



THE EFFECTS OF QUESTIONING AS PRE-READING ACTIVITY ON EFL GRADE 12 STUDENTS' CRITICAL THINKING IN READING CLASSES IN KIEN GIANG, VIETNAM

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Abstract:

Research has indicated that questioning is used as an interactive way to engage students in learning English as a foreign or second language. In particular, rooted in Socratic philosophy, this strategy involves students in thinking and communicating ideas and knowledge to others for effective learning. However, teacher questioning in English classroom context in higher education in Viet Nam has not received much attention. Moreover, classroom questioning and teachers' perceptions of this instructional practice facilitating students' critical thinking in English major classes remained scarce. Therefore, this study aims to investigate the effects of questioning as pre-reading activity on students' critical thinking in EFL reading classes. The participants in this study were 80 grade 12 students of the two classes at a high school, in Kien Giang province. Data collection in this study includes pre-tests, post-tests, questionnaires, and interviews. The findings from this study indicate that the implementation of questioning as a pre-reading activity by students in the experimental group yielded positive effects on students' critical thinking in reading classes. Pedagogical implications for teachers and school administrators are made.

Keywords: questioning, pre-reading activity, critical thinking, reading comprehension

1. Introduction

Reading is an interactive process between the reader, a particular text, and the context in which knowledge is processed (Nuttall, 1996). Therefore, critical thinking within the realm of reading of a specific text involves an individual reader's ability to examine, evaluate, and integrate the conveyed information. In particular, critical thinking

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strategies empowers students to become engaged readers and augment their reading proficiency. One way to enhance students' reading in English is through questioning since reading functions as a tool through which students can gain deeper level of critical thinking and better prepare for practical skills required for future ideals or academic purposes (e.g., Le & Nguyen, 2017).

However, high school students in Viet Nam encountered several obstacles when learning reading. First of all, the majority of Vietnamese students lack the habit of critical thinking, which hinders the development of high-order thinking skills, including analysis, evaluation, and creativity. It is assumed that students from Asian cultures generally struggle with developing critical thinking abilities, which makes their academic pursuits difficult (Atkinson, 1997). Furthermore, because teaching reading in tertiary settings is mainly based on traditional lecture mode, students are likely to encounter problems in engaging in critical thinking while reading (H. B. Nguyen, 2013). Therefore, this present study aims to contribute to the existing body of knowledge by examining the use of questioning as a pre-reading activity in English language teaching in order to foster critical thinking abilities in reading classes at a high school in Kien Giang.

2. Literature review

2.1 Reading comprehension

According to the constructivist theory, reading comprehension is an individual's ability to comprehend a text in a variety of ways based on his or her own experiences or prior knowledge (Anderson & Pearson, 1984). This view implies that reading comprehension results in the mental interpretation of the meaning embedded in the text while considering the readers' prior knowledge (Kintsch, 1998). In fact, Nuttall (1996) states that decoding the meaning of a text entails both the reader and the text in a participatory process. Duke (2003) and Grabe (2009) explain that reading comprehension involves a process through which readers interact with the text, and make sense of the information presented to them while connecting it to their prior knowledge and experiences. Moreover, a range of cognitive processes and skills are needed to enhance students' reading comprehension (Keenan et al., 2008).

For the purposes of this study, reading comprehension is defined as an interactive process where students use critical thinking to access information from a specific text, understand it, interpret it and explain its content.

2.2 Questioning

Asking questions is a type of signal that has the potential to capture students' attention. Class questioning involves a teaching act related to what students have studied, or a directive of what to do and how to perform a given task (Zhang, 2018).

Wilén (1991), Paul and Elder (2007), and Peterson and Taylor (2012) all noted that questioning (or teachers' questions) is widely known as an important part in engaging students in thinking about and comprehending a text. Questioning has its roots in the

philosophy of Greek philosopher Socrates as it encourages students' critical thinking and expression of their views for effective learning (Maphosa & Wadesango, 2016; Şeker & Kömür, 2008).

Lundy (2008) stresses that higher level questions do not yield a single correct response but rather encourage students to use critical thinking. Lewis (2015) discovers that asking questions at a higher level provides teachers with additional information of students' comprehension of a particular text passage. The implications are that teachers must prepare questions to encourage students to think of the meanings behind the concepts they are studying.

For the purposes of this study, questioning is defined as teacher-generated inquiries that encourage student interaction, knowledge processing, and participation.

2.2.1 Questioning as pre-reading activity

Ajideh (2003) claims that pre-reading activity questions refer to a teaching strategy that encourages student engagement, learning, and critical thinking. Ajideh (2003) also states that one form of top-down processing activity that should be completed prior to reading is questioning, whether it is generated by the teacher or the learner. This method focuses on material delivery and provides instructions so that students know how to respond to pre-reading questions (Amalia & Devanti, 2017). Moreover, Zhang (2018) states that the process of posing questions and providing feedback to students depending on their responses is referred to as the use of questions.

The questioning strategy the instructor utilizes at the pre-reading stage, particularly in English, needs to be honed and maintained while supporting students' text comprehension. Therefore, to improve text comprehension, teachers must consider the type of question that can immerse students in their learning process.

