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COPING MECHANISMS OF GRADE 5 AND 6 TEACHERS IN ADDRESSING ARTIFICIAL INTELLIGENCE (AI) USAGE AMONG STUDENTS IN PUBLIC ELEMENTARY SCHOOLS

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ABSTRACT

This study explored how Grade 5 and 6 teachers cope with the use of AI in public elementary schools. The research aimed to create a training plan for learning and development. It specifically examined teachers' coping strategies in areas like education and understanding, adaptability and resilience, strategic preparation, and ethical issues. The study also highlighted the challenges teachers face in managing students' use of AI, including academic integrity and plagiarism, bias and fairness, loss of human interest and social skills, teaching and accessibility, data privacy and security, as well as teacher training and support. A total of 230 teachers participated, and the data were analyzed using descriptive statistics like frequency counts, percentages, and weighted means.

The findings showed that teachers often used coping strategies across all areas, with a mean score of 2.92, and regularly faced challenges, some of which were more pronounced than others, with a mean score of 2.78. No significant differences were found among these factors. Teachers also faced challenges when managing students' use of AI. These challenges included academic integrity, bias, social skills, teaching accessibility, data privacy, and training

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support. Again, there were no significant differences across these challenges. To tackle these issues, the researcher created a program called Enhancing Teacher Competence and Confidence in AI Integration. This program aims to help teachers effectively manage AI in the classroom.

Recommendations include providing ongoing training on AI tools and ethics, establishing clear policies for data privacy and responsible AI use, encouraging teachers to work together to enhance their knowledge and effectively integrate AI in the classroom.

INTRODUCTION

Artificial Intelligence (AI) refers to computer systems that can perform tasks that usually need human intelligence, such as reasoning, learning from past experiences, adapting to new situations, and making decisions (Copeland, 2025). In the Philippines, the formal recognition of AI in education has gained momentum in recent years. This progress is marked by the establishment of the Education Center for AI Research (E-CAIR) under the Department of Education in February 2025. E-CAIR aims to lead the development of AI-driven solutions for teaching, learning, and school administration.

Republic Act No. 11927, also known as the Philippine Digital Workforce Competitiveness Act, shows the government's commitment to building a workforce that is skilled in digital technology and ready for the future. This is important because of rapid changes brought by technology like artificial intelligence (AI) and automation. The law requires government agencies, including the Department of Education (DepEd), to create programs

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that improve digital skills. These programs focus on upskilling and reskilling educators and students so they can meet global standards for technology use. In public elementary education, this Act provides a legal basis for using AI tools in teaching and learning. It encourages innovation and digital change in schools.

Elementary teachers have the challenging job of using AI's benefits without compromising key skills like critical thinking and originality. It's crucial to develop good coping strategies and teaching methods to uphold academic honesty and encourage responsible AI use among students. This study aimed to explore how Grades 5 and 6 teachers in public elementary schools cope with the increasing use of AI among students. It sought to examine teachers' strategies, perceptions, and challenges in managing AI-integrated learning, as well as their approaches to maintaining student engagement and ethical academic practices.

RESEARCH METHODOLOGY

This chapter presents the research design, sources of data, respondents of the study, research instrument, validation of research instrument, ethical considerations, data gathering procedures, and statistical tools used.

Research Design

In this study, the researcher used descriptive method of research and survey research as technique. Descriptive research aims to accurately and systematically describe a population,

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situation or phenomenon. It can answer what, when, where and how questions, excluding questions.

A descriptive research design can use a variety of quantitative and qualitative methods to investigate one or more variables (McCombes, 2019). It is deemed appropriate to use this method in this study as the data on the extend of utilization of the coping mechanism by the Grade 5 and 6 teachers in addressing the usage of AI among learners. Result of the statistical treatment should be translated into narrative to make it clear and understandable to a wider audience.

Survey research is a systematic approach to collecting quantitative or qualitative data from a sample of people. It aims to understand attitudes, opinions, beliefs or behaviors on specific topics. By analyzing survey data, researchers can draw conclusions about broader populations, making surveys ideal for generalizable research findings (Rasinski, 2005). The use of survey research as a technique for this study is responsive as the key informants of the data to be gathered is a big number of professionals who are varied in terms of background, school environment, quality and quantity of learners and other demographical considerations.

Sources of Data

The two sources of data in the conduct of this research were the primary and secondary sources. The primary sources of data were the responses of the Grade 5 and 6 teachers in the questionnaire checklist. The secondary source of data were the published

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theses and dissertations, books, research journals, periodicals, brochures, pamphlets and other published print and non-print materials related to the study.

