THE EFFECTIVENESS OF RECIPROCAL TEACHING AS READING COMPREHENSION INTERVENTION: A SYSTEMATIC REVIEW

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ABSTRACT

Background and Purpose: This paper presents a comprehensive review of the research on reading comprehension interventions for ESL learners. Although numerous reviews have reported the effectiveness of reciprocal teaching in improving reading outcomes, only few reviews focused on the use of these strategies in ESL contexts. Hence, this review identified, evaluated and synthesized relevant literature in search of the effectiveness of reciprocal teaching and the features that are associated with improved reading comprehension outcomes.

Methodology: Guided by Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), a thorough search was performed on five major databases using the search terms "reciprocal teaching" or "reciprocal reading" and "reading comprehension" or "text comprehension".

Findings: The comprehensive search resulted in a total of 18 articles. The analysis coded these articles into eight main themes with four main themes concentrated on the features of the reciprocal teaching interventions: (a) purposes, (b) learning environment, (c) comprehension-monitoring, and (d) scaffolding, and another four main themes on the outcomes of the interventions: (e) results, (f) comprehension outcome measures, (g) reading strategies, and (h) conceptual change.

Contributions: Conclusively, reciprocal teaching fulfilled the key features of effective intervention as significant gains were mostly observed in the research using reciprocal teaching as intervention. The versatility of reciprocal teaching makes the technique adaptable to learners of varying backgrounds, ages and levels of education.

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1.0 INTRODUCTION

Reading is no longer regarded as an ability to decipher words or extract information, but as a mediating process to consolidate and extend knowledge (Gu, 2003; Smagorinsky, 2001). It is also known as a multifaceted developmental process that enables the reader to critically evaluate the information and apply the newfound knowledge flexibly (Pressley, 2000). Similarly, the RAND Reading Study Group (2002) defined reading as "the process of simultaneously extracting and constructing meaning through interaction and involvement with written language" (p. xii). Organization for Economic Co-operation and Development (OECD) further enhanced this definition by referring reading as an "understanding, using, evaluating, reflecting on and engaging with texts in order to achieve one's goals, to develop one's knowledge and potential, and to participate in society" (OECD, 2016, p.11) . These definitions shifted the previous preponderant interest in reading which focused mostly on the ability to decode, understand, interpret and ruminate on texts to the integration of metacognition into reading.

In academic settings, reading is often perceived as a fundamental skill to master as it has predominant significance over the accomplishment of learners' educational goals and academic achievement. As learners advance in their studies and as texts become more complex with lesser contextual clues, failure in attaining comprehension skills could result in handicapping the learners' academic performance due to their inability to acquire the required content. Though prevalent efforts have been put in enhancing learners' reading comprehension, many learners are still lacking the skills to identify, organize and specify details presented in the text (Phantharakphong & Pothitha, 2014; Ray & Belden, 2007) as well as having the inadequacies to comprehend what they read although they can articulate the words (Oczkus, 2003), thus exacerbates the success of learning and negatively impacts the learners (Mason, 2004; Woolley, 2011).

The low reading literacy rate depicted the heightened prevalence of reading difficulties among the learners. The findings by OECD (2019) regarding a strong correlation between the

countries' mean reading performance and their literacy rate (OECD, 2019) strengthen this claim. OECD (2016) reported about 20% of fifteen-year-old learners across OECD countries performed below Level 2 and in 2018, it was reported that only 77% of learners reached the minimum of Level 2 of reading proficiency (OECD, 2019). This signifies that almost one-third of the PISA test-takers were unable to identify the main ideas, retrieve explicit information, generate inferences, and reflect on the content and purpose of texts.

As adamantly assumed by the scholars in the field of reading comprehension, a steadfast solution to this predicament is to establish a methodical depiction of textual information (Cain, 2010) through the use of metacognitive reading strategies (Anderson, 1999; Carrell, 1989; Grabe, 1991; Sheorey & Mokhtari, 2001; Pressley, 2006). The success of the reading comprehension process lies in the multiple interactions in which the readers bridge their background knowledge with the textual information through the application of reading strategies (Grabe & Stoller, 2002; McWhorter, 1998; Westera & Moore, 1995). Studies revealed that proper guidelines, pedagogical skills, approaches and reading strategies are essential components in enhancing learners' reading comprehension (Mokhtari & Reichard, 2002).

An influential meta-analytical study by Rosenshine and Meister (1994) avouched Palincsar and Brown's (1984) reciprocal teaching as explicit instruction that disseminates metacognition during the process of meaning construction. Their allegation was later reaffirmed by McAllum (2014) who asserted reciprocal teaching as a fusion of reading strategies that incorporates explicit teaching of metacognitive strategies and dialectic process that enables the construction of understanding and comprehension, thus, is parallel with the paradigm shift in reading (Carter, 1997). In short, reciprocal teaching views reading as concerted effort, in which the process of comprehension is a collaborative comprehension-monitoring instructional procedures where small groups of students learn the application of four reading strategies through scaffolded instruction.

