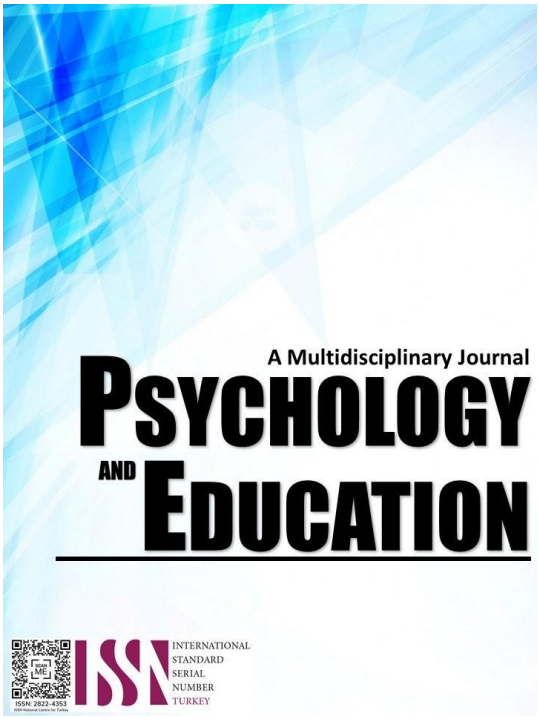
STRATEGIC PEDAGOGICAL READING COMPREHENSION TOWARDS CREATIVE THINKING



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Research Article

Strategic Pedagogical Reading Comprehension towards Creative Thinking

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Abstract

This study focused on determining the teachers' pedagogical approaches, and students' level of creative thinking to create a strategic pedagogical reading comprehension towards creative thinking. The researcher utilized a quantitative approach descriptive correlational design with the use of self-made questionnaire. The respondents were chosen from five (5) public Junior High Schools in Candelaria, Quezon namely Atty. Celso M. Reyes National High School, Bukal Sur National High School, Dolores Macasaet National High School, Dr. Panfilo Castro National High School, and Sta. Catalina National High School. A total of 40 randomly selected Junior High School teachers from each school participated along with their randomly selected student per teacher for the same total of 40 students. All data were gathered through questionnaires then analyzed and interpret through one-sample t-test and regression analysis. The data indicate that teachers employed a high extent of pedagogical approaches, including questioning, inferencing, visualizing, and analyzing. However, their creative thinking level in terms of divergent thinking, problem-finding, and idea generation all attained a moderate extent. The pedagogical approaches on questioning, inferencing, and visualizing had no significant effect on the students' creative thinking level. Only the teachers' analyzing pedagogical approach as the strongest predictor, had significant effect to the improvement of creative thinking levels (divergent thinking, problem-finding, and idea generation) of the students. As a result, the output was in the form of a strategic analyzing pedagogical approach towards creative thinking to support the teacher's pedagogical methods in order to build students' capacity for reading comprehension and creative conceptualization in reading.

Keywords: *questioning, inferencing, visualizing, analyzing, & creative thinking*

Introduction

The perceived gap. Reading comprehension is a fundamental skill that underpins academic success across all subject areas. Beyond simply decoding words on a page, true comprehension requires actively constructing meaning from texts through cognitive processes like making inferences, integrating prior knowledge, and critically analysing content that goes beyond the text and includes the "bigger picture" of things. However, many students struggle to develop deep reading comprehension abilities, which limits their capacity for higher-order thinking and creative problem-solving.

In today's constantly changing world, creative thinking skills are important in navigating difficult challenges and coming up with innovative solutions to modern problems. Professionals coming from diverse fields - from business and technology to education and public policy - must be able to think critically, make insightful connections, and approach problems from novel perspectives (Barari, 2024). However, fostering creativity remains an ongoing challenge within traditional educational models.

This research study aims to explore the intersection of reading comprehension instruction and creative thinking development. Specifically, it will investigate how integrating explicit comprehension strategy instruction into classroom reading curricula can enhance students' capacity for creative cognition. Drawing upon theoretical frameworks such as the Construction-Integration model (Kintsch and Van Dijk, 1978) and approaches like Questioning the Author (Beck, 1997), the study will examine how guided practice with comprehension strategies like questioning, visualising, inferencing, and analysis may facilitate higher-order thinking processes conducive to creativity.

By cultivating strategic, self-regulated reading comprehension, this pedagogical approach posits that students can deepen their understanding of texts, make richer connections, and more readily transfer knowledge to innovative applications. Ultimately, this line of research has the potential to yield instructional models that simultaneously build critical literacy and creative capacity - vital skills for academic, professional, and personal success in the 21st century.

Research Questions

The purpose of this study was to find out the teachers' pedagogical approaches, and the Junior High School students' creative thinking. Specifically, the study answered the following questions:

1. To what extent are the teachers' pedagogical approaches utilized in terms of:
    1.1. questioning;
    1.2. inferencing;
    1.3. visualizing, and
    1.4. analyzing?
2. To what extent are the students' level of creative thinking in terms of:
    2.1. Divergent thinking;

2.2. Problem-finding, and
2.3. Idea Generation?
3. What is the effect of the teachers' pedagogical approaches to the students' level of creative thinking?
4. Based on the findings, what strategic pedagogical reading comprehension towards creative thinking can be proposed?

