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Plain And Multimodal Texts: Influence On Students' Reading Comprehension

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Abstract — Filipino students continue to face challenges in reading comprehension, as reflected in declining PISA-equivalent scores. This study investigated whether multimodal texts—comics, podcasts, and animated videos—can enhance comprehension compared to plain text, drawing on Multiliteracies, Dual Coding, and Schema theories. A descriptive-correlational design was employed with 213 Grade 10 students randomly assigned by cluster sampling to one of four text format groups. Data were collected using a 20-item researcher-validated comprehension test aligned with the K–12 English Curriculum. Statistical analyses included ANOVA, t-tests, and Pearson correlation to examine differences and relationships among comprehension scores, demographics, and reading habits. Comics (M = 13.8) and animation (M = 14.5) produced high comprehension scores, while plain text (M = 12.3) and podcasts (M = 11.4) yielded average levels. No significant differences were found across sex or parental education ($p > 0.05$). Reading habits correlated positively with comprehension only in plain text ($r = 0.387$, $p = 0.001$). Overall comprehension was average, but text format significantly influenced outcomes ($F = 10.89$, $p < 0.001$). Multimodal texts, particularly comics and animated videos, enhance comprehension and provide equitable learning opportunities across demographic groups. Recommendations include cultivating consistent reading habits for print literacy, integrating differentiated text formats in instruction, strengthening home-school collaboration, and pursuing quasi-experimental research for stronger causal evidence.

Keywords — reading comprehension, plain and multimodal texts, grade 10 students

I. INTRODUCTION

Reading, one of the four essential macroskills, is a cornerstone of human literacy. At its core, reading comprehension involves constructing coherent mental representations of textual information, enabling individuals to derive meaning and communicate effectively [1] [2]. It is a vital skill for fostering a literate society and ensuring academic success. However, recent studies reveal persistent challenges in comprehension among Filipino learners. Cabural and Infantado [3] reported that Grade 10 students struggle particularly with inferential and evaluative tasks, while the Philippines' Programme for International Student Assessment (PISA)-equivalent scores remain below the international average [4]. These findings underscore the urgency of adopting innovative

strategies to improve comprehension outcomes.

One promising approach is the integration of multimodal texts—materials that combine written language with images, audio, video, and other semiotic resources [5] [6]. Such texts engage multiple sensory channels, making learning more interactive and flexible. Research indicates that multimodal formats enhance comprehension by providing visual, auditory, and textual cues that help learners process complex information [7]. This approach aligns with contemporary pedagogical frameworks, including Multiliteracies Theory, which emphasizes meaning-making across diverse modes [8] [9]; Dual Coding Theory, which highlights the cognitive benefits of integrating verbal and non-verbal processing [10]; and Schema Theory, which explains how multimodal inputs activate prior knowledge to support interpretation [11].

By situating reading comprehension within these theoretical lenses, the present study examines the influence of multimodal texts—specifically comics, podcasts, and animated videos—on Grade 10 students' comprehension across literal, inferential, and evaluative levels. The study aims to determine whether multimodal formats yield measurable improvements compared to plain text, thereby contributing evidence-based insights into language instruction. Furthermore, this study supports the United Nations' Sustainable Development Goal 4 (Quality Education) by promoting inclusive and equitable learning opportunities through innovative teaching tools. Ultimately, the study seeks to advance educational quality and accessibility, fostering comprehension skills essential for lifelong learning.

II. METHODS

A descriptive-correlational design, which involved the collection and statistical analysis of numerical data without manipulating variables [12], was deemed appropriate for determining the existing conditions of Grade 10 students' reading comprehension levels when exposed to different text formats to identify significant differences in comprehension performance across the four text formats, as well as variations based on demographic profiles such as sex, first language, parental education level, and reading habits. These students were enrolled in a public secondary school in Minglanilla, Cebu and were considered a high-leverage context, as prior studies report substantial proportions of junior high learners failing comprehension checks [13]. Moreover, Grade 10 students (approximately 15 years old) match the target age for international benchmarks such as PISA [14], making them appropriate participants for the study. Using a cluster sampling, a total of 213 students were included, distributed across four sections: plain text (66 students), comics (39 students), podcast (59 students), and animation (49 students). This method ensured equal opportunity for participation, controlled potential confounding variables through random assignment, and strengthened the internal validity of the study. The heterogeneity of each section further supported the appropriateness of this sampling technique.

