Perceived Effectiveness of Education Resources Information Center (ERIC) in Enhancing Student's Research Capability

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Abstract

This study attempted to determine the perceived effectiveness of Education Resources Information Center (ERIC) in enhancing students' research capability. A quantitative-correlational research design was utilized in this study, and a survey 4-point Likert scale were used. It was carried out using a simple random sampling technique on fifty (50) GAS students in grade 12 who used ERIC to complete their research at Dagatan National High School. This study employed mean, standard deviation, and Pearson product-moment of correlation. The data showed a significant relationship between the variables. Thus, it implies that the used of ERIC is effective in terms of improve practice in learning, decision making and research in enhancing students' research capability.

Keywords: research capability, ERIC, improve practice in learning, decision making, research

1. Introduction

Research capability refers to one's facility to undertake high-quality studies (Salom, Melchor; Mariano, Don; Memorial, Marcos, 2013). Furthermore, it as an "ability to carry out data collection involving planning and selecting appropriate data collection tools or instruments, identifying an appropriate method for interpreting, and manipulating data and applying an appropriate statistical tool for the test of significance besides understanding" (Ismail, Rosli; Meeran Subhan, 2012). Manongsong et al. (2018) studied that such capability may develop over time, through experience continuing and relevant capacity-building activities. Also, it requires a consistent application of the acquired knowledge and skills to produce research output and innovation. Advancing it takes a lot of consideration in individuals like their motivation to get involved in it, the attitudes toward it, and other skills necessary for undertaking the systematic and tedious process of research. On the other hand, it is said that research capability may connote differently as actions, activities or series of training conducted to capacitate aspiring or seasoned researcher. It may indicate otherwise as skill, ability, literacy, or competency to conduct research (Mani, Merian; Fetalvero; Foja, Lou; Formento, Alexander, 2010).

According to Caingcoy (2020), research capability has received an overwhelming and remarkable interest among academics and practitioners. Research capability is also the process of acquiring knowledge, skills,

attitudes, scientific literacy, capacity, and competency in conducting research (Holt, J; Perry SA, 2011). This study also conjectured that there has been confusion between these terms, competency, or capability. To compare, "capability describes the ability of an organization or unit. Competence describes the ability of an individual to do something" . According to Mydin & Shahlan (2021) the findings of thematic analysis identified that individual's participation in scholarly research activities and institutional formal learning supported the development of individual research capabilities. Furthermore, it was find that research capability developed in three ways: through convening cognitive capabilities required for academic practice; cultivating informal tacit capabilities; and maintaining often unacknowledged backstage capabilities over durations that extend beyond the lifetime of individual projects (Donovan, Cian; Moon, Joshua; Michalec, Aleksandra, 2022).

Corby (2009) stated that the Education Resources Information Center (ERIC) underwent substantial change during the 2004 construct cycle. Since it began in 1966, it has always been a highly respected and heavily used bibliographic resource, but some users are unaware of its status due to the recent changes in its format and availability. This update highlights major developments and assesses the resulting ERIC product considering the current education index marketplace.

According to Strayer's (2008) study, the effectiveness of the new Education Resources Information Center (ERIC) database offers training to those who teach education research as well as researchers themselves. Likewise, Corby (2009) said that ERIC's goal is to give educators and researchers access to a comprehensive, user-friendly, searchable, internet-based bibliographic and full-text database of education-related information.

Research capability is necessary in completing research output (Caingcoy, 2020). It must be needed for improving the research capability of individuals through an instrument. Thus, this study aimed to know if research capability can be enhanced through ERIC.

2. Literature Review

2.1. Research Capability

Research capability is the process of acquiring knowledge, skills, attitudes, scientific literacy, capacity, and competency in conducting research. This study also conjectured that there has been confusion between these terms, competency, or capability. To compare, "capability describes the ability of an organization or unit. Competence describes the ability of an individual to do something" (Holt, J; Perry SA, 2011).