Respondents of the Study

The respondents of this study were the Grade 5 and 6 teachers from selected public elementary schools. A purposive sampling technique was used to select participants, ensuring that the respondents possess relevant knowledge and experience related to AI usage in the classroom. The estimated number of respondents was determined based on the total population of Grade 5 and 6 teachers in the selected schools, with a sample size that ensures statistical validity.

Table 1

Respondents of the Study

Public Elementary Schools	Grade 5 Teachers	Grade 6 Teachers	Total
District A	51	21	72
District B	61	34	95
District C	43	20	63
Total	**155**	**75**	**230**

Grade 5 and 6 teachers were chosen as respondents because they play a key role in preparing students for higher levels of learning, where technology and AI tools are becoming more common. At these grades, teachers start introducing more complex lessons. These lessons require critical thinking, problem-solving, and digital literacy. These are skills that AI

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can help develop. Additionally, Grade 5 and 6 teachers often need to balance both basic and advanced teaching methods. This makes their strategies for coping with AI very relevant. Their experiences and attitudes give important insights into how elementary teachers handle technological changes and face challenges related to AI use in the classroom.

Research Instrument

The research instrument used in this study was the questionnaire checklist prepared by the researcher, and it was presented in Appendix B. On the other hand, another questionnaire checklist will be used as evaluation tool on the acceptability of the training designed and it is shown in Appendix C. They were both adapted and organized by the researcher in consultation with the adviser and other experts in the curriculum, learning materials and other instructional leadership.

The questionnaire checklist was divided into two parts. The first part used to gather data on the coping mechanism strategies of the Grade 5 and 6 teachers on the utilization of AI among grade 5 and 6 learners. Directions were provided. The first column contains the indicators under three (3) variables of this study. The four columns to the right were provisions for checking on the specific extend. They represent the Likert Scale. To guide the respondents and researchers, the following descriptions opposite the extent of practice are provided in the instrument: 4 – Always Employed; 3-Sometimes Employed; 2-Often Employed; and 1-Never Employed.

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The second part of the instrument was used to gather data on the extent of challenges faced by the Grade 5 and 6 teachers in addressing the AI usage among Grade 5 and 6 learners. The first column is the list of challenges while the four columns represent the 4-point Likert scale. The respondents were guided by theses descriptions opposite the extent of challenges faced as provided in the instrument: 4-Always Encountered; 3- Sometimes Encountered; 2-Often Encountered; 1 – Never Encountered.

The use of the said instrument was the most appropriate for this research because it includes all the most common strategies that teacher use in coping the utilization of AI. The values in the Likert scale are explicitly described and points are distributed equitably.

Validation of Research Instrument

To ensure the validity of questionnaire checklist the researcher consulted the adviser and experts before the finalization of the research instrument. Suggestions regarding the improvements of the indicators were positively taken into consideration by the researcher. If there was a need to delete or add in the indicators they will be done. A dry run was conducted in the same categories of the respondents in a nearby school. After gathering the initial questionnaire checklist, the consolidated responses were subjected in Cronbach's Alpha to measure the consistency level and validity of the indicators. Results were utilized for decision making whether the research instrument is ready for distribution to the actual respondents, or it requires some revisions or improvements.

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Ethical Considerations

The researcher exhausted all efforts to protect respondents of the study. Codes were used in lieu of the names of the schools and places. Prior to the conduct of this research, permission and approval of the concerned person was sought.

Data were safeguarded to the highest extent of confidentiality. Individual data on the extent of use of coping mechanism strategies and challenges faced was not the bases for their performance instead, the collective data were utilized strictly for research purpose only. Anonymity was observed. The accomplished individual questionnaire checklist was labeled with the names of the respondents nor requiring them to give their identifying characteristics. The research instruments were arranged in random order before they were tallied.

The researcher included data that were truthful. The actual findings of this research were revealed without prejudicial acts against the respondents. Moreover, the real finding was the only ones to be written in this manuscript.

Owning written ideas of others was not committed in this research. Other person's ideas in any part of this study will be used solely to substantiate and support the findings. All of them was acknowledged by citing the authors, including all the references in the notes and bibliography.

Data Gathering Procedure

The researcher undertook the following steps to gather the essential data in the foregoing study. Initially, the researcher wrote a formal request to the Schools Division

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Superintendent of Schools Division Office, to seek approval from proper authority to conduct the study. It was approved by the Dean of the of the Republic Colleges Guinobatan Inc. Graduate School as recommending approval. A copy of the letter was in the Appendix D. After approval of the request, researcher brought the letter personally to the Public Schools District Supervisors for their information and assistance. Photocopies of the approved letter was provided to the school official with individual letters to the respondents. The letter is in Appendix E.

