

Reading Anxiety, Teaching Methods, and Online Reading Strategies: A Correlational Study

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ABSTRACT

Reading anxiety is an important consideration in English language education and may be experienced alongside the teaching methods and reading strategies used during reading activities. As online reading becomes increasingly common in higher education, understanding the relationships among these constructs is relevant to supporting effective reading practices. This quantitative study examined reported reading anxiety, teaching methods, and online reading strategies and investigated the relationships among these variables. Data were collected from 277 participants using a five-point Likert-scale questionnaire adapted from established instruments measuring reading anxiety, classroom teaching methods, and online reading strategies. Descriptive statistics and Pearson correlation analysis were used to analyse the data. The findings indicated that reading anxiety was most evident in relation to background knowledge, general reading ability, vocabulary, and grammar, while the highest-rated teaching-related anxiety item concerned being asked to read aloud. Learners also reported using global, problem-solving, and support strategies when reading online. Pearson correlation analysis showed significant positive associations between reading anxiety and teaching methods ($r = .557, p < .001$), reading anxiety and reading strategies ($r = .594, p < .001$), and teaching methods and reading strategies ($r = .194, p = .001$). The findings indicate that these constructs are significantly related within the present sample. Because the study uses a correlational design, the findings should not be interpreted as evidence of causal influence.

Keywords: Reading Anxiety; Teaching Methods; Online Reading Strategies; EFL Learners; Reading Comprehension.

INTRODUCTION

Background of Study

Reading is an important part of academic learning because learners need to understand and interpret written

information to support their studies. In this study, reading anxiety refers to the feelings of worry, nervousness or discomfort that learners experience when engaging with reading tasks. Miao and Vibulphol (2021) found that English as a Foreign Language (EFL) learners experienced reading anxiety related to difficulties such as general reading ability and vocabulary. Reading strategies refer to the approaches learners use to support their understanding of texts, including global, problem-solving and support strategies (Amer et al., 2010). Abdul Rahim et al. (2023) examined these strategies in relation to online reading problems, showing that reading strategies are relevant to how learners manage difficulties when reading online.

The topic remains relevant because learners increasingly encounter reading tasks in online learning environments, where they may need to understand unfamiliar information and select appropriate strategies to support comprehension. Rahmat et al. (2020) highlighted reading anxiety as an important issue in learners' academic reading experiences, while Abdul Rahim et al. (2023) demonstrated the importance of reading strategies in managing online reading problems. These findings show that reading anxiety and reading strategies continue to be important areas of concern even though previous studies have examined them. Therefore, examining reading anxiety, teaching methods and reading strategies together can provide a more complete understanding of learners' reading experiences and the factors that may support them in managing reading difficulties.

Statement of Problem

Reading anxiety is an important concern in academic reading, especially for learners studying English as a Foreign Language (EFL). Rahmat et al. (2020) found that reading anxiety was related to difficulties with background knowledge, general reading ability, vocabulary, grammar and teaching methods. Similarly, Miao and Vibulphol (2021) found a moderate level of EFL reading anxiety among university students, particularly in relation to general reading ability and vocabulary. These findings suggest that both learners' reading difficulties and teaching methods may affect their reading experiences.

Reading strategies can help learners manage reading difficulties. Abdul Rahim et al. (2023) found that global, problem-solving and support strategies were related to learners' online reading problems. However, previous studies have generally examined reading anxiety and reading strategies separately. Therefore, there is a need to examine these factors together with teaching methods to better understand learners' reading experiences. The present study addresses this need by examining reading anxiety, teaching methods and reading strategies, as well as the relationships among these variables. This directly leads to the research questions and objectives of the study.

Objective of the Study and Research Questions

This study aims to examine learners' reported reading anxiety, teaching methods, and online reading strategies and to determine the relationships among these variables.

Specifically, this study is done to answer the following questions;

- What dimensions of reading anxiety are most strongly reported by learners?
- What teaching methods are most frequently reported as sources of learners' reading anxiety?
- What online reading strategies are most frequently reported by learners?
- Is there a significant relationship between reading anxiety and teaching methods?

Ho1 There is no significant relationship between reading anxiety and teaching methods

- Is there a significant relationship between teaching methods and reading strategies?

Ho2 There is no significant relationship between teaching methods and reading strategies

- Is there a significant relationship between reading strategies and reading anxiety?

Ho3: There is no significant relationship between reading strategies and reading anxiety.

LITERATURE REVIEW

Theoretical Framework of the Study

Social Cognitive Theory, formulated by Bandura (1986), describes how people learn and function when there is an ongoing three-way reciprocal relationship between the learner's internal cognition or feelings, the environment in which they are learning, and their behaviour. For example, within the context of second language acquisition, a student's internal cognition and feelings will determine what they think about themselves as a reader, their level of anxiety associated with reading, how confident they feel about being able to read, and how competent they believe themselves to be linguistically. The environmental factors include instructional components/pedagogies used by teachers and classroom settings. These factors have the potential to reduce or increase a student's situational anxiety while reading. A student's behaviour will include the specific learning actions they take and the strategies they use to complete reading tasks. This theory suggests that learning environments directly impact students' mental and emotional interpretation of the content they are trying to comprehend; however, these interpretations ultimately control the choices they make regarding their strategic reading and their overall comprehension performance.