Research capabilities of students play a vital role in advancing knowledge, innovation, and societal development (John Lenon E. Agatep;Roy N. Villalobos, 2020). By assessing the research capabilities, educational institutions can identify areas for improvement and design effective strategies to enhance research competencies among graduate students. Furthermore, research capability is the potential of individuals in the institution to undertake the rigors of effective, efficient, and high-quality research. However, many researchers face challenges in effectively communicating their research findings through scholarly publications (Hussain, 2020).

Hughes (2019) said that research-based learning in taught courses develops the skills needed to judge knowledge sources and think critically in a post-truth world. In viewing research skills as threshold concepts, the paper argues that transforming a student cannot be a one-off event. Research capacity must be built over a program, and this requires coherent research skill development and assessment that is progressive (ipsative).

Research had irrefutably displayed its importance in the field of education. However, amidst the increasing developments in the teaching practices from the research results and findings, conducting research remains to be one of the waterloos of most teachers, especially in basic education (Manila, Benjie; Dayanan, Henry; Barlis, Jose; Fajardo, Josefin, 2022). Moreover, research capabilities play a crucial role in promoting a culture of inquiry, critical thinking, and knowledge creation among students and teachers. By identifying the strengths

and areas for improvement in research practices, this study aims to pave the way for enhancing the school's research ecosystem (Vasquez, Reymond; Zales, Jonathan; Atmosfera; Rynheart, 2022).

Research capability has received an overwhelming and remarkable interest among academics and practitioners. This is timely since the Department of Education had institutionalized research and encouraged teachers to engage in it to support evidence-based practice, decision-making, policy, and program development (Caingcoy, 2020).

2.2. ERIC

According to the study of the performance of the new Education Resources Information Center (ERIC) database provides education for researchers and those who teach education research. Corby (2009) said that the mission of ERIC is to provide a comprehensive, easy to use, searchable, internet-based bibliographic and full-text database of education research and Information for educators and researchers.

Furthermore, a resource once accessed by passing a paper query form to a librarian and now increasingly searched directly by end-users. This article empirically examines the search strategies currently being used by researchers and other groups. College professors and educational researchers appear to be doing a better job searching the database than other ERIC patrons. However, the study suggests that most end-users should be using much better search strategies (Hertzberg, Scott; Rudner Lawrence, 1999).

On the other hand, using the tool of bibliometric, the study examines journal articles from (ERIC) related to Education for Sustainable Development (ESD) in academic journals from 1990 to 2005. The results show that the number of ESD journal articles has been increasing in the literature but in a nonlinear fashion. The number of academic journals publishing ESD articles in (ERIC) database also increased from 1990 to 2005 but not at the same rate. The number of authors publishing articles related to ESD has increased significantly. Further, the journal articles from ERIC become more effective (Wright, 2002).

3. Methodology

This study utilized quantitative research design. According to Edu (2022), research design is simply a structural framework of various research methods as well as techniques that are utilized by a researcher. Bhandari (2020) defined quantitative research as the process of collecting and analyzing numerical data. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to wider populations. Quantitative research is the opposite of qualitative research, which involves collecting and analyzing non-numerical data (e.g., text, video, or audio). Quantitative research is widely used in the natural and social sciences: biology, chemistry, psychology, economics, sociology, marketing, etc.

The study used correlational design which defined as the blueprint of the procedure and enabled the researcher to test his hypothesis by reaching valid conclusion about the relationship between independent and dependent variables. Correlational research design is a non-experimental method , it indicates that investigators do not have to use the formal technique to modify factors in agreeing or dispute with such a concept, the investigator just analyzes and examines the relationship among variables, not changing or modifying them in any way (voxco.com, 2021). The study aimed to find if there is a relationship between the independent and dependent variables. The study is also quantitative research design.

The study is quantitative data and the sampling technique used is simple random sampling. According to Hayes (2022), a simple random sampling is a subset of a statistical population in which each member of the subset has an equal probability of being chosen. A simple random sampling is meant to be an unbiased

representation of a group. The respondents consisted of 50 grade 12 GAS students who used ERIC in their research at Dagatan National High School only.