The researcher personally handed the questionnaire checklist to all the schools and with the concurrence of the Grade 5 and 6 Teachers. The researcher set an appointment on the pickup date of the accomplished questionnaire checklist.

Table 2 presents the distribution and retrieval of the research instruments. The researcher tried her very best to retrieve 100 percent of the research instruments. Upon receipt of the instruments, the researchers tallied the response in every indicator. After which, consolidation and in-depth interpretation followed.

After finding the variable and indicators with the least extent in terms of coping mechanism and utilization, the researcher prepared the training design plan. This was done in the consultation with the adviser and other experts. The raw data was tallied and provided with in-depth interpretation as to the acceptability level before their utilization in the field.

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Table 2

Distribution and Retrieval of the Questionnaires

District	Number of Instruments		Percentage of the Research Instrument Retrieved
	Distributed	Retrieved	
District A	51	23	100
District B	61	34	100
District C	41	20	100
Total:	**153**	**77**	**100**

Statistical Tools

The researcher used the following statistical tools to treat the generated data: frequency count, percentage technique, weighted mean, F-test or Analysis of Variance (ANOVA) and chi-square test.

Frequency Count. It is simply the counting of the number of times that each variable occurs, such as the number of males and females within the sample (Korb, 2013). This was used in counting the number of respondent who checked in a level in the Likert Scale, in specific indicator under each variable.

Percentage Technique. It was used to find the proportion of responses and to describe the distribution of data collected from the respondents (Rasinski,2005). This technique made it easier to analyze the results and present them clearly and understandably.

The percentage was computed using this formula:

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P = f/n x 100

Where:

P = percentage

F = frequency

n = total number

100 = constant

Weighted Mean. This is a measure of central tendency. It was used to find the average responses by assigning weights to each scale value (Calmorin et al. 2007). In this study, this was used to quantify the extent of coping mechanisms of Grade 5 and 6 teachers to the AI usage among grades 5 and 6 learners in public elementary schools under each variable.

$$Mw = \frac{\sum fw}{N}$$

Where:

Mw = weighted Mean

f = frequency

w = weight

N = total number

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F – Test or Analysis of Variance (ANOVA). This was a test used to compare the means of two or more groups of independent samples. It is also known as Analysis of Variance (ANOVA) (Frost, 2017). It was utilized on this study to determine the significant difference between the extent of coping mechanisms and extent of challenges faced by the Grade 5 and 6 teachers among the variables. It follows a decision rule that the null hypothesis is rejected if the computed F-value is greater than the tabular value at 0.05 level of significance.

The computed data will be presented in the ANOVA Table as follows:

Sources of Variation	**Degrees of Freedom (df)**	**Sum of Squares (SS)**	**Mean Squares (MS)**	**F- Value**	
				Computed	Tabular
Between Groups	K-1	BSS	$\frac{BSS}{df}$	$\frac{MSB}{MSW} = F$	See the table of "F" Distribution at 0.05 $\propto$
Within Groups	(N-1) (K-1)	WSS	$\frac{WSS}{df}$		
TOTAL	(N-1)	TSS			

Where:

F = F-Value (MSB divided by MSW)

K = number of groups

N = number of samples

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CF = correction factor

TSS = total sum of squares minus the CF

BSS = between sum of squares minus CF

WSS = difference between the TSS minus BSS

MSB = mean squares between (BSS/df)

MSW = mean squares within (WSS/df)

SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of the research study which includes findings, conclusions, and recommendations of the study.

Summary

This study determined the Coping Mechanisms of Grade 5 and 6 Teachers in Addressing Artificial Intelligence (AI) Usage among Students in Public Elementary Schools as basis for the preparation of Enhancing Teacher Competence and Confidence in AI Integration: Training Program. Using survey technique, Grade 5 and 6 teachers from a participating division answered a checklist whose results were interpreted by the researcher.

Specifically, it answered the following questions.

1. What is the extent of the use of the coping mechanisms utilized by Grade 5 and 6 teachers in addressing the usage of AI among Public Elementary Schools along

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a. Education and Understanding

b. Adaptabilities and Resilience

c. Strategic Preparation

d. Ethical considerations

2. Is there a significant difference in the extent of use of the coping mechanism utilized by Grade 5 and 6 teachers in addressing the usage of AI among Public Elementary Schools among the variables?
3. What is the extent of the challenges encountered faced by the teachers in managing students use of AI in academic tasks along:

a. Academic Integrity and Plagiarism

b. Bias and Fairness

c. Loss of Human Interest and Social Skills

d. Teaching and Accessibility

e. Data Privacy and Security

f. Teacher's Training and Support

4. Is there a significant difference between the extent of challenges faced encountered by the Grade 5 and 6 teachers among the variables?
5. What training design can be prepared to address the challenges faced by the Grade 5 and 6 teachers among the variables?