2.2.2 Types of questioning

Cárdenas (2021) distinguishes questions into two groups. The first category covers all questions whose primary objective is to confirm facts, assess comprehension, or confirm or corroborate information. These questions' solutions are previously known by teachers. This category of questions also shares the feature of being low-level, which discourages engagement and, as a result, skill development. These are categorized as recall questions (Gall, 1984), display questions (Wangru, 2016) or classroom management questions (Iksan & Daniel, 2015). On the other hand, the second group consists of questions whose major objectives are to encourage conversation and improve students' critical thinking abilities (Wangru, 2016). The high-level questions also known as referential questions or creative questions that teachers do not know the answers (Al-Zahrani & Al-Bargi, 2017).

2.2.3 Levels of questions

Bloom's (1956) taxonomy is the most widely utilized system for classifying the cognitive levels of instructor inquiry and pupil response in literature. In the new taxonomy, the six levels of thinking have been renamed as remembering, understanding, applying (the first

three lowest levels of thinking), analyzing, evaluating, and evaluating (the final three highest levels of thinking). However, higher level questions fall into four categories: application (using the facts in different contexts), analysis (putting concepts into logical patterns of knowledge), synthesis (creating new ideas from existing ones), and evaluation (appreciating the value of what is latent in our thinking) (Lee & Kinzie, 2011).

2.3 Critical thinking

2.3.1 Definition of critical thinking

There are several definitions of critical thinking in the literature. Critical thinking, which literally refers to the process of thinking through a decision or evaluating information, is widely used in higher education, especially in teaching and learning of English as a second and foreign languages (e.g., Asgharheidari & Tahriri, 2015; Atkinson, 1997; Ennis, 1985; Fahim, 2012).

According to Ennis (1985), critical thinking is the ability to think logically about a certain text or amount of information from a particular subject. This concept suggests the ability to encourage students' independent thinking; the capacity to determine what to do or what to believe (e.g., Ennis, 2002; Thurman, 2009).

Another view is that Halpern (2003) defines critical thinking as the application of cognitive techniques that increase the probability of a desired outcome. His perspective implies that critical thinking is deliberate, argumentative, and goal-oriented. These aspects of a cognitive process include problem-solving, drawing conclusions, and making decisions. Likewise, Moon (2008) claims that critical thinking plays a key role in both higher education and professions, because it is seen as a crucial component of student learning achievement. From Moon's point of view, it supports the notion that integrating critical thinking into the learning process allows students to develop their thinking abilities, giving them the opportunity to build on new information or knowledge by evaluating it on a more advanced level.

However, Floyd (2011) delves into the issue of critical thinking, noting that Asian students often fail to appreciate this skill when compared to their emphasis on rote learning, memory retention, and comprehension. On the contrary, Mason (2007) highlights a wide array of perspectives regarding critical thinking as presented by various scholars. This range encompasses its relevance to general skills or broad competencies (e.g., Ennis, 1985; Paul, 1982), discipline-specific skills (McPeck, 1981), and its connections to rationality, disposition, and ethics (Martin, 1992). In light of these conceptualizations or interpretations, it becomes crucial to consider teachers' perceptions of how students process information or acquire knowledge. By doing so, teachers are likely to refine their instructional strategies, and then incorporate critical thinking into student learning process (e.g., Ennis, 2016; Le & Nguyen, 2017).

2.3.2 Relationship between questioning and critical thinking

Questioning and critical thinking are intertwined in the context of foreign language teaching and learning, including English. In particular, questioning acts as a catalyst for

the enhancement of critical thinking skills among students. Teachers' questions can engage students in discussing, analyzing and evaluating the information presented to them, then making informed decisions or judgments (Ennis, 2016). On the other hand, critical thinking entails asking questions which allows students to move beyond understanding at a superficial level and deepen their active engagement in breaking down information for analysis and evaluation. Given the paucity of research on the effects of questioning on the improvement in reading comprehension and critical thinking skills, the current study thus endeavors to explore the relevance of implementing the questioning strategy as a potential tool for fostering students' critical thinking in the context of reading lessons.

2.3.3 Relationship between reading comprehension and critical thinking

In the literature, there is a strong connection between reading comprehension and critical thinking. Norris and Phillips (1987), for instance, point out that reading involves more than just reading what is written on the page; rather, it involves thinking. Additionally, according to Beck (1989), "*there is no reading without reasoning.*" (p. 677). While Ruggiero (2004) has acknowledged the cognitive component of reading as reasoning, Yu-hui and his colleagues (2010) claim that reading involves thinking in order to create meaning.

In order to read well, students must possess the inferential and reasoning abilities to make links between the information embedded in a given text and prior knowledge. The ability to perceive or create an inferential or causal/logical relation when one is required in order to create a cohesive mental representation of the text is fundamental to these abilities (Aloqaili, 2011).

2.4 Related studies

The role of questioning in promoting reading comprehension gained the approval of many scholars (e.g., Bui, 2021; Do and Tran, 2020; Pham and Hamid, 2013b); Tran and Phuong, 2018).

Sunggingwati and Nguyen (2013) investigated the practice of teacher questioning and teaching reading in secondary schools in Indonesia. This multiple-site case study included participation from three teachers of grade 11 classrooms from three separate secondary schools. Data collected in this study included observations, interviews, and textbook analysis. The findings from this study show that the teachers depended on the textbooks while teaching reading and the question types they used to help students understand what they were reading. The findings also indicate that the teachers mainly used low-level questions; therefore, they needed support to ask higher levels of questions that could promote student use skills such as application, analysis, and evaluation.