After determining the respondents, the researcher prepared a Likert scale for them to answer, according to Elliot (2021), Likert scale is a type of scale used in survey research that measures respondents' attitudes and opinions towards a certain subject. Likert scale questions are single-choice, closed-ended questions, and the primary benefit of using a Likert scale is that it provides more granular information on people's attitudes towards a subject than a simple yes/no question type. By using a Likert scale, researchers can assess varying levels of agreement, importance, quality, and other factors. Furthermore, McLeod (2019) stated that Likert scale (typically) provides five possible answers to a statement or question that allows respondents to indicate their positive-to-negative strength of agreement or strength of feeling regarding the question or statement. The study also used Likert scale for measuring the perceived research capabilities of students.

The researchers prepared a Likert scale for measuring the perceived research capabilities of the respondents. After the preparation of the research instruments, the researchers consulted their adviser for suggestions and comments to review each item on the instruments. After the validation of the instruments to be used, the researchers sent a letter request to the principal of Dagatan National High School where they conducted the study. After the permission was granted, the researchers conducted the study within 2 weeks or a total of 10 days. The research determined first the respondents of the study using the simple random sampling technique. Then, they conducted their study by giving the survey 4-point Likert scale to the respondents to measure their research capabilities.

To answer the descriptive questions, mean and statistical deviation were used. According to Bhandari (2020) mean is the sum of all values divided by the total number of values. It's the most used central tendency and is often referred to as the "average". Furthermore, mean is the most used measure of central tendency (S., 2011). If mentioned without an adjective (as mean), it generally refers to the arithmetic mean. Standard deviation provides insight into how much variation there is within a group of values (Sykes, Leanne; Gani F.; Vally Z., 2016). The standard deviation also describes variability and is defined as the square root of the variance. Furthermore, Hargrave (2022), defined standard deviation as a statistic that measures the dispersion of a dataset relative to its mean and is calculated as the square root of the variance. The standard deviation is calculated as the square root of variance by determining each data point's deviation relative to the mean.

To answer the inferential questions, Pearson Product Moment of Correlation was used. Chee (2015) stated that Pearson's product moment correlation coefficient was developed by Karl Pearson (1948). According to Turney (2022), Pearson Product Moment of Correlation is the most common way of measuring a linear correlation. It is a number between –1 and 1 that measures the strength and direction of the relationship between two variables. It is an inferential statistic, meaning that it can be used to test statistical hypotheses. Specifically, it can test whether there is a significant relationship between two variables.

4. Results and Discussion

This chapter presents the findings of the study with the corresponding interpretations derived from the statistical treatment of the data.

Table 1. Perceived effectiveness of ERIC in terms of improved practice in learning.

Indicators	Mean	SD	Interpretation
1. I used ERIC for better understanding.	3.22	0.68	Agree
2. I used ERIC for acquiring knowledge and generating ideas.	3.34	0.59	Strongly Agree
3. ERIC helps me improve my learning strategies.	3.04	0.81	Agree
4. Using ERIC, I can improve myself in terms of learning and collecting data.	3.26	0.56	Strongly Agree
5. It motivates me to learn and explore recent ideas.	3.26	0.75	Strongly Agree
Total	**3.22**	**0.68**	**Agree**

Legend: 3.26-4.00- Strongly Agree (Very High); 2.51-3.25- Agree (High); 1.76-2.50- Disagree (Moderate); 1.00-1.75- Strongly Disagree (Low)

Table 1 shows the perception of Grade-12 GAS students towards the perceived effectiveness of ERIC in terms of improved practice in learning. Indicator 2 which states that "I used ERIC for acquiring knowledge and generating ideas" obtained the highest mean of 3.34 with an interpretation of "strongly agree", while indicator 3 which states that "ERIC helps me improve my learning strategies" obtained the lowest weighted mean of 3.04 with an interpretation of "agree". It means that the Grade-12 GAS students used ERIC to acquire knowledge and ideas, it also means that they improve their practice in learning using ERIC. Therefore, some students are not convinced that using ERIC they improve their learning strategies but still it obtained a mean of 3.04 that can consider a higher mean even it is the lowest among the 5 indicators.

