

# Science Teacher's Competence And Behavior In The Conduct Of Action Research: Basis For A Proposed Research Manual

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**Abstract:** *Action Research is utilized as an aid to any educational innovation and a tool for knowledge building. It is imperative to promoting evidence-based decision and policy-making at different levels of school governance which address issues and challenges in the school settings; support professional learning; establish networks of information and professional support; introduce change by clarifying priorities, purposes and processes; enhance understanding of professional and policy context to manage the school strategically and effectively; and improve self-efficacy and voice within the school and more widely within the profession. The study aimed to examine science teacher's competence and behavior in the conduct of action research in Schools Division of San Jose del Monte Bulacan which serves as basis for crafting a teachers' research manual. This study utilized descriptive – evaluative design and correlation design. Total enumeration in the selection of one-hundred-seventy-two (172) public school teachers which includes one hundred-fifty (150) science teachers from Junior High School and Senior High School and twenty-two (22) school administrators was employed. Results revealed that majority of science teacher-respondent belongs to age bracket 31-40 years old, male science teachers, 6-10 year of teaching, Teacher I, with Master's Unit, and attended school level related research training. Science teachers' level competence assessed by School Administrators and teachers themselves in terms of research conceptualization, research method and design, data gathering procedures, data processing, and data analysis shows that are indeed competent. In addition, level of behavior in the conduct of action research as assessed by School Administrators and teachers as regards to self-efficacy, teamwork, result focus and written communication revealed moderately observed; Moreover, there is a significant difference in the assessment of the two groups of respondents on the teacher's competence and their behavior in conducting action research. More so, there is significant relationship between the teacher's competency and their behavior in conducting action research when grouped according to profiles. Cognizant to, there is significant relationship between teacher's competency and their behavior in conducting action research. It was also observed that science teachers experienced very challenging duties and responsibilities in school, doing a quantitative and qualitative, no mentor in conducting research, knowledge in crafting research questionnaire and digesting literature and no access to reference materials, process of proposing research is very tedious and rigorous" and no support from the management. Thus, it is recommended adapt the crated research manual for basic education science teachers would raise research productivity, culture of research and attitude in conducting action research.*

**Keywords:** action research, behavior, competence, research manual, science teacher's

## Introduction

The state policy to establish, maintain, and support a complete, adequate, and integrated system of education pertinent to the needs of the people, the country, and the society-at-large is the foundation for the creation of Republic Act 10533 titled "An Act Enhancing the Philippine Basic Education System by Strengthening its Curriculum and Increasing the Number of Years for Basic Education," otherwise known as the "Enhanced Basic Education Act of 2013." One of the mandates of the Enhanced Basic Education Act of 2013 is the delivery of a curriculum that is relevant, responsive, and research-based. In line with this, the role of research in education is strengthened and integrated in both curriculum and instruction.

Research is envisioned to serve as concrete guide in steering both policy and practice in the educational system. To ensure relevance, responsiveness, and usefulness of studies in the production of fact-based policy and practice in the Department of Education (DepEd), the following Action Research process is designed. It serves as the first step in achieving the national goal of inculcating and propagating a culture of research from the grassroots of Philippine education to the highest levels of public-school governance. This strategic step is a vehicle toward the direction of realizing the legal mandate on conducting research as part of the DepEd's institutional target for each governance level in fulfillment of the Department's mission, vision and core values.

Action research is becoming to be promising spectrum in the field of educational research at present. Preferably, it is undertaken in a school setting and is a reflective process that allows for inquiry and discussion as component of research. Therefore, science teachers must conduct practice – oriented research to improve their classroom practice even through in the midst of COVID-19 pandemic by collecting data about their daily activities, problems, and outcomes for the purposes of improving themselves as teachers and their students as learners. Certainly, rather than dealing with discovering and validating theories, action research allows teachers, to address concerns that closest to them that can exhibit some influence and make change. It upholds the concepts that

teachers keep on making more and more decisions in the operation of schools and their individual classroom alike and thus they are being held responsible and accountable for student's outcomes.

To encourage teachers to conduct research, DepEd Order no. 24, s. 2010 known as the Basic Education Research Fund (BERF) was issued stipulating therein the financial assistance to be allocated to those who are interested in doing researches. However, despite this financial support amounting to two million pesos every year for every region, only a few are still conducting researches as based on the Division Research Performance, of 2015—2020 action research from the Schools Division of San Jose del Monte City, Bulacan there are 25 research has been presented in the research congress since 2010 when the national government started to allocate budget. (Samosa, 2020b). It is evident the science teachers have limited opportunity to conduct action research due to struggle with statistical analysis, language errors and inability to analyze logical arguments and synthesize information from varied sources. This is partly because teachers are confronted with the challenge of creating a logical sentence on the first place. Relatively, the skill insufficiency leads them to detachment from the research writing processes. Although research is highly contributory to positive societal changes, teachers seem to not share the same view. They look at research as a taxing activity among teachers. Action research is demanding, complex, and challenging because the researcher not only assumes responsibilities for doing the research but also for enacting change. Enacting change is not easy—it requires time, patience, and sound planning, communication, and implementation skills.

From the abovementioned scenario of science teachers, the researcher as school and district research coordinator observed these from the series of webinar and training engagement that teachers need research manual to guide the science action researchers in the onset and outset of their research exploration experiences that will serves as their guiding light in the process of starting, pursuing and completing the action research report. For instance, action research manual research can help science teachers to come up with interventions or solutions to address problems commonly encountered by teachers. These actions or interventions can contribute to solve identified problems and eventually leading to the improvement of the teaching-learning process.

### **Statement of the Problem**

The study aimed to determine science teacher's competence and behavior in the conduct of action research in Schools Division of San Jose del Monte Bulacan, that served as basis for crafting a teachers' research manual.

Specifically, this study sought to answer the following questions:

1. What is the profile of the teacher-respondents be described in terms of?
  - 1.1 Age,
  - 1.2 Gender,
  - 1.3 Years of teaching,
  - 1.4 Plantilla position,
  - 1.5 Highest Educational Attainment, and
  - 1.6 Related Research Training?
2. What is the respondents' level of competence in conducting action research as assessed by School Administrators and teachers themselves in terms of:
  - 2.1 Research Conceptualization,
  - 2.2 Formulation of Research Method and Design,
  - 2.3 Data Gathering,
  - 2.4 Processing, and
  - 2.5 Analysis?
3. Is there a significant difference in the assessment of the two groups of respondents on the level of competence of the teacher-respondents in conducting action research?
4. Is there significant relationship between the level of teachers' competence in conducting action research when grouped according to profile?
5. What is the respondent's level of behavior in the conduct of action research as assessed by School Administrators and teachers themselves in terms of:
  - 5.1 self-efficacy,
  - 5.2 Teamwork,
  - 5.3 result focus, and
  - 5.4 written communication?
6. Is there significant difference in the assessment of the two groups of respondents on the level of teacher's behavior in the conduct of action research?
7. Is there significant relationship between the level of teacher's behavior in conducting action research when grouped according to profiles?

8. Is there significant relationship between the science teachers' level of competence in conducting action research and their level of behavior?
9. What are the challenges encountered by the teacher respondents in conducting action research?
10. How may the findings of the study be utilized in crafting an action research manual for teachers?

### **Research Design**

The descriptive research design was employed since the present study attempts to assess the science teacher's competency and behavior in the conduct of action research in Schools Division of San Jose del Monte Bulacan which serves as basis for crafting a teachers' action research manual that can be used by the school research committee during their LAC and In-Service training. In addition, the researcher used descriptive-evaluation research to accomplish the purpose of the study. Samosa (2020a) pointed out that descriptive-evaluation research is typically designed to determine the causes or consequences of processes, policies, practices or programs. This investigation approach includes the collection of data to address questions related to the status of the study subject. It seeks to identify the essence of the situation as it occurs at the time of the analysis and to examine the causes of the situation.

Moreover, the study also employed descriptive – correlational design to examine the significant relationship between the level of teachers' competency in conducting action research when grouped according to profile. In addition to the exploration was relationship between the level of teacher's behavior in conducting action research when grouped according to profiles. Affirmatively, the measurement of relationship between the science teachers' level of competency in conducting action research and their level of behavior.

### **Population and Sample of the Study**

The researcher utilized the purposive sampling technique. The researcher used the purposive sampling in the study to secure a controlled data collection as well as interpretation pertaining the commonalities or differences of answers by said sample population. Relatively, it will be very convenient on the part of the researcher to make sure that the data to be collected are all coming from the same nature or groups. The respondents are carefully chosen in accordance with the criteria who are undergo action research training for the school year 2021-2022. Teacher-respondents are chosen from among the public school from Junior High School and Senior High School of District I to VIII in the Schools Division of San Jose del Monte. This was affirmed on the writings of Samosa et.al (2021), wherein it was pointed out that purposive sampling is a form of non-probability sampling in which decisions concerning the individuals to be included in the sample are taken by the researcher, based upon a variety of criteria which may include specialist knowledge of the research issue, or capacity and willingness to participate in the research. The respondents of this study were the one- hundred seventy-two (172) public school teachers which includes one hundred fifty (150) science teachers from Junior High School and Senior High School and twenty-two (22) school administrators were purposively chosen as the respondents of the study who are science teachers who are teaching for the school year 2021-2022.

### **Research Instruments**

A researcher made questionnaire was the main tool used in this study in gathering the data needed. The mentioned questionnaire is consisting of four parts.

Part I: it focused on the teacher- respondents' demographic profiles in terms of age, gender, area of specialization in science, years of teaching, plantilla position, and highest educational attainment.

Part II: it concerned with the teachers' competency in conducting action research in terms of research conceptualization, formulation of research method and design, and data gathering, processing and analysis which consist of ten (10) indicators for every variable considered.

Part III: it explored the teachers' behavior in the conduct of action research in terms of self-efficacy, teamwork, result focus and written communication. With five (5) indicators considered for every variable.

Part IV determined the challenges encountered by the teacher respondents in conducting action research consisting of ten (10) challenges rank from 1 to 10 where 1 is the least challenging and 10 the most challenging.

### **Validation of Research Instruments**

Research instruments was considered good if it is validated in order to ensure the outcome of the study due to the relationship of the independent and the dependent variable. In this view, the researcher opted to have the researcher made checklist-questionnaire be validated.

In the conduct of the development and validation of the questionnaire, the researcher considered related research instrument as a reference in constructing the checklist-questionnaire. Once necessary information was gathered, the researcher will write the

first draft of the questionnaire and will present it to the thesis adviser for comments and suggestions. The comments and suggestions will be considered in crafting the second draft of the questionnaire which will be presented to experts, graduate school professors of University of Caloocan City, for their suggestions and comments to further improve the instrument. The edited questionnaire will then be submitted again to the thesis adviser for other suggestions and corrections. The final draft of the questionnaire will be given to selected teachers and school head/master teachers from two schools on district for the reliability and validity of the researcher made checklist-questionnaire.

Once all the necessary comments were taken into consideration, the research checklist-questionnaire will then be finalized and will be given to selected school administrators and teacher- respondents.

### Data gathering Procedures

The data from the study was gathered using documentation procedure. This could be made possible by taking into account the details from the checklist-questionnaire employed in the study. Upon the approval of the final draft of the questionnaire by the research adviser, the researcher write a letter to the School Division Superintendent of the Division of san Jose Del Monte Bulacan for approval to conduct a research study among public secondary JHS and SHS administrators and teachers from the eight (8) district of San Jose Del Monte Bulacan.

Upon approval by the School Division Superintendent (SDS) of the subject division with the attached research questionnaire for endorsement on the concerned schools, the researcher will report to the School Head of the subject school for the actual conduct of the study. The researcher will personally administer floating of questionnaires and its retrieval. Two groups of respondents will be considered in the study and this includes the school administrators and Junior/Senior High School teachers.

The accomplished questionnaires were sorted and the responses gathered will be tabulated and tallied using excel. The summary of data was submitted to the statistician for statistical computation.

The computed data was subjected for interpretation and analysis by the researcher in relation to the study conducted. The researcher ensures observance of DepED Order No. 9 s. 2005 re: "Instituting Measures to Increase Engaged Time-on-Task and Ensuring Compliance Therewith" and proper coordination with the school principal shall be arranged prior to the conduct of the said activity.

The data gathering procedure must conformed with the RM No. 228, s. 2020- Policy Guidelines on the Adherence to Ethical Research Principles and Responsibilities in Studies Involving Teaching, Teaching-related, Non-teaching Personnel and Learners to safeguard data at the site of data collection, measures to protect the privacy and confidentiality of participants, duration/period data will be stored online, measures on how the data transferred and destroy after the study has been completed.

### Statistical Tool

Data gathered from this study were subjected to the following statistical treatments:

**Percentage and Frequency.** The percentage and frequency distribution were used to determine the frequency counts and percentage distribution of personal related variables of the respondents and answered problem no. 1.

**Ordinal.** This was used in ranking the challenges encountered by the researcher in the conduct of writing action research and will answer problem no.9

**Weighted Mean.** The weighted mean was use to assess the level of competency and behavior of teacher respondents in the conduct of writing action research. This address problem numbers 2 and 5.