A study by Pham and Hamid (2013) was carried out to examine the relationship between teachers' beliefs of the use of good questions, their practices, and students' cognitive level. Participants in the study were 13 new EFL teachers at Vietnam National University. An open-ended questionnaire survey and classroom observations were used to collect qualitative data. The findings show that there was a discrepancy between

teachers' beliefs and practices. Despite the congruence between teachers' beliefs and practices, it was found that discrepancies between the two remained with regard to four aspects: purposes in asking questions, cognitive level, content focus, and clarity of questions through lexis and syntax.

Another study by Tran and Phuong (2018) investigated the impact of questioning and semantic map in prereading stage on EFL gifted high school students' reading comprehension. The participants were 52 gifted students from two science classes for twelfth graders (they were non gifted English students). The data were collected through two reading proficiency tests (pre-test and post-test) and individual interviews. The findings show that integrating questioning and semantic mapping had positive effects on the reading comprehension abilities of gifted students. However, this study has certain limitations in terms of its research design. Firstly, the limited sample size (n=52) prevents the researchers from drawing conclusions regarding how questioning and semantic mapping influenced students' reading comprehension. Additionally, this research only focused on gifted students, thus, restricting the generalizability of the effects of questioning and semantic maps to all gifted high school students.

Do and Tran (2020) investigated a case study of teachers' questioning in English reading classrooms at a university in Vietnam. The participants in this study were a teacher and 30 first-year English majors. Data collected in this study included audio-recordings and classroom observations of English classes. The findings of the study show that the audience-oriented questions and content-oriented questions could facilitate student learning in reading lessons and that the teacher should prepare lessons based on the constructivist learning theory in ways that foster the growth of students' learning behaviors and their knowledge construction through questioning with regard to interaction and students interests or preferences.

Several studies have addressed the effects of questioning as pre-reading activity on students' critical thinking in reading comprehension (e.g., Duster, 1997; Ghabanchi and Behrooznia, 2014; Hou, 2019; Karimi and Veisi, 2016; Song, 2019)

Duster (1997) investigated the effective questioning techniques in the classroom and how teachers employ them as a technique to encourage students' creativity and critical thinking. Following a thorough investigation using classroom observations, student interviews, and a questioning framework, a review of the educational literature was conducted. The finding is reached based on the literature review and the field analysis, which shows that effective classroom questioning occurs when teachers plan their questioning strategies and when they employ a variety of different question types that are appropriate for the overall learning level of the classroom. However, the problem of the study was that many teachers were unable to pose open-ended, divergent, and convergent questions. This highlights the need for training programs to assist teachers in improving their classroom questioning behaviour.

A study by Ghabanchi and Behrooznia (2014) examined the impact of brainstorming as a pre-reading strategy on reading comprehension ability as well as critical thinking ability of EFL learners. With 29 participants in the control group and 25

in the experimental group, the study used an experimental design. In this study, a 45-item reading test with multiple choice answers adapted from Flash (2005) was used. To assess students' reading comprehension skills and their ability for critical thinking, the TOEFL reading, and the Watson-Glaser critical thinking appraisal are used. The results of the tests showed that participants' reading comprehension and critical thinking abilities were both significantly improved by brainstorming techniques. However, the current study has certain limitations. First, the subjects were chosen using the available sampling. Second, the researchers had to use an intact groups design because randomization requirements could not be met, although they made an effort to identify homogeneous individuals by using a reading comprehension pretest.

Another study by Karimi and Veisi (2016) examined the effects of teaching critical thinking skills on reading comprehension of Iranian intermediate EFL learners. 50 students from Arshia Language Institute in Islam, Iran participated in this study. Pre-tests, post-tests and intervention were used to determine the effects of critical thinking skills on learners' reading comprehension in EFL classes in Iran. The findings demonstrated that teaching critical thinking abilities has positive effects on learners' reading comprehension. However, the interaction of gender and teaching critical thinking was not significant.

Hou (2019) investigated the effects of questioning strategies on critical thinking dispositions. A quantitative examination of surveys taken by 51 English-major students at a junior college in Taiwan. The findings show that employing questioning significantly improved most students' critical thinking attitudes. However, while many students exhibited good opinions toward teacher-led questioning activities, some others expressed less interest in participating in student-created questioning activities because they struggled to pose questions during group discussions and manage time. Moreover, students' questioning could put a significant burden on their ability for comprehension, particularly for those with limited language skills.

Song (2019) conducted a study to investigate whether teachers' questioning has an impact on the critical thinking skill or ability of high school students in English class. In this study, 384 high school students and 8 teachers participated in the study. Data collected in this study include observation and interview for teachers and questionnaire and reading ability tests for students. The results of this study indicated a moderately positive link between teachers' questioning and students' critical thinking scores through classroom observation record table, students' test-day reading scores, and the data from students' critical thinking questionnaire.

The aforementioned studies have stressed the positive effects of the use of questioning on students' reading comprehension and critical thinking abilities in English classes; however, few studies have delved into the incorporation of questioning as pre-reading activity, specifically focusing on critical thinking among high school students. Therefore, this present study contributes to the existing knowledge in this field.

3. Methodology

A mixed-methods design which combines both qualitative and quantitative methods of data collection and analysis was considered appropriate in this study because while the use of quantitative data was intended to provide a detailed justification for the initial quantitative findings, qualitative data aimed to deepen understanding of participants' views or ideas towards the topic under investigation.

