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Research Preparedness of Students in A Teacher's Undergraduate in Guangdong Province, China

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Abstract: In today's world, where science and technology are becoming increasingly important, it can be said that the main objective of our education system is that students structure the information rather than receive prepared information and are raised as scientific literates. Qualified people who produce, reach and use the information are required for this. Undoubtedly, there are many variables in achieving this objective. The purpose of this study is to determine the evaluation of the students' research preparation level of the students and teachers of students a teacher's undergraduate in Guangdong province, and use it as a basis for improving scientific research ability. Level evaluation. Specifically, the age, gender, grade, and course/project of the students surveyed, as well as the gender, teaching years, and level of education of the teachers interviewed. Assessment of level in teaching, procedures and processes, data organization and analysis etc. Based on the research results, it is recommended to carry out a series of activities to improve students' scientific research ability. These activities can include strengthening teaching and guidance, improving procedures and processes, providing more data organization and analysis skills training, etc. Through these capacity-building activities, we hope to promote the progress of students in the field of scientific research, improve their research preparation level, and thus better meet future academic and professional challenges.

Keywords: Education Research; Practice; Action Research.

1. Introduction

The demand nowadays for every student particularly in the tertiary level is to explore in doing any inquiry in their field of study particularly on research projects like project paper, capstone or feasibility studies. Something that will enrich their knowledge and skills in doing research works. Students' research skills development in undergraduate coursework is discussed by a substantial body of literature, and, to a large extent, it describes higher education curriculum initiatives designed to equip students with thinking skills and processes for research (Brew, 2022). Such initiatives are generally focused on inculcating students' research skills through purposefully-designed final year research units in preparation for higher degrees (Willison & O'Regan, 2017).

In today's world, where science and technology are becoming increasingly important, it can be said that the main objective of our education system is that students structure the information rather than receive prepared information and are raised as scientific literates. Qualified people who produce, reach and use the information are required for this. Undoubtedly, there are many variables in achieving this objective.

In carrying out the tasks, engaging in 'reflective practice', research is a term used to describe 'reflection practice'. It is the investigation of professional practice by practitioners themselves. It encompasses the methods teachers have been using – of observation, keeping a diary, obtaining the perspectives of different intended parties (students and teachers) and examining documentation. The work in this paper provides a brief introduction to this area and once qualified teachers extend the knowledge and understanding of the tools of research as part of the teacher's professional development.

Research puts teachers and students at the center of creating educational change and developing increased knowledge and understanding of their own practice (Elliott, 2018). It starts from practical questions that teachers may have about their teaching and offers them a range of research tools and techniques that they can employ to investigate these questions, including research journals, observations, interviews, photography, video recordings, and dossiers (Feldman, Altrichter, Posch, & Somekh, 2018).

This is basically the idea of research. Research in the field of education primarily involves varied types of researches. It involves a continual cycle of action and reflection and has the potential to empower teachers to act autonomously in their own classrooms and to bring about improvements to teaching (e.g. Elliott, 2018). It also supports them in developing the skills of systematic inquiry into their own practice. Many professionals therefore consider that research is a significant professional development tool for teachers. Its collaborative nature also means that it can help teachers feel less isolated (Burns, 2019), which we propose could be important for teachers who often work as individuals, sometimes as the only teacher in a school (Borthwick & Gallagher-Brett, 2020).

The term "research" is generally credited with Kurt Lewin, although the style of research he coined had been conducted for decades (Koster & Lemelin, 2019). Research focuses on collaborative solutions to problems (Richer, Ritchie, & Marchionni, 2019). Using research often provides a mechanism for change and that focusing on positivity creates positive change. Some would argue to the contrary we should focus on "what is going wrong" in order to create positive change but researchers, and more precisely appreciative inquiry re-searchers, would follow that focusing on negativity will only yield negative change and negative attitudes (Koster & Lemelin, 2019). Further, by creating positive change through collaborative problem solving, action researchers posit that "buy-in" is much greater since there are more people involved in the process (Waters & White, 2019).

Based on the definitions provided by prominent scholars in

the field of research, there are several concepts of research that can be put forth. According to Kemmis and McTaggart (in Amin et al., 2019) the important concepts of research are as follows:

is an approach to mend or to improve education by making changes and learning from the consequences of the changes.

is participatory where the researcher works towards improving his or her own practice.

is implemented through a self-reflective spiral that is a spiral consisting of plan, action, evaluates, reflect and again plan, action, evaluate and reflect if necessary.

is done collaboratively involving those who are responsible of action to improve an educational practice.

involves the activity of recording, collecting and analyzing our own judgements, reactions and perceptions towards an issue as evidence.

involves the use of personal diary where we record the development and reflection on the learning process.

involves critical analysis of the working context or place of practice

starts small and moves towards bigger changes.

starts with small cycles consisting of plan, act, evaluate and reflect to help us interpret issues, ideas and perceptions with greater clarity

According to Meerah and Osman (2018) research involves 'the desire to learn what the researchers need to know, to improve performance; it is only the focus that is different'. It is a way of dealing with an issue within the researcher's practice to be able to come up with a design of an effective strategy. More often than not, research would help the researcher to understand the social context being studied. Research is considered an empowering strategy where the process the researcher goes through and the adequacy of the action in overcoming an issue will establish a sense of ownership and authority (Meerah and Osman, 2018). In an innovation-based research, a researcher is expected to design the innovation, conduct the research and subsequently contribute to the field of knowledge. The researcher is in the position to identify a problem and conduct a research to inform the practice. Students' feedback on an innovation that they utilized is very important to inform the researcher of the strengths and weaknesses of the innovation and to further improve.

Burns (2019) asserts that research is related to ideas of 'reflective practice' and 'teacher and student as researcher'. Research involves the use of self-reflective, critical and systematic approach to explore our teaching and learning context further. Being critical in this sense does not in any way mean taking a negative, derogatory view of our practice. It does not mean seeing our teaching and learning as problematic or ineffective. It leans towards an inquisitive stance where teacher and students are questioning and identifying an area that could be improved upon to develop new ideas and alternatives. In research a student functions as an investigator of his or her context while acting as an active participant in it. One of the main objectives of research is to identify an issue that the participants, who may include teachers, students, administrators or if necessary, parents, deem worthy of investigation (Burns, 2019). In their practice researchers usually see gaps between what is actually happening in their teaching situation and what they ideally prefer to be happening. The main idea in research is to solve the problematic issue purposefully in order to trigger changes and improvements in practice. More significantly, changes or improvements in research are based on insights or information that has been systematically collected. Therefore, any improvements made to the practice are foregrounded in solid and sound judgments rather than assumptions or hunches that most teachers and students based their teaching and learning on respectively.

2. Statement of the Problem

The present study determined the students' and teachers' assessments of the students' research- preparedness in a teacher's college in Guangdong Province.

The result of the study was used as a basis for the development of the capability building to help the students in the college to further enhance their research capabilities.