Methodology

Research Design

The researcher employed a quantitative approach descriptive correlational design with the use of self-made questionnaire. Using this method, data on the current state of the class was gathered. In order to answer the specific questions posed at the start of the study, sets of questionnaires were utilized. The survey questionnaire was directed on describing the teachers' pedagogical approaches utilized in the classroom. Finally, another survey questionnaire was employed to describe the level of creative thinking their students possess. The data gathered the two variables were correlated with each other to formulate the strategic pedagogical reading comprehension towards creative thinking.

The use of standardized measurements, such test scores, was made possible by the employment of a quantitative descriptive correlational research design, which makes it possible for an objective evaluation of the influence that the teachers' pedagogical approach has on students' level of creative thinking. In addition, statistical tools, such as inferential statistics, was be used to examine the data.

Respondents

The English teacher participants were chosen from five (5) public Junior High Schools in Candelaria, Quezon namely Atty. Celso M. Reyes National High School (4 participants), Bukal Sur National High School (8 participants), Dolores Macasaet National High School (10 participants), Dr. Panfilo Castro National High School (8 participants), and Sta. Catalina National High School (10 participants). A total of 40 randomly selected Junior High School teachers from each school participated along with their randomly selected student per teacher for the same total of 40 students. The study made use of convenient sampling in selecting the junior high schools to maximize time efficiency in questionnaire deployment and purposive sampling in selecting the schoolteachers along with their students.

Instrument

The questionnaire for the teachers' pedagogical approaches utilized in teaching reading comprehension consists of 20 test items with a five-point response scale (1: "Very Low Extent" to 5: "Very High Extent") based on self-reporting. The questions are divided into five (5) items per category that focuses on the four (4) mostly utilized

pedagogical approaches namely questioning, inferencing, visualizing, and analyzing. The questionnaire was developed by the researcher and therefore was subjected to content validity and reliability testing before use.

The 20 questions were validated using the criteria for evaluation by Good & Scates (1955), with five (5) experts in education composing of two (2) Associate Professor I, two (2) Associate Professor II, and one (1) Associate Professor IV. The questionnaire got an average score of 4.96 (out of 5) for excellent rating. For Cronbach's alpha reliability test, the questionnaire attained an $\alpha = 0.950$ having an excellent internal consistency.

Procedure

The researcher secured permission from each English department Heads to conduct the study. A consent form was provided to the respondents, and ensured that their responses were treated strictly confidential and anonymous. After administrating the questionnaires, the researcher requested the respondents to return the completed questionnaires for collation, data evaluation, statistical treatment and interpretation.

Data Analysis

The data gathered were treated statistically with the use of IBM SPSS software. For teachers' pedagogical approaches and students' level of creative thinking, one-sample t-test was computed to determine whether there is a significant difference between the mean of the samples and the estimated population mean of 3.5. Lastly, to determine the effect of the teachers' pedagogical approaches to the level of students' creative thinking, regression analysis was applied.

Results and Discussion

This section presents the results, and analysis of findings in order to provide answers to the problems.

Teachers' Extent of Pedagogical Approaches Utilized in terms of Questioning

The table presents the indicators for the extent of teachers' pedagogical approaches utilized in terms of questioning. There is a very high extent of utilization for indicator 1 (asking questions that activate prior knowledge and set a purpose for reading to help students make connections and generate interest in the topic) and indicator 3 (asking questions that require students to reflect on the text,

summarize key points, or make connections to other texts or real-life situations, to be able to consolidate learning and promote deeper understanding). Indicators 2, 4, and 5 attained high extent of utilization. The standard deviation across all indicators are less than 1.00, showing a homogeneous group or close dispersion of scores from the mean. The overall mean of 4.392 signifies a high extent of teachers' pedagogical approaches utilized in terms of questioning. This means that, the teachers almost always utilize questioning approach by immersing learners in different disciplines and providing them with activities that would allow them to connect with other subject matters and disciplines.

Table 1. *One Sample T-test for Teachers' Extent of Pedagogical Approaches Utilized in terms of Questioning*

	Indicators	*Mean*	*Descriptive Level*	*SD*	*Mean Difference*	*t*	*Sig. (2-tailed)*
1.	I ask questions that activate prior knowledge and set a purpose for reading to help students make connections and generate interest in the topic.	4.50	Very High Extent	0.599	1.000	10.556	.000
2.	I pose questions at strategic points to check for understanding, promote active engagement, and guide students' thinking, it can be used to clarify confusing parts, predict outcomes, or analyze the author's intent.	4.23	High Extent	0.549	0.925	10.647	.000
3.	I ask questions that require students to reflect on the text, summarize key points, or make connections to other texts or real-life situations, to be able to consolidate learning and promote deeper understanding.	4.60	Very High Extent	0.496	1.100	14.022	.000
4.	I provide scaffolding questions that gradually increase in complexity, help students build their comprehension skills and develop the ability to answer more challenging questions independently.	4.30	High Extent	0.687	0.800	7.366	.000
5.	I create a classroom environment that encourages students to ask their own questions, in order to foster curiosity, promote active learning, and allow students to take ownership of their learning process.	4.33	High Extent	0.656	0.825	7.956	.000
	Overall Mean	4.392			High Extent		

N = 40 *df = 39* *Test Value = 3.5*
HO1: The extent of teachers' pedagogical approaches utilized in terms of questioning is not significant.