The pre-test and post-test of reading were used to gather quantitative data. The format of these assessments was the same as that of the reading sections of the national exam. Pretests were delivered to the experimental group (EG) and the control group (CG) to check students' level of reading comprehension before conducting a treatment process. After taking the pretest, the students in the experimental group received the treatment with mini tests while the control group received a whole class teaching method. After the intervention, the post-test was given to two groups to investigate if using questioning affected students' critical thinking in reading classes. The both pretest and post-test related to the questioning tests were designed with 25 questions including four main reading passages. The allotted time of the tests was forty-five minutes and students were required to circle the correct answers from the reading tests. Then, the student's answer sheets were collected from two groups and their work was assessed later.

In this study, the three-part questionnaire was used to assess students' critical thinking skills. There are three of them: (1) participant background; (2) 30 items adapted from Bui's (2021) and Wiboonwachara's (2019); and (3) self-report. The first section of the questionnaire asked participants personal questions. The second portion was designed with 30 items in 4 clusters including *The benefits of questioning as pre-reading activity*, *Understanding of the benefits of questioning*, *Challenges of using questioning* and *The relationship between questioning and critical thinking*. The participants were asked to respond to the statements using the Likert scale, which had five levels: Strongly disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly agree (5). The third section is self-report. This section had four open-ended questions which enabled participants to respond to these four questions in a free and natural way.

Semi-structured interviews with open-ended questions were conducted to gather qualitative data about how students perceived the effects of the questioning strategy on their critical thinking. The content of the questionnaire and the literature review would be used to create the interview questions. Ten questions from the interview would be broken down into two themes: (1) EFL students' conceptual understanding of questioning in learning reading and its significance at the pre-reading stage; and (2) students' attitudes towards the effects of questioning as pre-reading activity on students' critical thinking in reading classes.

Eighty grade 12 students (39 females and 41 males) from a high school in the Kiên Giang participated in this study on the basis of convenience sampling (Fraenkel, Wallen, & Hyun, 2012). Specifically, forty participants of the experimental group took part in the

intervention, questionnaire and six of them joined the interview to confirm their attitudes towards the effects of questioning on students' critical thinking in reading lessons.

4. Findings

4.1. Findings from the tests

4.1.1 Performance of both groups on the pre-test

Table 4.1: Descriptive statistical features and Independent sample t-Test

Group	Pre- critical thinking in reading								MD
	N	Min	Max	Mean	SD	t	df	Sig.(2t)	
EG	40	1.6	7.2	4.240	1.2707	.144	78	.886	.04
CG	40	1.6	6.8	4.280	1.2126				

Table 4.1 shows the mean scores of students' critical thinking in the reading pre-test of both groups. The results of the test show that there was a slight difference ($MD=.04$) in the mean scores of the two groups ($M_{EG}=4.24$, $SD_{EG}=1.27$, $M_{CG}=4.28$, $SD_{CG}=1.21$) for reading comprehension before the implementation of questioning as pre-reading activity with regard to students' critical thinking in reading. *Independent-Sample-t-Test* was run to confirm whether there were statistically significant differences. The results of *Independent Sample-t-Test* show that there was no significant difference in the pre-reading test between the two groups ($t=1.44$, $df=78$, $p=.88$). In another words, students from the two groups had the same starting point.

**Particular levels of critical thinking at the pre-test of the two groups*

Table 4.2: Critical thinking of the two groups

Reading levels	Group	N	Test	Three levels of critical thinking						
				Min	Max	Mean	SD	Sig(2.t)	t	df
Comprehension level	EG	40	Pre	1.2	4.4	3.00	.78	.954	.058	78
	CG			1.6	4.8	3.01	.76			
Synthesis level	EG	40	Pre	0	0.8	0.55	.251	.161	1.42	78
	CG			0	0.8	0.47	.254			
Analysis level	EG	40	Pre	0	2.0	0.68	.436	.245	1.71	78
	CG			0	2.0	0.80	.479			

Table 4.2 shows the descriptive statistics for three specific levels of critical thinking in reading, which were comprehension level, synthesis level, and analysis level, for both groups. An *Independent Sample-t-Test* was conducted to measure where there was a significant difference in students' critical thinking level between two groups before the study. The results of the test show that there was no statistically significant difference between the mean scores of the experimental group ($M=3.00$, $SD=.78$, $M=0.55$, $SD=.251$, $M=0.68$, $SD=.436$ respectively) and that of the control group ($M=3.01$, $SD=.76$, $M=0.47$, $SD=.254$, $M=0.80$, $SD=.479$ respectively), ($p=.954$, $p=.161$, $p=.245 > 0.05$, $t=0.58$, 1.42 , 1.71

respectively, $df=78$). As a result, it can be concluded that the students from both groups had the same level of critical thinking in reading skill before the intervention.