Specifically, it tried to answer the following questions:

1.What is the demographic profile of the student respondents in terms of:

1.1Age;

1.2Sex;

1.3Grade Level

1.4Course/Program

2.What is the demographic profile of the teacher respondents in terms of:

2.1Sex;

2.2Years in Teaching

2.3Educational Attainment

3.What is the assessment of the student respondents on their level of research preparedness in terms of:

3.1 pedagogical aspect

3.2 procedures and processes

3.3 data organization and analysis

4.What is the assessment of the teacher respondents on their students' level of research preparedness in terms of:

4.1 pedagogical aspect

4.2 procedures and processes

4.3 data organization and analysis

5.Is there a significant difference in the assessment of the student respondents on their level of research preparedness when their profile is taken as a test factor?

6.Is there a significant difference in the assessment of the teacher respondents on their students' level of research preparedness when their profile is taken as a test factor?

7.Is there a significant difference between the assessments of the student and teacher respondents on the students' level of research preparedness?

8.Based from the findings of the study, what activities can be proposed in developing the possible capability building?

3. Scope and Delimitations of the Study

The study is focused on the assessment of the teacher respondents and student respondents on their students' research preparedness.

However, it is limited to the comparison and analysis of the assessment of the teacher respondents and student respondents on the students' research preparedness based on their profile.

The student respondents will be grouped according to their profile such as age, sex, course/program and year level.

Likewise, the teacher respondents will be grouped according to their personological such as age, sex, educational attainment, and number of years teaching.

For a deeper analysis of the problem, the statistical comparison of the student-assessment of the student

respondents' research preparedness and the teacher-assessment of the student respondents' research preparedness using percentage, mean, standard deviation and t-test or ANOVA.

4. Hypothesis of the Study

At Sig value = 0.05, the researcher tested the following hypothesis:

H0 = There is no significant difference in the level of research preparedness of the students as assessed by the student respondents when their profile is taken as a test factor.

H0 = There is no significant difference in the level of research preparedness of the students as assessed by the teacher respondents when their profile is taken as a test factor.

Ho = There is no significant difference in the assessment between the student and teacher respondents as to the student preparedness in research.

5. Research Design

The present study used the descriptive-comparative research design which focuses at the present situation (what is). The purpose is to find new truth. The truth may have different forms such as increased quantity of knowledge, a new generalization or new 'law', an increased insight into factors which are operating, the discovery of new causal relationship, a more accurate formulation of the problem to be solved and many others.

Specifically, the researcher has included the comparative where the two or more groups (not manipulated) and establishes a formal procedure to compare and conclude that one is better than the other.

6. Sample and Sampling Technique

The researcher made use of the two groups of respondents in this study, the students and the teachers of the subject college. The researcher used the Lingnan Teachers' College in Guangdong, China.

Lingnan Teachers' College in Guangdong, China has

For the student respondents, the proportional stratified sampling was used. For the teacher respondents, purposive sampling was also used with the following criteria:

1. The teacher should be in the subject college for the last two years.
2. The teacher should be handling mostly the first to third year students.
3. The teacher has been handling subjects where research is an integral part of the subject.

7. Research Instrument

The researcher made a researcher-made instrument in this study. From the researcher's readings of the different studies related to the present, the questionnaire was formed.

Since the researcher drafted the questionnaire to collect information for this study, the researcher validated the questionnaire through consultation with at least three experts who have technical expertise in the topic. Such questionnaire was subjected to the test of reliability with the index using the Cronbach Alpha.

The instrument consists of 24 items to determine the preparedness of students in research distributed into the pedagogical aspect, procedures and processes, and data organization and analysis. Questions on pedagogical aspects are found in question numbers 7, 11, 12, 15, 16, 17, 18, and 22. Questions on procedures and processes are found in question numbers 2, 4, 6, 8, 13, 19, 20 and 23. While questions on data organization and analysis are in question numbers 1, 3, 5, 9, 10, 14, 21 and 24.

8. Data Gathering Procedure

The researcher asked permission from the administrators of the Lingnan Teachers' College in Guangdong, China. A permit was sought to conduct the study for their selected faculty members and students.

After the permit is granted, the researcher collected the data using the validated and reliable questionnaire. The researcher contacted the teachers who were part of the study through the different forms of social media like WeChat, email and the likes. The researcher also asked the assistance of the teachers for the contact information of the undergraduate students who are in their respective classes through the aid of the different social media facilities. After the data has been collected from the Lingnan Teachers' College in Guangdong, China - teachers and students using purposive sampling, the data to be gathered was subjected to data analysis.

9. Statistical Analysis

The data gathered was subjected to statistical treatment which as follows:

Frequency Count and Percentage – This was used by the researcher in analyzing personological data of the teacher respondents and the student respondents in terms of their age, sex, course/program. educational attainment and year level/length of experience.

Weighted Mean – This was used by the researcher in expressing the responses of the teacher respondents and student respondents regarding the students' research preparedness.

Standard Deviation. – This tool was used in expressing the dispersion of the respondents' response on their own assessment.

t-test/ANOVA – This was used in comparing statistically the assessment of the two groups of respondents based on their grouping by profile.

10. RESULTS, ANALYSIS, AND INTERPRETATION OF DATA

This chapter presents the results of the gathered data with the analysis and interpretation according to the statement of the problem. The profile of the student respondents in terms of age, sex, grade level, and course/program, profile of teacher respondents in terms of sex, years in teaching, and educational attainment, their assessment on the student respondents' level of research preparedness as assessed by the students themselves and the teachers, differences in the assessment of respondents when profile is taken as test factor, and differences between the assessment of the students and teachers with the end view of the proposed activities in developing the possible capability building.

Profile of the Student Respondents

Table 1 presents the frequency distribution of the student respondents' profile in terms of age, sex, grade level, and course/program.

Table 1. Frequency Distribution of Student Respondents' Profile

Profile	Frequency	Percentage
Sex		
Male	88	44%
Female	112	56%
Total	200	100%
Age		
Less than 18 years old	13	6.5%
18-19 years old	75	37.5%
20-21 years old	99	49.5%
22-23 years old	13	6.5%
Total	200	100%
Course/Program		
Mathematics	25	12.5%
Information Technology	37	18.5%
Chinese	37	18.5%
Language	37	18.5%
Engineer	38	19%
Others	26	13%
Total	200	100%
Year Level		
First Year	13	6.5%
Second Year	81	40.5%
Third Year	106	53.0%
Total	200	100%

Sex. Eighty-eight (88) or 44% of the student respondents are male, while one hundred twelve (112) or 56% are female. This goes to show that majority of the student respondents are female.

Age. Thirteen (13) or 6.5% of the student respondents are less than 18 years old, seventy five (75) or 37.5% are 18-19 years old, ninety nine (99) or 49.5% are 20-21 years old, and thirteen (13) or 6.5% are 22-23 years old. The result indicates that most of the student respondents are within the age group of 20-21 years old.

Course/Program. Twenty five (25) or 12.5% of the student respondents are taking up course in Mathematics, thirty seven (37) or 18.5% in Information Technology, Chinese, and Language programs respectively, thirty eight (38) or 19% in Engineering, while twenty six (26) or 13% in other programs. The result shows that most of the student respondents are in the Engineering program.

Year Level. Thirteen (13) or 6.5% of the student respondents are from first year level, eighty one (81) or 40.5% from second year level, and one hundred six (106) or 53% from third year level. This indicates that majority of the student respondents are from the third year level.