There is an influx of studies conducted with intent to analyze the strengths of reciprocal teaching (Oczkus, 2003) and many resulted in positive results (Alfassi, Weiss, & Lifshitz, 2009; Klingner & Vaughn, 1996; Okkinga, Steensel, Van Gelderen, & Sleegers, 2016; Pilten, 2016; Schünemann, Spörer, & Brunstein, 2013; Seymour & Osana, 2003) even for English as second language (ESL) learners (Chang & Lan, 2019; Hamdani, 2020; Huang & Yang, 2015; Komariah, Ramadhona, & Silviyanti, 2015; AlSaraireh & KuHamid, 2016). Although various types of reviews have been performed on reciprocal teaching (Moore, 1998; Rosenshine & Meister, 1994; Park, 2008), most of them are either inclined towards students with reading

disabilities or focused on reading in first language. However, the diversity in student population and the demanding expectations for academic success in ESL learners necessitate the need to review the use of reciprocal teaching in ESL or EFL contexts.

This systematic review therefore aimed at identifying, evaluating and synthesizing the evidence base for the utilization of reciprocal teaching as reading intervention for ESL learners, as well as at investigating the features that contribute to the success of reciprocal teaching in ESL reading comprehension classrooms. The research questions that guided this review were:

a) What features of reciprocal teaching are associated with improved outcomes of ESL learners' reading proficiency?
b) How effective is reciprocal teaching as reading intervention in improving ESL learners' reading comprehension proficiency?

2.0 METHODOLOGY

This study opted for a systematic literature review methodology to rigorously search, collate, appraise and synthesize related empirical evidence relevant to the research questions using predetermined eligibility criteria through an explicit and replicable method (Berrang-Ford, Pearce, & Ford, 2015; Petticrew & Roberts, 2006). This methodology ensures the comprehensiveness and transparency of the article retrieval process using the pre-established search terms with the inclusion and exclusion criteria (Robinson & Lowe, 2015; Shaffril, Samsuddin, & Abu Samah, 2020).

Furthermore, systematic literature review also endeavors to minimize research bias and provides more significant results with the best possible estimate of quality evidence by allowing the use of appropriate method of synthesis onto a range of research design; qualitative, quantitative or both. (Mallett, Hagen-Zanker, Slater, & Duvendack, 2012; Petticrew & Roberts, 2006). Although statistical methods of meta-analyses are often included in systematic reviews, narrative or qualitative analysis can be employed if the selected studies fail to meet the required assumptions for meta-analyses (Whittemore & Knafl, 2005). This study however, adopted integrative analysis to summarize and synthesize the features and impacts of utilizing reciprocal teaching in ESL reading comprehension classrooms.

In order to adhere to the publication standards in conducting a systematic literature review and to ensure transparent and complete reporting, this paper followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; see Figure 1), a 27-item checklist and four-phase flow diagram recommended for systematic review reporting

(Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009). According to Shaffril, Krauss, and Samsuddin (2018), PRISMA Statement allows rigorous search of terms relevant to the topic concerned within a defined time frame, thus enables a thorough examination through the extensive database of empirical literature. The four phases were identification, screening, eligibility, and inclusion.

2.1 Identification

Identification was the first phase in this systematic review process. Guided by the two review questions, a comprehensive literature search was performed through five electronic databases: Scopus, ScienceDirect, Springer, JSTOR, and ERIC, and a web-based academic search engine: Google Scholar. The inclusion of grey literature searching (Google Scholar) was mainly due to its ability to catalogue vast numbers of free-to-use academic articles, thus makes it a useful supplement in searches for evidence (Haddaway, Collins, Coughlin, & Kirk, 2015; Shaffril et al., 2020).