4.1.2 Performance of both groups on the post-test

Table 4.3: Descriptive statistical features and Independent Sample t-Test

Group	Post- critical thinking in reading								MD
	N	Min	Max	Mean	SD	T	Df	Sig.(2t)	
EG	40	2.8	8.4	5.770	1.2966	2.94	78	.004	.096
CG	40	1.6	8.4	4.810	1.6064				

Table 4.3 shows the mean scores of students' critical thinking in reading post-test of both groups. The results of the test show that there was a slight difference ($MD=.096$) in the mean scores of the two groups ($M_{EG}=5.77$, $SD_{EG}=1.30$, $M_{CG}=4.81$, $SD_{CG}=1.61$) for reading comprehension after the use of questioning as pre-reading activity concerning students' critical thinking. An *Independent Sample t-Test* was run to check whether there was a statistically significant difference between the mean scores of students' critical thinking in reading in the control group and that of the experimental group in the post-test. The results of *Independent Sample-t-Test* show that there was a significant difference in the post-test reading comprehension between the two groups ($t=2.94$, $df= 78$, $p=.004$). The result shows that the reading skills of the two groups after employing the treatment process were different. In other words, the students in the experimental group improved their reading comprehension after the intervention in comparison with those in the control group.

**Particular levels of critical thinking at the post-test of the two groups*

Table 4.4: Critical thinking of comprehension level of the two groups at the post-test

Reading levels	Group	N	Test	Three levels of critical thinking						T	Df
				Min	Max	Mean	SD	Sig(2.t)			
Comprehension level	EG	40	Post	1.2	3.6	2.13	.561	.000	3.68	78	
	CG			1.2	4.0	2.71	.822				
Synthesis level	EG	40	Post	0.4	1.2	0.87	.220	.000	6.82	78	
	CG			0.0	0.8	0.47	.299				
Analysis level	EG	40	Post	0.8	4.0	2.79	.810	.000	6.44	78	
	CG			0.0	4.0	1.63	.802				

Table 4.4 shows the descriptive details of critical thinking levels, which were about comprehension level, synthesis level, and analysis level, for two groups. An *Independent Sample-t-Test* was conducted to measure whether there was a significant difference in students' critical thinking level between the two groups after the intervention. The results of the test show that there was a significant difference between the mean scores of the experimental group ($M=2.13$, $SD=.561$, $M=0.87$, $SD=.220$, $M=2.79$, $SD=.810$ respectively) and that of the control group ($M=2.71$, $SD=.822$, $M=0.47$, $SD=.299$, $M=1.63$, $SD=.802$ respectively), ($p=.000$, $t=3.68$, $t=6.82$, $t=6.44$ respectively, $df=78$). Therefore, it can be

concluded that the students from both groups had different levels of critical thinking in reading after the intervention.

4.2 Findings from the questionnaire

4.2.1 Reliability of the questionnaire

Data collected from the questionnaire of 30 items were administered to 80 students to identify students' attitudes towards the effects of questioning as pre-reading activity on students' critical thinking in reading classes. A *scale test* was run to check the reliability of the questionnaires. The results show that Cronbach's alpha coefficient (α) is .934, indicating that the questionnaire was reliable for data collection.

4.2.2 Data analysis and interpretation of the questionnaire

The purpose of this section is to present the four main subsections of the questionnaire including students' attitudes towards the benefits of questioning, understanding of benefits of questioning, challenges, and the relationship between questioning and critical thinking.

a. Students' attitudes towards the benefits of questioning

Table 4.5 indicates the results of items 1-6, concerning the benefits of questioning in learning reading.

Table 4.5: Students' attitudes towards the benefits of questioning

Items	SD	D	N	A	SA	Mean
1. Questioning as pre-reading activities allows me to identify the main idea of the text.		4 10	2 5	28 70	6 15	3.9
2. Questioning as pre-reading activities arouses my curiosity about the main idea of the text.		4 10	7 17.5	28 70	1 2.5	3.7
3. Questioning as pre-reading activities allows me to guess the main idea of the text.		4 10	7 17.5	29 72.5		3.6
4. Questioning as a pre-reading activity allows me to relate prior knowledge to connecting the main point of the text.		6 15	6 15	26 65	2 5	3.6
5. Questioning as a pre-reading activity helps me familiarize myself with the main idea of the text.		4 10	3 7.5	32 80	1 2.5	3.8
6. Questioning as a pre-reading activity helps me understand the minor or specific idea of the text.	2 5	2 5	2 5	34 85		3.7

Table 4.5 shows that 85% of the students (n=34) agreed that questioning as pre-reading activity allowed them to identify the main idea of the text. In item 2, 72.5% of the participants (n=29) agreed that questioning as a pre-reading activity could arouse their curiosity about the main idea of the text. The following one, nearly three quarters agreed

that questioning as pre-reading activity allowed them to guess the main idea of the text. For item 4, 70% of students (n=28) thought that questioning as a pre-reading activity allowed them to relate prior knowledge to connecting the main point of the text. For item 5, 82.5% of students (n=33) contented that questioning as a pre-reading activity could them familiarize with the main idea of the text. For last item, 85% of students agreed that questioning as a pre-reading activity could help them understand the minor or specific idea of the text.

For the six items in the questionnaire with regard to attitudes towards the benefits of questioning, the students in the experimental group agreed that the employment of questioning could help enhance their reading comprehension. In particular, the overall average score for all 6 items was 3.7, which exceeded the acceptable score of 3.0 and ranged from 3.6 to 3.9.

b. Students' understanding of benefits using questioning as a pre-reading activity

Table 4.6 indicates the results of items 7-16, concerning the understanding of benefits of questioning in learning reading.