The primary instrument was a 20-item researcher-made and expert-validated reading comprehension test designed to measure literal, inferential, and evaluative comprehension. Students' reading habits were also assessed using a four-point Likert scale (1 = strongly disagree to 4 = strongly agree). Mean scores were interpreted using verbal descriptors adapted from Miñoza and Montero [15], with comprehension levels categorized as low (0–6.67), average (6.68–13.33), and high (13.34–20). Reading habits were classified as good (1–1.74), fair (1.75–2.49), better (2.5–3.24), and excellent (3.25–4). The test aligned with the K–12 English Curriculum Guide (2016), specifically competency EN10RC-IIf-13.1. Pilot testing with 60 students yielded a Cronbach's Alpha of .74, Bartlett's Test of Sphericity was significant ($\chi^2 = 404$, df = 190, $p < .001$), and Exploratory Factor Analysis extracted six factors explaining 48.5% of variance, confirming reliability and construct validity. Supplementary tools such as Microsoft Excel, Google Sheets, and Social Science Statistics were used for data recording and analysis. Additionally, the parable *Noah and the Ark* was adapted into four formats—plain text, comics, podcast, and animation—serving as the reading material due to its familiarity, symbolic richness, and adaptability across modes.

Parental consent and student assent forms were distributed and retrieved. Data collection commenced upon receipt of Notice to Proceed from the Ethics Committee. All groups participated simultaneously following a short orientation wherein the study's purpose and procedures were explained. Students engaged with their assigned material for 10–15 minutes, after which they completed the 20-item comprehension test within the same timeframe. Test papers were collected immediately to ensure secure handling of data. As a token of appreciation, participating students and their advisers received small gifts in recognition of their contribution.

Data were organized into four groups based on text format and recorded using Microsoft Excel and Google Sheets. Frequency analysis was used to describe demographic profiles such as sex and parental education level, while means were computed for

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reading habits and comprehension levels. Normality tests using Kolmogorov–Smirnov confirmed that all groups' scores were normally distributed ($p > .05$). Consequently, parametric tests were applied: Independent Two-Tailed T-tests examined differences between sexes, One-Way ANOVA tested differences across parental education levels and text formats, and Pearson's r was used to analyze correlations between reading habits and comprehension levels.

To ensure that the study follows ethical considerations, an information sheet outlining the study's purpose, methods, and benefits was provided to participants. Written parental consent and student assent were obtained prior to data collection, ensuring voluntary participation with the option to withdraw at any time without consequence. The comprehension test was administered in classrooms to ensure safety, and scores were stored securely. Only non-identifiable demographic data were recorded to maintain anonymity and confidentiality. No personal details, such as names or addresses, were collected. The study posed no foreseeable risks, and measures were taken to ensure participant comfort. Ethical clearance was granted by the Office of the Ethics Review Committee upon completion of the study, and tokens of appreciation were distributed to both students and teachers.

III. RESULT AND DISCUSSION

Demographic Profile

Table 1.

Grade 10 Students' Profile in terms of Sex

Text Format	Males		Females		Total
	n	%	n	%	(N)
Plain Text	32	48	34	52	**66**
Comic Strip	18	46.15	21	53.85	**39**
Podcast	32	54.24	27	45.76	**59**
Animated Video	27	55.10	22	44.90	**49**
Total	**109**		**104**		**213**

Table 1 summarizes the sex distribution of Grade 10 students across four text format groups: plain text, comic strip, podcast, and animated video. Males and females are relatively balanced in the plain text group (48% males, 52% females). Comic strip skews slightly towards females (46.15% males, 53.85% females). For podcast and animated video, males predominate (54.24% and 55.10%, respectively). Unlike the National enrollment and demographic reports from the Department of Education [16] and UNESCO [17] that highlight that secondary schools in the Philippines consistently maintain a female-to-male ratio close to 1.08, indicating a slight but persistent majority of female learners overall, the sample in the study showed a slight majority of male learners (n = 109) over females (n = 104).