Rumelhart's (1977) Cognitive Theory of Reading conceptualises reading as an interactive process in which information derived from the written text and the reader's existing knowledge operate simultaneously to construct meaning. Rather than viewing reading as a strictly linear progression from recognising letters and words to understanding complete ideas, the theory emphasises the continuous interaction between bottom-up processing, which draws on linguistic features in the text, and top-down processing, which involves the reader's background knowledge, expectations, and predictions. In the context of the present study, limited vocabulary, unfamiliar grammatical structures, insufficient background or cultural knowledge, and difficulty identifying the main idea may disrupt this interaction and consequently heighten learners' reading anxiety. Teaching methods and reading strategies may also influence how effectively learners coordinate these cognitive processes. Accordingly, Rumelhart's interactive model provides a relevant theoretical basis for explaining the relationship between reading anxiety, teaching methods, and learners' use of online reading strategies.

Past Studies

Past Studies on Reading Strategies

Many studies have investigated how learners use reading strategies to manage online reading and comprehension difficulties. Amer et al. (2010) examined the perceived use of online reading strategies among student teachers, focusing on global, problem-solving and support strategies. The study used a questionnaire to examine learners' perceived strategy use. The findings showed differences in the use of some strategies according to learners' study level, suggesting that learning experience may be associated with learners' choice of reading strategies. The study implies that learners may benefit from appropriate guidance in developing effective online reading strategies.

Similarly, Abdul Rahim et al. (2023) investigated the relationship between online reading problems and reading strategies among 335 participants using a 5-point Likert-scale questionnaire. The study examined global, problem-solving and support strategies and found relationships among the three types of strategies. The findings suggest that learners may use a combination of strategies to manage difficulties when reading online.

Overall, the studies show that global, problem-solving and support strategies are important in helping learners manage online reading difficulties. Amer et al. (2010) showed that learners' strategy use may differ according to their study level, while Abdul Rahim et al. (2023) demonstrated the relationship among different types of reading strategies in managing online reading problems. These findings support the present study's use of the same three

reading-strategy categories. However, this study extends the focus by examining these strategies together with reading anxiety and teaching methods, providing a broader understanding of learners' reading experiences.

Past Studies on Classroom Reading Anxiety

Many studies have been conducted to investigate the specific classroom-related factors and instructional practices that trigger foreign language reading anxiety among learners. Specifically, Chen and Wang (2024) conducted research to explore the common characteristics and the origin of foreign language reading anxiety. This study studied both the individual cognitive factors and the instructional triggers in a classroom setting. The sample consisted of sixty English as a Foreign Language (EFL) students from two middle schools in China. An explanatory sequential mixed-methods design using an adapted version of the Foreign Language Reading Anxiety Scale (FLRAS), followed by in-depth, semi-structured interviews, was utilised. The results showed that classroom instructional variables, specifically rigid questioning techniques used by teachers, public evaluative pressures and time restrictions imposed by teachers while performing reading assignments, represented significant sources of increased reading apprehension. As such, the implications of this study support the need for language educators to develop scaffolded pre-reading intervention programmes, provide learners with strategic guidance regarding their reading processes and create a classroom environment that supports positive self-efficacy beliefs about reading.

The next study by Dunifa et al. (2023) was conducted to identify factors contributing to reading anxiety experienced by students in classroom-based learning environments. The focus of this study was to determine the extent to which teacher-directed activities, classroom interaction patterns, and student self-concepts impact learners' level of situational anxiety. Learners included in this study were EFL students from a single middle school cohort. Qualitative descriptive design, including classroom observation data and semi-structured interview data. Overall, it was found that reading anxiety experienced in classroom settings is primarily generated through the use of instructor-created pedagogical approaches that include cold-calling learners to read aloud to the class and creating a context where learners respond spontaneously to comprehension questions posed by the instructor while being evaluated negatively by their peers due to perceived pronunciation errors. Therefore, the implications of this study stress that instructors should move toward a more collaborative and interactive instructional approach to minimise learners' affective filters.

Overall, the previous studies mentioned above clearly show that foreign language reading anxiety can be caused by a variety of factors related to instructional methodology, public performance expectations, and evaluative pressures created by instructors. While prior literature provides evidence of the detrimental effects that stressful instructional contexts produce on the emotional health of learners, there is still a need to examine how specific instructional methods are associated with both top-down and bottom-up dimensions of anxiety as they relate to learners' deployment of online reading strategies.

Conceptual Framework of the Study

Figure 1 presents the conceptual framework for examining the relationships among reading anxiety, teaching methods, and reading strategies. The framework is anchored in Bandura's (1986) Social Cognitive Theory, which posits that learning is shaped by the reciprocal interaction of personal, behavioural, and environmental factors. Within this framework, reading anxiety is treated as a personal and affective factor, while teaching methods represent environmental factors and reading strategies represent behavioural and cognitive responses to reading tasks. Reading anxiety in this study is measured using the instrument attributed in the manuscript to Miao and Vibulphol (2021), together with Zoghi (2012), and consists of top-down reading anxiety, bottom-up reading anxiety, and classroom reading anxiety. The framework is used to contextualise the relationships examined in the present correlational study rather than to establish causal effects.

The framework is further supported by Rumelhart's (1977) Cognitive Theory of Reading, which views reading as an active cognitive process involving the interaction between prior knowledge and textual information. This theory provides a foundation for understanding learners' use of reading strategies to construct meaning from texts. The reading strategy component is measured using the instrument developed by Amer et al. (2010), which includes global, problem-solving, and support strategies. Global strategies involve planning and monitoring

comprehension, problem-solving strategies help readers address comprehension difficulties, and support strategies include note-taking, referencing, and other techniques that facilitate understanding. By integrating Social Cognitive Theory and Cognitive Theory of Reading, the framework provides a basis for examining how reading anxiety, teaching methods, and reading strategies are related within learners' reading experiences.