All the computed t-values between means and their respective mean differences at 39 degrees of freedom provide p-values of: indicator 1 = 0.000, indicator 2 = 0.000, indicator 3 = 0.000, indicator 4 = 0.000, and indicator 5 = 0.000. All the p values of indicators 1 to 5 are less than 0.05 alpha indicating that all the one sample t values are not within the null hypothesis. Thus, the null hypothesis is rejected. Therefore, the extent of teachers' pedagogical approaches utilized in terms of questioning is significant. The overall mean of 4.392 for the teachers' pedagogical approaches utilized in terms of questioning is significantly higher than the parameter test value of 3.5.

The results provided evidence that the teachers use questions that probe for deeper meaning, foster critical thinking skills and higher-order capabilities such as problem-solving, encourage the types of flexible learners and critical thinkers needed in the 21st century.

Table 2. *One Sample T-test for Teachers' Extent of Pedagogical Approaches Utilized in terms of Inferencing*

	Indicators	*Mean*	*Descriptive Level*	*SD*	*Mean Difference*	*t*	*Sig. (2-tailed)*
1.	I begin by explicitly teaching students what inferencing is and why it is important.	4.03	High Extent	0.620	0.525	5.358	.000
2.	I demonstrate the process of making inferences by thinking aloud while reading a text.	4.33	High Extent	0.694	0.825	7.520	.000
3.	I provide guided practice opportunities where students work collaboratively or in small groups to practice making inferences.	4.43	High Extent	0.675	0.925	8.666	.000
4.	I ask open-ended questions that require students to make inferences.	4.33	High Extent	0.655	0.825	7.956	.000
5.	I use graphic organizers, such as concept maps or Venn diagrams, to visually represent the process of making inferences.	4.45	High Extent	0.638	0.950	9.410	.000
	Overall Mean	4.314			High Extent		

N = 40 *df = 39* *Test Value = 3.5*
HO2: The extent of teachers' pedagogical approaches utilized in terms of inferencing is not significant.

The table presents the indicators for the extent of teachers' pedagogical approaches utilized in terms of inferencing. There is a high extent of utilization for all the indicators. The standard deviation across all indicators are less than 1.00, showing a homogeneous group or close dispersion of scores from the mean. The overall mean of 4.314 signifies a high extent of teachers' pedagogical approaches utilized in terms of inferencing. This means that, the teachers almost always utilize inferencing approach by immersing learners in

different disciplines and providing them with activities that would allow them to connect with other subject matters and disciplines.

All the computed t-values between means and their respective mean differences at 39 degrees of freedom provide p-values of: indicator 1 = 0.000, indicator 2 = 0.000, indicator 3 = 0.000, indicator 4 = 0.000, and indicator 5 = 0.000. All the p values of indicators 1 to 5 are less than 0.05 alpha indicating that all the one sample t values are not within the null hypothesis. Thus, the null hypothesis is rejected. Therefore, the extent of teachers' pedagogical approaches utilized in terms of inferencing is significant. The overall mean of 4.314 for the teachers' pedagogical approaches utilized in terms of inferencing is significantly higher than the parameter test value of 3.5.

The results provided evidence that the teachers facilitate the use of observations, motivating and encouraging learners' personal decision to go beyond the text and draw on background knowledge

Table 3. *One Sample T-test for Teachers' Extent of Pedagogical Approaches Utilized in terms of Visualizing*

	Indicators	*Mean*	*Descriptive Level*	*SD*	*Mean Difference*	*t*	*Sig. (2-tailed)*
1.	I guide students through the process of creating mental images while reading.	4.38	High Extent	0.628	0.875	8.814	.000
2.	I encourage students to keep visualization journals where they can draw or write about their mental images while reading.	4.23	High Extent	0.659	0.725	6.950	.000
3.	I facilitate group discussions where students share their visualizations and compare their interpretations of the text.	4.43	High Extent	0.747	0.925	7.829	.000
4.	I provide graphic organizers, such as concept maps or storyboards, to help students organize their visualizations and make connections between different elements of the text.	4.30	High Extent	0.648	0.800	7.802	.000
5.	I incorporate multimedia resources, such as images, videos, or audio clips, to support students' visualizations.	4.38	Very High Extent	0.740	0.875	7.475	.000
	Overall Mean	4.344			High Extent		

N = 40 *df = 39* *Test Value = 3.5*
HO3: The extent of teachers' pedagogical approaches utilized in terms of visualizing is not significant.

The table presents the indicators for the extent of teachers' pedagogical approaches utilized in terms of visualizing. Only indicator 5 (incorporating multimedia resources, such as images, videos, or audio clips, to support students' visualizations) attained very high extent, while there is a high extent of utilization for the rest of the indicators. The standard deviation across all indicators are less than 1.00, showing a homogeneous group or close dispersion of scores from the mean. The overall mean of 4.344 signifies a high extent of teachers' pedagogical approaches utilized in terms of visualizing. This means that, the teachers almost always utilize visualizing approach by immersing learners in different disciplines and providing them with activities that would allow them to connect with other subject matters and disciplines.