The average student response to the usage of ERIC in terms of improved practice in learning has a mean of 3.22 and a standard deviation of 0.68, which is interpreted as "agree". It can be implied that the use of ERIC has a big evolvement in improving practice in learning. According to Chelsey (1979), the ERIC system provides access to a wide variety of information concerned with education. The process of acquiring, selecting, retrieving, and disseminating knowledge or ideas is described.

Table 2.   Perceived effectiveness of ERIC in terms of decision-making.

Indicators	Mean	SD	Interpretation
1. I used ERIC for choosing the right related literature studies.	3.22	.65	Strongly Agree
2. I used ERIC for making the right citation.	3.3	.62	Agree
3. ERIC helps me decide appropriate methodological works related to my study.	3.24	.79	Agree
4. ERIC guides me on how to synthesize and generate in-text citation.	2.94	.79	Agree
5. I used ERIC in making the right procedure of my studies.	3.1	.79	Agree
Total	**2.54**	**0.7**	**Agree**

Legend: 3.26-4.00- Strongly Agree (Very High); 2.51-3.25- Agree (High); 1.76-2.50- Disagree (Moderate); 1.00-1.75- Strongly Disagree (Low)

Table 2 shows the perception of Grade-12 GAS students towards the perceived effectiveness of ERIC in terms of decision making. Indicator 1 which states that "I used ERIC for choosing the right related literature studies" obtained the highest mean of 3.32 and a standard deviation of.65 with an interpretation of "strongly agree" while indicator 4 which states that "Eric guides me on how to synthesize and generate in-text citation" obtained the lowest weighted mean of 2.94 and a standard deviation of .79 with an interpretation of "agree'. It means that most of the Grade-12 GAS students used ERIC for choosing the right related literature studies. Therefore, not all Grade-12 GAS students Convinced that ERIC guides them on how to synthesize and generate in-text citation maybe because some students doesn't need guide to synthesize and generate in-text citation but still it is interpreted as agree.

Taken as a whole, the perception of Grade-12 GAS students towards the use of ERIC in terms of decision making has a mean of 3.18 and a standard deviation of 0.7 interpreted as "agree". Since the overall interpretation of the perception of Grade-12 GAS students towards the use of ERIC in terms of decision-making is "agree", It can be implied that the use of ERIC has a big evolvement in the decision making of Grade-12 GAS students.

According to Burchinal (2002), the Educational Resources Information Center (ERIC) is a federally funded nationwide information system established to provide easy access to information about education research. ERIC offers researchers a single source through which they can identify and obtain copies of education related documents, articles, books, monographs, tests, manuals and handbooks, bibliographies, statistical reports, conference papers, dissertations and theses, historical materials, yearbooks, and translations. ERIC's mission is to improve researchers learning and decision making by facilitating access to helpful educational research and information.

Table 3.   Perceived effectiveness of ERIC in terms of research.

Indicators	Mean	SD	Interpretation
1. In using ERIC, I can search related literatures for my study.	3.46	.76	Strongly Agree
2. ERIC provides me research data to support and strengthen my studies.	3.36	.56	Strongly Agree
3. ERIC provides the easy way searching process.	3.3	.81	Agree
4. ERIC provides a reliable source as a researcher.	3.16	.82	Agree
5. Using ERIC, I can do my research.	3.16	.68	Agree
Total	**3.29**	**0.73**	**Strongly Agree**

Legend: 3.26-4.00- Strongly Agree (Very High); 2.51-3.25- Agree (High); 1.76-2.50- Disagree (Moderate); 1.00-1.75- Strongly Disagree(Low)

Table 3 shows the perception of Grade-12 GAS students towards the perceived effectiveness of ERIC in terms of research. Indicator 1 which states that "In using ERIC, I am able to search related literatures" obtained the highest mean of 3.46 and a standard deviation of .76 with an interpretation of "strongly agree" while indicator 3 which states that "ERIC provides easy way in searching process" obtained the lowest mean of 3.3 and a standard deviation of .81 with an interpretation of "agree". It means that the Grade-12 GAS students are using ERIC to search related literature for their study. Therefore, some of the Grade-12 GAS students are convinced that the ERIC provides an easy way of searching process but still its interpreted as agree.