Using the search terms "reciprocal teaching" or "reciprocal reading" and "reading comprehension" or "text comprehension", the search strategy was first performed in May 2020 and updated in September 2020. In order to ensure a thorough search, manual searching of prominent author names in the field of reciprocal teaching through snowball sampling from the citation or reference tracking of the selected papers, recent meta-analysis and review papers was also initiated. The initial search yielded a result of 1377 articles from the five major databases (Scopus, ScienceDirect, Springer, JSTOR and ERIC) and 2420 articles from Google Scholar, totaling 3797 articles.
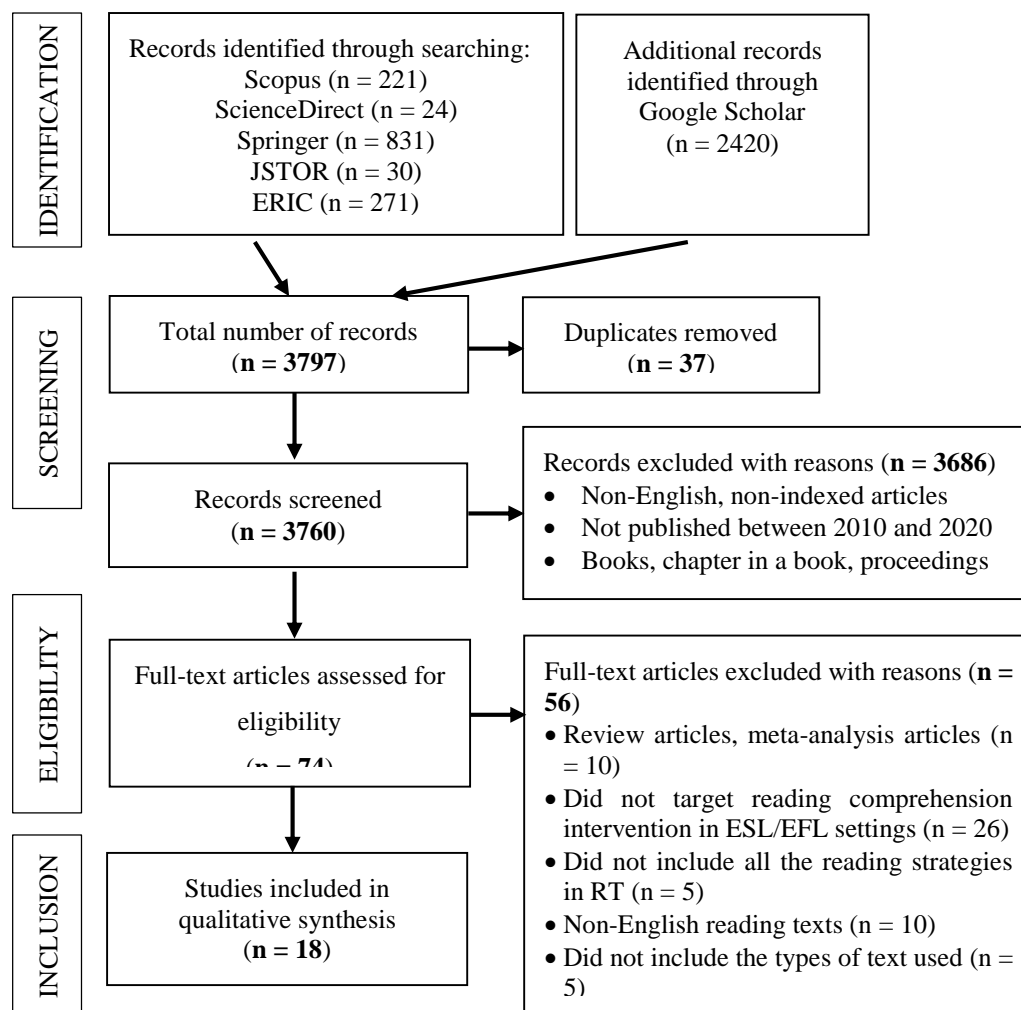
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│           │  │                     │   │ • Non-English, non-indexed arts. │
│           │  │                     │   │ • Not published between 2010-2020│
│           │  │                     │   │ • Books, chapter in a book, proc.│
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Figure 1: Flow diagram of the study (adapted from Moher et al., 2009)

2.2 Screening

Screening, the second phase in systematic literature review, involved the process of article inclusion and exclusion in the review based on researchers' pre-specified criteria. The exclusion of duplication acts as the first purpose of screening (Shaffril et al., 2018) and it ensures the validity and reliability of the search results. After the search, with 37 duplicates excluded, 3760 articles were screened through the predetermined set of inclusion and exclusion criteria.

The first criterion was the timeline. Articles published between 2010 and 2020 were included in this review. Initially, the search took into account the time when reciprocal teaching was first introduced, which was in 1984. However, it was then confined to the recent decade as there were few esteemed reviews and meta-analyses on the same field (McAllum, 2014; Rosenshine & Meister, 1994; Park, 2008) performed prior to the year 2010.

Another criterion was the document type in which only referred journals with empirical data were included in the review, thus excluded the publication in the form of reviews, meta-analyses, chapter in a book, books or conference proceedings. In addition, the selected articles must focus on intervention targeted at reading comprehension instruction in either ESL or EFL settings for mainstream schools ranging from elementary to university levels. Most importantly, only articles written in English were included in the current review to avoid any confusion in translation work. Based on these criteria, another 3686 articles were excluded.

2.3 Eligibility

Unlike the first two phases in the review process which were conducted with computer assistance, this phase was performed manually (Shaffril et al., 2020). In order to ensure content relevance for final inclusion in review, screening for the 74 potential articles was carried out by reading the titles and abstracts. All eligible articles were either quantitative, qualitative or mixed methods. Consequently, another 56 articles were excluded from the review due to (a) meta-analysis, protocol or review papers (n = 10); (b) focused on other skills such as listening, speaking or writing (n = 26); (c) did not include all the four strategies of reciprocal teaching (n= 5); (d) non-English reading texts (n = 10); (e) vagueness in the types of text used in the intervention (n = 5). The final elimination reduced the articles included for review to a total of 18 articles.