Findings

1. The extent of the coping mechanisms employed by

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Grade 5 and 6 teachers in addressing the usage of artificial intelligence by learners in public elementary schools along:

a. Education and Understanding has a weighted average of 2.93, ranging from 2.78 to 3.06, and it was interpreted as Often Employed.
b. Adaptabilities and Resilience has a weighted average of 2.90, ranging from 2.80 to 2.96, and is interpreted as Often Employed.
c. Strategic Preparations has a weighted average of 2.77, which is interpreted as Often Employed.
d. Ethical Considerations has an average weighted mean of 3.09, which is interpreted as Often Employed.

2. The calculated F-value of 5.83 exceeds the tabular value of 3.49 at the 0.05 significance level and degree of freedom of 3 and 12, leading to the rejection of the null hypothesis and acceptance of the alternative hypothesis

3. The extent of challenges encountered by Grade 5 and 6 teachers in managing learners' use of artificial intelligence in academic tasks along:

a. Academic integrity and plagiarism, has an average weighted mean of 2.51. This is interpreted as Often Encountered, indicating that teachers frequently face these challenges in their teaching practices.
b. Bias and Fairness in managing learners' use of AI have an average weighted mean of 2.68, which falls into the Often Encountered category. This indicates that

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teachers frequently experience issues related to bias, inequality, and fairness when overseeing AI use in academic tasks.

c. Loss of human interest and social skills has a weighted average of 3.08, ranging from 2.67 to 3.35, and is interpreted as Often Encountered.

d. Teaching and accessibility has a weighted average of 2.38, ranging from 1.54 to 3.20, and is interpreted as Sometimes Encountered.

e. Data privacy and security has a weighted average of 2.94, ranging from 2.85 to 3.01, and is interpreted as ften Encountered.

f. Training and support has a weighted average of 3.09, which is interpreted as Often Encountered.

4. The calculated F-value of 1.049 is compared to the tabular F-value at a 0.05 significance level (which is 2.77). Since the computed F-value of 1.049 is less than the critical value of 2.77. The null hypothesis is there is no significant difference in the extent of challenges among the variables is not rejected.

Conclusions

1. The extent of coping mechanisms utilized by Grade 5 and 6 teachers in addressing the usage of AI among public elementary schools along education and understanding; adaptabilities and resilience; strategic preparation; and ethical considerations are often employed.

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2. There was no significant difference in the extent of coping mechanisms utilized by 5 and 6 teachers in addressing the usage of AI among public elementary schools among the variable.
3. The extent of the challenges encountered by the teachers in managing students use of AI in academic tasks along: academic integrity and plagiarism; bias and fairness; loss of human interest and social skills; teaching and accessibility; data privacy and security; teacher's training and support are often encountered.
4. There was no significant difference in the extent of challenges encountered by the grades 5 and 6 teachers among the variables.
5. The learning and development design prepared by the researcher to address the challenges faced by the Grade 5 and 6 teachers was entitled Learning and Development Design: Enhancing Teacher's Competence and Confidence in AI Integration.

Recommendations

1. Educational institutions may prioritize ongoing professional development on AI integration. This should focus on teachers' understanding of AI tools, ethics, and classroom strategies. Training will help teachers feel more confident and prepared to use AI responsibly and effectively.

2. Schools may make clear AI policies on data privacy, security, and ethics. They should also provide regular training to ensure that teachers and students use AI responsibly and protect student information.

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3. Promoting AI literacy in schools may focus on bias, fairness, and responsible use. This will help students develop critical thinking skills and understand ethical issues. Teachers need training to lead discussions and activities on AI ethics and its social effects.

4. Schools may provide equal access to AI by closing resource gaps, improving infrastructure, and supplying devices or internet connectivity. This way, all students can benefit from AI-assisted learning.

5. Teacher may encourage collaboration through learning communities and peer sharing strengthens collective knowledge and strategies for using AI.

6. Future researchers may do further exploration of Artificial Intelligence (AI).

a. AI Literacy: Empowering Teachers and Students to Navigate the Age of Artificial Intelligence

b. Artificial Intelligence and Journalism: Strengthening Critical Thinking and Media Literacy in the Classroom

c. Integrating AI in Science and Numeracy Education: Enhancing Analytical and Problem-Solving Skills.

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