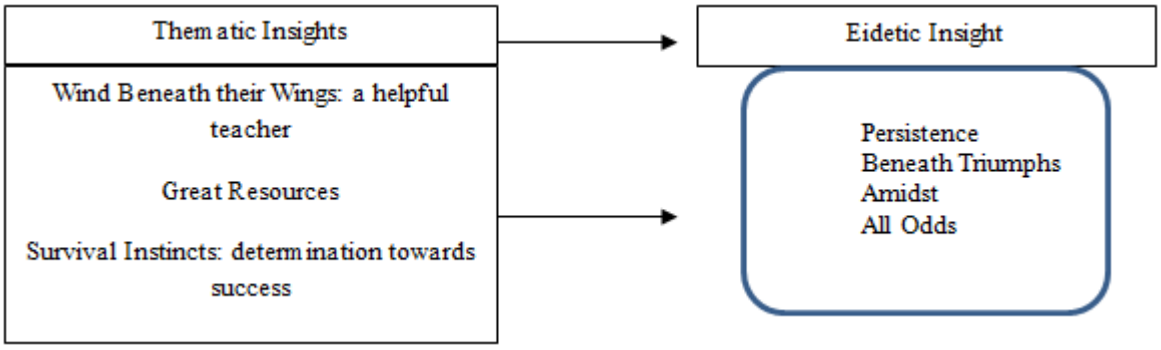

Fig 1: An illustration showing the thematic and eidetic of the participants on the ways they survived their research output.

Based on the thematic insights, the eidetic insight reveals the persistence beneath triumphs amidst all odds of students that encompass their life as a student-researcher.

4. CONCLUSIONS

The research capability of Grade 12 students in the three-pioneer secondary senior high school implementers in the Municipality of Murcia manifested competence in doing research in all the three areas such as the technical aspects, major parts of a research paper, and producing the other parts of a research paper is due to their desire to graduate as expected by their research teacher.

Academic track students outperformed the Technical-Vocational-Livelihood track students in all areas of research such as the technical aspects, major parts of a research paper, and producing the other parts of a research paper due to the fact that most students who are in the Academic track are wide readers and performers both inside and outside the school campus. Moreover, these students focus mainly in developing their knowledge and skills academically rather than honing their technical skills.

Selected participants believed that among the chapters in writing a research output, Chapters 1 and 5 were the easiest for them since the components for chapter 1 were relatable like writing an introduction and significance of the study. Likewise, Chapter 5 is also easy for them because data are already available in chapter 4 and all they need to do is to summarize it and make a conclusion.

On the other hand, one of the chapters in a research paper which the students find it difficult to accomplish was the chapter 2 which is the literature review. This difficulty usually arises because there is a lot of literature to scan and read. The analysis and interpretation of data were also one of the crucial and most critical parts in writing a research paper. And finally, the students' determination and persistence lead them towards the achievement of their goal.

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