Profile of the Teacher Respondents

Table 2 presents the frequency distribution of the teacher respondents' profile in terms of sex, age, educational attainment, and years of teaching.

Sex. Thirty three (33) or 55% of the teacher respondents are male, while twenty seven (27) or 45% are female. This goes to show that more than half of the teacher respondents are male.

Age. Two (2) or 3.3% of the teacher respondents are less than 25 years old, five (5) or 8.3% are 25-35 years old, twenty eight (28) or 46.7% are 36-45 years old, nineteen (19) or 31.7% are 46-55 years old, and six (6) or 10% are more than 55 years old. The result indicates that most of the teacher respondents are within the age group of 36-45 years old.

Educational Attainment. Four (4) or 6.7% of the teacher respondents are Bachelor's degree holders, twenty two (22) or 36.7% have earned Master's units, and thirty four (34) or 56.7% are Master's degree holders. The result shows that majority of the teacher respondents have already earned their Master's degree.

Table 2. Frequency Distribution of Teacher Respondents' Profile

Profile	Frequency	Percentage
Sex		
Male	33	55%
Female	27	45%
Total	60	100%
Age		
Less than 25 years old	2	3.3%
25-35 years old	5	8.3%
36-45 years old	28	46.7%
46-55 years old	19	31.7%
More than 55 years old	6	10%
Total	60	100%
Educational Attainment		
Bachelor's degree	4	6.7%
w/ Master's units	22	36.7%
Master's degree	34	56.7%
Total	60	100%
Years of Teaching		
6-10 years	4	6.7%
11-15 years	16	26.7%
16-20 years	28	46.7%
21 years & above	12	20%
Total	60	100%

Years of Teaching. Four (4) or 6.7% of the teacher respondents have been teaching for about 6-10 years, sixteen (16) or 26.7% for 11-15 years, twenty eight (28) or 46.7% for about 16-20 years, and twelve (12) or 20% for 21 years and above. This goes to show that most of the teacher respondents have been in the teaching profession for about 16-20 years.

Student Respondents' Assessment on their Level of Research Preparedness

Tables 3-6 present the assessment of the student respondents on their level of research preparedness in terms of pedagogical aspect, procedures and processes, and data organization and analysis.

On Pedagogical Aspect

Table 3 presents the assessment of the student respondents on their level of research preparedness in terms of pedagogical aspect.

As shown in Table 3, it was very true to the student respondents that they make themselves able to reason using abstract examples with the highest assessment of 3.65 interpreted as highly prepared. On the other hand, it was perceived by the student respondents that it was true to them that they are engaged in a challenge of doing research, and that they have moral models, but still think for others with the mean values of 3.39 respectively interpreted as moderately prepared. Similarly, it was true to the student respondents that they take a skeptical attitude to ethical claims, that they begin to reason and see world of possibilities, and that they are impartial unless for treating people different with the mean values of 3.26, 3.00, and 3.00 respectively all interpreted as moderately prepared. On the other hand, it was slightly true to the student respondents that they are aware that engaging in research is a scientific way of making a reasonable conclusion with the lowest assessment of 2.13 interpreted as less prepared. A composite mean value of 3.12 indicates that students have a moderate level of research preparedness in

terms of pedagogical aspect. The term "research" is generally credited with Kurt Lewin, although the style of research he coined had been conducted for decades (Koster & Lemelin, 2019). Research focuses on collaborative solutions to problems (Richer, Ritchie, & Marchionni, 2019). Using research often provides a mechanism for change and that focusing on positivity creates positive change. Some would argue to the contrary we should focus on "what is going wrong" in order to create positive change but researchers, and more precisely appreciative inquiry re-searchers, would follow that focusing on negativity will only yield negative change and negative attitudes (Koster & Lemelin, 2019).

On Procedures and Processes

Table 3. Student Respondents' Assessment on their Level of Research Preparedness in Terms of Pedagogical Aspect

Pedagogical Aspect	Mean	SD	Qualitative Description	Interpretation	Rank
I am engaged in a challenge of doing research.	3.39	0.49	T	MP	2.5
I make myself able to reason using abstract examples.	3.65	0.48	VT	HP	1
I begin to reason and see world of possibilities.	3.00	0.00	T	MP	6.5
I avoid appeals to authority in making my ethical judgments.	3.17	0.37	T	MP	5
I have moral models, but still think for others.	3.39	0.49	T	MP	2.5
I take a skeptical attitude to ethical claims.	3.26	0.44	T	MP	4
I am impartial, unless for treating people different.	3.00	0.00	T	MP	6.5
I am aware that engaging in research is a scientific way of making a reasonable conclusion.	2.13	0.34	ST	LP	8
Composite Mean	3.12	0.16	T	MP	

Legend: 3.51-4.00 Very True of Me (VT)/Highly Prepared (HP); 2.51-3.50 True of Me (T)/Moderately Prepared (MP); 1.51-2.50 Seldom True of Me(ST)/Less Prepared (LP); 1.00-1.50 Not True of Me(NT)/Not Prepared(NP)

Table 4. Student Respondents' Assessment on their Level of Research Preparedness in Terms of Procedures and Processes

Procedures and Processes	Mean	SD	Qualitative Description	Interpretation	Rank
I use the collected data in formulating hypothesis and conclusion.	3.30	0.46	T	MP	4
I entail myself in returning to empirical methods to put the hypothesis to the test.	3.41	0.49	T	MP	3
I always remember the often-forgotten step of the research process is to reflect and appraise the process.	3.17	0.37	T	MP	6
I begin to develop logical thought.	3.26	0.44	T	MP	5
I make sure I have reasons supporting my beliefs and actions.	2.13	0.34	ST	LP	8
I immediately acknowledge what are specific steps to do in a given topic.	3.03	0.16	T	MP	7
I can rationalize the use of a particular theory that I adopt to justify my claims in the inquiry.	3.65	0.48	VT	HP	2
I am very familiar with different components of an inquiry and its relevance to the study.	4.00	0.00	VT	HP	1
Composite Mean	3.24	0.06	T	MP	

Legend: 3.51-4.00 Very True of Me(VT)/Highly Prepared (HP); 2.51-3.50 True of Me (T)/Moderately Prepared(MP); 1.51-2.50 Seldom True of Me(ST)/Less Prepared (LP); 1.00-1.50 Not True of Me(NT)/Not Prepared(NP)

As shown in Table 4, it was very true to the student respondents that they are very familiar with different components of an inquiry and its relevance to the study with the highest assessment of 4.00 interpreted as highly prepared. Similarly, it was very true to the students that they can rationalize the use of a particular theory that they adopt to justify their claims in the inquiry with the mean value of 3.65 interpreted as highly prepared. It was true to the students that they entail themselves in returning to empirical methods to put the hypothesis to the test, that they use the collected data in formulating hypothesis and conclusion, that they begin to develop logical thought, that they always remember the often-forgotten step of the research process is to reflect and appraise the process, and that they immediately acknowledge what are specific steps to do in a given topic with the mean values of 3.41, 3.30, 3.26, 3.17, and 3.03 respectively all interpreted to have a moderate level of preparedness. On the other hand, it was seldom true to the students that they make sure they have reasons supporting their beliefs and actions with the lowest assessment of 2.13 interpreted as less prepared. A composite mean value of 3.24 shows that students are moderately prepared on research in terms of procedures and processes. Burns (2019) asserts that research is related to ideas of 'reflective practice' and 'teacher and student as researcher'. Research involves the use of self-reflective, critical and systematic approach to explore our teaching and learning context further. Being critical in this sense does not in any way mean taking a negative, derogatory view of our practice. It does not mean seeing our teaching and learning as problematic or ineffective. It leans towards an inquisitive stance where teacher and students are questioning and identifying an area that could be improved upon to develop new ideas and alternatives. In research a student functions as an investigator of his or her context while acting as an active participant in it.