All the computed t-values between means and their respective mean differences at 39 degrees of freedom provide p-values of: indicator 1 = 0.000, indicator 2 = 0.000, indicator 3 = 0.000, indicator 4 = 0.000, and indicator 5 = 0.000. All the p values of indicators 1 to 5 are less than 0.05 alpha indicating that all the one sample t values are not within the null hypothesis. Thus, the null hypothesis is rejected. Therefore, the extent of teachers' pedagogical approaches utilized in terms of visualizing is significant. The overall mean of 4.344 for the teachers' pedagogical approaches utilized in terms of visualizing is significantly higher than the parameter test value of 3.5.

Implications

The results showed that the teachers utilize visual imagery, with or without a diagram, as an integral aspect of the method of solution in the classroom.

Table 4. *One Sample T-test for Teachers' Extent of Pedagogical Approaches Utilized in terms of Analyzing*

	Indicators	*Mean*	*Descriptive Level*	*SD*	*Mean Difference*	*t*	*Sig. (2-tailed)*
1.	I encourage students to annotate the text by highlighting key ideas, underlining important details, and making notes in the margins.	4.25	High Extent	0.678	0.750	7.524	.000
2.	I teach students to analyze the part by part structure of the text, including headings, subheadings, paragraphs, and transitions to understand the organization of the text, better comprehend the flow of ideas and the relationships between different sections.	4.20	High Extent	0.594	0.700	7.851	.000
3.	I pose thought-provoking questions where students can analyze the content more deeply, consider different perspectives, and evaluate the evidence provided in the text.	4.20	High Extent	0.526	0.700	8.573	.000
4.	I let the students compare and contrast different ideas, characters, events, or themes in the text and identify	4.28	High Extent	0.640	0.775	7.658	.000

	similarities, differences, and patterns, leading to a more comprehensive understanding of the text.						
5.	I make the students summarize the main ideas based on the key details of the text in their own words.	4.25	High Extent	0.707	0.750	6.708	.000
		Overall Mean	4.236		High Extent		

N = 40 *df = 39* *Test Value = 3.5*
HO4: The extent of teachers' pedagogical approaches utilized in terms of analyzing is not significant.

The table presents the indicators for the extent of teachers' pedagogical approaches utilized in terms of analyzing. There is a high extent of utilization for all the indicators. The standard deviation across all indicators are less than 1.00, showing a homogeneous group or close dispersion of scores from the mean. The overall mean of 4.236 signifies a high extent of teachers' pedagogical approaches utilized in terms of analyzing. This means that, the teachers almost always utilize analyzing approach by immersing learners in different disciplines and providing them with activities that would allow them to connect with other subject matters and disciplines.

All the computed t-values between means and their respective mean differences at 39 degrees of freedom provide p-values of: indicator 1 = 0.000, indicator 2 = 0.000, indicator 3 = 0.000, indicator 4 = 0.000, and indicator 5 = 0.000. All the p values of indicators 1 to 5 are less than 0.05 alpha indicating that all the one sample t values are not within the null hypothesis. Thus, the null hypothesis is rejected. Therefore, the extent of teachers' pedagogical approaches utilized in terms of analyzing is significant. The overall mean of 4.236 for the teachers' pedagogical approaches utilized in terms of analyzing is significantly higher than the parameter test value of 3.5.

Implications

The results showed that the teachers knew the effective approaches for the students to receive the learning material properly and effectively.

Students' Extent of Creative Thinking Level

Table 5. *One Sample T-test for Students' Extent of Creative Thinking Level in terms of Divergent Thinking*

Indicators		*Mean*	*Descriptive Level*	*SD*	*Mean Difference*	*t*	*Sig. (2-tailed)*
1.	Students are receptive to new ideas and perspectives, willing to explore unconventional approaches, and not limited by traditional thinking patterns.	3.08	Moderate Extent	0.764	-0.425	-3.517	.001
2.	They can shift between different modes of thought, adapt their strategies, and consider alternative viewpoints.	3.25	Moderate Extent	0.776	-0.250	-2.037	.048
3.	They generate unique and creative ideas, often thinking outside the box and challenging conventional norms.	3.10	Moderate Extent	0.708	-0.400	-3.569	.001
4.	They excel at making connections between seemingly unrelated concepts, finding patterns, and drawing insights that others may overlook.	3.10	Moderate Extent	0.744	-0.400	-3.399	.002
5.	They have a natural inclination to explore and question, seeking out new possibilities and perspectives.	3.20	Moderate Extent	0.757	-0.300	-2.504	.017
		Overall Mean	3.146		Moderate Extent		

N = 40 *df = 39* *Test Value = 3.5*
HO5: The extent of students' extent of creative thinking level in terms of divergent thinking is not significant.

The table presents the indicators for the extent of students' creative thinking level as assessed by their teachers in terms of divergent thinking. There is a moderate extent of creative thinking level for all the indicators. The standard deviation across all indicators are less than 1.00, showing a homogeneous group or close dispersion of scores from the mean. The overall mean of 3.146 signifies a moderate extent of students' creative thinking level as assessed by their teachers in terms of divergent thinking. This means that, the students utilize divergent thinking from time to time in generating different kinds of ideas, and manipulating some of those ideas in unusual ways to find the appropriate solutions to the problems they encounter.