Table 4.6: Students' understanding of the benefits of questioning in learning reading

Items	SD	D	N	A	SA	Mean
Motivation						
7. Questioning as pre-reading activities helps me understand the text quickly.		4 10	9 22.5	27 67.5		3.6
8. Questioning as a pre-reading activity motivates me to learn reading.		2 5	8 20	30 75		3.7
9. Questioning as a pre-reading activity allows me to share ideas with other friends eagerly.		2 5	12 30	26 65		3.6
10. Questioning as a pre-reading activity allows me to practice English more frequently.	2 5	2 5		34 85	2 5	3.8
Feelings						
11. Questioning as a pre-reading activity helps me become confident in reading the text.		2 5	8 20	30 75		3.7
12. Questioning as a pre-reading activity allows me to reduce worry about reading assignments.		6 15	10 25	20 50	4 10	3.5
Fun						
13. Questioning as a pre-reading activity makes learning enjoyable.		4 10	4 10	31 77.5	1 2.5	3.7
14. Questioning as a pre-reading activity gets me excited to read.		4 10	5 12.5	30 75	1 2.5	3.7
15. Questioning as a pre-reading activity makes my reading activity enjoyable.		2 5	1 2.5	28 70	9 22.5	4.1
16. Questioning as a pre-reading activity enhances the fun in the classroom.		2 5	11 27.5	26 65	1 2.5	3.7

Table 4.6 shows students' motivation, student's feeling and student's fun when learning reading with questioning as a pre-reading activity. In item 7, 67.5 % of the students (n=27)

agreed that questioning as pre-reading activities could help them understand the text quickly. In item 8, three quarters of students (n=30) said that questioning as a pre-reading activity motivates them to learn reading. In item 9, 65% of the participants (n=26) was in agreement that questioning as a pre-reading activity allowed them to share ideas with other friends eagerly. In item 10, 90% of the students (n=36) said that questioning as a pre-reading activity allowed them to practice English more frequently. In item 11, three quarters of students (n=30) agreed that questioning as a pre-reading activity could help them become confident in reading the text. For item 12, 60% of the students (n=24) agreed that questioning as a pre-reading activity allowed them to reduce worry about reading assignments. In the next item, 85% of the students (n=32) that questioning as a pre-reading activity made learning enjoyable. In item 14, 78% of the students (n=31) agreed that questioning as a pre-reading activity made them excited to read. For item 15, 92.5% of the students agreed (n=37) that questioning as a pre-reading activity made their reading activity enjoyable. In the last item, 68% of the participants (n=27) agreed that questioning as a pre-reading activity could enhance the fun in the classroom.

For the 10 items in the questionnaire with regard to attitudes towards the benefits of questioning, the students in the experimental group agreed that the employment of questioning could give them a strong motivation in learning reading. To be specific, the average mean score of 10 items was 3.7, which was higher than the acceptable score of 3.0, and ranging from 3.5 to 4.1.

c. Students' challenges of questioning as pre-reading activity

Table 4.7 below indicates the results of items 18-20, concerning the challenges of using questioning in learning reading.

Table 4.7: Students' challenges of questioning as a pre-reading activity

Items	SD	D	N	A	SA	Mean
17. Questioning as a pre-reading activity in reading class makes me anxious.	9 22.5	16 40	7 17.5	8 20		2.3
18. Questioning as a pre-reading activity is time-consuming.	11 27.5	15 37.5	2 5	12 30		2.4
19. Questioning as a pre-reading activity is difficult.	6 15	18 45	10 25	6 15		2.4

Table 4.7 shows that 20% of students (n=8) agreed that questioning as a pre-reading activity in reading class makes them anxious, while 62.5% of the students (n=25) had opposite attitudes. In item 18, 30% of the students (n=12) contended that questioning as a pre-reading activity was time-consuming whereas 65% of the students (n=26) showed their disagreement. In item 19, 15% of students (n=6) agreed that questioning as a pre-reading activity was difficult, while 60% of the participants (n=24) expressed their objection.

For the three items in the questionnaire concerning attitudes towards the challenges, the students in the experimental group confirmed that the employment of

questioning could reduce challenges in learning reading. Especially, the average mean score of 3 items was 2.4, which was lower than the standard point of 3.0 in the Likert scale and ranging from 2.3 to 2.5.

d. The relationship between questioning and critical thinking

Table 4.8 below indicates the results of items 21-30, concerning the relationship between questioning and critical thinking in learning reading.

Table 4.8: The relationship between questioning and critical thinking

Items	SD	D	N	A	SA	Mean
20. Questioning improved your thinking abilities.		4 10	4 10	30 75	2 5	3.8
21. Questioning developed your logical thinking.		2 5	10 25	27 67.5	1 2.5	3.7
22. Questioning made you process the information better e.g. fact, opinion, biases.		2 5		34 85	4 10	4.0
23. Questioning allowed you to examine the connections between ideas, subjects, or themes in written texts.		2 5	11 27.5	26 65	1 2.5	3.7
24. Questioning assisted you in reaching logical conclusions.	2 5	2 5	4 10	32 80		3.7
25. Questioning encouraged you to consider a decision more carefully and sensibly before making it.	2 5	14 35.5		21 52.5	3 7.5	3.6
26. Questioning motivated you to exercise critical and rational thought before making any decisions.		4 10	2 5	32 80	2 5	3.8
27. Questioning helped you identify the connection between objects or situations.		4 10	15 37.5	21 52.5		3.8
28. Questioning helped you better retrieve the information.	2 5	6 15		29 72.5	3 7.5	3.8
29. Questioning helped you better examine the data you gathered each day.		3 7.5	10 25	24 60	3 7.5	3.7
30. Questioning as a pre-reading activity allows me to think and analyze the text contents.	2 5		2 5	36 90		3.8