**t-test of independence.** It was used to test the inference on the assessment of two groups of respondents on the competence and behavior of teachers in the conduct of writing action research. This will address problem nos. 3 and 6.

**Pearson – Product Moment Correlation Coefficient.** This was used to indicate the significant relationship between the level of teachers' competency in conducting action research when grouped according to profile and the relationship between the level of teacher's behavior in conducting action research when grouped according to profiles. This answers problem nos. 4, 7 and 8.

### Results and Discussions

This part present both tabular and textual manner the data gathered from the results of the survey from the respondents. The data were treated with appropriate statistical test and were analyzed and interpreted to determine the answers to the questions posed in the study.

#### 1. Profile of the Science Teacher-respondents

Presented on the succeeding tables were the distribution of the profile of one hundred fifty (150) science teacher-respondents in terms of age, gender, years in teaching, plantilla position, highest educational attainment and related research training.

##### Age

Shown on table 1 is the distribution of profile of science teacher-respondents when grouped according to age.

**Table 1. Distribution of Teacher Respondents when Grouped According to Age**

Age (in years)	Frequency (f)	Percentage (%)
20-30	49	32.67
31-40	54	36.00
41-50	40	26.67
51-60	7	4.67
Total	150	100.00

As shown, respondents that belongs to age bracket 20-30 were forty-nine (49) or thirty-two-point sixty-seven percent (32.67%). Meanwhile, for age bracket 31-40, there were fifty-four (54) teacher respondents or thirty-six percent (36%). As such, age bracket 41 – 50 were forty (40) or twenty-six-point sixty-seven percent (26.67%). Lastly, age bracket 51 – 60 were seven (7) teacher respondents. or four – point sixty-six percent (4.67%). Based on the data gathered, the research observed that majority of science teacher-respondent belongs to age bracket 31-40 years old. It is, therefore, that more of the respondents of this study were considered as young adult being research enthusiasm in conducting action research. In line with the study of Wong (2019) that young adult age is more engaged in conducting research and involvement in institutional support in research activities. Younger teachers demonstrate more sensitivity towards educational research than those who have been teaching five years and above (Akcoltekin et al., 2017),

### Gender

Table 2 presents is the distribution of respondents' profile when grouped according to gender.

**Table 2. Distribution of Teacher Respondents when Grouped According to Gender**

Gender	Frequency (f)	Percentage (%)
Female	30	20.00
Male	120	80.00
Total	150	100.00

Based on the gathered data, it reflects that female teacher respondents were thirty (30) or twenty percent of the total respondents. In addition, male teacher respondents were one hundred twenty (120) or eighty percent. From the data gathered, the researcher observed that majority of science teacher-respondent are male. The data imply that gender is a factor in the conducting action research. This signifies that male science teacher are more engaged in conducting action research. In line with the finding of Ikhsan et. al. (2017) revealed that undertaking a research program is very useful to the career of both the female and male respondents who are already employed. Consequently, Oguan, Bernal, & Pinca (2014) confirmed that the male students are more positive compared to their female counterparts. But in the findings of Bibi, Iqbal and Majid (2012) argued otherwise that male and female students have almost the same level of attitude toward research.

### Year of Teaching

Gleaned on table 3 is the distribution of science teacher-respondents when grouped according to years in teaching.

**Table 3. Respondents when Grouped According to Years in Teaching**

Years of Teaching (in years)	Frequency (f)	Percentage (%)
0 – 5	28	18.67
6 – 10	88	58.67
11 – 15	32	21.33
16 – 20	2	1.33
Total	150	100.00

Considering the gathered data, it reflects that respondents that belongs to year of teaching bracket of 0 – 5 were twenty – eight (28) teacher respondents which compromised to eighteen- point sixty- seven in the total population. More than, that 6- 10 year

of teaching were eighty-eight teacher respondents or fifty-eight – point sixty-seven percent (58.67%). Taking aside, 11 – 15 year of teaching were thirty-two (32) teacher respondents which compromised to twenty-one- point thirty-three percent (21.33%) of the total respondents. Paramount to 16 – 20 year of teaching were two (2) teacher respondents or one- point thirty -three percent (1.33%). In the analysis of data gathered, the researcher observed that majority of science teacher-respondent are 6- 10 year of teaching. Others had been in a position for a considerable number of years of research experience that afforded them with knowledge and competencies relative to research exploration. Similarly, Samosa (2021b), that most of the teacher respondents are 6 – 10 years of teaching in the public school. It was supported by the finding of Pambuenta and Bernarte, (2020) that those teachers who are in their early years of teaching must be given support in terms of research training that will supplement the need to demonstrate research efficacy even though they are still learning their way through their academic career. However, it was contradicted results of the study Osmanović-Zajić, and Maksimović (2020) that the teachers with longer teaching experience showed better results than their younger colleagues had better results than their younger colleagues regarding the Practical activities, essential for conducting action researches.

### Plantilla Position

Presented on table 4 is the distribution of science teacher-respondents when grouped according to their plantilla position.

**Table 4: Distribution of Teacher Respondents when Grouped According to Plantilla Position**

Plantilla Position	Frequency (f)	Percentage (%)
Teacher I	91	60.67
Teacher II	52	34.67
Teacher III	7	4.66
Total	150	100.00

Based on the gathered data, it reflects that respondents that belongs to plantilla position of Teacher I were ninety-one (91) or sixty- point sixty-seven percent (60.67%). Looking on the plantilla position of Teacher II were fifty-two (52) or thirty – four point sixty- seven percent of the total teacher respondent. Emergently, plantilla position of teacher III were seven (7) or four – point sixty -six percent (4.6%). Remarkably, the analyzed data showed that majority of science teacher-respondent are Teacher I.

### Highest Educational Attainment

Looking on the table 5 is the distribution of science teacher-respondents when grouped according to their highest educational attainment.

**Table 5: Distribution of Teacher Respondents when Grouped According to Highest Educational Attainment**

Highest Educational Attainment	Frequency (%)	Percentage (%)
Bachelors' Degree	51	34.00
with Master's Unit	86	57.33
Master's Degree	8	5.33
with Doctorate Units	5	3.33
Total	150	99.99

Looking at the table, it reflects that fifty-one (51) or thirty-four percent (34%) of teacher respondent were bachelors' degree holder. In a way, eighty-six (86) or fifty – seven -point thirty – three percent (57.33%) were with master degree units. Consequently, eight (8) of the teacher respondents or five-point thirty-three percent were master degree holder. Concomitantly, five (5) or three-point thirty-three percent with Doctorate units. Noticeably, the gathered data the researcher observed that majority of science teacher-respondent are with Master's Unit. Looking from this, teachers are with advanced degrees are advocate true teaching practices backed with research. it further develops their understanding of teaching techniques, classroom management strategies, and professional resources, they become more valuable members of the educational community. Moreover, teachers who attained higher educational attainment have improved research skills and are more knowledgeable in the research process and dissemination. It was similar to the findings Salcedo-Relucio (2019) that majority of teachers are Unit Earners in Masters which was engaged in conducting action research. Pursuing higher educational attainment widens one's horizon and perspectives in a certain field (Manalili, 2016). Science teachers need to pursue graduate school to enrich their academic, instructional and research capabilities.

**Related Research Training**

Posed on table 6 is the distribution of science teacher-respondents when grouped according to related research training.

**Table 6: Distribution of Teacher Respondents when Grouped According to Related Research Training**

Related Research Training	Frequency (f)	Percentage (%)
School Level	85	56.67
District Level	6	4.00
Division Level	33	22.00
Regional Level	5	3.33
National Level	16	10.67
International Level	5	3.33
Total	150	100.00

Shown on the table, it reflects that eighty – five (85) or fifty-six – point sixty-seven percent (56.67%) of teachers was attended school level related research training. Moreover, six (6) or four percent of the teacher respondents attended district level related research training. Relatively, thirty- three (33) or twenty-two percent (22%) of the attended division level related research training. In juxtaposition, five (5) of teacher respondents or three – point thirty-three percent (3.33%) attended regional level related research training. Engagingly, sixteen (16) or ten- point- sixteen seven attended national level related research training. Interconnectedly, five (5) or three- point thirty- three percentage (3.33%) attended international level related research training. Vehemently, the gathered data showed that majority of science teacher-respondent are attended school level related research training. The findings have shown that this simulated training-workshop extension project, intensive learning experience had the capacity to develop the research skills among science teachers. It adds to the minimal literature in education professionals on teaching and learning strategies to promote research skill development. Still, Science teachers were actively participating and engaging themselves on the different research related endeavors. This is to confirm the findings of Alim (2015) which showed the association between trainings and research capability. Science teachers need to have related trainings to improve their research productivity. Although majority had trainings in research, it would be much better if everybody is given the chance to attend trainings in research. In support to the exploration of Alumbro et al (2017), that the teachers are very interested to attend seminar/workshop in research. More so, Sheikh, Kaleem, and Waqas (2016) also noted that participation in research training and courses would positively impact the researchers as they would be exposed to different methodologies, styles, and concepts of doing research. Therefore, research training and seminars should be made available for all these teachers to acquire the necessary knowledge and learn the skills on how to do research. If teachers do not have the skills, they would not be able to carry the task successfully (Ulla, 2016).

**2. Respondents' level of competency in conducting action research as assessed by School Administrators and teachers**

Reflected on the succeeding tables were the assessment of the respondents' level of competency in conducting action research as assessed by School Administrators and teachers in terms of research conceptualization, formulation of research method and design indicator data gathering, processing and analysis.

**Research Conceptualization**

Posed on table 7 is science teacher-respondents level of competence in conducting action research as assessed by school administrators and teacher-respondents themselves in terms of research conceptualization with 10 indicators considered.

**Table 7: Respondents' Level of Competence in Conducting Action Research as assessed by Two Groups of Respondents in terms of Research Conceptualization**

Research Conceptualization	School Administrators		Science Teachers		Combined	
	WM	VI	WM	VI	WM	VI
1. Narrow the research topic to put it in a researchable concept.	2.14	C	1.93	C	2.04	C
2. State research questions in common language	2.18	C	1.77	C	1.98	C
3. Ensure that the topic I will be working on is grounded in the realities of the school	2.18	C	2.23	C	2.20	C
4. Identify what has been done in previous studies and the gaps when choosing a topic.	2.05	C	1.69	C	1.87	C
5. Evaluate my sources when conducting literature search and review	2.14	C	1.68	C	1.91	C

6.	Track and write references of the literature used in the review.	2.18	C	1.89	C	2.04	C
7.	Tell on the usefulness and limitations of various qualitative data collection tools.	2.14	C	1.50	NC	1.82	C
8.	Conduct research in a systematic and disciplined manner.	2.00	C	2.23	C	2.12	C
9.	Determine appropriate data sources to establish data triangulation.	2.18	C	1.51	NC	1.84	C
10.	Tell on the usefulness and limitations of various quantitative data collection tools	2.09	C	1.79	C	1.94	C
Average Weighted Mean		2.13	C	1.82	C	1.98	C

Legend: WM=Weighted Mean; VI = Verbal Interpretation

1 = 1.00 – 1.66: Not Competent (NC);

2 = 1.67 – 2.33: Competent (C);

3 = 2.34 – 3.00: Highly Competent (HC)

For indicator 1 “Narrow the research topic to put it in a researchable concept” the computed weighted mean for school administrator-respondents was 2.14 and interpreted to be Competent. Meanwhile, for science teacher- respondents, the weighted mean computed was 1.93 and also interpreted to be Competent. It was noted that school administrators rated greater than the science teacher- respondents. In addition, the combined weighted mean computed at 2.04 and likewise interpreted to be Competent. Moreover, for indicator 2 “State research questions in common language”. The computed weighted mean was 2.18 and 1.77 for school administrator-respondents and science teacher respondents respectively and both were interpreted to be Competent. However. It was noted that school administrators rated greater than the science teacher- respondents. The combined average weighted mean was 1.98 and likewise interpreted to be Competent. In addition, for indicator 3 “Ensure that the topic I will be working on is grounded in the realities of the school”. the computed weighted mean for school administrator-respondents was 2.18 interpreted to be Competent while for science teacher-respondents was 2.23 and interpreted to be Competent. On the other side, it was observed that science teacher- respondents rated greater than school administrators. Consequently, the average weighted mean computed was 2.20 with verbal interpretation of Competent. More than, indicator 4 “Identify what has been done in previous studies and the gaps when choosing a topic”. the weighted mean computed for school administrator-respondents assessment was 2.05 interpreted to be competent. On the other hand, science teacher-respondents’ assessment 1.69 and interpreted to be competent. From this, it was observed that school administrators rated greater than the science teacher- respondents. Meanwhile, the average weighted mean was at 1.87 and likewise interpreted to be competent. Relatively, indicator 5 “Evaluate my sources when conducting literature search and review”. the weighted mean computed for school administrator-respondents assessment was 2.14 interpreted to be competent. On the other hand, science teacher-respondents’ assessment was 1.68 and interpreted to be competent. Hence, it was observed that school administrators rated greater than the science teacher- respondents. In a way, the average weighted mean was at 1.91 and likewise interpreted to be competent. Cognizant to, indicators 6 “Track and write references of the literature used in the review.” the weighted mean computed were 2.18 and 1.89 were both interpreted as competent for school administrators and teachers’ assessment as to extent level of competency in conducting action research in terms of research conceptualization respectively. Thereby it was deemed that school administrators rated greater than the science teacher- respondents. The average weighted mean computed was 2.04 and with a verbal interpretation of competent. Similarly, indicator 7 “Tell on the usefulness and limitations of various qualitative data collection tools”, among school administrators was 2.14 while for teacher respondents was 1.50, with a verbal interpretation of competent and not competent respectively. Henceforth, it was considered that school administrators rated greater than the science teacher- respondents. Moreover, the over-all average weighted mean computed was 1.82 and was interpreted to be competent. On the other hand, for indicator 8 “Conduct research in a systematic and disciplined manner”. the weighted mean computed for school administrator respondents was 2.00 with a verbal interpretation of competent as well as on teacher respondents’ assessment reflected a weighted mean of 2.23 and interpreted to be competent. Apparently, it was considered that science teacher- respondents assessed greater than the school administrators. The computed average weighted mean was 2.12 and interpreted to be Competent. Affirmatively, for indicator 9 “Determine appropriate data sources to establish data triangulation.” the weighted mean computed for school administrators was 2.18 and interpreted to be competent. As such, for teacher respondents, weighted mean assessment was 1.51 and interpreted to be Not Competent. As such, it was accounted that school administrators rated greater than the science teacher-respondents. More so, the computed average weighted mean was 1.85 and interpreted to be Competent. Lastly, indicator 10 “Tell on the usefulness and limitations of various quantitative data collection tools”. the weighted mean computed were 2.09 and 1.79 for school administrators and teacher respondents of which both were interpreted to be Competent. Caused by, it was noticed that school administrators rated greater than the science teacher- respondents. The average weighted mean was 1.94 and also interpreted to be Competent. Considerably, the average weighted mean shows that for school administrator was 2.13 with an interpretation of Competent, while for teacher respondents was 1.82 and also interpreted to be Competent. Constantly, it was evaluated that school