All the computed t-values between means and their respective mean differences at 39 degrees of freedom provide p-values of: indicator 1 = 0.001, indicator 2 = 0.048, indicator 3 = 0.001, indicator 4 = 0.002, and indicator 5 = 0.017. All the p values of indicators 1 to 5 are less than 0.05 alpha indicating that all the one sample t values are not within the null hypothesis. Thus, the null hypothesis is rejected. Therefore, the extent of students' creative thinking level in terms of divergent thinking is significant.

The overall mean of 3.146 for the students' creative thinking level in terms of divergent thinking is significantly lower than the parameter test value of 3.5.

Implications

The results showed that the learners were challenged when it comes to recovering current knowledge and linking and combining unrelated knowledge in a fresh and meaningful way.

Table 6. *One Sample T-test for Students' Extent of Creative Thinking Level in terms of Problem-Finding*

	Indicators	*Mean*	*Descriptive Level*	*SD*	*Mean Difference*	*t*	*Sig. (2-tailed)*
1.	Students are receptive to new ideas and perspectives, willing to explore unconventional approaches, and not limited by traditional thinking patterns.	3.05	Moderate Extent	0.677	-0.450	-4.201	.000
2.	They can shift between different modes of thought, adapt their strategies, and consider alternative viewpoints.	3.03	Moderate Extent	0.530	-0.475	-5.663	.000
3.	They generate unique and creative ideas, often thinking outside the box and challenging conventional norms.	3.13	Moderate Extent	0.648	-0.375	-3.660	.001
4.	They excel at making connections between seemingly unrelated concepts, finding patterns, and drawing insights that others may overlook.	3.10	Moderate Extent	0.709	-0.400	-3.569	.001
5.	They have a natural inclination to explore and question, seeking out new possibilities and perspectives.	3.10	Moderate Extent	0.709	-0.400	-3.569	.001
	Overall Mean	3.082			Moderate Extent		

N = 40 *df = 39* *Test Value = 3.5*
HO6: The students' extent of creative thinking level in terms of problem-finding is not significant.

The table presents the indicators for the extent of students' creative thinking level as assessed by their teachers in terms of problem-finding. There is a moderate extent of creative thinking level for all the indicators. The standard deviation across all indicators are less than 1.00, showing a homogeneous group or close dispersion of scores from the mean. The overall mean of 3.082 signifies a moderate extent of students' creative thinking level as assessed by their teachers in terms of problem-finding. This means that, the students utilize problem-finding from time to time in generating different kinds of ideas, and manipulating some of those ideas in unusual ways to find the appropriate solutions to the problems they encounter.

All the computed t-values between means and their respective mean differences at 39 degrees of freedom provide p-values of: indicator 1 = 0.000, indicator 2 = 0.000, indicator 3 = 0.001, indicator 4 = 0.001, and indicator 5 = 0.001. All the p values of indicators 1 to 5 are less than 0.05 alpha indicating that all the one sample t values are not within the null hypothesis. Thus, the null hypothesis is rejected. Therefore, the extent of students' creative thinking level in terms of problem-finding is significant.

The overall mean of 3.082 for the students' creative thinking level in terms of problem-finding is significantly lower than the parameter test value of 3.5.

Implication

The results showed that the learners struggled when they evaluate the core of an issue, conceive the problem from several aspects, and explore opportunities that may result from these different conceptualizations before engaging in problem solving.

Table 7. *One Sample T-test for Students' Extent of Creative Thinking Level in terms of Idea Generation*

	Indicators	*Mean*	*Descriptive Level*	*SD*	*Mean Difference*	*t*	*Sig. (2-tailed)*
1.	Students have the ability to think creatively, generating unique and innovative ideas.	3.13	Moderate Extent	0.723	-0.375	-3.281	.002
2.	They can explore different possibilities, consider multiple viewpoints, and adapt their thinking to find the most promising solutions.	3.20	Moderate Extent	0.723	-0.300	-2.623	.012
3.	They evaluate the feasibility and effectiveness of different ideas, considering potential risks and benefits.	3.23	Moderate Extent	0.800	-0.275	-2.173	.036
4.	They recognize the value of diverse perspectives and actively seek input from others to refine and develop their ideas.	3.13	Moderate Extent	0.607	-0.375	-3.907	.000
5.	They can analyze complex problems, break them down into manageable components, and propose creative solutions.	3.20	Moderate Extent	0.687	-0.300	-2.762	.009
	Overall Mean	3.178			Moderate Extent		

N = 40 *df = 39* *Test Value = 3.5*
HO7: The extent of students' extent of creative thinking level in terms of idea generation is not significant.

The table presents the indicators for the extent of students' creative thinking level as assessed by their teachers in terms of idea generation. There is a moderate extent of creative thinking level for all the indicators. The standard deviation across all indicators are less than 1.00, showing a homogeneous group or close dispersion of scores from the mean. The overall mean of 3.178 signifies a moderate extent of students' creative thinking level as assessed by their teachers in terms of idea generation. This means that, the students utilize idea generation from time to time in generating different kinds of ideas, and manipulating some of those ideas in unusual ways to find the appropriate solutions to the problems they encounter.

All the computed t-values between means and their respective mean differences at 39 degrees of freedom provide p-values of: indicator 1 = 0.002, indicator 2 = 0.012, indicator 3 = 0.036, indicator 4 = 0.000, and indicator 5 = 0.009. All the p values of indicators 1 to 5 are less than 0.05 alpha indicating that all the one sample t values are not within the null hypothesis. Thus, the null hypothesis is rejected. Therefore, the extent of students' creative thinking level in terms of idea generation is significant.