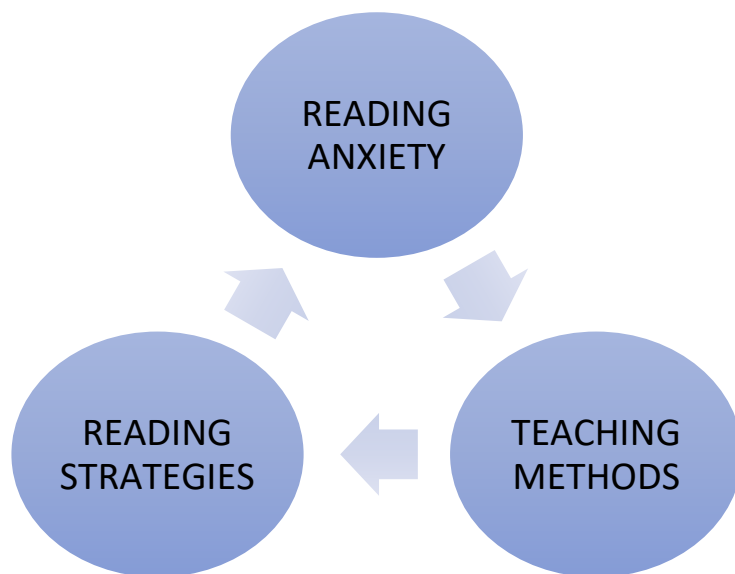


Figure 1- Conceptual Framework of the Study

Reading Anxiety, Teaching Methods, and Online Reading Strategies: Conceptual Framework

METHODOLOGY

This quantitative study employed a correlational survey design to examine reading anxiety, teaching methods, and online reading strategies. A convenience sample of 277 participants responded to a five-point Likert-scale questionnaire. The instrument was adapted from Miao and Vibulphol (2021), Zoghi (2012), and Amer et al. (2010), and the distribution of the 38 items across the study constructs is presented in Table 2. Participants were recruited using convenience sampling. The sample included respondents studying in Malaysia and outside Malaysia, with 90% reporting that they were studying outside Malaysia. Because the available manuscript does not specify the recruitment source or define the target population in greater detail, these details should be added by the authors before publication to clarify the sampling context and the population to which the findings may reasonably be related. The Likert scale ranged from 1 (Strongly Disagree) to 5 (Strongly Agree).

Table 1- Likert Scale Use

1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly Agree

Table 2- Distribution of Items in the Survey

SECTION	VARIABLE	CATEGORY	CONSTRUCT	Item /Indicator	Tot
B	READING ANXIETY Miao & Vibulphol (2020) and Zoghi (2012)	TOP-DOWN READING ANXIETY	Background and Cultural Knowledge	3	16(.923)

			General Reading Ability	4	
		BOTTOM-UP READING ANXIETY	Vocabulary	5	
			Grammar	4	
	CLASSROOM READING ANXIETY		Teaching Methods		5(.823)
C	READING STRATEGIES (Amer,et.al.,2010)		Global	6	18(.931)
			Problem-Solving	6	
			Support	6	
					38(.949)

Table 3- Reliability Levels, Cronbach's Alpha Ranges, and Their Interpretations

Reliability Level	Cronbach's Alpha range	Interpretation
Excellent	0.9 and above	Indicates very high internal consistency
Good	0.80-0.89	Reflects strong internal consistency
Acceptable	0.70-0.79	Indicates acceptable internal consistency
Questionable	0.60-0.69	Reflects questionable internal consistency
Poor	Below 0.6	Indicates poor internal consistency

Internal consistency reliability was assessed using Cronbach's alpha. The reported alpha values were .923 for Reading Anxiety, .823 for Teaching Methods, and .931 for Reading Strategies. The reported overall alpha for the 38-item instrument was .949. These values indicate high to very high internal consistency according to the ranges presented in Table 3. The item count has been harmonised with the 38 items shown in the appendix; the authors should verify the alpha calculations against the final 38-item dataset before publication.

Given the convenience sampling approach and the predominance of respondents studying outside Malaysia, the findings should be interpreted as describing the present sample rather than as representative of all EFL learners or university students.

Table 2 also shows the reliability of the survey. The analysis shows a Cronbach alpha of .923 for Reading Anxiety, .823 for Teaching Methods, .931 for Reading Strategies. The overall Cronbach Alpha for all 39 items is .949; thus, revealing a good reliability of the instrument chosen/used. Further analysis using SPSS is done to present findings to answer the research questions for this study.

FINDINGS

Demographic Analysis

According to Ziegenfuss, et.al (2021), researchers report demographic data in percentages to establish sample representativeness and allow for generalizability to a larger population. The reporting also provides an overview of participants' characteristics. Percentages offer a clear and understandable picture of the sample makeup.

Table 4-Percentage for Demographic Profile

Question	Demographic Profile	Categories	Percentage (%)
1	Gender	Male	26%
		Female	74%
2	Self-Rating Reading Proficiency	Average	50%
		Good	50%
3	Reading Preference	Physical Books	54%

		Online Materials	46%
4	Education	Diploma	9%
		Degree	79%
		Postgraduate	12%
5	Location	Malaysia	10%
		Outside Malaysia	90%

Table 4 presents the demographic profile of the 277 respondents who participated in the study. Female respondents constituted the majority of the sample (74%), while male respondents accounted for 26%. In terms of self-rated reading proficiency, the respondents were equally divided between average and good proficiency levels, with each category representing 50% of the sample. A slightly higher proportion preferred physical books (54%) compared with online materials (46%). With regard to educational level, the majority of respondents were degree students (79%), followed by postgraduate students (12%) and diploma students (9%). Geographically, most respondents were studying outside Malaysia (90%), while 10% were studying in Malaysia. Overall, the demographic profile indicates that the sample was predominantly female and degree-level students, with relatively balanced reading proficiency and reading-format preferences.