administrators rated greater than the science teacher- respondents. The average combined weighted mean was posed at 1.97 and interpreted to be Competent. The results agreed to Abarro & Wilfredo (2016) that teachers are moderately capable in writing a research proposal and publishable research paper or article. It was also supported by Tolentino (2021) that the Science teachers had a high level on their skills in designing the research plan.

**Research Method and Design**

Shown on Table 8 is science teacher-respondents level of competence in conducting action research as assessed by school administrators and teacher-respondents themselves in terms of Research Method and Design with 10 indicators considered.

**Table 8: Respondents’ Level of Competence in Conducting Action Research as assessed by Two Groups of Respondents in terms of Formulation of Research Method and Design Indicators**

Research Method and Design Indicators	School Administrators		Science Teachers		Combined	
	WM	VI	WM	VI	WM	VI
1. Choose the most appropriate research design based on the objectives of the study, type of data needed and the method in analyzing data	2.05	C	1.55	NC	1.80	C
2. Select study sites appropriately by highlighting the characteristics of the place that meets the need of your study	2.14	C	1.71	C	1.93	C
3. Describe and choose the sample of the study by highlighting the characteristics of the respondents that meets the need of your study.	2.18	C	1.73	C	1.96	C
4. Determine the sample size appropriately	2.09	C	1.71	C	1.90	C
5. Use probability sampling (e.g. random sampling) and nonprobability sampling (e.g. purposive sampling)	2.09	C	1.78	C	1.94	C
6. Construct research instruments by setting the objectives of the instrument and pooling items/ statements that measure what seeks to be measured.	2.05	C	1.49	NC	1.77	C
7. Propose proper data gathering procedures which includes asking permission and approval from the institution where the respondents come from.	1.95	C	1.75	C	1.85	C
8. Plan how to administer the observation/ interview/ survey and perform the treatment in the study (experimentation)	2.14	C	1.60	NC	1.87	C
9. Write propose Innovation, strategy and intervention of the study.	1.95	C	1.46	NC	1.71	C
10. Impose appropriate ethics in research	2.05	C	1.92	C	1.98	C
Overall Weighted Mean	2.07	C	1.67	C	1.87	C

Legend: WM=Weighted Mean; VI = Verbal Interpretation

1 = 1.00 – 1.66: Not Competent (NC);

2 = 1.67 – 2.33: Competent (C);

3 = 2.34 – 3.00: Highly Competent (HC)

Looking on the indicator 1 “Choose the most appropriate research design based on the objectives of the study, type of data needed and the method in analyzing data”, among school administrators was 2.05 while for teacher respondents was 1.55, with a verbal interpretation of competent and not competent respectively. Interestingly, it was considered that school administrators rated greater than the science teacher- respondents. More so, the over-all average weighted mean computed was 1.80 and was interpreted to be competent. Furthermore, indicator 2 “Select study sites appropriately by highlighting the characteristics of the place that meets the need of your study.” the weighted mean for school administrators was 2.14 which was Competent and for teachers it has a weighted mean score of 1.71 which was also Competent. Vehemently, it was distinguished that school administrators assessed greater than the science teacher- respondents. The average weighted mean score for both the school administrator and the teachers was 1.93 that also have an interpretation of Competent. As well as, indicator 3 “Describe and choose the sample of the study by highlighting the characteristics of the respondents that meets the need of your study.” the weighted mean for school

administrators was 2.18 which is Acceptable and that of the teachers was 1.73 interpreted too, as Competent. Amazingly, it was observed that school administrators rated greater than the science teacher- respondents. For their combined average weighted mean, it was 1.96 interpreted as Acceptable as well. Besides, indicator 4 “Determine the sample size appropriately.” the average weighted mean for school administrators was 2.48 which was Competent and for teachers it has a weighted mean score of 1.71 which was also Competent. Unbelievably, it was considered that school administrators rated greater than the science teacher-respondents. The average weighted mean score for both the school administrators and the teachers was 1.90 that also have an interpretation of Competent. Another, indicator 5 “Use probability sampling (e.g. random sampling) and nonprobability sampling (e.g. purposive sampling).” the weighted mean for school administrators was 2.09 which is Competent and that of the teachers was 1.78 interpreted too, as Competent. Inevitably, it was considered that school administrators rated greater than the science teacher- respondents. For their combined average weighted mean, it was 1.94 interpreted as Competent as well. Further, indicator 6 “Construct research instruments by setting the objectives of the instrument and pooling items/ statements that measure what seeks to be measured.” 2.05 is the weighted mean of school administrator were interpreted as Competent and 1.49 for the teachers, were considered Competent. Noticeably, it was considered that school administrators rated greater than the science teacher-respondents. Their combined average weighted mean was 1.77, interpreted as Competent. More so, indicator 7 “Propose proper data gathering procedures which includes asking permission and approval from the institution where the respondents come from.” the weighted mean for school administrators is 1.95 which is Competent and that of the teachers was 1.75 interpreted too, as Competent. Remarkably, it was considered that school administrators assessed greater than the science teacher- respondents. For their combined average weighted mean, it was 1.85 interpreted as Competent as well. Proportionally, indicator 8 “Plan how to administer the observation/ interview/ survey and perform the treatment in the study (experimentation).” has a weighted mean of 2.14 Competent for the school administrators, however, 1.60 Not Competent for the teachers, for an average of 1.87 for their combined mean which is interpreted as Competent. Seemingly it was observed that school administrators assessed greater than the science teacher- respondents. Similarly, indicator 9 “Write propose Innovation, strategy and intervention of the study.” weighted means of 1.95 and 1.46, for the school administrators and teachers respectively. The former is interpreted as Competent and the latter is Not Competent. Commendably, it was considered that school administrators rated greater than the science teacher-respondents. The average weighted mean for both was at 1.71 which is interpreted as Competent. In addition, indicator 10 “Impose appropriate ethics in research”, the average weighted mean for school administrators was 2.05 which is Competent and for teachers it has a weighted mean score of 1.92 which is also Competent. Sequentially, it was considered that school administrators rated greater than the science teacher- respondents. The average weighted mean score for both the school administrators and teachers was 1.98 that also have an interpretation of Competent. Consequently, the average weighted mean shows that for school administrator was 2.07 posted as Competent and for teachers was 1.67 also Competent. The average combined weighted mean was posed at 1.87 likewise interpreted to be Competent. Pertinent to, it was considered that abovementioned indicators that school administrators rated greater than the science teacher- respondents. In line with the study of Wiyarsi and Purtadi (2017), that chemistry teachers in terms of ability to design a classroom action research was categorized as ‘good’. Without prior knowledge, it is very difficult for teachers to develop research skills (Vásquez, 2017) needed in going through its rigors such as identifying the action research design to use, gathering qualitative and/or quantitative data methods, and presenting the final report, while others found difficulties in analyzing the data (Yalcin & Yalcin, 2017).

**Data Gathering Procedures**

It can be gleaned on the table 9 was science teacher-respondents level of competence in conducting action research as assessed by school administrators and teacher-respondents themselves in terms of Data Gathering Procedures with 10 indicators considered.

**Table 9. Respondents’ Level of Competence in Conducting Action Research as assessed by Two Groups of Respondents in Terms of Data Gathering Procedures**

Data Gathering Procedures	School Administrators		Science Teachers		Combined	
	WM	VI	WM	VI	WM	VI
1. Employ and utilized the data-gathering or work plan	2.18	C	1.65	NC	1.92	C
2. See the usefulness and limitations of observations, surveys, artifact, interview, assessment, log journal and experimentation as data collection tool.	2.18	C	1.97	C	2.08	C
3. Identifies issues, problems, or opportunities and determines if action is needed	2.18	C	2.07	C	2.13	C
4. Gather, compile, and interpret pertinent data uses various data collection techniques.	2.27	C	1.85	C	2.06	C

5.	Clearly identify sources and validates the accuracy of data/information to resolve inconsistencies.	2.18	C	2.11	C	2.14	C
6.	Analyze and investigates up-to-date information from various sources and in various formats.	2.09	C	1.75	NC	1.92	C
7.	Use seek additional resources when gaps and inconsistencies or variances in data are found	2.00	C	1.68	C	1.84	C
8.	Understand the needs or concerns of the research participants in order to ensure data, analytics, and reporting are used appropriately	2.09	C	1.66	NC	1.88	C
9.	Ensured the responsibility toward the principles of ethics and methods to safeguard research participants during conducting	2.09	C	2.03	C	2.06	C
10.	Appraise the quality of data that are relevant in a particular study	2.09	C	2.08	C	2.09	C
Overall Weighted Mean		2.14	C	1.89	C	2.02	C

Legend: WM=Weighted Mean; VI = Verbal Interpretation

1 = 1.00 – 1.66: Not Competent (NC);

2 = 1.67 – 2.33: Competent (C);

3 = 2.34 – 3.00: Highly Competent (HC)

Meanwhile, the data revealed that indicator 1 “Employ and utilized the data-gathering or work plan.” gets 2.18 Competent weighted mean for school administrators and 1.65 Not Competent for teachers. Their average weighted mean was at 1.92 which is Competent. Noticeably, that school administrators rated greater than the science teacher- respondents. Indeed, indicator 2 “See the usefulness and limitations of observations, surveys, artifact, interview, assessment, log journal and experimentation as data collection tool.” has 2.18 and 1.97 as weighted means for school administrators and teachers respectively. Both are considered Competent. 2.08 is their combined weighted mean average and was interpreted as Competent. Noticeably, that school administrators rated greater than the science teacher- respondents. Additionally, indicator 3 “Identifies issues, problems, or opportunities and determines if action is needed.” it has 2.18 weighted mean for school administrators and 2.07 for teachers. Both are interpreted as Competent and their average weighted mean was 2.13 which is also interpreted as Competent. Presumably, it was considered that school administrators rated greater than the science teacher- respondents. Then, indicator 4 “Gather, compile, and interpret pertinent data uses various data collection techniques.” it has a weighted mean of 2.27 for school administrator and 1.85 for teachers which are both considered as Competent, with their average weighted mean as 2.06 again, interpreted as Competent. Commendably, it was considered that school administrators rated greater than the science teacher- respondents. Also, indicator 5 “Clearly identify sources and validates the accuracy of data/information to resolve inconsistencies”, it has 2.18 weighted mean for school administrators and 2.11 for teachers. Both are interpreted as Acceptable and their average weighted mean was 2.14 which is also interpreted as Acceptable. Accurately, it was considered that school administrators rated greater than the science teacher- respondents. Cognizant to, indicator 6 “Analyze and investigates up-to-date information from various sources and in various formats.” has a weighted mean of 2.09 Competent for the school administrators, however, 1.75 Not Competent for the teachers, for an average of 1.92 for their combined mean which is interpreted as Competent. Reliably, it was considered that school administrators rated greater than the science teacher- respondents. However, indicator 7 “Use seek additional resources when gaps and inconsistencies or variances in data are found” it has a weighted mean of 2.00 for school administrators and 1.68 for teachers which are both considered as Competent, with their average weighted mean as 1.84 again, interpreted as Competent. Excitingly, it was considered that school administrators rated greater than the science teacher- respondents. Interconnected, Indicator 8 “Understand the needs or concerns of the research participants in order to ensure data, analytics, and reporting are used appropriately”, has a weighted mean of 2.09 Competent for the school administrators, however, 1.75 Not Competent for the teachers, for an average of 1.92 for their combined mean which is interpreted as Competent. Dynamically, it was considered that school administrators rated greater than the science teacher- respondents. Relatively, indicator 9 “Ensured the responsibility toward the principles of ethics and methods to safeguard research participants during conducting”, the average weighted mean for both school administrators and teachers is 2.06 which is considered as Acceptable. This is broken down into separate weighted means of 2.09 and 2.03 school administrators and teachers, respectively with Acceptable as its interpretation. Enthusiastically, it was considered that school administrators rated greater than the science teacher- respondents. Likewise, indicator 10 “Appraise the quality of data that are relevant in a particular study.” 2.09 is the weighted mean for school administrators and 2.08 for teachers, both are interpreted as Competent; Their average weighted mean was 2.09 which Competent. Tangibly, it was considered that school administrators rated greater than the science teacher- respondents. Taking aside, the average weighted mean shows that for school administrator was 2.14 posted as Competent and for teachers was 1.89 also Competent. The average combined weighted mean was posed at 2.02 likewise interpreted to be Competent. Sustainably, it was considered that school administrators

rated greater than the science teacher- respondents. It was congruent on the finding of Salom (2013), exposed that faculty members are capable in the areas of the research procedure. This has been contributed to the nature of the subject matter which usually entail procedural activities

### Data Processing

As gleaned in the Table 10 was science teacher-respondents level of competency in conducting action research as assessed by school administrators and teacher-respondents themselves in terms of Data Processing with 10 indicators considered.