On Data Organization and Analysis

Table 5. Student Respondents' Assessment on their Level of Research Preparedness in Terms of Data Organization and Analysis

Data Organization and Analysis	Mean	SD	Qualitative Description	Interpretation	Rank
I am involved in collecting and organizing data.	3.19	0.39	T	MP	5
I rely on logic and rationality to come to specific conclusions given general premises.	3.56	0.51	VT	HP	3
I can present the data gathered in a more organized way which can be clearly understood.	3.29	0.47	T	MP	4
I determine the appropriate research design to apply in a particularly situation.	3.00	0.00	T	MP	7.5
I apply reasoning to concrete/specific examples.	3.03	0.16	T	MP	6
I can freely choose the design that best suit a particular inquiry.	4.00	0.00	VT	HP	1
I can justify the results of the data based on the problems paused in the inquiry.	3.00	0.00	T	MP	7.5
I am fully aware that the conclusions and recommendations derived are based on the problems set in the study or inquiry.	3.79	0.41	VY	HP	2
Composite Mean	3.36	0.08	T	MP	

Legend: 3.51-4.00 Very True of Me(VT)/Highly Prepared (HP); 2.51-3.50 True of Me (T)/Moderately Prepared(MP); 1.51-2.50 Seldom True of Me(ST)/Less Prepared (LP); 1.00-1.50 Not True of Me(NT)/Not Prepared(NP)

As shown in Table 5, it was very true to the student respondents that they can freely choose the design that best suit a particular inquiry with the highest assessment of 4.00 interpreted as highly prepared. Similarly, it was very true to them that they are fully aware that the conclusions and recommendations derived are based on the problems set in the study or inquiry, and that they rely on logic and rationality to come to specific conclusions given general premises with the mean values of 3.79 and 3.56 respectively interpreted as highly prepared. Furthermore, it was true to the student respondents that they can present the data gathered in a more organized way which can be clearly understood, that they are involved in collecting and organizing data, and that they apply reasoning to concrete/specific examples with the mean values of 3.29, 3.19, and 3.03 all interpreted as moderately prepared. Though it was also true to them that they determine the appropriate research design to apply in a particularly situation, and that they can justify the results of the data based on the problems paused in the injury, however, it was given the lowest assessment of 3.00 respectively interpreted as moderately prepared. A composite mean value of 3.36 shows that student respondents have a moderate level of research preparedness in terms of data organization and analysis. One of the main objectives of research is to identify an issue that the participants, who may include teachers, students, administrators or if necessary, parents, deem worthy of investigation (Burns, 2019). In their practice researchers usually see gaps between what is actually happening in their teaching situation and what they ideally prefer to be happening. The main idea in research is to solve the problematic issue purposefully in order to trigger changes and improvements in practice. More significantly, changes or improvements in research are based on insights or information that has been systematically collected. Therefore, any improvements made to the practice are foregrounded in solid and sound judgments rather than assumptions or hunches that most teachers and students based their teaching and learning on respectively.

Summary of the Student Respondents' Assessment on their Level of Research Preparedness

As shown in Table 6, student respondents manifested a moderate level of research preparedness in terms of data organization and analysis which gained the highest assessment. Similarly, students were found to be moderately prepared in terms of procedures and processes ranked as second. They also manifested a moderate level of

preparedness in terms of pedagogical aspects but this was given the lowest assessment among the three indicators. Generally, an over-all mean value of 3.24 reveals that students have a moderate level of research preparedness based on their own assessment. Many professionals therefore consider that research is a significant professional development tool for teachers. Its collaborative nature also means that it can help teachers feel less isolated (Burns, 2019), which we propose could be important for teachers who often work as individuals, sometimes as the only teacher in a school (Borthwick & Gallagher-Brett, 2020).

Table 6. Summary of the Student Respondents' Assessment on their Level of Research Preparedness

Research Preparedness Indicators	Mean	SD	Qualitative Description	Interpretation	Rank
Pedagogical Aspect	3.12	0.16	T	MP	3
Procedures and Processes	3.24	0.06	T	MP	2
Data Organization and Analysis	3.36	0.08	T	MP	1
Over-all Mean	3.24	0.06	T	MP	

Legend: 3.51-4.00 Very True of Me (VT)/Highly Prepared (HP); 2.51-3.50 True of Me (T)/Moderately Prepared (MP); 1.51-2.50 Seldom True of Me (ST)/Less Prepared (LP); 1.00-1.50 Not True of Me (NT)/Not Prepared (NP)

Teacher Respondents' Assessment on their Students' Level of Research Preparedness

Tables 7-10 present the assessment of the teacher respondents on their students' level of research preparedness in terms of pedagogical aspect, procedures and processes, and data organization and analysis.

On Pedagogical Aspect

Table 7. Teacher Respondents' Assessment on their Students' Level of Research Preparedness in Terms of Pedagogical Aspect

Pedagogical Aspect	Mean	SD	Qualitative Description	Interpretation	Rank
My students are engaged in a challenge of doing research.	3.00	0.00	T	MP	6.5
My students made themselves able to reason using abstract examples.	3.00	0.00	T	MP	6.5
My students begin to reason and see world of possibilities.	3.00	0.00	T	MP	6.5
My students avoid appeals to authority in making my ethical judgments.	3.57	0.50	VT	HP	1
My students have moral models, but still think for others.	3.10	0.30	T	MP	4
My students take a skeptical attitude to ethical claims.	3.45	0.53	T	MP	2
My students are impartial, unless for treating people different.	3.00	0.00	T	MP	6.5
My students are aware that engaging in research is a scientific way of making a reasonable conclusion.	3.43	0.50	T	MP	3
Composite Mean	3.20	0.14	T	MP	

Legend: 3.51-4.00 Very True of Me(VT)/Highly Prepared (HP); 2.51-3.50 True of Me (T)/Moderately Prepared(MP); 1.51-2.50 Seldom True of Me(ST)/Less Prepared (LP); 1.00-1.50 Not True of Me(NT)/Not Prepared(NP)

As shown in Table 7, teacher respondents perceived that it was very true to their students that they avoid appeals to authority in making their ethical judgments with the highest assessment of 3.57 interpreted as highly prepared. Furthermore, teacher respondents perceived that it was true to their students that they take a skeptical attitude to ethical claims, that their students are aware that engaging research is a scientific way of making a reasonable conclusion, and that their students have moral models but still think for others with the mean values of 3.45, 3.43, and 3.10 respectively interpreted as moderately prepared. It was also true to the students as assessed by the teachers that they are engaged in a challenge of doing research, that they made themselves able to reason using abstract examples, that they begin to reason and see world of possibilities, and that they are impartial unless for treating people different, however it was given the lowest assessment of 3.00 respectively all interpreted as moderately prepared. A composite mean value of 3.20 indicates that students have a moderate level of research preparedness in terms of pedagogical aspects as assessed by the teacher respondents. McNiff and Whitehead (2020) look at research from the perspective of the three different approaches. The first one is technical rational empirical research where the researcher stays outside the research field to maintain objectivity. The main principle of this approach is the cause and effect relationship between intervention and research subjects. The second one is interpretive approach which acknowledges the existence of a practitioner as an active participant in research. The researcher observes people in their natural setting and provides descriptions and explanation of what they are doing. The third one is critical theoretic research which undergirds the importance of understanding a situation in order to change it.