Descriptive Statistics

Mean (M) represents the average score, while standard deviation (SD) indicates the variability or spread of responses around the mean (Vetter, 2017). A larger SD indicates greater variability in responses, whereas a smaller SD indicates that responses are more closely clustered around the mean. The magnitude of SD is descriptive and should not be interpreted as inherently good or bad; its meaning depends on the distribution and context of the data.

Findings for Reading Anxiety

This section presents descriptive findings addressing research question 1: What dimensions of reading anxiety are most strongly reported by learners? In this study, reading anxiety is examined across (i) top-down, (ii) bottom-up, and (iii) classroom reading anxiety.

Top-down reading anxiety

This is measured by (a) background and cultural knowledge and (ii) general reading ability.

Table 5- Mean (M) and Standard Deviation (SD) for Background and Cultural Knowledge (BCK)

ITEM	M	SD
BCKQ1 I do not feel at ease when the title of the text is unfamiliar to me.	2.80	1.14
BCKQ2 It is worrying to me when the ideas expressed in the text are culturally unclear	3.05	1.13
BCKQ3 I get upset when I lack the previous knowledge about the ideas expressed in the text.	3.14	1.11

Table 5 shows that lack of previous knowledge was the strongest reading-anxiety concern among the three background and cultural knowledge items, with the highest mean for feeling upset when lacking previous knowledge about ideas expressed in the text ($M = 3.14$, $SD = 1.11$). In comparison, feeling uneasy when the title of the text was unfamiliar recorded the lowest mean ($M = 2.80$, $SD = 1.14$), indicating a comparatively weaker concern. The SD values show some variation in learners' responses across the three items. Overall, the findings suggest that having insufficient prior knowledge about the text was more closely associated with learners' reading anxiety than encountering an unfamiliar title.

Table 6- Mean (M) and Standard Deviation (SD) for General Reading Ability (GRA)

ITEM	M	SD
GRAQ1 I worry when I cannot get the gist of the text although no new vocabulary items or grammatical points exist in the text.	3.07	1.14
GRAQ2 When I cannot recognize minor ideas (details) of the text, it is worrying to me.	3.18	1.17
GRAQ3 I am nervous when I cannot spot the main idea of a paragraph.	3.18	1.19
GRAQ4 It bothers me when I cannot express my opinions or feelings about the text.	3.09	1.12

Table 6 deliberates that difficulty identifying important information in a text was the stronger reading-anxiety concern among the four items. The highest mean was shared by worry when unable to recognise minor ideas or details and nervousness when unable to identify the main idea of a paragraph ($M = 3.18$, $SD = 1.17$ and 1.19 , respectively). The lowest mean was for worry when unable to understand the overall meaning of a text despite having no new vocabulary or grammatical difficulties ($M = 3.07$, $SD = 1.14$). The SD values indicate some variation in learners' responses. Overall, the findings suggest that identifying details and main ideas were more closely associated with learners' reading anxiety than understanding the overall meaning of the text.

Bottom-up reading anxiety

This is measured by (a) vocabulary and (b) grammar

Table 7- Mean (M) and Standard Deviation (SD) for Vocabulary(V)

ITEM	M	SD
VQ1 It bothers me when I encounter a lot of words whose meanings are unclear	3.10	1.21
VQ2 I get upset when I cannot figure out the meaning of a word that I feel I have seen before	3.21	1.18
VQ3 I get confused when the word that I know has a different meaning in the sentence.	3.15	1.08
VQ4 I get upset when I come across idioms that are unfamiliar to me.	2.98	1.16
VQ5 I feel worried when the unknown word is difficult to pronounce.	3.22	1.15

Table 7 displays the mean and standard deviation values for vocabulary-induced reading anxiety. The item with the highest mean score was VQ5 ("I feel worried when the unknown word is difficult to pronounce") at $M = 3.22$ ($SD = 1.15$), followed closely by VQ2 ("I get upset when I cannot figure out the meaning of a word that I feel I have seen before") at $M = 3.21$ ($SD = 1.18$). VQ3 ("I get confused when the word that I know has a different meaning in the sentence") and VQ1 ("It bothers me when I encounter a lot of words whose meanings are unclear") recorded means of 3.15 ($SD = 1.08$) and 3.10 ($SD = 1.21$), respectively. The lowest mean score was recorded for VQ4 ("I get upset when I come across idioms that are unfamiliar to me") with $M = 2.98$ ($SD = 1.16$).

Table 8- Mean (M) and Standard Deviation (SD) for Grammar(G)

ITEM	M	SD
GQ1 I am nervous when a certain sentence is long and has a complex structure	2.93	1.17
GQ2 When a certain sentence is grammatically unfamiliar is worrying to me.	2.94	1.08
GQ3 I feel upset when the tense of a certain sentence is unclear to me.	3.05	1.11
GQ4 I worry when I am unable to recognize different parts of speech such as adjectives, adverbs, or connective words.	3.10	1.13

Table 8 details the findings for grammar-related reading anxiety. The highest-rated anxiety factor was GQ4 ("I worry when I am unable to recognise different parts of speech such as adjectives, adverbs, or connective words"), yielding a mean score of 3.10 ($SD = 1.13$). This was followed by GQ3 ("I feel upset when the tense of a certain sentence is unclear to me") with a mean of 3.05 ($SD = 1.11$). On the other hand, GQ2 ("When a certain sentence

is grammatically unfamiliar is worrying to me") and GQ1 ("I am nervous when a certain sentence is long and has a complex structure") exhibited lower mean scores of 2.94 (SD = 1.08) and 2.93 (SD = 1.17), respectively.