**Table 10. Respondents' Level of Competency in Conducting Action Research as assessed by Two Groups of Respondent Terms of Data Processing**

Data Processing	School Administrators		Science Teachers		Combined	
	WM	VI	WM	VI	WM	VI
1. Identify techniques involved in qualitative data analysis	2.05	C	1.53	NC	1.79	C
2. Identifies trends in data.	2.00	C	2.07	C	2.03	C
3. Align appropriate statistical test with parametric and nonparametric data to address issues of validity in quantitative action research studies	2.05	C	1.51	NC	1.78	C
4. Select the appropriate statistical tool in analyzing data based on the posited objectives either descriptive statistics (e.g. frequency and percentage) or inferential statistics (e.g. mean and standard deviation).	2.09	C	1.51	NC	1.80	C
5. Uses knowledge of data, systems, and their intersections to provide workforce information from the most applicable data source/s in response to standard or ad hoc requests and in support of data quality checks.	2.14	C	2.15	C	2.14	C
6. Make visual display for the reader to easily understand information.	1.95	C	2.18	C	2.07	C
7. Avoid repetitive manner of presenting data.	2.14	C	1.69	C	1.91	C
8. Establish statistical differences between groups (e.g. T-test and F-test).	2.14	C	1.71	C	1.92	C
9. Show the relationship between the data gathered and existing studies.	2.09	C	1.79	C	1.94	C
10. Perform preliminary and iterative steps involving reading, describing, and classifying research data before proceeding to data analysis.	2.00	C	2.19	C	2.10	C
Average Weighted Mean	2.06	C	1.83	C	1.95	C

Legend: WM=Weighted Mean; VI = Verbal Interpretation

1 = 1.00 – 1.66: Not Competent (NC);

2 = 1.67 – 2.33: Competent (C);

3 = 2.34 – 3.00: Highly Competent (HC)

Considering the data presented on the table, it shows that indicator 1 “Identify techniques involved in qualitative data analysis.” the school administrators have a weighted mean of 2.05, Competent and 1.53 for teachers, Not Competent. The average weighted mean for both was at 1.79 which is deemed Competent. Amazingly, it was considered that school administrators rated greater than the science teacher- respondents. Concomitant to, indicator 2 “Identifies trends in data.” registers a weighted mean of 2.00 for school administrators and 2.07 for Teachers, both interpreted as Competent with an average weighted for both at 2.03 which is Competent. Impressively, that school administrators rated greater than the science teacher- respondents. More than, indicator 3 “Align appropriate statistical test with parametric and nonparametric data to address issues of validity in quantitative action research studies.” reflected 2.05 Competent weighted mean for school administrators and 1.51 Not Competent for teachers. Their average weighted mean was at 1.78 which is Competent. Instantly, it was considered that school administrators rated greater than the science teacher- respondents. Affirmatively, indicator 4 “Select the appropriate statistical tool in analyzing data based on the posited objectives either descriptive statistics (e.g. frequency and percentage) or inferential statistics (e.g. mean and standard deviation).” the average weighted mean for both school administrators and teachers was 1.80 which is considered as Competent. This is broken down into separate weighted means of 2.09 for school administrators interpreted as Competent and 1.51 for teachers with Not

Competent as its interpretation. Pertinent to, it was considered that school administrators rated greater than the science teacher-respondents. Moreover, indicator 5 “Uses knowledge of data, systems, and their intersections to provide workforce information from the most applicable data source/s in response to standard or ad hoc requests and in support of data quality checks.” it has 2.14 and 2.15 weighted means for school administrators and teachers respectively, both are interpreted as Competent. Their average weighted mean was 2.14, which is also Competent. In accordance to, it was considered that school administrators rated greater than the science teacher- respondents. Interconnectedly, indicator 6 “Make visual display for the reader to easily understand information.” it resulted to 1.95 Competent weighted mean for school administrators and 2.18 Competent weighted mean for teachers, with an average weighted mean for both as 2.07 which is Competent. Accurately, it was considered that school administrators rated greater than the science teacher- respondents. In addition, indicator 7 “Avoid repetitive manner of presenting data.” has 2.14 weighted mean for school administrators, Competent and 1.69 for teacher, also Competent and a combined average weighted mean of 1.91 which is interpreted as Competent. Vehemently, it was considered that school administrators rated greater than the science teacher-respondents. Relatively, indicator 8 “Establish statistical differences between groups (e.g. T- test and F-test).” School administrators got a 2.14 weighted mean and 1.71 for Teachers, both are interpreted as Competent. Their average weighted mean was 1.92 which is again interpreted as Competent, too. Noticeably, it was considered that school administrators rated greater than the science teacher-respondents. As a matter of fact, indicator 9 “Show the relationship between the data gathered and existing studies.” the weighted means of the two groups of respondents register at 2.09 and 1.79, school administrators and teachers; all of which are deemed Competent. Hence, the over-all weighted mean of 1.94 also has the same interpretation which is Competent. Instantly, it was considered that school administrators rated greater than the science teacher- respondents. More so, indicator 10 “Perform preliminary and iterative steps involving reading, describing, and classifying research data before proceeding to data analysis.” the school administrators have a weighted mean of 2.00 and for teachers they have a weighted mean of 2.19 which is also Competent. Their average weighted mean was 2.10, Competent. Dynamically, it was considered that school administrators rated greater than the science teacher- respondents. Cognizant, an over-all weighted means of 2.06, for school administrators and 1.83, for teachers, when summed up has 1.95 over-all weighted mean – all of which are interpreted as Competent. Reliably, that school administrators rated greater than the science teacher- respondents. The findings were contradicted to the study of Tolentino (2021) that skills of science teachers in research data processing fell under moderate capability. In addition, teacher was capable along conceptual skills, moderately capable in computational skills and technical skills (Dela Cruz, 2016)

**Data Analysis**

The Table 11 depicted was science teacher-respondents level of competence in conducting action research as assessed by school administrators and teacher-respondents themselves in terms of Data Analysis with 10 indicators considered.

**Table 11. Respondents’ Level of Competence in Conducting Action Research as assessed by Two Groups of Respondents in**

Data Analysis		School Administrators		Science Teachers		Combined	
		WM	VI	WM	VI	WM	VI
1.	Analyze both quantitative and qualitative data in mixed-method research designs.	2.09	C	1.39	NC	1.74	C
2.	Provide logical order based on the order of the research objectives.	2.09	C	2.01	C	2.05	C
3.	Analyze quantitative data regardless if the test involves descriptive or inferential and identify emerging themes in an inductive analysis of qualitative data.	2.14	C	1.51	NC	1.82	C
4.	Interpret the underlying meaning or the implication of the data.	2.09	C	1.75	C	1.92	C
5.	Support the interpreted data with underlying literature and studies on the present study.	2.18	C	1.69	C	1.94	C
6.	Create a coherent summary that contains the purpose of the study, respondents and methods and highlight the findings based on the data gathered.	2.09	C	1.65	NC	1.87	C
7.	Create a coherent story from all the data collected.	2.09	C	1.60	NC	1.85	C
8.	Present the data analysis of data accurately and reliably manner	2.14	C	1.75	C	1.94	C
9.	Draw conclusions from research findings that is aligned with the objectives and factually learned from the study.	2.18	C	2.25	C	2.22	C

10. Formulate recommendations that suggest possible solutions that needs further study, recommends action to be taken and suggest possible research topics which were unable to cover in the study.	2.23	C	2.13	C	2.18	C
Average Weighted Mean	2.13	C	1.77	C	1.95	C

**Terms of Data Analysis**

Legend: WM=Weighted Mean; VI = Verbal Interpretation

1 = 1.00 – 1.66: Not Competent (NC);

2 = 1.67 – 2.33: Competent (C);

3 = 2.34 – 3.00: Highly Competent (HC)

Examining the indicator 1 “Analyze both quantitative and qualitative data in mixed-method research designs.” weighted means of 2.09 and 1.39 for the school administrators and teachers respectively. The former is interpreted as Competent and the latter is Not Competent. The average weighted mean for both was at 1.74 which is interpreted as Competent. Interestingly, it was observed that school administrators assessed greater than the science teacher- respondents. Correspondingly, indicator 2 “Provide logical order based on the order of the research objectives.” school administrations have a Competent interpretation because of their 2.09 weighted mean and for the teachers, their weighted was 2.01 which is Competent. Their average weighted mean was 2.05 interpreted as Competent. Vehemently, it was observed that school administrators assessed greater than the science teacher- respondents. Proportionally, indicator 3 “Analyze quantitative data regardless if the test involves descriptive or inferential and identify emerging themes in an inductive analysis of qualitative data.” it resulted to 2.14 Competent weighted mean for school administrators and 1.51 Not Competent weighted mean for teachers, with an average weighted mean for both as 1.82 which is Competent. The over-all weighted mean between the teachers and Master teachers which stands at 1.82 as the combined over-all average weighted mean which is interpreted Competent. Amazingly, it was observed that school administrators assessed greater than the science teacher- respondents. Moreover, indicator 4 “Interpret the underlying meaning or the implication of the data.” has 2.09 weighted mean for school administrators, Acceptable and 1.75 for teacher, also Competent and a combined average weighted mean of 1.92 which is interpreted as Competent. Unbelievably, it was observed that school administrators assessed greater than the science teacher- respondents. In addition, indicator 5 “Support the interpreted data with underlying literature and studies on the present study.” School administrators got a 2.18 weighted mean and 1.69 for teacher, both are interpreted as Competent. Their average weighted mean is 1.94 which is again interpreted as Competent, too. Impartially, it was observed that school administrators assessed greater than the science teacher- respondents. Likewise, indicator 6 “Create a coherent summary that contains the purpose of the study, respondents and methods and highlight the findings based on the data gathered.” the weighted means of the two groups of respondents register at 2.09 for school administrators were interpreted as Competent and 1.65 for teachers were interpreted as Not Competent. Hence, the over-all weighted mean of 1.87 interpreted which is Competent. Excitingly, it was observed that school administrators assessed greater than the science teacher- respondents. More so, indicator 7 “Create a coherent story from all the data collected.” School administrators have a Competent interpretation because of their 2.09 weighted mean and for the teachers, their weighted was 1.60 which is Not Competent. Their average weighted mean was 1.85 interpreted as Acceptable. Noticeably, it was observed that school administrators assessed greater than the science teacher- respondents. In the case of indicator 8 “Present the data analysis of data accurately and reliably manner”. the school administrators have a weighted mean of 2.14 and for teachers they have a weighted mean of 1.75 which was also Acceptable. Their average weighted mean was 1.94 Acceptable. Tangibly, it was observed that school administrators assessed greater than the science teacher- respondents. More than, indicator 9 “Draw conclusions from research findings that is aligned with the objectives and factually learned from the study.” the school administrators and teachers showed a weighted means of 2.18 and 2.25 respectively, both of which are interpreted as Competent. Their average weighted mean was 2.21 interpreted as Competent. Deemed essential, it was observed that school administrators assessed greater than the science teacher- respondents. Lastly, for indicator 10 “Formulate recommendations that suggest possible solutions that needs further study, recommends action to be taken and suggest possible research topics which were unable to cover in the study.” the school administrators and teachers showed a weighted means of 2.23 and 2.13 respectively, both of which are interpreted as Competent. An over-all weighted means of 2.18 interpreted as Competent. Seemingly, it was observed that school administrators assessed greater than the science teacher- respondents. As such for, an over-all weighted means of school administrators was 2.13, and 1.77 for Science teachers, when summed up has 1.95 over-all weighted mean – all of which are interpreted as Competent. Necessarily, it was observed that school administrators assessed greater than the science teacher- respondents. The finding of the study was contradicted to Alumbro et al (2017), that faculty competence in conducting research activities was fairly competent in all stages of the research process, except in disseminating and publishing research works, deciding on statistical analysis, and developing the theoretical/conceptual framework.