Table 4.8 reveals that 80% of the students (n=32) agreed that questioning improved their thinking abilities. In item 21, 70% of the students (n=28) contended that questioning developed their logical thinking. For item 22, 95% of the students (38) indicated that questioning made them process the information better in terms of fact, opinion, and biases. In item 23, 68% of the students (n=27) agreed that questioning allowed them to examine the connections between ideas, subjects, or themes in written texts. In item 24, 80% of the participants (n=32) were in agreement that questioning assisted them in reaching logical conclusions. In item 25, 61% of the students (n=24) said that questioning encouraged them to consider a decision more carefully and sensibly before making it. In next item, item 26, 85% of the learners (n=34) agreed that questioning motivated them to

exercise critical and rational thought before making any decisions. In next item, item 27, 52.5% of the students (n=21) agreed that questioning could motivate them to exercise critical and rational thought before making any decisions. For item 28, 80% of the students (n=32) said that questioning could help them better retrieve the information. In item 29, 68% of the participants (n=27) agreed that questioning could help them better examine the data they gathered each day. In the last item, 90% of the students (n=36) contended questioning as a pre-reading activity allowed them to think and analyze the text contents.

For the 11 items in the questionnaire with regard to the relationship between questioning and critical thinking, the students in the experimental group confirmed that the employment of questioning could enhance their critical thinking in learning reading. Especially, the average mean score of 11 items was 3.76, which was lower than the standard point of 3.0 in the Likert scale and ranging from 3.6 to 4.0.

4.3 Findings from the interviews

This section reports the findings from the interviews. The themes are identified as students' attitudes towards questioning, challenges, and the relationship between questioning and critical thinking.

4.3.1 Students' attitudes towards questioning

Analysis from the interview data indicates that six students yielded positive attitudes towards questioning. The following extracts illustrate their views.

"I think questioning helps us as students actively participate in the learning process; provides us with an opportunity to share information with one another and helps teachers assess whether we understand the lesson or relate to background knowledge about that topic. Additionally, I can visualize the main content of the upcoming lesson." (Trang, interview extract)

"I think questioning will help us focus on the lesson to find the answer and have opportunity to express our own opinions. Next, questioning is an activity that makes the lesson more exciting and engaging." (Khang, interview extract)

The other two students expressed their opinions about why the teacher should make questions at pre-reading stage.

"The purpose of teachers asking questions during the pre-reading stage is to help us as students get started and lead us into the main content of the reading material. Through this activity, I think I gain some insights into the knowledge that I already had about the upcoming topic." (Thanh, interview extract)

“Questioning is a form of communication between individuals, which involves using a series of questions to explore a problem, an idea, or something interesting and a process of forming ideas to develop further understanding of a topic” (Xuyen, interview extract)

4.3.2 Students' understanding of benefits of questioning as a pre-reading activity

The other three students said that they felt motivated by the teacher's use of questioning at pre-reading stage. The following extracts demonstrate their views.

“Honestly, questioning at pre-reading stage helps me know whether my background knowledge has been correct or not and sufficient enough. And when I answer the teacher questions, I think this type of instruction helps me become more confident and ready to receive my teacher's feedback.” (Kien, interview extract)

“I often feel a little nervous, but then I feel happy because I get involved in the activity of contributing ideas or opinions for a lesson. When I answer and receive feedback from the teacher that my answer is correct, I feel very delighted and become confident.” (Khang, interview extract)

“Through the question-and-answer activities, these allow us to become more confident in expressing our opinions.” (Xuyen, interview extract)

4.3.3 Challenges of using questioning as a pre-reading activity

Analysis from the interview data shows that five students reported having encountered challenges of the use of questioning as a pre-reading activity. The following extracts illustrate their views.

“I found it challenging due to a lack of information and knowledge of social, political, and scientific issues; therefore, it is difficult for me to express my opinions on these topics. In addition, my ability to present my ideas and persuade others is limited. Furthermore, a lack of vocabulary is a barrier for me to answer the questions made by the teacher or convince other peers.” (Trang, interview extract)

“I sometimes thought that it is challenging for me to express my views in front of others on reading topics related to social matters. In addition, time pressure makes it difficult for me to think of answers. Furthermore, I was struggled by pronunciation, vocabulary, and grammatical structures.” (Khang, interview extract)

Three students struggled with difficult questions. The following extracts show their views.

"When the teacher's questions are too challenging, students may only concentrate on searching for the specific information needed to answer those questions, and they may end up overlooking other important information." (Trang, interview extract)

"If the teacher's questions are unclear or ambiguous, it can be difficult for students to comprehend and respond to them. Therefore, effective questioning skills are crucial for teachers to ensure that their students can fully understand and engage with the material." (Xuyen, interview extract)

"Unclear questions can lead to confusion among students, as they may not fully grasp the intended focus of the question. Furthermore, if the question is difficult, it can be difficult for us as students to consider the appropriate answer expected by the teacher." (Kien, interview extract)

The other two students said that they needed more time to practice the questioning strategy in reading lessons. The following extracts illustrate their views.