2.4 Data Extraction and Analysis

An integrative review was adopted to summarize, compare and contrast the features and impacts of utilizing reciprocal teaching in ESL reading comprehension classrooms. Apart from allowing simultaneous synthesis of diverse research methods (Whittemore & Knafl, 2005), integrative review effectuates the construction of new knowledge through reviewing, critiquing and synthesizing literature of specified topic in an integrated way (Torraco, 2005). Extraction and scrutinization of the articles were performed onto remaining 18 articles from the eligibility process that responded to the formulated review questions. Descriptive analysis was used to describe the basic features of the articles whereas thematic analysis was employed to identify the common attributes related to the use and impacts of reciprocal teaching.

3.0 RESULTS AND FINDINGS

The examination of the data resulted in the identification of common attributes among the articles, and then categorization of the outcomes to form themes and broader categories (Whittemore & Knafl, 2005).

3.1 Background Information of the Studies

Table 1 summarizes the descriptive information such as publication year, location, study design, data collection methods, demographic and size of the samples.

Location. The descriptive analysis (refer to Table 1) revealed that five studies focused on Taiwanese EFL learners (Chang & Lan, 2019; Huang & Yang, 2015; Tseng & Yeh, 2017; Yang, 2010; Yeh, Hung, & Chiang, 2016). Two countries: Indonesia (Hamdani, 2020; Komariah et al., 2015; Ningrum & Chakim, 2020) and Iran (Izadi & Nowrouzi, 2016; Kamdideh, Vaseghi, & Talatifard, 2019; Navaie, 2018) listed three studies each. Choo, Eng, and Ahmad (2011) and Humaira, Mikeng, and Ting (2015) concentrated on Malaysian ESL learners. Alternatively, a study paid attention to Jordanian EFL learners (AlSaraireh & KuHamid, 2016). Cuartero (2018) concentrated on the Philippines ESL learners, while Muijselaar et al. (2017) conducted their study in Netherlands. One study took place in Thailand (Rawengwan & Yawiloeng, 2020) and lastly a study occurred in Saudi Arabia (Qutob, 2020).

Publication years and study design. In regards to the years of publication, four articles were published in 2020, two articles in each of these three years: 2019, 2018 and 2017, three articles each for the year 2016 and 2015, and an article each for 2011 and 2010. Furthermore, quantitative studies, especially experimental or quasi experimental design (n = 10) tops the list, followed by mixed methods (n = 6) and qualitative studies (n = 2).

Table 1: General description of the selected studies

Author(s), Year & Location	Study Design	Participants				
		n	Grade (Age)	Selection		Proficiency
				ST	TN	
AlSaraireh & KuHamid (2016) Jordan	Pretest-posttest	176 EG: 90 CG: 86	University freshman (17-18 yo)	Y (RCAT)	N	Struggling readers
Chang & Lan (2019) Taiwan	Mixed method: Pretest-posttest, questionnaire, & content analysis	53	University freshman (17-19 yo)	N	Y	Struggling readers
Choo et al. (2011) Malaysia	Quasi-experiment non-randomized control groups	68 EG: 34 CG: 34	Pre-Uni students (17-18 yo)	N	Y	Struggling readers
Cuartero (2018), Philippines	Quasi-experiment Pretest-posttest w/o control group	60	8th Graders	Y (FCAT)	N	Struggling readers
Hamdani (2020) Indonesia	Quasi-experiment non-randomised control group	34 EG: 17 CG: 17	University students	Y (IELTS)	N	Struggling readers
Huang & Yang (2015) Taiwan	Mixed Method: Experimental pretest-posttest & open-ended survey questions	36 EG: 18 CG: 18	University freshman (17-19 yo)	Y (GEPT)	N	Struggling readers
Humaira et al. (2015) Malaysia	Observation & document analysis	14	Form 2 students (14 yo)	N	Y	Low - Medium

Izadi & Nowrouzi (2016) Iran	Experimental pretest-posttest & Questionnaire	42 HE: 20 LE: 22	University sophs (18-20 yo)	Y (IELTS)	N	Mixed abilities
Kamdideh et al. (2019) Iran	Quasi-experiment pretest-posttest with 2 exp groups	42 RT: 21 CC: 21	Lang Inst students (18-23yo)	Y (PET)	N	Struggling readers
Komariah et al. (2015) Indonesia	Observation, document analysis & Interview	24	12th Graders (17-18 yo)	N	Y	Mixed abilities
Muijselaar et al. (2017) Netherlands	RCT with pretest-posttest & follow-up	510 EG: 203 CG: 307	4th Graders (9-10 yo)	N	Y	Mixed abilities
Navaie (2018) Iran	Quasi-experiment: pretest-posttest using intact groups	76 EG: 38 CG: 38	Language Ins students (18-35 yo)	N	Y	Mixed abilities
Ningrum & Chakim (2020) Indonesia	Experimental pretest-posttest	69 EG: 34 CG: 35	Senior high school students	Y (EET)	N	Struggling readers
Rawengwan & Yawiloeng (2020) Thailand	Mixed method: Experiment & semi-structured interview	73 EG: 40 CG: 30	University students	Y (Oxford RPT)	N	Mixed abilities
Qutob (2020) Saudi Arabia	Quasi-experimental	192 EG: 96 CG: 96	11th Graders (15-16 yo)	N	Y	Mixed abilities
Tseng & Yeh (2017) Taiwan	Mixed method: Pretest-posttest & inductive analysis	22	University students (17-19yo)	Y (TOIEC)	N	Struggling readers