**Summary of the Respondents’ Level of Competence in Conducting Action Research as assessed by Two Group of Respondents.**

Reflected on table 12 was the summary the Assessment of school administrators and science teacher-respondents themselves, on the level of competence in conducting action research as assessed by two groups of Respondents.

**Table 12. Summary of the Respondents' Level of Competency in Conducting Action Research as assessed by Two Group of Respondents**

Competency in Conducting Action Research	School Administrators		Teachers		Combined	
	WM	VI	WM	VI	WM	VI
1. Research Conceptualization	2.13	C	1.82	C	1.98	C
2. Formulation of Research Method and Design	2.07	C	1.67	C	1.87	C
3. Data Gathering Procedure	2.14	C	1.89	C	2.01	C
4. Data Processing	2.06	C	1.83	C	1.95	C
5. Data Analysis	2.13	C	1.77	C	1.95	C
Over-all Weighted Mean	2.106	C	1.796	C	1.95	C

Legend: WM=Weighted Mean; VI = Verbal Interpretation

1 = 1.00 – 1.66: Not Competent (NC);

2 = 1.67 – 2.33: Competent (C);

3 = 2.34 – 3.00: Highly Competent (HC)

As presented, for variable 1 “Research Conceptualization” the computed average weighted mean for school administrator-respondents was 2.13 interpreted Competent, while for science teacher-respondents weighted mean was posted at 1.82 with an interpretation of Competent. The combined weighted mean was 1.98 and interpreted as Competent. Impartially, it was considered that school administrators assessed greater than the science teacher-respondents. On the other hand, in terms of Formulation of Research Method and Design weighted posed were 2.07 and 1.67 for school administrator-respondents and science teacher-respondents was both interpreted to be Competent. The computed average weighted mean was 1.87 and likewise interpreted to be Competent. Requisitely, it was considered that school administrators assessed greater than the science teacher-respondents. Meanwhile, in terms of Data Gathering Procedure, computed weighted for school administrator-respondents' assessment was 2.14 which was interpreted to be Competent and science teacher-respondents assessment was 1.89 also with a verbal interpretation of Competent. The computed average weighted mean was 2.01 and interpreted to be Competent. On the same way, in terms of data analysis, the computed weighted mean for school administrators-respondent was 2.13 interpreted to be Competent while for science teacher respondents was 1.77 and interpreted to be Competent. Consequently, the average weighted mean computed was 1.95 with verbal interpretation of Competent. As such for, an over-all weighted mean for abovementioned variables the school administrators were 2.106, and 1.79 for science teachers, when summed up has 1.95 over-all weighted mean – all of which are interpreted as Competent. Instantly, it was considered that school administrators assessed greater than the science teacher-respondents. In this study, self-assessment of research skills was used to facilitate reflection and learning rather than summative assessment. When used for these purposes, Davidson and Palermo (2015) argued that “self-perception is an important component of learning”. This implies that those with higher perceived competence have greater confidence that they can conduct research efficiently (Quimbo & Sulabo, 2014)

### 3. Test of significant difference in the assessment of the two groups of respondents on Teacher's Competence in Conducting Action research.

Reflected on the table below is the analysis on the assessment of the two groups of respondents, that is the assessment by the school administrator and the teacher respondents on teacher's competence in conducting action research. The test of inference to determine the significant difference on the assessment of the two groups of respondents, the researcher employed the t-test for independent sample to compare two independent groups of observations or measurements on a single characteristic and draws decision as to whether there is a significant difference present among the two sample means on a single set of scores for every variable considered. Considerably, the conduct of the test of inference considered for the level of significance at 0.01, two-tailed with a degree of freedom (df) of 18 and the corresponding tabular t-value.

**Table 13. Difference on the Assessment of Two Group Respondents on Teacher's Competence in Conducting Action Research**

Variables	Mean X <sub>1</sub> /X <sub>2</sub>	Computed t-value	Tabular t- value	Decision	Interpretation
Research	2.13/ 1.82	3.66		Reject Ho	There is a significant Difference
Formulation of Research Method and Design	2.07/ 1.67	7.80		Reject Ho	There is a significant Difference
Data Gathering	2.14/ 1.89	3.90		Reject Ho	There is a significant Difference
Data Processing	2.06/ 1.83	2.48	2.101	Reject Ho	There is a significant Difference
Data Analysis	2.13/ 1.77	4.08		Reject Ho	There is a significant Difference

*Level of Significance = 0.05; two-tailed df (18)*

Legend: X<sub>1</sub>: Mean score of School Administrators; X<sub>2</sub>: Mean score of Teachers

Looking at table 13, it shows that the gathered data for variable 1 “Research Conceptualization”, the assessment of the two groups of respondents reflects the computed t-value of 3.66 which is greater than the tabular-t value of 2.101, this reflects that the null hypothesis is rejected, thus there is a significant difference on the assessment of the two groups of respondents on teacher’s competence in conducting action research in terms of research conceptualization. Hence, it is evident that the school administrators-respondents assessment compared to the science teachers’ assessment on the extent of the teacher’s competence in conducting action research is higher in terms of research conceptualization. Therefore, it is a must address the reasons why there is such a big gap in the view of school administrators and science teachers’ as regards competence in conducting action research in terms of research conceptualization. In the analysis of the variable 2 “Formulation of Research Method and Design”, the assessment of the two groups of respondents reflects the computed t-value of 7.80 which is greater than the tabular-t value of 2.101, this reflects that the null hypothesis is rejected, thus there is a significant difference on the assessment of the two groups of respondents on teacher’s competence in conducting action research in terms of Formulation of Research Method and Design. Thus, it is a must examine the reasons why there is such a different in the view of school administrators and science teachers’ as regards competence in conducting action research in terms of formulation of research method and design. Meanwhile, variable 3 “Data Gathering” the assessment of the two groups of respondents reflects the computed t-value of 3.90 which is greater than the tabular-t value of 2.101, this reflects that the null hypothesis is rejected, thus there is a significant difference on the assessment of the two groups of respondents on teacher’s competence in conducting action research in terms of Data Gathering. From this, it is a must forward the reasons why there is such a big gap in the view of school administrators and science teachers’ as regards competence in conducting action research in terms of data gathering. In the assessment of the two groups of respondents on variable 4 “Data Processing” reflects the computed t-value of 2.48 which is greater than the tabular-t value of 2.101, this reflects that the null hypothesis is rejected, thus there is a significant difference on the assessment of the two groups of respondents on teacher’s competence in conducting action research in terms of Data Processing. Thereby, it is a must conveyed the reasons why there is such a different in the view of school administrators and science teachers’ as regards competence in conducting action research in terms of formulation of research method and design. Considerably, based on the data gathered from the variable 5 “Data Analysis” on the assessment of the two groups of respondents posed the computed t-value of 4.08 which is greater than the tabular-t value of 2.101, this reflects that the null hypothesis is rejected, thus there is a significant difference on the assessment of the two groups of respondents on teacher’s competence in conducting action research in terms of Data Analysis. Hence, it is a must remitted the reasons why there is such a big gap in the view of school administrators and science teachers’ as regards competence in conducting action research in terms of data analysis. From this, the gathered data revealed that two groups of respondents were significantly differed on the assessment of the teacher’s competence in conducting action research in terms of research conceptualization, formulation of research method and design, data gathering, data processing and data analysis. Looking on the computed weighted mean of both groups that school administrators believed that science teacher are competent in conducting action research. However, science teachers research is probably believed weak on this self – assessment in conducting action research. It was confirmed by the findings of Cortes, Pineda, and Geverola (2021), that teachers basically point out that they have not applied their theoretical knowledge on research which they learned from their undergraduate studies into their teaching and research practices. It was also reported that teachers learned the competences or skills years ago but has not conducted nor proposed a research since then.

#### 4. Test of significant relationship between the level of teachers’ competence in conducting action research when grouped according to profile.

Presented on the table is the relationship between the level of teachers’ competency in conducting action research when grouped according to profile. As shown on table 14, the two measures summarize the strength of a linear relationship in samples only. However, the researcher wants to draw conclusions about populations, not just samples, thus the need to conduct a hypothesis test



or calculate a confidence interval will be utilized to test hypothesis for the population correlation to understand the linear association between the level of teachers' competency in conducting action research when grouped according to profile. Thus, presented are the Pearson relation in terms of the strength of correlation of the two variables and the t statistics to address the hypothesis

**Table 14. Relationship Between Level of Teacher Competence in Conducting Action Research when Grouped According to Profile**

Teacher's Competency and Profile	Strength of Correlation	Computed $r_{xy}$ – value	Computed t- value	Critical t- value	Decision	Interpretation
Age	Low Positive Correlation	0.37	5.29		Reject $H_0$	There is a significant Relationship
Gender	Low Positive Correlation	0.30	3.94	2.326	Reject $H_0$	There is a significant Relationship
Years of Teaching	Moderate Positive Correlation	0.52	8.77		Reject $H_0$	There is a significant Relationship
Plantilla Position	High Positive Correlation	0.84	35.35		Reject $H_0$	There is a significant Relationship
Highest Educational Qualification	High Positive Correlation	0.75	33.66		Reject $H_0$	There is a significant Relationship
Related Research Training	High Positive Correlation	0.82	36.37		Reject $H_0$	There is a significant Relationship

**Level of significance: 0.01, one-tailed  $df=148$**

Considerably, based on the data gathered in terms of age the computed  $r_{xy}$  value of 0.37 reflects a low positive strength of correlation. Meanwhile, the significant relationship between age and level of teachers' competency in conducting action research, the computed t-value of 5.29 far greater than the critical  $r_{xy}$  value of 2.33, the null hypothesis is rejected, thus there is a significant relationship between age and level of teachers' competence in conducting action research. Hence, that low positive correlation indicates that, although age and teacher competence tend to go up in response to one another, the relationship is not very strong. Looking on the test of relationship/association between level of teachers' competence in conducting action research when grouped according to gender. It gleaned that the computed  $r_{xy}$  value of 0.30 reflects a low positive strength of correlation. As such, the significant relationship between age and level of teachers' competence in conducting action research, the computed t-value of 3.94 far greater than the critical  $r_{xy}$  value of 2.33, the null hypothesis is rejected, thus there is a significant relationship between gender and level of teachers' competency in conducting action research. Henceforth, that low positive correlation indicates that, although gender and teacher competence tend to go up in response to one another, the relationship is not very strong. Paramount to the results of the analysis using Pearson r comparison revealed that year of teaching have moderate positive correlation on their research competency in conducting action research. As can be gleaned on  $r_{xy}$  value 0.52. Further discussion showed that the comparison of the t- test value exceeds on the given tabular value, giving the researcher reason to reject the null hypothesis. This may be safely to conclude that year of teaching correlate between year of teaching and level of teachers' competence in conducting action research. In effect, that moderate positive correlation indicates that, medium correlation on gender and teacher competence tend to go up in response to one another, the relationship is slightly strong. From this, several studies carried out by scholars confirm the results of the current study that the number of years of experience is a significant predictor of research productivity of academics (Jung, 2014). Experience, they say is the best teacher" this assertion therefore has confirmed the study. Professional

maturity is accompanied by years of accumulated experience on the job. Apparently, the art of writing cannot just be acquired easily. It concluded that years of experience in relation to doing research and publication is acquired and manifest with time. The idea of Akcoltekin (2016) on research complemented that a teacher who had been teaching for many years tends to develop more interest in conducting scientific research; this is because the teacher has been exposed to various seminars and workshops in research both in local, national and international level. Seasoned teachers see that there is a need for problem solving, research-oriented, questioning, productive, constructive, and creative individuals who can approach incidents as a scientist (Michael, 2014). While the story on plantilla position, highest educational qualification and related research training posed high positive correlation based on the computed  $r_{xy}$  value of 0.84, 0.73 and 0.83 respectively. As the comparison of t-test value and critical value shows that the t-test value exceeds the tabular value, giving the researcher reasons to reject the null hypothesis in favor of researcher hypothesis. This may be safely concluded that a plantilla position, highest educational qualification and related research training correlates significantly to the level of teachers' competence in conducting action research as gleaned on the t-test value 35.35, 33.66 and 36.37 respectively. It observed that certain personal related variables such as plantilla position, highest educational qualification and related research training could significantly determine higher-level research competence. The result provides a general implication that for higher-level research competence to succeed, the Department of Education must emphasize the importance of promotion of teachers, giving scholarship and providing training and workshop for science teachers in conducting action research. In the foregoing results, academic degrees have also been found to have effects on academics' research productivity and engagement. Previous studies have shown that faculty members with advanced academic degrees, particularly a PhD degree, are more research productive than those without a PhD (Nasser-Abu Alhija & Majdob, 2017). Related to this factor, many studies have indicated that formal research training during graduate studies contributes to the level of research engagement and productivity (Eam, 2015; Quimbo & Salabu, 2014). This finding is understandable, given that attending further studies may have helped build their research knowledge, experience, and network, allowing them to be research-competent and confident in carrying out research activities. Moreover, Wong (2019) supported the findings that studies that research capability of teachers is affected by their length of service, teaching position, training attended related to research, conduct of research and research involvement. Gonzales et al. (2020) confirmed that teachers who attained higher educational attainment and attended national training have improved research skills and are more knowledgeable in the research process and dissemination. The level of research capabilities was significantly correlated with educational attainment and training. More than, their competence to each competency or factor appears relative to their trainings but has to be aligned according to needs to calibrate or recalibrate these teachers (Cortes, 2019). In addition, Tolentino (2021) confirmed that science teachers have low level relationship with their profile in terms of educational attainment, research trainings and seminars attended, and research output. It was also supported by Gonzales, Corpuz, and Delloso (2020), the studies found out that teachers who attained higher educational attainment and attended national training have improved research skills and are more knowledgeable in the research process and dissemination.