"I think that during the pre-reading stage, the time for activities is limited, so the teacher should ask a few key questions to explore and lead into the reading. I think 8-10 minutes should be enough. The important thing is the cooperation or interaction between students and the teacher, as well." (Trang, interview extract)

"One major issue is the amount of time needed for the activity. Inefficient time management by the teacher can limit the time that students have to engage with the text." (Xuyen, interview extract)

"I think all of these reading activities require student thinking to express their own opinions. Therefore, it will take time to think, so it is necessary to allocate sufficient time for us as students during the reading period." (Kien, interview extract)

4.3.4 The relationship between questioning and critical thinking

Two students expressed that questioning and critical thinking are closely related in reading classes. The following extracts demonstrate their views.

"I think critical thinking is used in other subjects such as Mathematics, Physics, Chemistry, and Literature or when explaining a problem, a phenomenon. This is the same as in reading class, I use critical thinking." (Trang, interview extract)

"I think in daily life activity, I will encounter a lot of questions every day. For example, after finishing the lesson on the physical properties of sulfuric acid, the teacher asked the students, "Why shouldn't we pour water into concentrated sulfuric acid, but instead slowly pour concentrated sulfuric acid into water?" With a question like that, I will apply

the knowledge I have learned, combined with observation of the phenomenon to explain that.” (Kien, interview extract)

5. Discussion

This section discusses the key findings of the study in relation to relevant studies to answer the two research questions.

Research Question One: What are the effects of questioning as pre-reading activity on students' critical thinking in reading classes at high school?

The findings from the study show that students in the experimental group used questioning as a pre-reading activity, resulting in better reading outcomes compared to those in the control group; thus, implementing questioning focused on critical thinking comprehension, synthesis, and analysis levels in the curriculum proved more beneficial for enhancing high school students' reading comprehension. In fact, the findings from the first research question are in line with the findings of a study by Ghabanchi and Behrooznia (2014), who reported that participants' reading comprehension and critical thinking abilities were both improved through brainstorming as a pre-reading strategy. This finding is consistent with that in a study of Karimi and Veisi (2016), who examined the effects of critical thinking skills on reading comprehension of Iranian intermediate EFL students. In other words, this finding shows that teaching critical thinking abilities had positive effects on students' reading comprehension. The finding also confirms Song's (2019) research, which claimed that using questioning could enhance high school student's critical thinking. Additionally, this study supports the conclusions from the findings of a study by Do and Tran (2020), who contended that using questioning as a pre-reading activity could allow students to advance their critical thinking level.

Research Question Two: What are students' attitudes towards the implementation of questioning as pre-reading activity on students' critical thinking in reading class?

The findings from the study indicate positive attitudes of students towards questioning as pre-reading activity in reading classes. Most of the students in the experimental group found that the implementation of questioning as pre-reading activity could help them enhance their reading skills. This finding is in line with those by previous researchers, namely Aloqaili (2012) and Bui and Nguyen (2021), who affirmed that questioning at pre-reading stage could trigger students' background knowledge and improve students' reading ability. These authors further claimed that this instructional approach could provide students with greater opportunities to express their own views or opinions and specifically understand the main ideas of the topic and the reading content easily. In the same line of reasoning, questioning at pre-reading stage was beneficial for activating student's background knowledge, as noted in the literature (Maphosa & Wadesango, 2016; Tran & Phuong, 2018).

The findings from this study show that most students believed questioning could help them enhance their understanding of lessons, create an engaging classroom environment, facilitate reading, boost confidence and enjoyment, and provide them with more opportunities to share ideas and prior knowledge with peers. This finding is in line with those of studies by Şeker and Kömür (2008), Karimi and Veisi (2016), and Nguyen (2019) who highlighted that teachers using questioning as a pre-reading strategy acknowledged its effects to activate students' prior knowledge, stimulate their curiosity, and generate their interest in the text, while students reported that teachers' questions could allow them to relate their background knowledge to learn new lessons, increase their confidence in learning to read, and heighten their comprehension of teacher feedback. This observation coincides with studies conducted by Maphosa and Wadesango (2016b), Amalia and Devanti (2017), Hong and Nguyen (2019), and Phan and Nguyen (2021), who indicated that implementation of purposeful questions could stimulate students' critical thinking, encourage active participation, create collaborative learning, and sustain motivation and engagement throughout activities preceding a particular reading text.

6. Conclusions

This study sheds light on how questioning as a pre-reading activity influences students' critical thinking in reading text passages. In other words, incorporating questioning before reading plays a vital role in promoting reading performance of high school students at Vinh Thuan upper secondary school, Kien Giang province, Vietnam. Through the results of the reading tests, this study reveals the effects of employing pre-reading questions on different aspects of reading performance, encompassing comprehension, synthesis, and analysis. Particularly, the findings from post-tests indicate that students in the experimental group demonstrated their higher levels of comprehension and synthesis compared to their counterparts.

The findings highlight that students with limited command of English language proficiency in terms of linguistic forms or structures managed to engage or interact with other peers in reading classes by using the questioning strategy. Through activating their existing knowledge, students could generate a greater number of ideas to process information. Concerning students' attitudes towards the use of questioning-based pre-reading activity in reading classes, the qualitative findings reveal positive acceptance of the questioning strategy by the students.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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