On Procedures and Processes

As shown in Table 8, teacher respondents perceived that it was very true to their students that they make sure they have reasons supporting their beliefs and actions with the highest assessment of 4.00 interpreted as highly prepared. Likewise, it was very true to their students that they begin to develop logical thought, and that they can rationalize the use of a particular theory that they adopt to justify their claims in the inquiry with the mean values of 3.78 and 3.77 respectively interpreted as highly prepared. Furthermore, it was true to their students that they use the collected data in formulating hypothesis and conclusion, that their students entail themselves in returning empirical methods to put the hypothesis to the test, and that their students immediately acknowledge what are specific steps to do in a given topic with the mean values of 3.32, 3.08, and 3.02 respectively interpreted as moderately prepared. Though it was also true to their students that they always remember the often-forgotten step of the research process is to reflect and appraise the process, and that they are very familiar with different components of an inquiry and its relevance to the study, however it was given the lowest assessment of 3.00 respectively interpreted to be moderately prepared. A

composite mean value of 3.37 shows that students have a moderate level of research preparedness in terms of procedures and processes as assessed by the teacher respondents. Research-based learning is a specific type of learning in which the learning process is embedded in actual research practices (Fichten, 2017). It employs approaches and techniques derived from empirical social science in order to gain objective information. Nevertheless, research-based learning should not be misunderstood as an encompassing research process. Science is typically pursued in order to obtain knowledge about universal principles of life, meaning that the acquired insights are generalizable across various (but comparable) situations. The process of research-based learning, however, primarily generates findings that are of professional interest only to the learner (Schneider & Wildt, 2019; Weyland & Busch, 2019)

Table 8. Teacher Respondents' Assessment on their Students' Level of Research Preparedness in Terms of Procedures and Processes

Procedures and Processes	Mean	SD	Qualitative Description	Interpretation	Rank
My students use the collected data in formulating hypothesis and conclusion.	3.32	0.47	T	MP	4
My students entail themselves in returning to empirical methods to put the hypothesis to the test.	3.08	0.28	T	MP	5
My students always remember the often-forgotten step of the research process is to reflect and appraise the process.	3.00	0.00	T	MP	7.5
My students begin to develop logical thought.	3.78	0.42	VT	HP	2
My students make sure they have reasons supporting their beliefs and actions.	4.00	0.00	VT	HP	1
My students immediately acknowledge what are specific steps to do in a given topic.	3.02	0.13	T	MP	6
My students can rationalize the use of a particular theory that they adopt to justify their claims in the inquiry.	3.77	0.43	VT	HP	3
My students are very familiar with different components of an inquiry and its relevance to the study.	3.00	0.00	T	MP	7.5
Composite Mean	3.37	0.15	T	MP	

Legend: 3.51-4.00 Very True of Me(VT)/Highly Prepared (HP); 2.51-3.50 True of Me (T)/Moderately Prepared(MP); 1.51-2.50 Seldom True of Me(ST)/Less Prepared (LP); 1.00-1.50 Not True of Me(NT)/Not Prepared(NP)

On Data Organization and Analysis

Table 9. Teacher Respondents' Assessment on their Students' Level of Research Preparedness in Terms of Data Organization and Analysis

Data Organization and Analysis	Mean	SD	Qualitative Description	Interpretation	Rank
My students are involved in collecting and organizing data.	3.00	0.00	T	MP	7.5
My students rely on logic and rationality to come to specific conclusions given general premises.	3.68	0.47	VT	HP	1
My students can present the data gathered in a more organized way which can be clearly understood.	3.47	0.54	T	MP	2
My students determine the appropriate research design to apply in a particularly situation.	3.22	0.42	T	MP	4
My students apply reasoning to concrete/specific examples.	3.45	0.50	T	MP	3
My students can freely choose the design that best suit a particular inquiry.	3.00	0.00	T	MP	7.5
My students can justify the results of the data based on the problems paused in the inquiry.	3.23	0.43	T	MP	5
My students are fully aware that the conclusions and recommendations derived are based on the problems set in the study or inquiry.	3.02	0.13	T	MP	6
Composite Mean	3.26	0.13	T	MP	

Legend: 3.51-4.00 Very True of Me (VT)/Highly Prepared (HP); 2.51-3.50 True of Me (T)/Moderately Prepared(MP); 1.51-2.50 Seldom True of Me(ST)/Less Prepared (LP); 1.00-1.50 Not True of Me(NT)/Not Prepared(NP)

As shown in Table 9, teacher respondents perceived that it was very true to their students that they rely on logic and rationality to come to specific conclusions given general premises with the highest assessment of 3.68 interpreted as highly prepared. Furthermore, it was true to their students that they can present the data gathered in a more organized way which can be clearly understood, that their students apply reasoning to concrete/specific examples, that their students determine the appropriate research design to apply in a particularly situation, that their students can justify the results of the data based on the problems paused in the inquiry, and that their students are fully aware that the conclusions and recommendations derived are based on the problems set in the study or inquiry with the mean values of 3.47, 3.45, 3.22, 3.23, and 3.02 all interpreted as moderately prepared. Though it was also true to their students that they are involved in collecting and organizing data, and that they can freely choose the design that best suit a particular inquiry, however it was given the lowest assessment of 3.00 respectively interpreted as moderately prepared. A composite mean value of 3.26 shows that students have a moderate level of research preparedness in terms of data organization and analysis as assessed by the teacher respondents. Perry and Imig (2017) found that research capstone projects contribute to practitioner learning and that they provide a vehicle for understanding complex educational problems. McKinney and Day (2022) discovered positive effects of completing capstone projects, including "understanding and competence in doing a research project, interpersonal competence and confidence, and a sense of ownership and pride in the project".