**5. Level of Behavior in the Conduct of Action Research as assessed by School Administrators and teachers themselves.**

Reflected on the succeeding tables were the assessment of the respondents' Level of Behavior in the Conduct of Action Research as assessed by School Administrators and teachers in terms of self-efficacy, teamwork, result focus and written communication

**Self-Efficacy**

Depicted on Table 15, is the level of behavior in the conduct of action research as assessed by two groups of respondents in terms of self-efficacy which has 5- indicators.

**Table 15: Level of Behavior in the Conduct of Action Research as Assessed by Two Groups of Respondents in Terms of Self-Efficacy**

Self-Efficacy	School Administrators		Science Teachers		Combined	
	WM	VI	WM	VI	WM	VI
1. Realize the problems that may contribute to the field I with.	2.86	MO	2.58	MO	2.72	MO
2. Participate in generating collaborative research ideas	3.00	MO	2.75	MO	2.87	MO
3. Work interdependently in a research group.	2.91	MO	2.68	MO	2.79	MO
4. Present research idea orally or in written form to an advisor or group	2.59	MO	2.52	MO	2.56	MO
5. Be flexible in developing alternative research strategies	2.82	MO	2.56	MO	2.69	MO
Average Weighted Mean	2.84	MO	2.62	MO	2.73	MO

Legend: WM=Weighted Mean; VI = Verbal Interpretation

- 1 = 1.00-1.75: Not Observed (NO);
- 2 = 1.76 – 2.51: Sometimes Observed (SO);
- 3 = 2.52 - 3.27: Moderately Observed (MO);
- 4 = 3.28 – 4.00: Always Observed (AO)

Examining the indicator 1 “Realize the problems that may contribute to the field I with”. it has 2.86 and 2.58 weighted means for school administrators and science teachers respectively, both are interpreted as Moderately Observed. Their average weighted mean is 2.72, which is also Moderately Observed. Moreover, indicator 2 “Participate in generating collaborative research ideas”, the weighted mean of school administrators-respondent is 3.00 which is Moderately Observed and 2.75 for science teachers which is Moderately Observed. A combined average weighted mean of 2.87 Moderately Observed, is the result. Also, indicator 3 “Work interdependently in a research group”, it resulted to 2.91 Moderately Observed weighted mean for school administrators and 2.68 Moderately Observed weighted mean for science teachers, with an average weighted mean for both as 2.79 which is Moderately Observed. More than, indicator 4 “Present research idea orally or in written form to an advisor or group.” has 2.59 weighted mean for school administrators, Moderately Observed and 2.52 for science teacher, also Moderately Observed and a combined average weighted mean of 2.56 which is interpreted as Moderately Observed. Lastly, indicator 5 “Be flexible in developing alternative research strategies”. School administrators got a 2.82 weighted mean and 2.56 for science teachers, both are interpreted as Moderately Observed. Their average weighted mean is 2.69 which is again interpreted as Moderately Observed, too. The school administrators have overall weighted mean of 2.84 and for science teachers they have overall weighted mean of 2.62 which is also Moderately Observed. Hence, the over-all weighted mean of 2.73 also has the same interpretation which is Moderately Observed. More so, based on the abovementioned indicators revealed that that school administrators observed a greater assessment on the level of teacher’s behavior in the conduct of action research in terms of self - efficacy than the science teacher- respondents. In line with the findings of Benigno (2019), that teachers have low research self-efficacy toward action research. In addition, Declaro-Ruedas and Ruedas (2020) shows that the teachers have an "average" level of research self-efficacy

**Teamwork**

Shown Table 16 on is the level of behavior in the conduct of action research as assessed by two groups of respondents in terms of teamwork which has 5- indicators.

**Table 16: Level of Behavior in the Conduct of Action Research as Assessed by Two Groups of Respondents in Terms of Teamwork**

Teamwork	School Administrators		Science Teachers		Combined	
	WM	VI	WM	VI	WM	VI
1. Participate, listen, give, and receive feedback and responds perceptively to others.	3.27	MO	3.01	MO	3.14	MO
2. Understand one’s behavior and impact on others when working in contributing to the success of formal and informal team.	3.32	MO	2.93	MO	3.12	MO
3. Develop and maintain co-operative networks and working relationships with supervisors, colleagues, peers, and stakeholders within the institution and the wider research community.	3.23	MO	2.88	MO	3.05	MO
4. Engage with learned societies and public bodies.	3.27	MO	2.89	MO	3.08	MO
5. Use personal and/or online networks effectively for feedback, advice, critical appraisal of work and responding to opportunities.	3.23	MO	2.90	MO	3.06	MO
Average Weighted Mean	3.26	MO	2.92	MO	3.09	MO

Legend: WM=Weighted Mean; VI = Verbal Interpretation

- 1 = 1.00-1.75: Not Observed (NO);
- 2 = 1.76 – 2.51: Sometimes Observed (SO);
- 3 = 2.52 - 3.27: Moderately Observed (MO);
- 4 = 3.28 – 4.00: Always Observed (AO)

In a way, indicator 1 “Participate, listen, give, and receive feedback and responds perceptively to others.” it has 3.27 and 3.01 weighted means for school administrators and science teachers respectively, both were interpreted as Moderately Observed. Their average weighted mean was 3.12, which is also Moderately Observed. Proportionally, indicator 2 “Understand one’s behavior

and impact on others when working in contributing to the success of formal and informal team.” the weighted mean of school administrators was 3.32 which is Moderately Observed and 2.93 for science teachers which is Moderately Observed. A combined average weighted mean of 3.12 Moderately Observed, is the result. Relatively, indicator 3 “Develop and maintain co-operative networks and working relationships with supervisors, colleagues, peers, and stakeholders within the institution and the wider research community.” has 3.23 weighted mean for school administrators, Moderately Observed and 2.88 for science teachers also Moderately Observed and a combined average weighted mean of 3.5 which is interpreted as Moderately Observed. Concomitant to, indicator 4 “Engage with learned societies and public bodies.” School administrators got a 3.27 weighted mean and 2.89 for science teachers both are interpreted as Moderately Observed. Their average weighted mean was 3.08 which is again interpreted as Moderately Observed, too. Likewise, indicator 5 “Use personal and/or online networks effectively for feedback, advice, critical appraisal of work and responding to opportunities.” the weighted means of the two groups of respondents register at 3.23 & 2.90, for school administrators and science teachers; all of which are deemed Moderately Observed. Hence, the over-all weighted mean of 3.09 also has the same interpretation which is Moderately Observed. To expound, an over-all weighted means of 3.26, for school administrators and 2.92, for science teachers, when summed up has 3.09 over-all weighted mean – all of which are interpreted as Moderately Observed. Interestingly, based on the abovementioned indicators revealed that that school administrators observed a greater assessment on the level of teacher’s behavior in the conduct of action research in terms of teamwork than the science teacher-respondents. The finding of the study was observed in the results of Pambuena and Bernarte, (2020) that teachers have a consensus that they are able to practice and demonstrate relevant research skills, they are able to work harmoniously and emphatically with their network and respective team in a collaborative effort. In collaborated to Armstrong, (2015) that the research partnership and collaboration plays a vital role in inculcating the culture of research in school It is, therefore, relevant for school administrators and teachers to give full emphasis on the research partnership and collaboration. In support to the study of Grimma-Farrell (2017), this partnership and collaboration must be emphasized to give anyone in the school an avenue to share their knowledge and skills in research. The findings of this study imply that most of teachers had clear and effective strategy to establish research partnership, collaboration and teamwork in the school. They could gain support because they were moderately observed in establishing research partnership, collaboration and teamwork.

**Result Focus**

Depicted Table 17 on is the level of behavior in the conduct of action research as assessed by two groups of respondents in terms of result focus which has 5- indicators.

**Table 17: Level of Behavior in the Conduct of Action Research as Assessed by Two Groups of Respondents in Terms Result Focus**

Result Focus		School Administrators		Science Teachers		Combined	
		WM	VI	WM	VI	WM	VI
1.	Make decisions, set priorities or choose goals on the basis of calculated inputs and outputs: make explicit considerations of return-on-investment or cost-benefit analysis	3.09	MO	2.75	MO	2.92	MO
2.	Set out to achieve a unique standard such operational, process or teachers related.	2.95	MO	2.69	MO	2.82	MO
3.	Commit significant resources and/or time (in the face of uncertainty) to increase benefits, (i.e., improve performance; reach a challenging goal, implements innovative solutions, etc.).	2.95	MO	2.73	MO	2.84	MO
4.	Develop a view and establishes a course of action to accomplish long-term objectives related to enhancing effectiveness.	3.05	MO	2.65	MO	2.85	MO
5.	Promote a mindset of focusing on excellence and achievement of results.	3.09	MO	2.74	MO	2.92	MO
Average Weighted Mean		3.03	MO	2.71	MO	2.87	MO

Legend: WM=Weighted Mean; VI = Verbal Interpretation

1 = 1.00-1.75: Not Observed (NO);

2 =1.76 – 2.51: Sometimes Observed (SO);

3 = 2.52 - 3.27: Moderately Observed (MO);

4 = 3.28 – 4.00: Always Observed (AO)

In quest for indicator 1 “Make decisions, set priorities or choose goals on the basis of calculated inputs and outputs: make explicit considerations of return-on-investment or cost-benefit analysis”. the school administrators and science teachers showed a weighted means of 3.09 and 2.75 respectively, both of which are interpreted as Moderately Observed when summed up has 2.92 over-all weighted mean – all of which are interpreted as Moderately Observed. Concomitant to, indicator 2 “Set out to achieve a unique standard such operational, process or teachers related.” the school administration have a weighted mean of 2.95 and for science teachers they have a weighted mean of 2.69 which is also Moderately Observed. Their average weighted mean is 2.82 Moderately Observed. As such, indicator 3 “Commit significant resources and/or time (in the face of uncertainty) to increase benefits, (i.e., improve performance; reach a challenging goal, implements innovative solutions, etc.)” school administrators have a Moderately Observed interpretation because of their 2.95 weighted mean and for the science teachers, their weighted is 2.73 which is Moderately Observed. Their average weighted mean is 2.84 interpreted as Moderately Observed. In addition, indicator 4 “Develop a view and establishes a course of action to accomplish long-term objectives related to enhancing effectiveness.” register a weighted mean of 3.05 which is Moderately Observed for school administrators and 2.65 for science teachers, whose average weighted mean for both is 2.85 also, interpreted as Moderately Observed. Similarly, indicator 5 “Promote a mindset of focusing on excellence and achievement of results.” the school administrators and science teachers showed a 3.09 and a 2.74 weighted means respectively. The average for both is 2.92 which altogether is interpreted as Moderately Observed. Taking aside, an over-all weighted means of 3.03, for school administrators and 2.71, for science teachers, when summed up has 2.87 over-all weighted mean – all of which are interpreted as Moderately Observed. Amazingly, based on the abovementioned indicators revealed that that school administrators observed a greater assessment on the level of teacher’s behavior in the conduct of action research in terms of teamwork result focus. This result could mean that the respondents could use evidence-informed perspective, plays an important role of action research, when teachers are building a research-based education, in a context where evidence-based teaching is promoted. Implications of this study includes that the importance of establishing fair conditions for teachers’ voluntary engagement in action research; highlighting intentions in the beginning, and throughout the process, which increases the probability of achieving the expected outcomes; and promoting teacher-driven processes. In support to the findings of Ulla et. al (2017), that teacher had a positive perception towards doing research and its benefits to their teaching practice and students’ learning process. Accordingly, job promotion is the motivating factor why teachers did research. More so, conducting teacher action research contributes to professional and school development (Leuverink, & Aarts, 2018)

**Written Communication**

Presented the Table 18 on is the level of behavior in the conduct of action research as assessed by two groups of respondents in terms of written communication which has 5- indicators.