| Yang (2010) Taiwan | Mixed method: Pretest-posttest & content analysis | 129 No CG | College students (17-19 yo) | Y (TOIEC) | N | Struggling readers |
| Yeh et al. (2016) Taiwan | Mixed method: Pretest-posttest & content analysis | 54 No CG | Uni freshman (17-19yo) | Y (TOIEC) | N | Struggling readers |

Samples. The 18 articles totaled 1674 ESL/EFL students. The size of the sample varied from 14 to 510 students. A total of 737 (44%) college or university students were sampled from 11 articles (AlSaraireh & KuHamid, 2016; Chang & Lan, 2019; Hamdani, 2020; Huang & Yang, 2015; Izadi & Nowrouzi, 2016; Kamdideh et al., 2019; Navaie, 2018; Rawengwan & Yawiloeng, 2020; Tseng & Yeh, 2017; Yang, 2010; Yeh et al., 2016). Another six articles amounted 427 (25.5%) secondary or high school students and only an article (Muijselaar et al., 2017) focused on a large sample size of 510 (30.5%) elementary school students.

Selection of participants. In identifying good decoder with comprehension difficulties, a wide range of selection criteria were imposed. However, this review identified two general categories; standardized tests and teacher nominations. A dominant preference was in using standardized language proficiency tests (n = 11) to screen and select participants for their study. One possible explanation for this preference may be due to the application of a cut-off value that ensures the objectiveness of this method in selecting the participants.

Specifically, Test of English as International Communication (TOEIC) was used in studies conducted by Yang (2010), Yeh et al. (2016), and Tseng and Yeh (2017) whereas International English Language Testing System (IELTS) was used by Hamdani (2020) and Izadi and Nowrouzi (2016) to select their participants. Other tests such as General English Proficiency Test (GEPT) was performed by Huang and Yang (2015), Florida Comprehensive Assessment Test by Cuartero (2018), Preliminary English Test conducted by Kamdideh et al. (2019), and Oxford Reading Placement Test was used by Rawengwan and Yawiloeng (2020). Two studies (AlSaraireh & KuHamid, 2016; Ningrum & Chakim, 2020) used normal standardized English reading test to confirm the required criteria for their study.

In contrast, only seven articles applied teacher nominations technique in selecting participants who fit into the criterion of good decoder but weak in comprehension. Referred as 'gatekeeper' by McBee (2010), teacher nominations were believed to be a better method than standardized tests (Schroth & Helfer, 2009). This is due to the reasons that teachers know their

students better and are able to recognize the characteristics, hence are able to make accurate nominations.

Levels of proficiency. Based on these two types of selection criteria, 931 (55.6%) students from seven articles (Humaira et al., 2015; Izadi & Nowrouzi, 2016; Komariah et al., 2015; Muijselaar et al., 2017; Navaie, 2018; Rawengwan & Yawiloeng, 2020; Qutob, 2020) were categorized as mixed abilities while the remaining 11 articles resulted in 743 (44.4%) struggling readers.

3.2 Characteristics of Intervention

This section describes the characteristics of the intervention in terms of the duration and intensity of the intervention, modes of delivery, instructional groupings, sequence of strategies and text types (refer to Table 2).

Duration of intervention. A variety of intervention duration and types were also construed from the synthesis of the 18 articles. There were nine articles indicated the duration in weeks and hours spent per week on the intervention whereas two articles used sessions and indicated the hours spent as well. Another two articles indicated the length of intervention in terms of weeks and the intensity of their intervention in number of sessions conducted per week, without stating the hours spent. The remaining five articles merely indicated the length of their intervention in weeks, sessions or period of time.

Intensity of intervention. In terms of length of the intervention, the 4-weeks (n = 3), 10-weeks (n = 3) and 12-weeks (n = 3) duration were preferred by the researchers. This was followed by 18-weeks (n = 2) and 5-, 7- or 8-weeks (n = 3). The mean of intervention weeks of the 14 articles was 9.57 weeks (SD = 4.67), ranging from 4 to 18 weeks. There were two articles that indicated the duration of intervention by sessions. Komariah et al. (2015) conducted five sessions of intervention whereas Navaie (2018) spent 15 sessions in her study. The mean was ten sessions (SD = 7.07), with 5 and 15 sessions respectively for the two studies.