Findings for Teaching Methods

This section presents descriptive findings addressing research question 2: What teaching methods are most frequently reported as sources of learners' reading anxiety?

Table 9- Mean (M) and Standard Deviation (SD) for Teaching Methods (TM)

ITEM	M	SD
TMQ1 It bothers me when the instructor calls on me to read out.	3.10	1.13
TMQ2 It worries me when the instructor calls on me to translate a piece of an English text into our first language.	2.37	1.13
TMQ3 When the instructor asks me reading comprehension questions, it is worrying to me.	2.82	1.07
TMQ4 It upsets me when the instructor chooses uninteresting texts to read in class.	2.62	1.21

Table 9 represents the mean and standard deviation scores for teaching methods associated with learners' reading anxiety. The item with the highest mean score was TMQ1 ("It bothers me when the instructor calls on me to read out") at M = 3.10 (SD = 1.13). This was followed by TMQ3 ("When the instructor asks me reading comprehension questions, it is worrying to me"), which recorded a mean of 2.82 (SD = 1.07), and TMQ4 ("It upsets me when the instructor chooses uninteresting texts to read in class") at M = 2.62 (SD = 1.21). The lowest mean score was recorded for TMQ2 ("It worries me when the instructor calls on me to translate a piece of an English text into our first language") at M = 2.37 (SD = 1.13). Overall, being called upon to read aloud appeared to be the most prominent teaching-related source of reading anxiety among the respondents, whereas being asked to translate an English text into their first language was the least prominent.

Findings for Reading Strategies - Mazlan

This section presents descriptive findings addressing research question 3: What online reading strategies are most frequently reported by learners? In this study, online reading strategies are examined across (i) global, (ii) problem-solving, and (iii) support strategies.

Table 10- Mean (M) and Standard Deviation (SD) for GLOBAL STRATEGIES - Mazlan

ITEM	M	SD
GSQ 1 I think about whether the content of the on-line text fits my reading purpose	3.30	1.22
GSQ 2 When reading on-line, I decide what to read thoroughly and what to ignore	3.31	1.10
GSQ3 I use context clues to help me better understand what I am reading online	3.41	1.09
GSQ4 I use typographical features like boldface and italics to identify key Information.	3.33	1.12
GSQ5 I try to guess what the content of the on-line text is about when I read.	3.36	1.11
GSQ6 I scan the on-line text to get a basic idea of whether it will serve my purposes before deciding to read it.	3.21	1.14

Table 10 presents the mean and standard deviation scores for the global strategies employed by learners when reading online. The item with the highest mean score was GSQ3 ("I use context clues to help me better understand what I am reading online") at M = 3.41 (SD = 1.09). This was followed by GSQ5 ("I try to guess what the content of the online text is about when I read") at M = 3.36 (SD = 1.11) and GSQ4 ("I use typographical features such as boldface and italics to identify key information") at M = 3.33 (SD = 1.12). GSQ2 and GSQ1

recorded closely comparable mean scores of 3.31 (SD = 1.10) and 3.30 (SD = 1.22), respectively. The lowest mean score was recorded for GSQ6 ("I scan the online text to obtain a basic idea of whether it will serve my purposes before deciding to read it") at M = 3.21 (SD = 1.14). Overall, the findings indicate that the respondents most frequently relied on contextual clues to facilitate their understanding of online texts, while preliminary scanning before deciding to read was comparatively less frequently employed.

Table 11- Mean (M) and Standard Deviation (SD) for PROBLEM SOLVING STRATEGIES

ITEM	M	SD
PSSQ1 I try to get back on track when I lose concentration	3.45	1.30
PSSQ2 I adjust my reading speed according to what I am reading on-line	3.34	1.11
PSSQ3 I stop from time to time and think about what I am reading on-line	3.27	1.07
PSSQ4 When on-line text becomes difficult, I re-read it to increase my Understanding	3.62	1.16
PSSQ5 When I read on-line, I guess the meaning of unknown words or phrases	3.40	1.12
PSSQ6 I can distinguish between fact and opinion in on-line texts	3.26	1.05

Table 11 denotes that re-reading difficult online texts was the most strongly reported problem-solving strategy (Table 11), with the highest mean for re-reading to improve understanding (M = 3.62, SD = 1.16). The lowest mean was for distinguishing between fact and opinion in online texts (M = 3.26, SD = 1.05), indicating comparatively less use of this strategy. The SD values show some variation in learners' responses across the items. Overall, the findings suggest that learners were more likely to re-read difficult texts to improve understanding than to distinguish between fact and opinion when reading online.