Summary of the Teacher Respondents' Assessment on their Students' Level of Research Preparedness

Table 10. Summary of the Teacher Respondents' Assessment on their Students' Level of Research Preparedness

Research Preparedness Indicators	Mean	SD	Qualitative Description	Interpretation	Rank
Pedagogical Aspect	3.20	0.14	T	MP	3
Procedures and Processes	3.37	0.15	T	MP	1
Data Organization and Analysis	3.26	0.13	T	MP	2
Over-all Mean	3.28	0.08	T	MP	

Legend: 3.51-4.00 Very True of Me (VT)/Highly Prepared (HP); 2.51-3.50 True of Me (T)/Moderately Prepared (MP); 1.51-2.50 Seldom True of Me (ST)/Less Prepared (LP); 1.00-1.50 Not True of Me (NT)/Not Prepared(NP)

As shown in Table 10, it was perceived by the teacher respondents that their student respondents manifested a moderate level of research preparedness in terms of procedures and processes which gained the highest assessment. Similarly, students were found to be moderately prepared in terms of data organization and analysis ranked as second. They also manifested a moderate level of preparedness in terms of pedagogical aspects but this was given the lowest assessment among the three indicators. Generally, an over-all mean value of 3.28 reveals that students have a moderate level of research preparedness as assessed by the teacher respondents. According to Hopkins (in Amin et. al., 2019) research in education can be classified into informal qualitative research, formative, subjective, interpretive, reflective and inquiry research based on experimental design where all the participants in the research have information and are contributing to the research.

Differences in the Assessment of Student Respondents on their Level of Research Preparedness When Profile is Taken as Test Factor

Tables 11-14 present the differences in the assessment of student respondents on their level of research preparedness when their sex, age, grade level, and course/program are taken as test factors.

On Sex

Table 11. Differences in the Assessment of Student Respondents on their Level of Research Preparedness When Sex is Taken as Test Factor

Research Preparedness Indicators	Sex	Mean	SD	Computed t-value	Sig	Decision on Ho	Interpretation
Pedagogical Aspects	Male	3.12	0.16	-0.33	0.74	Accepted	Not Significant
	Female	3.12	0.16				
Procedure and Processes	Male	3.24	0.06	0.32	0.75	Accepted	Not Significant
	Female	3.24	0.06				
Data Organization and Analysis	Male	3.37	0.08	1.29	0.20	Accepted	Not Significant
	Female	3.35	0.09				
Over-all	Male	3.24	0.06	0.40	0.69	Accepted	Not Significant
	Female	3.24	0.06				

As shown in Table 11, student respondents have obtained a computed t-value of -0.33 in terms of pedagogical aspects with a significance value of 0.74. Since the significance value is higher than the set 0.05 level of significance, null hypothesis is accepted which means that there is no significant difference in the assessment of the student respondents when their sex is taken as test factor. This indicates that male and female students have relatively the same assessment on their level of research preparedness in terms of pedagogical aspects.

In terms of procedures and processes, student respondents have obtained a computed t-value of 0.32 with a significance value of 0.75. Since the significance value is higher than the set 0.05 level of significance, null hypothesis is accepted which means that there is no significant difference in the assessment of the student respondents when their sex is taken as test factor. The result shows that male and female students have relatively the same assessment on their level of research preparedness in terms of procedures and processes.

In terms of data organization and analysis, student respondents have obtained a computed t-value of 1.29 with a significance value of 0.20. Since the significance value is higher than the set 0.05 level of significance, null hypothesis is accepted which means that there is no significant difference in the assessment of the student respondents when their sex is taken as test factor. This goes to show that male and female students have relatively the same assessment on their level of research preparedness in terms of data organization and analysis.

Generally, student respondents have obtained an over-all computed t-value of 0.40 with a significance value of 0.69. Since the significance value is higher than the set 0.05 level of significance, null hypothesis is accepted which means that there is no significant difference in the assessment of the student respondents when their sex is taken as test factor. The result reveals that male and female students have relatively the same assessment on their level of research preparedness.

On Age

As shown in Table 12, student respondents have obtained a computed F-value of 0.13 in terms of pedagogical aspects with a significance value of 0.94. Since the significance value is higher than the set 0.05 level of significance, null hypothesis is accepted which means that there is no significant difference in the assessment of the student respondents when their age is taken as test factor. This indicates that student respondents have relatively the same assessment on their level of research preparedness in terms of pedagogical aspects regardless of their age.

In terms of procedures and processes, student respondents have obtained a computed F-value of 0.09 with a significance value of 0.97. Since the significance value is higher than the set 0.05 level of significance, null hypothesis is accepted which means that there is no significant difference in the assessment of the student respondents when their age is taken

as test factor. This goes to show that student respondents have relatively the same assessment on their level of research preparedness in terms of procedures and processes regardless of their age.

Table 12. Differences in the Assessment of Student Respondents on their Level of Research Preparedness When Age is Taken as Test Factor

Research Preparedness Indicators	Age	Mean	SD	Computed F-value	Sig	Decision on Ho	Interpretation
Pedagogical Aspects	<18 y/o	3.13	0.17	0.13	0.94	Accepted	Not Significant
	18-19 y/o	3.11	0.16				
	20-21 y/o	3.13	0.16				
	22-23 y/o	3.13	0.17				
Procedure and Processes	<18 y/o	3.24	0.06	0.09	0.97	Accepted	Not Significant
	18-19 y/o	3.24	0.06				
	20-21 y/o	3.24	0.06				
	22-23 y/o	3.25	0.05				
Data Organization and Analysis	<18 y/o	3.33	0.08	0.99	0.40	Accepted	Not Significant
	18-19 y/o	3.36	0.08				
	20-21 y/o	3.36	0.08				
	22-23 y/o	3.34	0.09				
Over-all	<18 y/o	3.23	0.07	0.19	0.90	Accepted	Not Significant
	18-19 y/o	3.24	0.06				
	20-21 y/o	3.24	0.06				
	22-23 y/o	3.24	0.07				

In terms of data organization and analysis, student respondents have obtained a computed F-value of 0.99 with a significance value of 0.40. Since the significance value is higher than the set 0.05 level of significance, null hypothesis is accepted which means that there is no significant difference in the assessment of the student respondents when their age is taken as test factor. This could mean that student respondents have relatively the same assessment on their level of research preparedness in terms of data organization and analysis regardless of their age.

Generally, student respondents have obtained an over-all computed F-value of 0.19 with a significance value of 0.90. Since the significance value is higher than the set 0.05 level of significance, null hypothesis is accepted which means that there is no significant difference in the assessment of the student respondents when their age is taken as test factor. The result reveals that student respondents have relatively the same assessment on their level of research preparedness regardless of their age.

On Course/Program

Table 13 presents the differences in the assessment of student respondents on their level of research preparedness when their course/program is taken as test factor.

As shown in Table 13, student respondents have obtained a computed F-value of 0.05 in terms of pedagogical aspects with a significance value of 0.99. Since the significance value is higher than the set 0.05 level of significance, null hypothesis is accepted which means that there is no significant difference in the assessment of the student respondents when their course/program is taken as test factor. This indicates that student respondents have relatively the same assessment on their level of research preparedness in terms of pedagogical aspects regardless of their course/program.

In terms of procedures and processes, student respondents have obtained a computed F-value of 0.43 with a significance value of 0.83. Since the significance value is higher than the set 0.05 level of significance, null hypothesis is accepted which means that there is no significant difference in the assessment of the student respondents when their course/program is taken as test factor. This goes to show that student respondents have relatively the same assessment on their level of research preparedness in terms of procedures and processes regardless of their course/program.