The intensity of each interventions was detailed in 11 articles. Within the range of 45 minutes to 240 minutes per intervention session in a week, it averaged up to 120 minutes (SD = 68.42) per weekly intervention. In totaling the intensity (minutes per session) and frequency (number of sessions) of the sessions for the studies, an average of 1395.5 minutes (SD = 920.98) was reported. This ranged from 320 minutes to 2880 minutes of total minutes spent.

Modes of delivery. It is important to highlight that there were three modes of intervention delivery of the 18 articles; face-to-face, online platforms and blended learning. The most prevalent mode was face-to-face (n = 12), followed by online platforms (n = 4) which

were all from studies conducted in Taiwan and only two studies used blending learning; both face-to-face and online. The reported rationales to conduct reciprocal teaching intervention through online platforms were due to its flexibility for discussion without the limitations of time and setting (Ningrum & Chakim, 2020), thus ensures active engagement (Yeh et al., 2016).

Instructional groupings. Apart from the modes of delivery, the size of instructional group is of equal significance. With only 16 articles indicated the grouping structure, the dominant structure is small groups of three or four students (n = 10). However, four articles mentioned large group formations; Chang and Lan (2019) grouped 13 to 14 students together whereas Huang and Yang (2015), Ningrum and Chakim (2020), and Rawengwan and Yawiloeng (2020) assigned either five or six students in a group. A combination of individual and group tasks during implementation was utilized in study conducted by Choo et al. (2011) whereas only Yang (2010) preferred the structure of individual task in the intervention.

Sequence of strategies. The four reciprocal teaching strategies were; predicting (P), clarifying (C), questioning (Q) and summarizing (S). First, predicting was attempted by using background knowledge and contextual cues to prognosticate forthcoming materials. Clarifying eventuated when the team members collectively evaluate textual uncertainties or confusions in interpretation. Questioning strategy placed heavy emphasis on the understanding of main ideas for meaning explication. While elucidation of unknown vocabulary and concepts happened in clarifying, questioning provided answers that will help to explicate the main ideas of the text. Lastly, summarizing in reciprocal teaching referred to simultaneously consolidating information by allotting attention to the major content and checking for understanding.

In terms of the sequence of the reading strategies, although Palincsar and Brown (1984) introduced summarizing as the first strategy, followed by clarifying, questioning and lastly predicting, they allowed the experimentation of divergent combinations to be performed. Based on Table 2, one conspicuous pattern identified from these reviewed articles was the preference to kick start the reciprocal cycle with predicting and to end it with summarizing (n = 14). Specifically, P-C-Q-S (n = 6), followed by P-Q-C-S (n = 5), P-Q-S-C (n = 2) and P-S-Q-C (n = 1). The two articles that used questioning as the first strategy were Izadi and Nowrouzi's (2016) Q-P-S-C, and Navaie's (2018) Q-S-C-P. Only Huang and Yang (2015) started with summarizing, S-Q-C-P. A distinctive feature in Chang and Lan's (2019) study was the incorporation of the four rotations of the strategies; P-S-Q-C, S-C-Q-P, C-Q-P-S and Q-P-S-C. The sequential practice of the strategies, however, denied the opportunity for the students to practice the strategies jointly prior to their posttest.

Text types. Furthermore, Table 2 also lists the text types used in the selected studies. The most favorable type of texts used was academic texts (n = 10) with eight studies conducted in either college or university settings. Although the other two studies were carried out in secondary education level, it is still deemed appropriate as they involved either 11th grade as in Qutob's (2020) or 12th grade as in Komariah et al.'s (2015) study. The genres of the remaining eight studies that involved either secondary or primary school students were more specifically stated; expository texts (n = 4), narrative texts (n = 3) and a combination of both expository and narrative texts (n = 1).

Table 2: Characteristics of the intervention

Author(s), Year	Duration & Intensity	Modes of Delivery		Grouping	Sequence of Strategies	Text Types
		F2F	Online			
AlSaraireh & KuHamid (2016)	4 weeks	Y	N	Small group: 4	P-Q-C-S	Academic texts
Chang & Lan (2019)	10 weeks	Y	Y (Moodle)	Large groups: 13 / 14 *(4 groups)*	P-S-C-Q Q-P-S-C C-Q-P-S S-C-Q-P	12 narrative or expository texts ranged from 600 to 850 texts.
Choo et al. (2011)	4 weeks 9 sessions	Y	N	Individual & Groups	P-Q-S-C	Expository texts 9 reading texts
Cuartero (2018)	One grading period	Y	N	Small group: 4	P-C-Q-S	Academic texts
Hamdani (2020)	One term	Y	N	Small group: 4	P-C-Q-S	Narrative texts
Huang & Yang (2015)	10 weeks 1.5 hrs/wk	N	Y (G Talks)	Large: 6 & Pairs	S-Q-C-P	Academic texts