Taken as a whole, the perception of Grade-12 GAS students towards the use of ERIC in terms of research has a weighted mean of 3.29 and a standard deviation of 0.73 interpreted as "strongly agree". Since the overall interpretation of the perception of Grade-12 GAS students towards the use of ERIC in terms of research is

"strongly agree", It can be implied that the use of ERIC has a big evolvement in the research of Grade-12 GAS students.

According to Corby (2009), ERIC provides access to 1.5 million bibliographic records to the user including (citations, abstracts, and other pertinent data) of journal articles and other education-related materials, with hundreds of new records added every week.

Table 4.   Research capabilities of students.

Indicators	Mean	SD	Interpretation
1. I can prepare a plan and focus on issues and ideas in my research study.	3.22	.74	Capable
2. I can clearly formulate the statement of the research problem.	2.94	.59	Capable
3. I can select, cite synthesize properly the related literatures.	3.24	.74	Capable
4. I can use various sources according to ethical standards.	3.14	.83	Capable
5. I can present written review literature (8 - 10 pages).	3.14	.81	Capable
6. I can describe adequately research design (either quantitative or qualitative).	3.25	.75	Capable
7. I can choose appropriate respondents for the study	3.02	.77	Capable
8. I can formulate my own research instrument of the study.	3.14	.64	Capable
9. I can present written research methodology.	3.24	.82	Capable
10. I gathered and analyzed data with intellectual honesty using suitable techniques.	3.06	.77	Capable
11. I can form logical conclusions.	2.98	.65	Capable
12. I can make recommendation based on conclusion.	3.04	.81	Capable
13. I can write and present clear report	3.04	.70	Capable
14. I can defend written research report with reliability and accuracy.	3.12	.66	Capable
15. I revised written research report based on suggestions and recommendations of panelists.	3.26	.72	Highly Capable
Total	**3.12**	**0.73**	**Capable**

Legend: 3.26-4.00- Highly Capable; 2.51-3.25- Capable; 1.76-2.50- Slightly Capable; 1.00-1.75- Not Capable

Table 4 shows the perceived research capabilities of Grade-12 GAS students. Indicator 15 which states that "I revised written research report based on suggestions and recommendations of panelists" obtained the highest mean of 3.26 and a standard deviation of .72 with an interpretation of "highly capable" while indicator 4 which states that "I can formulate clearly the statement of the research problem" obtained the lowest mean of 2.94 and a standard deviation of .59 with an interpretation of "capable". It means that the students can answer a problem by following the scientific processes of planning, gathering data, and interpreting it with the appropriate statistical tool or qualitative analysis.

The perceived research capability of Grade-12 GAS students has an overall mean of 3.12 and a standard deviation of 0.73 interpreted as "capable". It can be implied that the Grade-12 GAS students are capable in research. Researchers will be capable in doing research study if he has the ability to carry out data collection involving planning and selecting appropriate data collection tools or instruments, identifying an appropriate

method for interpreting, and manipulating data and applying an appropriate statistical tool for the test of significance besides understanding (Ismail, Rosli; Meeran Subhan, 2012).

Table 5. Correlation between the use of ERIC and Research Capability of Grade-12 GAS students.

ERIC	r-value	p-value	Interpretation
Improve practice in learning	.577	.000	Significant
Decision making	.506	.000	Significant
Research	.594	.000	Significant

Legend: p-value<0.05 Significant; p-value>0.05 Not Significant

Table 5 shows test correlation between the use of ERIC and research capabilities of Grade-12 GAS students. It can be seen from table 5 that all variables have a p-value of .000. It indicates that all variables from ERIC are significantly related to the research capability of Grade-12 GAS students. Thus, it implied that the use of ERIC is effective on enhancing the research capability of Grade-12 GAS students.

According to Corby (2009), the mission of ERIC is to provide a comprehensive, easy-to-use, searchable, Internet-based bibliographic and full-text database of education research and information for researchers, and the public. Educational research and information are essential to improved learning, and decision-making overall to improve the research skills of the user.