**Table 18. Level of Behavior in the Conduct of Action Research as Assessed by Two Groups of Respondents in Terms of Written Communication**

Written Communication	School Administrators		Science Teachers		Combined	
	WM	VI	WM	VI	WM	VI
1. Write clearly and in style appropriate to purpose	2.86	MO	2.70	MO	2.78	MO
2. Make the structure arguments clearly and concisely.	2.95	MO	2.67	MO	2.81	MO
3. Have excellent knowledge of language/s appropriate for research including technical language.	2.86	MO	2.63	MO	2.75	MO
4. Construct coherent argument and articulate ideas clearly to a range of audiences, formally and informally through a variety of technique.	2.86	MO	2.61	MO	2.74	MO
5. Understand, interpret, create and communicate appropriately within an academic context	2.95	MO	2.70	MO	2.83	MO
Average Weighted Mean	2.90	MO	2.66	MO	2.78	MO

Legend: WM=Weighted Mean; VI = Verbal Interpretation

- 1 = 1.00-1.75: Not Observed (NO);
- 2 = 1.76 – 2.51: Sometimes Observed (SO);
- 3 = 2.52 - 3.27: Moderately Observed (MO);
- 4 = 3.28 – 4.00: Always Observed (AO)

Looking forward to indicator 1 “Write clearly and in style appropriate to purpose.” The school administrators have 2.86 as weighted mean and 2.70 for science teachers and an average weighted mean for both at 2.78, all of which are interpreted as Moderately Observed. More so, indicator 2 “Make the structure arguments clearly and concisely.” the school administrators and science teachers showed a 2.95 and a 2.67 weighted means and interpreted as Moderately Observed. respectively. The average for both was 2.81 which altogether was interpreted as Moderately Observed. In juxtaposition, indicator 3 “Have excellent knowledge of language/s appropriate for research including technical language.” The school administrators have 2.86 as weighted mean and 2.63 for science teachers and an average weighted mean for both at 2.75, all of which are interpreted as Moderately Observed. Engagingly, indicator 4 “Construct coherent argument and articulate ideas clearly to a range of audiences, formally and informally through a variety of technique.” school administrators got a 2.86 weighted mean and 2.61 for science teachers, both are interpreted as Moderately Observed. Their average weighted mean was 2.74 which is again interpreted as Moderately Observed, too. Similarly, indicator 5, “Understand, interpret, create and communicate appropriately within an academic context.” has 2.95 weighted mean for school administrators, Moderately Observed and 2.70 for science teacher, also Moderately Observed and a combined average weighted mean of 2.83 which is interpreted as Moderately Observed. Meanwhile, an over-all weighted means of school administrators was 2.90, and 2.66 for Master teachers, when combined has 2.78 over-all weighted mean – all of which are interpreted as Moderately Observed. Sustainably, based on the abovementioned indicators revealed that that school administrators observed a greater assessment on the level of teacher’s behavior in the conduct of action research in terms of written communication than the science teacher- respondents. It was confirmed in the study of Canto-Farachala and Larrea (2020) that action researchers are better equipped to communicate their research in non-linear ways, such as through participatory video, radio and theater. This because researchers working with linear positivist research approaches may find adopting non-linear approaches to communication difficult. Connectedly, Holliman and Warren (2017) argue that researchers can interact with stakeholders at any stage of the research process, including dissemination. More so, action research processes can extend participatory approaches to the academic dissemination stage. Academic production can be a vehicle to approach researchers working in other contexts through dialogue and contribute to the processes they are developing. In this sense, connectivity as “engaged excellence” as cited by Oswald, Gaventa, and Leach, (2017), which involves co-constructing knowledge and building enduring partnerships that encourage action researchers not only to engage with stakeholders outside academia, but also with one another in academic environments.

**Summary of the Respondents’ Level of Behavior in the Conduct of Action Research as Assessed by Two Group of Respondents**

Reflected on table 19 was the summary the respondents’ level of behavior in the conduct of action research as assessed by two group of respondents in terms of self-efficacy, teamwork, result focus and written communication.

**Table 19: Summary of the Respondents’ Level of Behavior in the Conduct of Action Research as Assessed by Two Group of Respondents**

	Written Communication	School Administrators		Science Teachers		Combined	
		WM	VI	WM	VI	WM	VI
1.	Self-Efficacy	2.84	MO	2.62	MO	2.73	MO
2.	Teamwork.	3.26	MO	2.92	MO	3.09	MO
3.	Result Focus	3.03	MO	2.71	MO	2.87	MO
4.	Written Communication	2.90	MO	2.66	MO	2.78	MO
	Average Weighted Mean	3.01	MO	2.73	MO	2.87	MO

Legend: WM=Weighted Mean; VI = Verbal Interpretation

- 1 = 1.00-1.75: Not Observed (NO);
- 2 = 1.76 – 2.51: Sometimes Observed (SO);
- 3 = 2.52 - 3.27: Moderately Observed (MO);
- 4 = 3.28 – 4.00: Always Observed (AO)

As reflected, for variable 1 “Self-Efficacy” the computed average weighted mean for school administrator-respondents was 2.84 interpreted to be Moderately Observed, while for teacher-respondents the weighted mean posted was at 2.62, likewise interpreted to be Moderately Observed. The computed over-all weighted mean was 2.73 and also interpreted to be Moderately Observed. Moreover, for variable 2 “Teamwork” it gleaned that the average weighted mean for school administrator-respondents was 3.03 interpreted to be Moderately Observed, while for teacher-respondents the weighted mean posted was at 2.71, likewise interpreted to be Moderately Observed. The computed over-all weighted mean was 2.87 and also interpreted to be Moderately Observed. Affirmatively, for variable 3 “Result Focus” the results of the average weighted mean for school administrator-

respondents was 2.90 interpreted to be Moderately Observed, while for teacher-respondents the weighted mean posted was at 2.71 likewise interpreted to be Moderately Observed. The computed over-all weighted mean was 2.87 and also interpreted to be Moderately Observed. Meanwhile, in the case of variable 4 “Written Communication” the data revealed that the computed average weighted mean for school administrator-respondents was 2.90 interpreted to be Moderately Observed, while for teacher-respondents the weighted mean posted was at 2.66 likewise interpreted to be Moderately Observed. The computed over-all weighted mean was 2.78 and also interpreted to be Moderately Observed. Emergently, for an over-all weighted mean for abovementioned variables the school administrators were 3.008, and 2.728 for Science teachers, when summed up has 2.868 over-all weighted mean – all of which are interpreted as Moderately Observed.

#### 6. Test of significant difference in the assessment of the two groups of respondents on the level of teacher’s behavior in the conduct of action research.

The test of inference to determine the significant difference on the assessment of the two groups of respondents on the level of teacher’s behavior in the conduct of action research, the researcher employed the t-test for independent sample to compare two independent groups of observations or measurements on a single characteristic and draws decision as to whether there is a significant difference present among the two sample means on a single set of scores for every variable considered.

More so, the conduct of the test of inference considered in the study was set at a level of significance equal to .05, two-tailed, with a degree of freedom (df) of 8 and the corresponding tabular t-value was 2.306.

**Table 20: Difference on the Assessment of Two Groups of Respondents on Teacher’s Behavior in Conducting Action Research**

Variables	Sum of Squares SS <sub>1</sub> /SS <sub>2</sub>	Computed t-value	Tabular t-value	Decision	Interpretation
Self-Efficacy	0.023/ 0.008	2.740		Reject H <sub>0</sub>	There is a significant Difference
Teamwork	0.001/ 0.002	11.620		Reject H <sub>0</sub>	There is a significant Difference
Result Focus	0.005/ 0.002	8.690	2.306	Reject H <sub>0</sub>	There is a significant Difference
Written Communication	0.002/ 0.002	8.250		Reject H <sub>0</sub>	There is a significant Difference

**Level of Significance = 0.05; two-tailed**      **df (8)**

Legend: SS<sub>1</sub>:Sum of Squares of School Administrators; SS<sub>2</sub>: Mean score of Teachers

Gleaned on table 20 is the test of significant difference in the assessment of the two groups of respondents on the level of teacher’s behavior in the conduct of action research in terms of self-efficacy, team work, result focus and written communication. It shows that the gathered data for variable 1 “Self-Efficacy” the assessment of the two groups of respondents reflects the computed t-value of 2.740 which is greater than the tabular-t value of 2.306, this reflects that the null hypothesis is rejected, thus there is a significant difference on the assessment of the two groups of respondents on teacher’s competency in conducting action research in terms of self-efficacy. Consequently, variable 2 “Teamwork” the assessment of the two groups of respondents reflects the computed t-value of 11. 620 which is greater than the tabular-t value of 2.306, this reflects that the null hypothesis is rejected, thus there is a significant difference on the assessment of the two groups of respondents on teacher’s competency in conducting action research in terms of Teamwork. In quest for, variable 3 “Result Focus” the assessment of the two groups of respondents reflects the computed t-value of 8.690 which is greater than the tabular-t value of 2.306, this reflects that the null hypothesis is rejected, thus there is a significant difference on the assessment of the two groups of respondents on teacher’s competency in conducting action research in terms of result focus. Concomitantly, variable 4 “written communication” the assessment of the two groups of respondents reflects the computed t-value of 8.250 which is greater than the tabular-t value of 2.306, this reflects that the null hypothesis is rejected, thus there is a significant difference on the assessment of the two groups of respondents on teacher’s competency in conducting action research in terms of written communication. From this, the gathered data revealed that two groups of respondents were significantly differed on the assessment of the teacher’s behavior in conducting action research in terms of self – efficacy, teamwork, result focus, and written communication. Looking on the computed weighted mean of both groups moderate observed the teachers’ behavior in conducting action research. However, science teachers are probably believed weak on this self – assessment on their behavior in conducting action research. It was supported by the findings of Mabalhin, Villocino, and Bellen (2019). that when teachers become involved in action research processes, they are regarded as exceptional. However, Quimbo and Sulabo (2013) was observed that faculty members were not productive in research.

**7. Significant relationship between the levels of teacher's behavior in conducting action research when grouped according to profiles**

Reflected on the table is the relationship between the levels of teacher's behavior in conducting action research when grouped according to profiles.

As shown on table 21, the two measures summarize the strength of a linear relationship in samples only. However, the researcher wants to draw conclusions about populations, not just samples, thus the need to conduct a hypothesis test or calculate a confidence interval will be utilized to test hypothesis for the population correlation to understand the linear association between the levels of teacher's behavior in conducting action research when grouped according to profile. Thus, presented is the Pearson relation in terms of the strength of correlation of the two variables and the t statistics to address the test of hypothesis.

**Table 21: Relationship Between Levels of Teacher’s Behavior in Conducting Action Research when Grouped According to Profile**

Teacher’s Behavior and Profile	Strength of Correlation	Computed $r_{xy}$ – value	Computed t-value	Critical t - value	Decision	Interpretation
Age	Moderate Positive Correlation	0.54	9.31		Reject $H_0$	There is a significant Relationship
Gender	Low Positive Correlation	0.22	2.75		Reject $H_0$	There is a significant Relationship
Years of Teaching	High Positive Correlation	0.72	18.26	2.33	Reject $H_0$	There is a significant Relationship
Plantilla Position	Low Positive Correlation	0.24	3.14		Reject $H_0$	There is a significant Relationship
Highest Educational Qualification	High Positive Correlation	0.80	27.65		Reject $H_0$	There is a significant Relationship
Related Research Training	Moderate Positive Correlation	0.58	10.75		Reject $H_0$	There is a significant Relationship

Level of significance: 0.01, one – tailed  $df = 148$

Considerably, based on the data gathered in terms of age the computed  $r_{xy}$  value of 0.5413 reflects a moderate positive strength of correlation. Moreover, the significant relationship between age and levels of teacher's behavior in conducting action research is reflected by the computed t-value of 9.31 far greater than the critical  $r_{xy}$  value of 2.33, this shows that the null hypothesis is rejected, thus there is a significant relationship between age and levels of teacher's behavior in conducting action research when grouped according to profiles. Henceforth, that moderate positive strength indicates that, although age and teacher behavior tend to go up in response to one another, the relationship slightly very strong. Meanwhile, based on the data gathered in terms of gender the computed  $r_{xy}$  value of 0.22 reflects a low positive strength of correlation. Moreover, the significant relationship between gender and levels of teacher's behavior in conducting action research is reflected by the computed t-value of 2.75 far greater than the critical  $r_{xy}$  value of 2.33, this shows that the null hypothesis is rejected, thus there is a significant relationship between gender and levels of teacher's behavior in conducting action research when grouped according to profiles. So that low positive strength of correlation indicates that, although gender and teacher behavior tend to go up in response to one another, the relationship not very strong. As such, the computed  $r_{xy}$  value for year of teaching were 0.72 reflects a high positive strength of correlation. Moreover, the significant



relationship between year of teaching and levels of teacher's behavior in conducting action research is reflected by the computed t-value of 18.26 far greater than the critical  $r_{xy}$  value of 2.33, this shows that the null hypothesis is rejected, thus there is a significant relationship between year of teaching and levels of teacher's behavior in conducting action research when grouped according to profiles. Thus, that high positive strength of correlation indicates that, although year of teaching and teacher behavior tend to go up in response to one another, the relationship are very strong. Looking on the computed  $r_{xy}$  value for plantilla position were 0.24 reflects a low positive strength of correlation. Moreover, the significant relationship between plantilla position and levels of teacher's behavior in conducting action research is reflected by the computed t-value of 3.14 far greater than the critical  $r_{xy}$  value of 2.33, this shows that the null hypothesis is rejected, thus there is a significant relationship between plantilla position and levels of teacher's behavior in conducting action research when grouped according to profiles. Logically, that low positive strength of correlation indicates that, although plantilla position and teacher behavior tend to go up in response to one another, the relationship is not very strong. Cognizantly, in the case of the variable of highest education attainment the computed  $r_{xy}$  value were 0.80 posed a high positive strength of correlation. Moreover, the significant relationship between highest education attainment and levels of teacher's behavior in conducting action research is reflected by the computed t-value of 27.65 far greater than the critical  $r_{xy}$  value of 2.33, this shows that the null hypothesis is rejected, thus there is a significant relationship between highest educational attainment and levels of teacher's behavior in conducting action research when grouped according to profiles. As a whole, that high positive strength of correlation indicates that, although plantilla position and teacher behavior tend to go up in response to one another, the relationship is very strong.