Humaira et al. (2015)	4 weeks 80mins/wk	Y	N	Small group: 3/4	P-Q-S-C	Narrative texts
Izadi & Nowrouzi (2016)	12 weeks 22 ss 2 ss/wk	Y	N	*No details provided*	Q-P-S-C	Academic texts
Kamdideh et al. (2019)	5 weeks 15 sessions 90mins/ss	Y	N	Small group: 3	P-S-Q-C	Academic texts (6 units)
Komariah et al. (2015)	5 sessions 1.5 hrs/ss	Y	N	Small group: 4	P-Q-C-S	Expository texts
Muijselaar et al. (2017)	18 weeks 2lessons/wk 90 mins/wk	Y	N	Small group: 3/4	P-C-C-Q-S (Connect)	Expository texts with supporting pictures
Navaie (2018) Iran	15 sessions 1 hr/session	Y	N	*No details provided*	Q-S-C-P	Academic texts: 10 reading texts
Ningrum & Chakim (2020)	7 weeks	Y	Y (G Docs)	Large group: 5	P-Q-C-S	Expository texts: 7 reading texts
Rawengwan & Yawiloeng (2020)	8 weeks 3 hrs/wk	Y	N	Large group: 5/6	P-Q-C-S	Academic texts 6 units of *English for Technology*
Qutob (2020)	10 weeks 45 mins/wk	Y	N	Small group: 4	P-C-Q-S	Academic texts of various genres
Tseng & Yeh (2017)	12 weeks 4 hrs/wk	N	Y (G Docs)	Small group: 3/4	P-Q-C-S	Academic texts 3 reading texts
Yang (2010)	12 weeks	N	Y	Individual	P-C-Q-S	Narrative texts

	4 hrs/wk		(Own)			
Yeh et al. (2016)	18 weeks 2 hrs/wk	N	Y (G Docs)	Small group: 3	P-C-Q-S	Academic texts 6 reading texts

3.3 Features and Outcomes of Interventions

This section discusses the findings of the qualitative analysis; eight main themes and 23 sub-themes (refer to Table 3). Features of the interventions were represented by four main themes; purposes (2 sub-themes), learning environment (4 sub-themes), comprehension-monitoring (2 sub-themes), and scaffolding (3 sub-themes). Four main themes emerged from the outcomes of the reciprocal teaching interventions; results (2 sub-themes), comprehension outcome measures (2 sub-themes), reading strategies (4 sub-themes) and conceptual change (4 sub-themes).

3.3.1 Features of Interventions

The features of reciprocal teaching interventions were divided into four major themes: intervention purposes, learning environment, comprehension monitoring, and scaffolding (Table 2). The first theme; intervention purposes was coded into remedial instruction and supplemental instruction. Remedial reading instruction helps struggling readers in effectively bridging their levels of reading proficiency between their current level and their attainable level. Seven studies (AlSaraireh & KuHamid, 2016; Choo et al., 2011; Cuartero, 2018; Komariah et al., 2015; Muijselaar et al., 2017; Rawengwan & Yawiloeng, 2020; Qutob, 2020) regarded their intervention as remedial reading instruction. Only three studies (Chang & Lan, 2019; Humaira et al., 2015; Izadi & Nowrouzi, 2016) referred their intervention as supplemental which aimed at providing peer-assistance in reading. The remaining eight articles regarded their intervention as both remedial and supplemental instruction.

Another feature of reciprocal teaching that helps to eliminate comprehension difficulties deals with the learning environment. Four types of learning environment that contributed to the success of the intervention; active involvement, anxiety reduction, idea sharing and collaborative learning, were elicited. Active involvement topped the list (n = 12), followed closely by collaborative learning (n = 11), and lastly by anxiety reduction as well as idea sharing (n = 7) each. This is aligned with Palincsar and Brown's (1984) claim regarding the ability of reciprocal teaching to repair poor comprehension skills by influencing the way students interact with the texts using only four reading strategies. Similarly, the emergence of

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new meanings from difficult texts through the application of these reading strategies supports the claim regarding students' journey of becoming active readers who have overcome their intimidation caused by challenging texts (Gorlewski & Moon, 2011).

Furthermore, comprehension monitoring also emerged as one of the features elicited from the reviewed articles. Negotiation of meaning in terms of clarification request, repeated responses, or confirmation checks was highlighted by 11 articles. Among them, five articles reported reflective thinking as comprehension monitoring strategy employed by the students. Reflective thinking entails the processes of analyzing and making judgement of their understanding based on what they have just read. Besides these articles, there were additional three articles (Huang & Yang, 2015; Izadi & Nowrouzi, 2016; Kamdideh et al., 2019) that also reported reflective thinking in their study.

In terms of scaffolding, the three sub-themes were explicit instruction, peer support and social interaction. Explicit instruction was highlighted by 11 articles, whereas peer support and social interaction were mentioned in 14 articles. Among all the 18 articles, eight articles (Choo et al., 2011; Hamdani, 2020; Huang & Yang, 2015; Kamdideh et al., 2019; Komariah et al., 2015; Ningrum & Chakim, 2020; Qutob, 2020; Yeh et al., 2016) highlighted these three characteristics that contributed to the reading comprehension intervention.