Table 12- Mean (M) and Standard Deviation (SD) for SUPPORT STRATEGIES

ITEM	M	SD
SSQ1 I take notes while reading on-line to help me understand what I read	3.18	1.21
SSQ2 I use reference materials (e.g. an on-line dictionary) to help me understand what read on-line.	3.33	1.14
SSQ3 I paraphrase (restate ideas in my own words) to better understand what I read on-line.	3.35	1.10
SSQ4 I ask myself questions I like to have answered in the on-line text	3.30	1.12
SSQ5 When reading on-line, I translate from English into my native language	3.11	1.10
SSQ6 When reading on-line, I think about information in both English and my mother tongue	4.35	1.09

Table 12 presents the mean and standard deviation scores for support strategies. The item with the highest overall usage was SSQ6 ("When reading on-line, I think about information in both English and my mother tongue"), with a substantial mean score of 4.35 (SD = 1.09). This was followed by SSQ3 ("I paraphrase (restate ideas in my own words) to better understand what I read on-line") at M = 3.35 (SD = 1.10) and SSQ2 ("I use reference materials (e.g. an on-line dictionary) to help me understand what read on-line") at M = 3.33 (SD = 1.14). Meanwhile, SSQ4 and SSQ1 recorded means of 3.30 (SD = 1.12) and 3.18 (SD = 1.21), respectively. The least-utilized strategy in this category was SSQ5 ("When reading on-line, I translate from English into my native language") with a mean of 3.11 (SD = 1.10).

Exploratory Statistics

According to He (2024), correlation is a statistical technique that shows how strongly two variables are related to each other or the degree of association between the two. It's a common tool for describing simple relationships without making a statement about cause and effect. This section presents the Pearson correlation analysis addressing the relationships among the three study variables. According to He (2024), coefficient is significant

at the .05 level and positive correlation is measured on a 0.1 to 1.0 scale. Weak positive correlation would be in the range of 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0.

Pearson's correlation coefficient (r) was used to examine the direction and strength of the linear associations among reading anxiety, teaching methods, and reading strategies. Statistical significance was assessed using two-tailed tests at the .05 level. The results are presented in Table 13.

Table 13- Correlation between Reading Anxiety, Teaching Methods and Reading Strategies

Correlations		READING ANXIETY	TEACHING METHODS	READING STRATEGIES
READING ANXIETY	Pearson Correlation	1	.557**	.594**
	Sig. (2-tailed)		<.001	<.001
	N	277	277	277
TEACHING METHODS	Pearson Correlation	.557**	1	.194**
	Sig. (2-tailed)	<.001		.001
	N	277	277	277
READING STRATEGIES	Pearson Correlation	.594**	.194**	1
	Sig. (2-tailed)	<.001	.001	
	N	277	277	277

** . Correlation is significant at the 0.01 level (2-tailed).

Findings for Relationship between reading anxiety and teaching methods

This section presents data to answer research question 4 : Is there a significant relationship between reading anxiety and teaching methods?

Ho1 There is no significant relationship between reading anxiety and teaching methods

Table 13 shows there is an association between reading anxiety and teaching methods. Correlation analysis shows that there is a strong positive association between reading anxiety and teaching methods ($r=.557^{**}$) and ($p<.001$). Null hypothesis is rejected for Ho1.

Findings for Relationship between teaching methods and reading strategies

This section presents data to answer research question 5 : Is there a significant relationship between teaching methods and reading strategies?

Ho2 There is no significant relationship between teaching methods and reading strategies

Table 13 also shows there is an association between teaching methods and reading strategies. Correlation analysis shows that there is a weak positive association between teaching methods and reading strategies ($r=.194^{**}$) and ($p=.001$). Null hypothesis is rejected for Ho2.

Findings for Relationship between reading strategies and reading anxiety

This section presents data to answer research question 6 : Is there a significant relationship between reading strategies and reading anxiety?

Ho3: There is no significant relationship between reading strategies and reading anxiety

Table 13 shows a significant association between reading strategies and reading anxiety. Pearson correlation analysis indicates a strong positive association between reading strategies and reading anxiety ($r = .594$, $p < .001$). Therefore, the null hypothesis (Ho3) is rejected. This result indicates that the two constructs vary together

in the present sample; it does not establish that reading strategies cause changes in reading anxiety or that reading anxiety causes changes in reading strategies.

CONCLUSION

The findings provide an integrated descriptive account of how reading anxiety, teaching methods and reading strategies are experienced by learners. For top-down reading anxiety, insufficient background knowledge emerged as an important source of concern. Learners reported the greatest anxiety when they lacked previous knowledge about ideas expressed in a text ($M = 3.14$, $SD = 1.11$). In terms of general reading ability, difficulty identifying both the main idea and supporting details recorded the highest mean scores ($M = 3.18$). These findings indicate that reading anxiety is not limited to linguistic difficulty but can also arise when learners are unable to connect textual information with prior knowledge or identify important information within a text. This finding is consistent with Miao and Vibulphol (2021), who identified general reading ability and vocabulary as important dimensions of EFL reading anxiety. It also supports Rumelhart's (1977) Cognitive Theory of Reading, which emphasises the interaction between textual information and the reader's existing knowledge in constructing meaning.

For bottom-up reading anxiety, vocabulary and grammar presented additional challenges. Among the vocabulary items, learners reported the greatest worry when an unfamiliar word was difficult to pronounce ($M = 3.22$, $SD = 1.15$), followed closely by difficulty recalling the meaning of a previously encountered word ($M = 3.21$, $SD = 1.18$). For grammar, inability to recognise different parts of speech recorded the highest anxiety ($M = 3.10$, $SD = 1.13$). These findings demonstrate that reading anxiety can emerge from both higher-level comprehension processes and lower-level linguistic processing. This is consistent with Miao and Vibulphol (2021), who found that vocabulary and general reading ability contributed to EFL reading anxiety, and with Rahmat et al. (2020), who highlighted the multidimensional nature of academic reading fear. Viewed through Rumelhart's (1977) interactive model, difficulties at either the top-down or bottom-up level may interfere with learners' construction of meaning during reading.