Taking aside, the computed  $r_{xy}$  value for related research training were 0.58 reflects a high moderate strength of correlation. Moreover, the significant relationship between related research training and levels of teacher's behavior in conducting action research is reflected by the computed t-value of 10.75 far greater than the critical  $r_{xy}$  value of 2.33, this shows that the null hypothesis is rejected, thus there is a significant relationship between related research training and levels of teacher's behavior in conducting action research when grouped according to profiles. In general, that moderate positive strength of correlation indicates that, although related research training and teacher behavior tend to go up in response to one another, the relationship are slightly very strong. In connection to the findings of Samosa (2021), that significant relationship between research self-efficacy, research anxiety, and research attitude and the profile of novice teachers – researchers.

**8. Significant relationship between the science teachers’ level of competency in conducting action research and their level of behavior**

Gleaned on table 22 is the relationship between science teachers’ level of competency in conducting action research and their level of behaviour in consideration of one hundred forty-eight (148) respondents at 0.01 level of significance one tailed, the posted critical t-value was 2.33.

**Table 22: Relationship Between Science Teachers Level of Competency in Conducting Action Research and their Level of Behavior**

Variables	Strength of Correlation	Computed $r_{xy}$ – value	Computed t-value	Critical t - value	Decision	Interpretation
Level of Competency and Level of Behavior	Very Low Positive	0.22	2.84	2.33	Reject $H_0$	There is a significant Relationship

*Level of significance: 0.01, one-tailed*

*df=148*

In consideration of the data gathered, the computed  $r_{xy}$  –value was posed at 0.22 that reflects a very low positive strength of correlation. Moreover, the computed t-value was 2.84 which compared to the critical t-value of 2.33. Analyzing the data obtained, it shows that the computed t-value (2.8408) is greater than the critical t-value (2.33), the null hypothesis is rejected, thus there is a significant relationship between science teachers’ level of competency in conducting action research and their level of behavior. Definitely, that high positive strength of correlation indicates that, although teacher competence and behavior in the conduct of action research tend to go up in response to one another, the relationship is very strong. The results confirm the previous findings that there was a positive and significant relationship between the research competence of the faculty and their attitudes (motivation) toward research (Manongsong et al., 2018; Wong, 2019). In connection to the findings of Quimbo and Sulabo (2014) identified self-efficacy as equally important factor and determinant for research productivity. More precisely, the results corroborate with the previous report that public teachers were in doubt with their capability to write a research (Macabago, 2017). Pati (2014) disclosed that teachers had a high perception in researching terms of image, but in terms of time, cost, technicality, and efforts, their attitudes-based perception got low. It was also supported by Basilio et al. (2019) also revealed that teachers have high regard for the value of researching to become better

educators. In this case, research capability of nurses was influenced by research time, teamwork, leadership support, and retraining opportunities (Li et al., 2019). Besides, the research capability of the faculty was influenced by teachers’ motivation to conduct research (Tan, 2012). Wong’s (2019) confirmed that the research capability of teachers can be explained by training attended related to research, attitudes toward research, and the knowledge about research

**9. Challenges encountered by the teacher respondents in conducting action research**

Presented on the table were the challenges encountered by teacher respondents in conducting action research. There were ten (10) challenges presented evaluated by teacher respondents.

**Table 23: Challenges Encountered by the Teachers Respondents in Conducting Action Research**

Indicator	Weighted Mean	Verbal Interpretation	Rank
1. I don’t have time to do research	3.53	VC	7
2. I don’t have the money or funding to conduct my research	3.25	C	10
3. Our process of proposing research is very tedious and rigorous.	3.45	VC	8
4. I don’t knows how to do a quantitative and qualitative data	3.76	VC	2
5. I have many duties and responsibilities in school	3.89	VC	1
6. I don’t have a mentor in conducting research.	3.75	VC	3
7. I don’t have access to reference materials (journals, research books, research reports and etc.)	3.56	VC	5.5
8. I don’t have support from the management.	3.34	VC	9
9. I don’t know how to digest literature.	3.56	VC	5.5
10. I don’t knows how to make a research questionnaire	3.70	VC	4
Over-all Weighted Mean	5.58	VC	

Legend: WM=Weighted Mean; VI = Verbal Interpretation; R = Rank

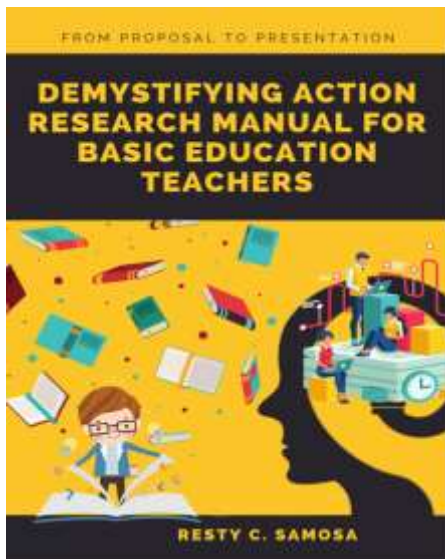
- 1 = 1.00-1.75: Not Challenging (NC);
- 2 = 1.76-2.50: Slightly Challenging (SC);
- 3 = 2.51-3.25: Challenging (C);
- 4 = 3.26 – 4.00: Very Challenging (VC)

Reflected on table 23 were the challenges encountered by teacher-respondents in conducting action research. Taking aside, for Indicator 1 “I don’t have time to do research” assessment of teacher respondents posed 3.50 at interpreted to be Very Challenging and rank 7. Moreover, for indicator 2 “I don’t have the money or funding to conduct my research” the teacher respondents showed 3.25 then interpreted as Challenging and rank 10. It was supported the finding of Landicho (2019) that time and financial constraints, heavy workload, and lack of exposure and experience in research were some of the challenges identified by the respondents. Affirmatively, indicator 3 “Our process of proposing research is very tedious and rigorous” teacher respondents exhibited a computed weighted mean of 3.45 has interpreted as Very Challenging and rank 8. The findings were portrayed by Hussien et al (2019) that teachers have tedious and rigorous process in the proposal. Engagingly, indicator 4 “I don’t knows how to do a quantitative and qualitative data”, teacher respondents revealed the computed weighted mean of 3.76 then interpreted as Very Challenging and rank 2. As confirmed Salom (2013) d that analyzing and interpreting data are considered as one of the difficulties encountered by teacher-researcher. In a way, indicator 5 “I have many duties and responsibilities in school.” posed 3.89 at interpreted to be Very Challenging and rank 1. In line with the study of Cagaanan (2018), that too much administrative work were the reasons behind their failure to submit their research output. In the case of indicator 6 “I don’t have a mentor in conducting research”. teacher respondents revealed the computed weighted mean of 3.75 then interpreted as Very Challenging and rank 3. In line with findings of Declaro-Ruedas and Ruedas (2020) that the public-school teachers hindered from doing action research specialist to support in doing action research in the school. Looking forward to indicator 7 “I don’t have access to reference materials (journals, research books, research reports and etc.)” teacher respondents revealed the computed weighted mean of 3.56 then interpreted as Very Challenging and rank 5.5. The

foregoing result supported the finding of Ulla, (2018) that teachers also reported no access to internet services and reference materials. Interconnectedly, Mehta et. al (2017) ascertain that there is a lack of utilization of research related infrastructure and facilities. Relatively, indicator 8 “I don’t have support from the management”. teacher respondents revealed the computed weighted mean of 3.34 then interpreted as Very Challenging and rank 9. The results was also established by Hoffmann & Koufogiannakis,(2014) teachers have a lack of institutional research support. Similarly, indicator 9 “I don’t know how to digest literature”, teacher respondents posed the computed weighted mean of 3.56 then interpreted as Very Challenging and rank 5.5.

Lastly, indicator 10 “I don’t knows how to make a research questionnaire”. teacher respondents posed the computed weighted mean of 3.70 then interpreted as Very Challenging and rank 4. In line with a research done by Rimando et al. (2015) which claims that most teachers have difficulty in gathering valid and accurate information in instrument development during research.

## 10. Crafted action research manual for teacher



This research manual was developed to guide beginning action researchers in the onset and outset of their research exploration experiences. It will serve as their guiding light in the process of starting, pursuing and completing the action research report. The research manual contains brief overview of action research based on the Department of Education memorandum that provide information on the very nature of research. In order to set mood and heighten motivation, this research manual includes purposes, significance, advantages, gains, benefits, opportunities and positive impact and implications take from studies to ease researcher’s burden in pursuing this kind of undertaking. Most importantly, it provides techniques and tips in processing data, in the simplest, easiest, most practical, convenient, and researcher- friendly way without compromising standards. All these directly came from experiences, trainings and practices of action research practitioners, who find such undertaking truly a beneficial, effective, and contributory endeavor to the profession and the improvement of education, in general and the teaching – learning process, in particular. Options for models and formats in various settings are included in this research manual while illustrative example of output and reports are readily available for adoption, pattern or guide for researchers. The segments on frequently – asked- questions guide beginners. It would also help out researchers in concretizing their concepts on action research and in coming up with their own work. Furthermore, there are bucket list of terms as reference for the choice of words in the title, the in-text citation, data analysis, presentation of conclusion and the use of the concepts transitional markers. Some templates are displayed for utilization that can also be modified and/or enhanced, if necessary. With all these features of, this research manual would be a great help to action researchers in their desire to pursue classroom action research which hopefully will bring great effect, positive turn- out and high impact outcome

## Conclusions

In view of this study, the following conclusions were made:

1. It was found out that that majority of science teacher-respondent belongs to age bracket 31-40 years old, male science teachers, 6- 10 year of teaching, Teacher I, with Master's Unit, and attended school level related research training.
2. The level of competency in conducting action research as assessed by School Administrators and teachers in terms of research conceptualization, research method and design, data gathering procedures, data processing, and data analysis shows that are indeed competent; hence it can be concluded that both school administrators and science teachers adhere to all the teachers’ research competency in conducting action research.

3. Since the resulting data revealed that there is a significant difference in the assessment of the two groups of respondents on the Teacher's Competency in Conducting Action research as regards to research conceptualization, research method and design, data gathering procedures, data processing, and data analysis
4. There is significant relationship between the level of teachers' competency in conducting action research when grouped according to profile. It may probably be attributed to the fact that teachers' profile, as far as they are concerned, believed that their action research competence affects.
5. The level of behavior in the conduct of action research as assessed by School Administrators and teachers as regards to self-efficacy, teamwork, result focus and written communication shows as matter of fact moderately observed; hence it can be concluded that both school administrators and science teachers observed the teachers' behavior in the conduct of action research.
6. There is a significant difference in the assessment of the two groups of respondents on the level of teacher's behavior in the conduct of action research as regards to self- efficacy, teamwork, result focus and written communication.
7. There is significant relationship between the levels of teacher's behavior in conducting action research when grouped according to profiles. It may probably be attributed to the fact that teachers' profile, as far as they are concerned, affects to its research behaviors in conducting action.
8. There is significant relationship between teacher's competency and their behavior in conducting action research.
9. Science Teachers exhibited very challenging duties and responsibilities in school, doing a quantitative and qualitative, no mentor in conducting research, knowledge in crafting research questionnaire and digesting literature and no access to reference materials, process of proposing research is very tedious and rigorous" and no support from the management.

### Recommendations

Based on the findings and conclusions of the study, the following recommendations were forwarded:

1. Designed and conduct teachers training/in-service training toward curriculum innovation particularly learning recovery from the emerging disruption of learning process due to pandemic. More, provide a scholarship grant and teaching promotion to boost teacher's motivation in conducting action research.
2. Initiates a research management plan on the findings may be reviewed by the School Based Management Committee for suggestions and enhancement measures before possible adoption to help schools maximize the assistance from private and public entities to ensure research productivity with the school.
3. Provide coaching and mentoring on the utilization of crafted action research manual to science teachers to improved teacher's competence in the conduct of action research.
4. Ensure that teachers with the needed motivation to research by providing them monetary and non-monetary incentives and adequate management support to polish their research competence and behavior in conducting action research.
5. The research capability training program consisting of various levels from lectures, hands-on workshop, and writing research articles for colloquium and possible publication should be fully implemented immediately and regularly monitor its effectiveness.
6. Utilize the crafted action research manual to address the provide in the classroom to ensures that constantly informed of any changes that occur particularly those involving their techniques of service delivery hence ensuring that the learning is kept abreast with the changing times as well as methods of learning.
7. Evaluate and adapt the crafted research manual to ensure usability of another teachers' specialization.
8. For more comprehensive findings, further studies on the same area of concentration may be conducted for improving education where the students will be benefited.
9. Might consider using interviews and direct observations of teachers' competence and behavior in conducting action research to judge the validity of the teachers' responses to the questionnaire.

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