Table 2.

Grade 10 Students' Profile in Terms of Parental Education

Educational Attainment	Plain Text				Comic Strip				Podcast				Animated Video				Total	
	Mother		Father		Mother		Father		Mother		Father		Mother		Father		Mother	Father
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	N	
Elementary Level	4	6.06	8	12.12	2	5.13	8	20.51	4	6.78	6	10.17	2	4.08	4	8.16	12	26
Elementary Graduate	3	4.55	5	7.58	2	5.13	0	0.00	3	5.08	5	8.47	5	10.20	4	8.16	13	14
High School Level	7	10.61	12	18.18	8	20.51	8	20.51	14	23.73	10	16.95	7	14.29	3	6.12	36	33
High School Graduate	38	57.58	23	34.85	12	30.77	6	15.38	21	35.59	17	28.81	21	42.86	23	46.94	92	69
College Level	6	9.09	5	7.58	7	17.95	5	12.82	9	15.25	7	11.86	6	12.24	8	16.33	28	25
College Graduate	2	3.03	5	7.58	5	12.82	9	23.08	3	5.08	7	11.86	0	0.00	2	4.08	10	23
Graduate Level	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	5	10.20	0	0.00	6	0
Graduate	6	9.09	8	12.12	3	7.69	3	7.69	5	8.47	7	11.86	3	6.12	5	10.20	16	23
Total	**66**	**100**	**66**	**100**	**39**	**100**	**39**	**100**	**59**	**100**	**59**	**100**	**49**	**100**	**49**	**100**	**213**	**213**

Table 2 provides a detailed breakdown of the educational attainment of Grade 10 students' parents, showing the largest group is high school graduates—92 mothers and 69 fathers (161 out of 426 total parents). The next most common categories are high

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school level (36 mothers, 33 fathers) and college level (28 mothers, 25 fathers). Graduate-level attainment is comparatively rare, with only 6 mothers and no fathers listed. The least represented categories after graduate level are elementary graduates (13 mothers, 14 fathers) and those with only elementary education (12 mothers, 26 fathers). The trend monitored in Table 2 is consistent with the observations of Isla and Borja [18], reflecting wide-scale patterns in the Philippines. The findings suggest that for many Filipino families, high school graduation is the most attainable milestone, supporting previous research that links parental educational attainment to academic buoyancy and adaptability [19]—traits that are essential for both academic and social success. While graduate and college attainment levels remain low, students often benefit academically from positive parental engagement and supportive home environments [20] [21] [22], regardless of educational background. Supporting parents, especially those with less advanced educational backgrounds, through home-school collaboration and accessible educational resources may further increase student success.

Table 3.

Grade 10 Students' Profile in terms of Reading Habits

Indicators	Plain Text		Comic Strip		Podcast		Animated Video		Total	
	Mean	Descriptor	Mean	Descriptor	Mean	Descriptor	Mean	Descriptor	Mean	Descriptor
I read every day.	2.74	Better	2.54	Better	2.69	Better	2.86	Better	**2.71**	**Better**
I enjoy reading for leisure.	3.29	Excellent	2.97	Better	3.07	Better	3.02	Better	**3.09**	**Better**
I connect what I read to my experiences.	2.98	Better	3	Better	2.97	Better	3.04	Better	**3.00**	**Better**
I reflect on what I read.	3.06	Better	3	Better	3	Better	2.90	Better	**2.99**	**Better**
I ask questions related to what I read.	3.06	Better	3.18	Better	2.93	Better	3.27	Excellent	**3.11**	**Better**
Overall Mean	**3.03**	**Better**	**2.94**	**Better**	**2.93**	**Better**	**3.02**	**Better**	**2.98**	**Better**