Teaching methods also contributed to learners' reading anxiety. The highest mean was recorded for being called upon by the instructor to read aloud ($M = 3.10$, $SD = 1.13$), whereas being asked to translate an English text into the learners' first language recorded the lowest mean ($M = 2.37$, $SD = 1.13$). This pattern indicates that immediate and potentially public performance was associated with higher reported anxiety than translation-based activities in the present sample. The finding is consistent with Chen and Wang (2024), who identified classroom questioning, evaluative pressure and time restrictions as sources of foreign language reading anxiety. It also supports Dunifa et al. (2023), who reported that practices such as calling learners to read aloud and requiring spontaneous responses can contribute to classroom reading anxiety. From the perspective of Bandura's (1986) Social Cognitive Theory, these findings demonstrate how the learning environment can interact with learners' personal and emotional factors to be related to their reading experiences.

The findings further demonstrate that learners employed a combination of global, problem-solving and support strategies when reading online. For global strategies, using contextual clues recorded the highest mean ($M = 3.41$, $SD = 1.09$), suggesting that learners actively drew upon surrounding textual information to facilitate comprehension. For problem-solving strategies, re-reading difficult online texts was the most frequently reported strategy ($M = 3.62$, $SD = 1.16$). The most notable result occurred for support strategies, where thinking about information in both English and the learners' mother tongue recorded the highest mean ($M = 4.35$, $SD = 1.09$). These findings are consistent with Amer et al. (2010), who identified global, problem-solving and support strategies as important components of online reading, and Abdul Rahim et al. (2023), who demonstrated that learners employ combinations of these strategies to manage online reading difficulties. The findings indicate that respondents reported using different cognitive and support strategies when encountering online reading difficulties.

The correlation analysis further strengthens this interpretation. Reading anxiety was significantly and positively associated with teaching methods ($r = .557$, $p < .001$) and reading strategies ($r = .594$, $p < .001$). In contrast, teaching methods showed a weaker but statistically significant positive relationship with reading strategies ($r =$

.194, $p = .001$). Therefore, the respective null hypotheses were rejected. The stronger relationship between reading anxiety and reading strategies suggests that learners' experiences of reading anxiety are meaningfully associated with the strategies they report using when reading. However, because correlation does not establish causation, these findings should not be interpreted as showing that anxiety directly causes greater strategy use or vice versa. Instead, they indicate that the constructs vary together within the present sample.

Taken together, the findings support the integration of Bandura's (1986) Social Cognitive Theory and Rumelhart's (1977) Cognitive Theory of Reading in explaining learners' reading experiences. Reading anxiety represents a personal and affective factor, teaching methods form part of the learning environment, and reading strategies reflect learners' behavioural and cognitive responses to reading demands. The significant relationships among these constructs suggest that learners' reading experiences are shaped by the interaction between what they feel, how they are taught and the strategies they employ to understand texts. The findings reinforce the value of to view reading anxiety not as an isolated learner characteristic, but as part of a broader interaction between cognitive processes, instructional environments and strategic reading behaviour.

Theoretical and Conceptual Implications

The findings are consistent with using Bandura's (1986) Social Cognitive Theory with Rumelhart's (1977) Cognitive Theory of Reading in understanding reading anxiety and strategic reading behaviour. From a social cognitive perspective, the significant relationship between reading anxiety and teaching methods ($r = .557$, $p < .001$) illustrates the interaction between personal factors and the instructional environment. Learners' anxiety is therefore not necessarily independent of the classroom context, as instructional practices such as being required to read aloud may interact with learners' emotional responses to reading. At the same time, the significant relationship between reading anxiety and reading strategies ($r = .594$, $p < .001$) indicates an association between learners' affective experiences and their strategic reading behaviour.

Rumelhart's (1977) Cognitive Theory of Reading further helps explain the findings related to top-down and bottom-up reading anxiety. Difficulties involving prior knowledge, identification of main ideas, vocabulary and grammar demonstrate that anxiety can occur across different levels of cognitive processing. Learners' use of contextual clues, re-reading and bilingual processing further reflects their attempts to construct meaning by integrating textual information with existing linguistic and background knowledge. Conceptually, the findings are compatible with a reciprocal rather than strictly linear understanding of reading: reading anxiety, instructional conditions and reading strategies are interconnected components of the learner's reading experience.

Pedagogical Implications

The findings have several implications for the teaching of academic and online reading. First, instructors should recognise that reading anxiety may arise not only from learners' linguistic limitations but also from instructional practices. Since being called upon to read aloud recorded the highest mean among the teaching-method items, instructors should carefully consider how public reading activities are conducted. Rather than eliminating oral reading completely, lecturers may provide preparation time, allow voluntary participation, use pair or small-group reading activities, and create a supportive environment in which mistakes are treated as part of learning.

Second, explicit instruction in reading strategies should be incorporated into reading activities. Learners should be guided to use contextual clues, re-read difficult sections, identify key textual features, paraphrase information and use appropriate reference materials. The particularly high use of bilingual processing also suggests that learners may draw strategically upon both English and their mother tongue to facilitate comprehension. Instructors can acknowledge this practice while gradually developing learners' ability to process increasingly complex academic texts in English.

Finally, teaching should address both top-down and bottom-up reading difficulties. Activities that activate prior knowledge before reading may help learners approach unfamiliar texts with greater confidence, while vocabulary and grammatical support can reduce difficulties arising from linguistic processing. A supportive reading

environment combined with explicit strategy instruction may therefore help learners manage reading challenges more effectively while strengthening independent reading skills.