In terms of data organization and analysis, student respondents have obtained a computed F-value of 1.14 with a significance value of 0.34. Since the significance value is higher than the set 0.05 level of significance, null hypothesis is accepted which means that there is no significant difference in the assessment of the student respondents when their course/program is taken as test factor. This is taken to mean that student respondents have relatively the same assessment on their level of research preparedness in terms of data organization and analysis regardless of their course/program.

Table 13. Differences in the Assessment of Student Respondents on their Level of Research Preparedness When Course/Program is Taken as Test Factor

Research Preparedness Indicators	Course/ Program	Mean	SD	Computed F-value	Sig	Decision on Ho	Interpretation
Pedagogical Aspects	Math	3.11	0.16	0.05	0.99	Accepted	Not Significant
	IT	3.12	0.16				
	Chinese	3.12	0.16				
	Language	3.13	0.17				
	Engineer	3.13	0.16				
	Others	3.13	0.17				
Procedure and Processes	Math	3.24	0.06	0.43	0.83	Accepted	Not Significant
	IT	3.23	0.07				
	Chinese	3.24	0.06				
	Language	3.25	0.06				
	Engineer	3.25	0.06				
	Others	3.25	0.06				
Data Organization and Analysis	Math	3.38	0.08	1.14	0.34	Accepted	Not Significant
	IT	3.37	0.08				
	Chinese	3.36	0.08				
	Language	3.36	0.08				
	Engineer	3.35	0.09				
	Others	3.33	0.09				
Over-all	Math	3.24	0.06	0.09	0.99	Accepted	Not Significant
	IT	3.24	0.06				
	Chinese	3.24	0.06				
	Language	3.25	0.06				
	Engineer	3.24	0.06				
	Others	3.24	0.07				

Generally, student respondents have obtained an over-all computed F-value of 0.09 with a significance value of 0.99. Since the significance value is higher than the set 0.05 level of significance, null hypothesis is accepted which means that there is no significant difference in the assessment of the student respondents when their course/program is taken as test factor. This reveals that student respondents have relatively the same assessment on their level of research preparedness regardless of their course/program.

11. SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDTIONS

This study determined the students' and teachers' assessments of the research preparedness of students. Profile of the two groups of respondents, their assessments on the level of research preparedness of students, differences in their assessments when their profile is taken as test factors, and differences between the assessments of the two groups of respondents were also determined. The findings of this study helped the researcher to come up with the proposed activities in developing the possible capability building to help students further enhance their research capabilities.

12. Summary of Findings

Profile of the Student Respondents

Majority of the student respondents are female (56%) in their third-year level (53%), and mostly are within the age group of 20-21 years old (49.5%) taking up courses in Engineering.

Profile of the Teacher Respondents

Majority of the teacher respondents are male (55%) who are Master's degree holders (56.7%), while most of them are within the age group of 36-45 years old (46.7%) and have been teaching for about 16-20 years (46.7%).

Student Respondents' Assessment on their Level of Research Preparedness

Based from the results, student respondents manifested a moderate level of research preparedness in terms of data organization and analysis which gained the highest assessment. Similarly, students were found to be moderately prepared in terms of procedures and processes ranked as second. They also manifested a moderate level of preparedness in terms of pedagogical aspects but this was given the lowest assessment among the three indicators. Generally, an over-all mean value of 3.24 reveals that students have a moderate level of research preparedness based on their own assessment.

On Pedagogical Aspect

It was very true to the student respondents that they make themselves able to reason using abstract examples with the highest assessment given interpreted as highly prepared. On the other hand, it was perceived by the student respondents that it was true to them that they are engaged in a challenge of doing research, and that they have moral models, but still think for others interpreted as moderately prepared. Similarly, it was true to the student respondents that they take a skeptical attitude to ethical claims, that they begin to reason and see world of possibilities, and that they are impartial unless for treating people different all interpreted as moderately prepared. On the other hand, it was slightly true to the student respondents that they are aware that engaging in research is a scientific way of making a reasonable conclusion with the lowest assessment given interpreted as less prepared. A composite mean value of 3.12 indicates that students have a moderate level of research preparedness in terms of pedagogical aspect.

On Procedures and Processes

It was very true to the student respondents that they are very familiar with different components of an inquiry and its relevance to the study with the highest assessment given interpreted as highly prepared. Similarly, it was very true to the students that they can rationalize the use of a particular theory that they adopt to justify their claims in the inquiry interpreted as highly prepared. It was true to the students that they entail themselves in returning to empirical methods to put the hypothesis to the test, that they use the collected data in formulating hypothesis and conclusion, that they begin to develop logical thought, that they always remember the often-forgotten step of the research process is to reflect and appraise the process, and that they immediately acknowledge what are specific steps to do in a given topic all interpreted to have a moderate level of preparedness. On the other hand, it was seldom true to the students that they make sure they have reasons supporting their beliefs and actions with the lowest assessment given interpreted as less prepared. A composite mean value of 3.24 shows that students are moderately prepared on research in terms of procedures and processes.

On Data Organization and Analysis

It was very true to the student respondents that they can freely choose the design that best suit a particular inquiry with the highest assessment given interpreted as highly prepared. Similarly, it was very true to them that they are fully aware that the conclusions and recommendations derived are based on the problems set in the study or inquiry, and that they rely on logic and rationality to come to specific conclusions given general premises interpreted as highly prepared. Furthermore, it was true to the student respondents that they can present the data gathered in a more organized way which can be clearly understood, that they are involved in collecting and organizing data, and that they apply reasoning to concrete/specific examples all interpreted as moderately prepared. Though it was also true to them that they determine the appropriate research design to apply in a particularly situation, and that they can justify the results of the data based on the problems paused in the injury, however, it was given the lowest assessment interpreted as moderately prepared. A composite mean value of 3.36 shows that student respondents have a moderate level of research preparedness in terms of data organization and analysis.

Teacher Respondents' Assessment on their Students' Level of Research Preparedness

It was perceived by the teacher respondents that their student respondents manifested a moderate level of research preparedness in terms of procedures and processes which gained the highest assessment. Similarly, students were found to be moderately prepared in terms of data organization and analysis ranked as second. They also manifested a moderate level of preparedness in terms of pedagogical aspects but this was given the lowest assessment among the three indicators. Generally, an over-all mean value of 3.28 reveals that students have a moderate level of research preparedness as assessed by the teacher respondents.

On Pedagogical Aspects

Teacher respondents perceived that it was very true to their students that they avoid appeals to authority in making their ethical judgments with the highest assessment given interpreted as highly prepared. Furthermore, teacher respondents perceived that it was true to their students that they take a skeptical attitude to ethical claims, that their students are aware that engaging research is a scientific way of making a reasonable conclusion, and that their students have moral models but still think for others interpreted as moderately prepared. It was also true to the students as assessed by the teachers that they are engaged in a challenge of doing research, that they made themselves able to reason

using abstract examples, that they begin to reason and see world of possibilities, and that they are impartial unless for treating people different, however it was given the lowest assessment given all interpreted as moderately prepared. A composite mean value of 3.20 indicates that students have a moderate level of research preparedness in terms of pedagogical aspects as assessed by the teacher respondents.