5. Conclusion

The main purpose of this research is to determine the relationship between the use of ERIC and research capability of students. It was found that the students used ERIC in terms of improved practice in learning, decision making and research. The results revealed that there is a significant relationship between the use of ERIC and research capability of students. This implies that the use of ERIC is effective in enhancing the students' research capability. Therefore, the hypothesis stating that there is no significant relationship between the perceived effectiveness of ERIC and research capability of students is not accepted at 0.00 level of significance.

The outcome of this study recommends to future researchers that it will be more effective if experimental research is used. The researcher might give the respondents a research project with the use of ERIC and evaluate the research output and find if the use of ERIC can truly be effective on enhancing the research capability of the respondents.

References

(2021). Retrieved from voxco.com.

Bhandari, P. (2020). How to Find Mean Definition, Examples And Calculator.

Burchinal, L. (2002). ERIC; THE EDUCATION RESOURCES INFORMATION CENTER.

Caingcoy, M. (2020). Research Capability of Teachers: Its Correlates, Determinants and Implication for Continuing Professional Development. Journal of World Englishes and Educational Practices.

Chee, J. (2015). Pearson Product- Moment Correlation; Sample analysis.

Chelsey, R. (1979). The Educational Resources information center.

Corby, K. (2009). When is ERIC useful? A background and current overview of the education resources center.

Donovan, Cian; Moon, Joshua; Michalec, Aleksandra. (2022). Capabilities for Transdisciplinary Research. 145-158.

Edu, L. (2022). Research Design.

Elliot, R. (2021). Likert Scales Examples and definition.

Hargrave, M. (2022). Standard Deviation Formula and uses vs. Variance.

Hayes, A. (2022). Simple Random Sampling; 6 Basic Seps with Examples.

Hertzberg, Scott; Rudner Lawrence. (1999). The Quality of Researchers's Searches of the ERIC Database.

Holt, J; Perry SA. (2011). Pragmatic guide to competency; Tools, Frameworks and Assessments.

Hughes, G. (2019). Developing student researchcapability for a post truth world; three challenges for integrating research across taught programmes. 394-411.

Hussain, M. (2020). Manuscript Writing and Publication Workshop; An invoking pilot Study on enhancing cognitive research in health science.

Ismail, Rosli; Meeran Subhan. (2012). Evaluationg the Research Competencies of Doctoral Students.

John Lenon E. Agatep;Roy N. Villalobos. (2020). Research Capabilities Among Selected Graduate School Students in Philippines. 691-705.

Mani, Merian; Fetalvero; Foja, Lou; Formento, Alexander. (2010). Research Capability; Building- A Stategy to Promote Research Culture in SUCs and Countryside Development: The Romblon State College Experience.

Manila, Benjie; Dayanan, Henry; Barlis, Jose; Fajardo, Josefin. (2022). Assessment of Teachers' Research Capability Towards the Promotion of Culture in Elementary Schools.

Manongsong, Maria Joanna; Panopio, Edgardo. (2018). Dentistry Faculty Members' Research Competencies and attitude towards Reseach Engagement. Asia Pacific Journal of Education, Arts and Sciences.

McLeod, S. (2019). Likert Scale Definition examples and Analysis.

Mydin, F., & Shahlan, S. (2021). Research Capability; Early Career Academics' Perception of Doctoral Studies.

S., M. (2011). Measures of Central Tendency; Median and Mode.

Salom, Melchor; Mariano, Don; Memorial, Marcos. (2013). Research Capability Of The Faculty Members Of DMMMSU Mid La Union Campus.

Strayer, J. J. (2008). ERIC database alternatives and strategiesfor education researchers.

Sykes, Leanne; Gani F.; Vally Z. (2016). The meaning of MEAN and other statistical terms commonly used in Medical research.

Turney, S. (2022). Pearson Correlation Coefficient.

Vasquez, Reymond; Zales, Jonathan; Atmosfera; Rynheart. (2022). Needs analysis on the research capabilities of diocesan secondary school teachers of abra; basis for capability enhancement program.

Wright, T. (2002). Definitions and Frameworks for environmental sustainability in higher education. 105-120.