Legend:

1.00 – 1.74 Good

1.75 – 2.49 Fair

2.50 – 3.24 Better

3.25 – 4.00 Excellent

Table 3 shows that Grade 10 students generally exhibited "Better" reading habits (M = 2.98), with strengths in asking questions (M = 3.11) but weaker daily reading frequency (M = 2.71). Plain text achieved the highest overall mean (M = 3.03), particularly in leisure reading (M = 3.29) and reflective habits (M = 3.06), underscoring the enduring role of traditional texts in fostering metacognitive engagement and academic success [23]. Comic strips, though slightly lower (M = 2.94), encouraged inquisitiveness (M = 3.18) and supported reluctant readers, consistent with evidence that visuals enhance comprehension and motivation [24]. Podcasts recorded the lowest mean (M = 2.93), yet they promoted leisure enjoyment (M = 3.07) and reflective engagement (M = 3.00). Their effectiveness depends on appropriate length, engaging content, and analytical depth [25]. Animated videos scored comparably high (M = 3.02), excelling in prompting questions (M = 3.27) and leisure enjoyment (M = 3.02). By combining auditory and visual elements, they enhance comprehension, critical thinking, and motivation, serving as a strong complement to text and audio formats [26] [27] [28].

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Level of Reading Comprehension

Table 4.

Grade 10 Students' Reading Comprehension Levels across Text Formats

Text Format	Low	Average	High	Mean Score	Description
	Frequency (n)				
Plain Text	4	36	26	12.3	Average
Comic Strip	0	16	23	13.8	High
Podcast	6	35	18	11.4	Average
Animated Video	0	19	30	14.5	High
Overall	**10**	**106**	**97**	**13**	**Average**

Legend:

0 – 6.67 Low

6.68 – 13.33 Average

13.34 – 20 High

Table 4 indicates that Grade 10 students achieved the highest comprehension scores when exposed to comic strips (mean = 13.8) and animated videos (mean = 14.5), both classified as "High." These formats produced the largest proportion of students in the high comprehension category, highlighting their effectiveness in supporting deeper understanding. In contrast, plain text (mean = 12.3) and podcasts (mean = 11.4) yielded "Average" comprehension, with most students clustering in the mid-level category. Overall, 97 students were rated "High," 106 "Average," and 10 "Low," resulting in an overall description of "Average" comprehension.

These findings suggest that multimodal formats, particularly comics and animation, are more effective than traditional text and audio-only formats in enhancing comprehension, consistent with prior evidence that visual and multimodal scaffolds improve engagement and comprehension outcomes [29] [30]. The relatively higher proportion of students reaching high comprehension in these formats aligns with research advocating comics and animation as instructional tools for struggling readers and those with diverse language backgrounds [31] [32]. Conversely, while plain text and podcasts remain useful, their tendency to produce average comprehension levels underscores the need for educators to integrate multimodal approaches when aiming to foster deeper understanding and motivation.

Test of Differences and Correlation

Table 5.

Test of Difference between Reading Comprehension Level across Sexes

	Plain Text						Comic Strip						Podcast						Animated Video					
	n	Mean	SD	df	t	p	n	Mean	SD	df	t	p	n	Mean	SD	df	t	p	n	Mean	SD	df	t	p
Male	32	12.16	3.58	31	-0.41	0.69	18	13.61	3.11	17	-0.30	0.77	32	11.28	3.84	31	-0.28	0.77	27	14.41	2.79	26	-0.18	0.86
Female	34	12.53	3.88	33			21	13.86	2.01	20			27	11.56	3.52	26			22	14.55	2.69	21		

Table 5 presents the results of an Independent Two-Tailed T-Test examining reading comprehension differences between male and female students across four text formats: plain text, comic strip, podcast, and animated video. The p-values for plain text ($p = 0.69$), comic strip ($p = 0.77$), podcast ($p = 0.77$), and animated video ($p = 0.86$) are all substantially above the .05 threshold. This demonstrates that gender does not significantly affect performance in any of the text formats assessed in the study. These findings align with recent research showing that the integration of multimedia formats in learning can result in similar performance outcomes for both male and female learners, especially as digital literacy and access to technology have become more universal among students [33] [34]. The absence of statistically significant differences suggests that varied text formats have the potential to offer equitable learning opportunities regardless of sex. Thus, the continued use and development of varied text formats to bolster reading comprehension should be encouraged.