On Procedures and Processes

Teacher respondents perceived that it was very true to their students that they make sure they have reasons supporting their beliefs and actions with the highest assessment given interpreted as highly prepared. Likewise, it was very true to their students that they begin to develop logical thought, and that they can rationalize the use of a particular theory that they adopt to justify their claims in the inquiry interpreted as highly prepared. Furthermore, it was true to their students that they use the collected data in formulating hypothesis and conclusion, that their students entail themselves in returning empirical methods to put the hypothesis to the test, and that their students immediately acknowledge what are specific steps to do in a given topic interpreted as moderately prepared. Though it was also true to their students that they always remember the often-forgotten step of the research process is to reflect and appraise the process, and that they are very familiar with different components of an inquiry and its relevance to the study, however it was given the lowest assessment interpreted to be moderately prepared. A composite mean value of 3.37 shows that students have a moderate level of research preparedness in terms of procedures and processes as assessed by the teacher respondents.

On Data Organization and Analysis

Teacher respondents perceived that it was very true to their students that they rely on logic and rationality to come to specific conclusions given general premises with the highest assessment given interpreted as highly prepared. Furthermore, it was true to their students that they can present the data gathered in a more organized way which can be clearly understood, that their students apply reasoning to concrete/specific examples, that their students determine the appropriate research design to apply in a particularly situation, that their students can justify the results of the data based on the problems paused in the inquiry, and that their students are fully aware that the conclusions and recommendations derived are based on the problems set in the study or inquiry all interpreted as moderately prepared. Though it was also true to their students that they are involved in collecting and organizing data, and that they can freely choose the design that best suit a particular inquiry, however it was given the lowest assessment interpreted as moderately prepared. A composite mean value of 3.26 shows that students have a moderate level of research preparedness in terms of data organization and analysis as assessed by the teacher respondents.

Differences in the Assessment of Student Respondents on their Level of Research Preparedness When Profile is Taken as Test Factor

On Sex

The results reveal that there were no significant differences in the assessment of the student respondents when their sex is taken as test factor. This goes to show that male and female students have relatively the same assessment on their level of research preparedness in terms of pedagogical aspects, procedures and processes, and data organization and analysis.

On Age

Based from the results, there were no significant differences in the assessment of the student respondents when their age is taken as test factor. The result indicates that student respondents have relatively the same assessment on their level of research preparedness in terms of pedagogical aspects, procedures and processes, and data organization and analysis regardless of their age.

On Course/Program

As shown in the results, there were no significant differences in the assessment of the student respondents when their course or program is taken as test factor. This could mean that student respondents have relatively the same assessment on their level of research preparedness in terms of pedagogical aspects, procedures and processes, and data organization and analysis regardless of the course/program they are taking.

On Year Level

The result shows that there were no significant differences in the assessment of the student respondents when their year level is taken as test factor. This is taken to mean that student respondents have relatively the same assessment on their level of research preparedness in terms of pedagogical aspects, procedures and processes, and data organization and analysis regardless of their year level.

Differences in the Assessment of Teacher Respondents on their Level of Research Preparedness When Profile is Taken as Test Factor

On Sex

The results reveal that there were no significant differences in the assessment of the teacher respondents when their sex is taken as test factor. This goes to show that male and female teachers have relatively the same assessment on their students' level of research preparedness in terms of pedagogical aspects, procedures and processes, and data organization and analysis.

On Age

Based from the results, there were no significant differences in the assessment of the teacher respondents when their age is taken as test factor. The result indicates that teacher respondents have relatively the same assessment on their level of research preparedness in terms of pedagogical aspects, procedures and processes, and data organization and analysis regardless of their age.

On Educational Attainment

As shown in the results, there were no significant differences in the assessment of the teacher respondents when their educational attainment is taken as test factor. This could mean that teacher respondents have relatively the same assessment on their students' level of research preparedness in terms of pedagogical aspects, procedures and processes, and data organization and analysis regardless of the educational level they have attained.

On Years of Teaching

The result shows that there were no significant differences in the assessment of the teacher respondents when their years of teaching is taken as test factor. This is taken to mean that teacher respondents have relatively the same assessment on their students' level of research preparedness in terms of pedagogical aspects, procedures and processes, and data organization and analysis regardless of how long they have been teaching.

Differences Between the Assessment of Teacher and Student Respondents on Students' Level of Research Preparedness

Based from the results, significant difference exists between the assessments of the student and teacher respondents as regards the level of research preparedness of students. The result reveals that that teachers have better perceptions of students' preparedness in research in terms of pedagogical aspects, and procedures and processes than how the students perceived it themselves. On the other hand, the result shows that students have better perceptions of their research preparedness in terms of data organization and analysis than how their teachers perceived it. Generally, it can be said that teachers have better perceptions of students' preparedness in research than how the students perceived it themselves.

13. Conclusion

Based on the findings, the following have been concluded:

Students are mostly female of legal age who are in the higher year level taking up Engineering program.

Teachers are mostly male in their middle ages holding a Master's degree and have been in the teaching profession for quite some time.

Students have seen themselves to be moderately prepared in doing research considering the pedagogical aspects, the procedures and processes, and the organization and analysis of data similar to that of teachers' point of view.

Students have relatively the same assessment of their research preparedness regardless of their sex, age, course, and year level.

Teachers have shown similar perceptions of their students' research preparedness regardless of their sex, age, educational level attained, and the number of years of teaching.

While both teachers and the students themselves have seen the students' level of research preparedness to be of moderate level, the result of comparison appears to be statistically significant. This may be due to the number of respondents participated in the present study.

14. Recommendations

In view of the summary of findings and the conclusions, the researcher highly /recommends the following.

Teachers should continue upgrading their educational attainment by attending graduate and postgraduate education in the area of specialization and by attending research-related conferences.

Students must always reflect on their own strength and weaknesses, and seek feedback from others such as their peers, instructors, or mentors to help them identify areas for improvement in their research skills such as their research question, sources, arguments, or writing.

Teachers as well as students must be provided with the research capability training program consisting of various levels from lectures, hands-on workshop, and writing research.

Teachers must be provided with the needed motivation and adequate management support to polish their research skills, attitude, and capability so that teachers could also do the same to their students.

15. Proposed Activities in Developing the Research Capability Building among Students

Introduce students to research endeavors as early as possible to ensure that they are building the difficult research skills over time, thus improving their confidence in the process.

Encourage collaboration and communication among students by assigning them challenging tasks and performing those tasks in a group. They may use shared Google Documents to collaborate in real time on or off campus as they conduct, integrate, and revise projects, and eventually concludes with a presentation using a shared Google Slides to share their findings with their peers or a larger audience.

Allow students to share their research findings in a variety of ways including presentations for their peers, presentations for large-group audiences, or in front of a teacher panel. By engaging in different research experiences, students could gain a range of presentation skills as they continue to refine their research and writing skills.

Introduce research across the curriculum that would help students feel more comfortable with research. The more exposures of students on research works, the more opportunities they have to receive feedback and make meaning in the process.

Introduce the students to the world of active research by providing them with the opportunity to conduct such research on a topic they choose. Ask students to generate a research question and work in a small groups to answer that question through an extensive literature review and two to three methods of their own.

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