The overall mean of 3.178 for the students' creative thinking level in terms of idea generation is significantly lower than the parameter test value of 3.5

Implications

The results showed that the learners find it difficult in generating many diverse ideas, or quality of the ideas for building a creative solution.

The effect of the teachers' pedagogical approaches to the students' level of creative thinking.

Table 8. *Summary Tables of Regression Analysis for the Effect of Teachers' Pedagogical Approaches to the Students' Level of Creative Thinking for Divergent Thinking*

Model Summary

R	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*
.404a	.163	.067	.63540

a. Predictors: (Constant), Analyzing, Inferencing, Visualizing, Questioning

ANOVA

Model	*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
Regression	2.749	4	.687	1.702	.172b
Residual	14.130	35	.404		
Total	16.879	39			

a. Dependent Variable: Divergent
b. Predictors: (Constant), Analyzing, Inferencing, Visualizing, Questioning

Coefficients

Model	*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
	B	*Std. Error*	*Beta*		
Divergent Thinking	1.423	1.298		1.096	.280
Questioning	-.340	.363	-.220	-.938	.355
Inferencing	.208	.274	.153	.761	.452
Visualizing	-.164	.281	-.122	-.582	.564
Analyzing	.718	.279	.455	2.569	.015

a. Dependent Variable: Divergent

Table 8 takes into account the four predictor variables the teachers' pedagogical approaches utilized in reading such as questioning, inferencing, visualizing, and analyzing to the students' level of creative thinking for divergent thinking. The multiple correlation coefficient R value of 0.404 indicates a moderate relationship.

The coefficient of multiple determination R square value of 0.163 indicates that 16.3% of the variability on creative thinking for divergent thinking is attributed to the multiple regression of the combined four predictors. But R square is adjusted to 0.067 due to the R (number of data pairs) and k number of independent variables. Thus, finally 6.7% of the variability on creative thinking for divergent thinking can only be attributed to questioning, inferencing, visualizing, and analyzing. However, this R is not significant, as indicated by the F test (4,35) equal to 1.702, p = 0.172.

The unstandardized coefficients BETA, only analyzing with t-value of 2.569, p = 0.015 is significant, showing that for every unit increase in the predictor analyzing, creative thinking for divergent thinking went up by 0.718.

The standardized coefficient Beta values for questioning = -0.220, inferencing = 0.153, visualizing = -0.122, and analyzing = 0.455 shows that analyzing is the strongest predictor of creative thinking for divergent thinking.

Table 9. *Summary Tables of Regression Analysis for the Effect of Teachers' Pedagogical Approaches to the Students' Level of Creative Thinking for Problem-Finding*

Model Summary

R	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*
.521a	.271	.188	.49625

a. Predictors: (Constant), Analyzing, Inferencing, Visualizing, Questioning

ANOVA					
Model	*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
Regression	3.205	4	.801	3.253	.023b
Residual	8.619	35	.246		
Total	11.824	39			

a. Dependent Variable: Divergent
b. Predictors: (Constant), Analyzing, Inferencing, Visualizing, Questioning

Coefficients					
Model	*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
	B	*Std. Error*	*Beta*		
Problem-Finding	1.521	1.014		1.500	.143
Questioning	-.398	.283	-.308	-1.407	.168
Inferencing	.191	.214	.168	.895	.377
Visualizing	-.183	.220	-.163	-.832	.411
Analyzing	.777	.218	.589	3.561	.001

a. Dependent Variable: Divergent

Table 9 accounts for the four approaches questioning, inferencing, visualizing, and analyzing to the students' level of creative thinking for problem finding. The multiple correlation R = 0.521 indicates a moderate relationship. The coefficient of multiple determination R square = 0.271 indicates that 27.1% of the variation on creative thinking for problem finding is attributed to the multiple regressions of the combined four predictors. However, the R square is adjusted to 0.188 due to the R (number of data pairs) and k number of independent variables. Finally, 18.8% of the variability on creative thinking for problem-finding can only be attributed to questioning, inferencing, visualizing, and analyzing. This R is significant with F-test (4,35) = 3.253, p = 0.023.

The unstandardized coefficients BETA, it is only analyzing with t-value 3.561, p = 0.001 is significant, indicating that for every unit increase in the predictor analyzing, creative thinking for problem-finding went up 0.777 after controlling for the other predictors.

The standardized coefficient Beta values for questioning = -0.308, inferencing = 0.168, visualizing = -0.163, and analyzing = 0.589 shows that analyzing is the strongest predictor of creative thinking for problem-finding.