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Table 6

Test of Difference between Reading Comprehension Level across Parental Educational Attainment

		Mother's Educational Attainment					Father's Educational Attainment				
		DF	SS	MS	F-stat	p-value	DF	SS	MS	F-stat	p-value
Plain Text	between groups	6	117.76	19.63	1.49	0.20	6	86.37	14.39	1.05	0.40
	within groups	59	779.24	13.21			59	810.62	13.74		
	TOTAL	**65**	**897**				**65**	**896.98**			
Comic Strips	between groups	6	60.54	10.09	1.75	0.14	5	30.70	6.14	0.79	0.57
	within groups	32	184.90	5.78			33	256.99	7.79		
	TOTAL	**38**	**245.44**				**38**	**287.69**			
Podcast	between groups	6	75	12.50	0.92	0.49	6	29.56	4.93	0.34	0.91
	within groups	52	705.24	13.56			52	750.68	14.44		
	TOTAL	**58**	**780.24**				**58**	**780.24**			
Animated Video	between groups	6	37.26	6.21	0.69	0.66	6	24.73	4.12	0.55	0.77
	within groups	44	395.25	8.98			56	417.59	7.46		
	TOTAL	**50**	**432.51**				**62**	**442.31**			

*Significant at $p < .05$

Table 6 displays the results of a One-Way ANOVA examining whether parents' educational attainment, both mother's and father's, significantly affects students' reading comprehension levels across four text formats: plain text, comic strip, podcast, and animated video. Across all comparisons, none of the p-values fall below the .05 significance threshold, indicating no statistically significant differences in student reading comprehension due to parents' educational attainment for any of the formats. Specifically, plain text (mother: $p = .20$, father: $p = .40$), comic strip (mother: $p = .14$, father: $p = .57$), podcast (mother: $p = .49$, father: $p = .91$), and animated video (mother: $p = .66$, father: $p = .77$) all show no significant difference. This suggests that comprehension outcomes are shaped more by factors such as parental involvement, school environment, instructional strategies, and learner motivation rather than formal parental qualifications. Recent studies confirm that engaged parental participation and reading-related practices, such as dialogic reading and encouragement, exert stronger influence on student achievement than parental education alone [35] [36]. Moreover, while parental education may moderate links between self-efficacy and comprehension, it is not a sole determinant of outcomes, reinforcing the need for programs that emphasize active parental engagement and supportive home-school partnerships [37].

Table 7.

Test of Correlation between Reading Habits and Comprehension Levels

	Plain Text		Comic Strip		Podcast		Animated Video	
	r	p-value	r	p-value	r	p-value	r	p-value
Reading Habits Reading Comprehension	0.387	0.001	0.311	0.054	0.144	0.275	0.180	0.217

**Significant at $p < .05$*

Table 7 reveals that only plain text demonstrated a statistically significant correlation between reading habits and comprehension ($r = 0.387$, $p = 0.001$), while comic strip, podcast, and animated video formats showed weaker, non-significant associations. This suggests that sustained reading practice is more strongly linked to comprehension in traditional print than in multimodal formats. The finding reinforces the importance of engaged, habitual reading for literacy development in text-based contexts [38] [39]. However, as digital and multimedia texts become more prevalent, their comprehension benefits appear less dependent on habitual reading behaviors, particularly when students engage passively or recreationally [40]. The absence of significant correlations in comic strip, podcast, and animated video formats indicates that other factors, such as instructional design, active engagement, and guided exploration, may play a larger role in comprehension. Educators should therefore continue to promote strong reading habits for print literacy while simultaneously developing strategies that foster active multimedia literacy.