Suggestions for Future Research

Future studies could extend the present research by employing qualitative or mixed-method approaches to examine why learners experience particular forms of reading anxiety and how they select strategies when difficulties occur. Interviews, think-aloud protocols and classroom observations could provide deeper evidence of the cognitive and emotional processes that cannot be captured through self-reported questionnaire data alone. Future research could also employ longitudinal or experimental designs to examine whether specific teaching interventions, such as strategy instruction, scaffolded reading or anxiety-reducing classroom practices, produce changes in reading anxiety and strategy use over time.

Further studies could compare learners across educational levels, disciplines, countries and levels of English proficiency to determine whether the relationships identified in this study remain consistent across different learning contexts. Researchers could also examine reading behaviour across different forms of digital texts and use methods such as screen recording or eye-tracking to compare learners' reported strategies with their actual online reading behaviour. Such research would provide a more comprehensive understanding of how reading anxiety, teaching environments and strategic behaviour interact in increasingly digital learning contexts.

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Appendix

Reading Anxiety & Perceived Use Of Online Reading Strategies

This instrument is adapted from Miao & Vibulphol (2020), Zoghi (2012) and Amer,et.al (2010)

SECTION	VARIABLE	CATEGORY	CONSTRUCT	Item /Indicator	Tot	
B	READING ANXIETY Miao & Vibulphol (2020) and Zoghi (2012)	TOP-DOWN READING ANXIETY	Background and Cultural Knowledge	3	7	20
			General Reading Ability	4		
		BOTTOM-UP READING ANXIETY	Vocabulary	5	9	
			Grammar	4		
		CLASSROOM READING ANXIETY	Teaching Methods		4	
C	READING STRATEGIES (Amer,et.al.,2010)		Global	6		18
			Problem-Solving	6		
			Support	6		
						38

Section B-Reading Anxiety

Top-Down Reading Anxiety

Background and Cultural Knowledge (BCK)

ITEM	1	2	3	4	5
BCKQ1 I do not feel at ease when the title of the text is unfamiliar to me.					
BCKQ2 It is worrying to me when the ideas expressed in the text are culturally unclear					
BCKQ3 I get upset when I lack the previous knowledge about the ideas expressed in the text.					

General Reading Ability (GRA)

ITEM	1	2	3	4	5
GRAQ1 I worry when I cannot get the gist of the text although no new vocabulary items or grammatical points exist in the text.					
GRAQ2 When I cannot recognize minor ideas (details) of the text, it is worrying to me.					
GRAQ3 I am nervous when I cannot spot the main idea of a paragraph.					
GRAQ4 It bothers me when I cannot express my opinions or feelings about the text.					

Bottom-Up Reading Anxiety

Vocabulary(V)

ITEM	1	2	3	4	5
VQ1 It bothers me when I encounter a lot of words whose meanings are unclear					
VQ2 I get upset when I cannot figure out the meaning of a word that I feel I have seen before					
VQ3 I get confused when the word that I know has a different meaning in the sentence.					
VQ4 I get upset when I come across idioms that are unfamiliar to me.					
VQ5 I feel worried when the unknown word is difficult to pronounce.					

Grammar(G)

ITEM	1	2	3	4	5
GQ1 I am nervous when a certain sentence is long and has a complex structure					
GQ2 When a certain sentence is grammatically unfamiliar is worrying to me.					
GQ3 I feel upset when the tense of a certain sentence is unclear to me.					
GQ4 I worry when I am unable to recognize different parts of speech such as adjectives, adverbs, or connective words.					

Classroom Reading Anxiety

Teaching Methods (TM)

ITEM	1	2	3	4	5
TMQ1 It bothers me when the instructor calls on me to read out.					
TMQ2 It worries me when the instructor calls on me to translate a piece of an English text into our first language.					
TMQ3 When the instructor asks me reading comprehension questions, it is worrying to me.					

TMQ4 It upsets me when the instructor chooses uninteresting texts to read in class.

Section C-Reading Strategies

Global Strategies

ITEM	1	2	3	4	5
GSQ 1 I think about whether the content of the on-line text fits my reading purpose					
GSQ 2 When reading on-line, I decide what to read thoroughly and what to ignore					
GSQ3 I use context clues to help me better understand what I am reading online					
GSQ4 I use typographical features like boldface and italics to identify key Information.					
GSQ5 I try to guess what the content of the on-line text is about when I read.					
GSQ6 I scan the on-line text to get a basic idea of whether it will serve my purposes before deciding to read it.					

Problem--Solving Strategies

ITEM	1	2	3	4	5
PSSQ1 I try to get back on track when I lose concentration					
PSSQ2 I adjust my reading speed according to what I am reading on-line					
PSSQ3 I stop from time to time and think about what I am reading on-line					
PSSQ4 When on-line text becomes difficult, I re-read it to increase my Understanding					
PSSQ5 When I read on-line, I guess the meaning of unknown words or phrases					
PSSQ6 I can distinguish between fact and opinion in on-line texts					

Support Strategies

ITEM	1	2	3	4	5
SSQ1 I take notes while reading on-line to help me understand what I read					
SSQ2 I use reference materials (e.g. an on-line dictionary) to help me understand what read on-line.					
SSQ3 I paraphrase (restate ideas in my own words) to better understand what I read on-line.					
SSQ4 I ask myself questions I like to have answered in the on-line text					
SSQ5 When reading on-line, I translate from English into my native language					
SSQ6 When reading on-line, I think about information in both English and my mother tongue					