Table 10. *Summary Tables of Regression Analysis for the Effect of Teachers' Pedagogical Approaches to the Students' Level of Creative Thinking for Idea Generation*

Model Summary			
R	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*
.429a	.184	.091	.60959

a. Predictors: (Constant), Analyzing, Inferencing, Visualizing, Questioning

ANOVA					
Model	*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
Regression	2.929	4	.732	1.970	.121b
Residual	13.006	35	.372		
Total	15.935	39			

a. Dependent Variable: Divergent
b. Predictors: (Constant), Analyzing, Inferencing, Visualizing, Questioning

Coefficients					
Model	*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
	B	*Std. Error*	*Beta*		
Idea Generation	1.964	1.245		1.577	.124
Questioning	-.433	.348	-.289	-1.245	.221
Inferencing	.147	.263	.111	.558	.581
Visualizing	-.146	.270	-.112	-.543	.591
Analyzing	.740	.268	.483	2.760	.009

a. Dependent Variable: Divergent

Table 10 accounts for the four approaches questioning, inferencing, visualizing and analyzing to the students' level of creative thinking for idea generation. The multiple correlation coefficient R = 0.429 indicating a moderate relationship. The coefficient of multiple determination R square = 0.184 indicates that 18.4 % of the variation on creative thinking for idea generation is attributed to the multiple regressions of the combined four predictors. R square is adjusted to 0.091 due to the n (number of data pairs) and K (number of

independent variables). Finally, only 9.1% of the variability on creative thinking for idea generation can only be attributed to questioning, inferencing, visualizing, and analyzing. However, this R is not significant with F test (4, 35) = 1.970, p = 0.121.

The unstandardized coefficients Beta, it is only analyzing with t value = 2.760, p = 0.009 and is significant, indicating that for every unit increase in the predictor analyzing, creative thinking for idea generation went up 0.740 after controlling for the other predictors.

The standardized coefficient Beta values of questioning = -0.289, inferencing = 0.111, visualizing = -0.112, and analyzing = 0.483 shows that analyzing is the strongest predictor of creative thinking for idea generation.

All the null hypotheses are retained except for analyzing, where the null hypothesis is rejected.

Overall analyzing is the only predictor that has a significant effect to the students' level of creative thinking for divergent thinking, problem finding, and idea generation. All the null hypotheses are retained except analyzing, where the null hypothesis is rejected.

Proposed Strategic Pedagogical Reading Comprehension Towards Creative Thinking

Effective Pedagogical Approach	*Guided Reading Questions*	*Creative Thinking Learning Activities*	*Assessments*
Analyzing: Break down information to look at relationships	• What are the parts or features of . . . ? • How is _____ related to . . . ? • Why do you think . . . ? • What is the theme . . . ? • What motive is there . . . ? • Can you list the parts . . . ? • What inference can you make . . . ? • What conclusions can you draw . . . ? • How would you classify . . . ? • How would you categorize . . . ? • Can you identify the difference parts .. . ? • What evidence can you find . . . ? • What is the relationship between . . .? • Can you make a distinction between .. . ? • What is the function of . . . ? • What ideas justify . . . ?	• Case studies • Compare and contrast (with charts, tables, Venn diagram) • Concept map • Debates • Discussions • Flowchart • Graph • Group investigation • Mind map • Questionnaires • Report/survey • Think-pair-share	• Analysis paper • Case studies • Evaluation criteria • Critique hypothesis, procedures etc. • Muddiest point • One-minute paper • Research paper • Review paper

For a reading test that requires analyzing, students must possess the ability to analyze the information in a text by recognizing, identifying, and distinguishing the relevant information. The cognitive engagement required at this level extends beyond mere comprehension of the topic. The required degree of understanding here is a high level of critical comprehension, with a focus on detailed information. Furthermore, it pertains specifically to particular aspects and specific material inside the text. The skill of analysis involves identifying the topic, major idea, supporting ideas, main sentences, supporting sentences, types of paragraphs, purpose of the text, ending sentences, concluding the text, conjunctions, and other related aspects. Analyzing and dissecting material by identifying reasons or causes; drawing conclusions and seeking evidence to substantiate assumptions.

Derived Conceptual Framework

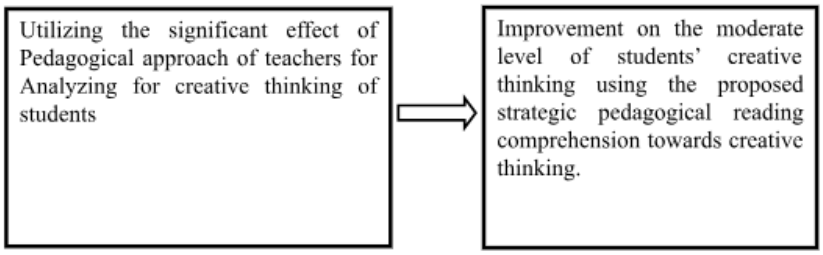

Figure 1. Derived Conceptual Paradigm

From the statistical results the derived conceptual paradigm takes advantage of the significance of the data taken from the high effectivity of pedagogical approach of teachers for analyzing to the creative thinking of students as the best solution in improving the divergent thinking, problem-finding, and idea generation to aid their reading. The proposed intervention by the researcher in the form of a strategic pedagogical reading comprehension towards creative thinking must be applied across all junior high school as majority of the respondents attained a frustration level of reading comprehension and no one achieved the independent level reader.

The framework shows that the expected output will be an improved level of creative thinking level of students to aid in their reading comprehension. Specifically, to support the teacher's pedagogical methods in order to build students' capacity for reading comprehension and creative conceptualization in reading.

Conclusions

HO1: The extent of teachers utilized pedagogical approach for questioning is not significant.