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Table 8.

Test of Difference between Reading Comprehension across Text Format Groups

		Level of Reading Comprehension				
		DF	SS	MS	F-stat	p-value
Plain Text **Comic Strip** **Podcast** **Animated Video**	between groups	3	299.05	99.68	10.89	0.00001
	within groups	209	2276.84	10.89		
	TOTAL	**212**	**2575.89**			

*Significant at $p < .05$

Table 8 presents the results of a One-Way ANOVA test for any significant differences in reading comprehension levels among Grade 10 students exposed to four text formats: plain text, comic strip, podcast, and animated video. The F-statistic (10.89) and the extremely low p-value (0.00001) confirm that the type of text format notably influences students' reading comprehension outcomes. This strong statistical significance suggests that at least one text format leads to substantially different comprehension results compared to the others. The findings align with those of Azores and Velasco [28] and Bugtong et al. [29], scholars who found that multimodal texts, especially visually engaging formats, enhance comprehension over traditional plain text. This result supports the increasing advocacy for multimodal instructional design in secondary education, especially in terms of reading texts rather than an exclusive focus on multimodal pedagogy. Multimodal texts emerge to not only appeal to diverse learning preferences but also foster greater engagement and motivation, particularly among digital-native students [41] [42]. Hence, multimodal texts should be integrated into reading instruction, especially for complex and varied learner backgrounds.

Implications to Language Instruction

The significant ANOVA result confirms that text format choice matters; thus, language instruction should integrate regular assessment of reading comprehension outcomes across formats. Text formats should be differentiated based on their strengths in supporting specific dimensions of reading. For example, research shows that plain text is suited for metacognition and habit formation, comic strips for questioning and engagement, podcasts for leisure and reflection, and animated videos for motivation and comprehension. In short, language instruction should strategically match text formats to learning objectives.

Further, as there were no significant differences found in reading comprehension based on parents' education levels, yet literature strongly emphasizes the role of active parental involvement, language instruction should include home-school collaboration strategies, especially for families with lower formal education, not to marginalize, but to empower students' reading achievement regardless of parental background. The same lack of significant differences in comprehension between sexes across formats also suggests that educators' focus should instead shift toward individual engagement and learning styles.

Despite the rise of multimodal formats, plain text showed the strongest correlation between reading habits and comprehension; therefore, language instruction must acknowledge the enduring value of sustained, reflective reading practices in developing literacy skills. Finally, comic strips and animated videos yielded the highest comprehension scores, showing that visual and auditory stimuli significantly aid understanding, so language instruction should integrate multimodal texts not just as supplements in a multimodal pedagogy but as core instructional materials to support diverse learners, particularly those with lower engagement or varying proficiency levels. Ultimately, these findings reinforce the advocacy for multimedia literacy as a necessary skill in the digital age, where language instruction is inclusive and future-ready.

IV. CONCLUSION

Therefore, multimodal texts significantly influence reading comprehension levels among Grade 10 students exposed to four text formats: plain text, comic strips, podcasts, and animated videos. While reading habits do not show a significant correlation with comprehension in multimodal formats, they are positively associated with comprehension in traditional plain text, underscoring the enduring value of sustained, reflective reading practices. Additionally, the findings reveal that parental educational attainment does not significantly affect students' reading comprehension. The study also found no significant differences in comprehension between male and female students across all text formats, indicating that these materials offer equitable learning opportunities regardless of sex. Overall, students demonstrated an average level of reading comprehension across formats. However, given the evidence that

comic strips and animated videos yielded the highest comprehension scores, it is recommended that text formats be integrated and differentiated based on their strengths in supporting language instruction. Doing so can better accommodate diverse learning styles and preferences, and support more inclusive, engaging, and effective literacy development.

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