The null hypothesis was rejected because there is a significant difference between the extent of teachers utilized pedagogical approach for questioning and the parameter test value. This relates with the study of Lightbody (2011) which highlights the importance of pedagogical content expertise in questioning students. A proficient educator understands their subject's organization and content, identifying difficulties, and formulates essential questions to promote comprehension and challenge students.

The extent of teachers utilized pedagogical approach for inferencing is not significant.

There is a significant difference between the extent of teachers utilized pedagogical approach for inferencing and the parameter test value, therefore the null hypothesis was rejected. This relates with the study of Hansen and Pearson (1983) which introduced a teaching method promoting inferential skills by encouraging children to relate textual information to their own experiences, generating hypotheses about the text.

The extent of teachers utilized pedagogical approach for visualizing is not significant.

It can be concluded from the data that there is a significant difference between the extent of teachers utilized pedagogical approach for visualizing and the parameter test value indicating that the null hypothesis was rejected. This coincides with the visualization strategies that aim to enhance reading comprehension by creating mental images in the reader's mind, leading to active reading, improved memory, and post-reading comprehension, as suggested by Klein and Stuart (Usman, 2016).

The extent of teachers utilized pedagogical approach for analyzing is not significant.

The result implied to reject the null hypothesis because there is a significant difference between the extent of teachers utilized pedagogical approach for analyzing and the parameter test value. The result was related with the study of Verhovtsova et al. (2022) explaining that teachers must convince students that tasks are achievable, even with comprehension challenges, to boost confidence and encourage students to explore their literary interests.

HO2: The extent of students' level of creative thinking in terms of divergent thinking is not significant.

The findings provide a significant difference existing between the extent of students' level of creative thinking in terms of divergent thinking and the parameter test value thus, rejecting the null hypothesis. This can be related with the Americans' divergent thinking scores have declined since the internet's appearance, with average IQ increasing and cultural quotient decreasing, with the greatest decline occurring between 2008 and 2017 (Ramzan & Perveen, 2011).

The extent of students' level of creative thinking in terms of problem-finding is not significant.

The null hypothesis was rejected because there is a significant difference existing between the extent of students' level of creative thinking in terms of problem-finding and the parameter test value. A study carried out by Rubenstein et al. (2020) suggests that students may need explicit guidance to develop adaptive strategic approaches to problem identification.

The extent of students' level of creative thinking in terms of idea generation is not significant.

There is a significant difference between the extent of students' level of creative thinking in terms of idea generation and the parameter test value, therefore the null hypothesis was rejected. This can be that students' commonalities in ideas lead to similar creative thinking and less likelihood of combining or synthesizing them to form new solutions, addressing the number of distinct ideas presented (Ramalingam et al., 2020).

HO3: The teachers' questioning pedagogical approach has no significant effect to the students' level of creative thinking.

The null hypothesis was retained because the teachers' questioning pedagogical approach has no significant effect to students' level of creative thinking. According to the study of Beghetto (2016), it is seen that there are no meta-analysis studies that deals with the effects of student-centered pedagogical approaches on students' creative thinking.

The teachers' inferencing pedagogical approach has no significant effect to the students' level of creative thinking.

The null hypothesis was retained because the teachers' inferencing pedagogical approach has no significant effect to students' level of creative thinking. The study of Sawyer (2019) revealed that there are no holistic and comparative studies that examine the effects of pedagogical teaching approaches on creative thinking.

The teachers' visualizing pedagogical approach has no significant effect to the students' level of creative thinking.

The null hypothesis was retained because the teachers' visualizing pedagogical approach has no significant effect to students' level of creative thinking. The findings of Aytaç & Kula (2020) explained that the studies conducted in Turkey and other countries, showed no effects of student centered pedagogy approach in teaching on students' creative thinking skills.

The teachers' analyzing pedagogical approach has no significant effect to the students' level of creative thinking.

The null hypothesis was rejected because the teachers' analyzing pedagogical approach has significant effect to students' level of creative thinking. This affirms the study of Vygotsky (2004) where it is stated that scientists claimed that creativity and learning approaches represent interrelated phenomena.

Based on the findings and conclusions of the study, the following recommendations are offered:

For teachers' questioning practices, using higher order probing and challenging questions will enable the teacher to be better informed about student progress, which will have an impact of more individualized and differentiated tasks and support.

For teachers' inferencing practices, the teachers must pose questions to students to facilitate a discussion about inferences. The goal is for students to internalize these questions so they can be aware of — and evaluate — their own thinking.

For teachers' visualizing practices, teachers shall incorporate not only physical images, but also ideas about feelings the characters might experience.

For teachers' analyzing practices, the teachers must implement appropriate reading strategies based on students' needs and classroom conditions to ensure effective and successful learning, as the selection of the right strategy can significantly impact student success.

For students' divergent thinking, the open-ended questions are a successful technique for helping kids think divergently, as they allow for multiple potential responses beyond the simple "yes" or "no" answer.

For students' problem-finding, students should have input in task definition, but not all decisions should be made by them and still be guided by the teacher. Open, and unstructured classrooms hinder creativity, while lectures and explicit instructions enhance problem-finding skills.

For students' idea generation, the teachers can use brainstorming, freewriting, think alouds, cluster-mapping, and journaling to generate multiple possible ideas to write about, so that readers can later narrow down the reading problems to the best of their ideas.

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