3.3.2 Outcomes of Interventions

Besides the features of reciprocal teaching, Table 3 also highlights the outcomes of the reciprocal teaching intervention. Four main themes emerged from the outcomes of the reciprocal teaching interventions; results (2 sub-themes), comprehension outcome measures (2 sub-themes), reading strategies (4 sub-themes) and conceptual change (4 sub-themes).

Results. In general, majority of the reciprocal teaching interventions resulted in significant improvement in the reading comprehension scores at posttest measurement for the treatment groups (n = 14). Four articles however, reported mediocre results, denoting the inefficiency of reciprocal teaching in improving ESL learners' reading comprehension. Humaira et al. (2015) reported 50% success rate in their intervention. Navaie (2018) and Qutob (2020) both detailed that even though significant effects were detected, they were more inclined towards students' attitudes on reading such as gained confidence and increased motivation. Similarly, Muijselaar et al. (2017) revealed that the intervention only increased the awareness and knowledge of reading strategies but did not affect reading comprehension directly. They allegedly stated that such failure was due to (i) inappropriate dissemination of reading strategies, (ii) the young age of the participants, and (iii) inability of standardized tests to

measure the intervention as closely as researcher-developed test. However, a compelling reason for the failure could be due to the atypical practice of manipulation of news items with minimal number of contextual supports to be used for beginner's level of 4th graders in their study. The characteristics of expositions such as technical facts, high density of information, complex and cognitively demanding concepts could be too challenging for these learners to comprehend.

Comprehension outcome measures. In terms of the comprehension outcome measures, there are myriad ways in which the outcomes of reading comprehension interventions can be measured. However, standardized comprehension measures tests and researcher-developed measures were among the two most preferred types of comprehension outcome measures identified in this review. Standardized test is a method of assessment that grades all the test takers consistently in the same predetermined way, while researcher-developed measures are more parallel with the evaluation of students' attainment at a given point of time. In this review, majority of the studies (n = 12) used standardized measures, six studies developed their own measurements and two studies (Tseng & Yeh, 2017; Yeh et al., 2016) utilized both comprehension measures to evaluate the impacts of their interventions. The incline towards standardized tests resided in the fact that these tests are more valid and reliable than researcher-developed measurements.

Reading strategies. A total of 13 articles in this review indicated unequal preferences toward certain strategies. Predicting, a strategy that is more straightforward than questioning, clarifying and summarizing, was mostly preferred by the students and was vouched as the easiest strategy to learn among the four strategies. Summarizing, on the other hand, was perceived as the most difficult strategy to master because it was frequently referred to as self-review strategy to check for own understanding. Hence, rationalized the preference over the sequence that started with predicting and wrapped it with summarizing. Besides unequal preferences, it was also reported that the repetition of similar techniques in reciprocal teaching strategies resulted in boredom and disinterest among the students (Choo et al., 2011; Komariah et al., 2015), and the completion of the four reading strategies before attempting the questions was considered to be time-consuming procedures (Chang & Lan, 2019; Choo et al., 2011).

Conceptual change. Four types of conceptual change were identified after the interventions. They were gained confidence, inculcated reading pleasure, increased motivation and emerged as active readers. Seven articles (Alsaraireh & KuHamid, 2016; Choo et al., 2011; Kamdideh et al., 2019; Komariah et al., 2015; Navaie, 2018; Rawengwan & Yawiloeng, 2020; Yeh at al., 2016) reported gained confidence in students' reading comprehension after the intervention. The inculcation of reading pleasure was perceived in five articles (Cuartero, 2018;

Huang & Yang, 2015; Navaie, 2018; Ningrum & Chakim, 2020; Rawengwan & Yawiloeng, 2020) while ten articles reported that students shown an increase in their motivation level after the intervention. Nine articles documented that reciprocal teaching interventions stimulated the emanation of active readers. Overall, majority of the articles highlighted the emergence of at least two or more qualities improvement after the interventions.

Table 3: Features and outcomes of the interventions

| | Features of Reciprocal Teaching | | | | | | | | | | | Outcomes of Reciprocal Teaching Intervention | | | | | | | | | | | |
| | Purposes | | Learning Environment | | | | Comprehension Monitoring | | Scaffolding | | | Results | | Outcome Measure | | Reading Strategies | | | | Conceptual Change | | | |
	Remedial	Instruction Supplemental	Active	Anxiety	Idea Sharing	Collaboration	Meaning	Reflective	Explicit	Peer Support	Social Interaction	Positive	Challenging	Standardized Test	Researcher-	Effective	Unequal	Time Consuming	Boring	Confidence	Reading Pleasure	Motivated	Active Reader
AlSaraireh & KuHamid (2016)	√		√						√	√		√		√		√				√		√	
Chang & Lan (2019)		√	√								√	√			√	√	√					√	
Choo et al. (2011)	√				√		√		√	√	√	√			√		√	√	√	√			√
Cuartero (2018)	√			√	√	√	√				√	√			√	√	√					√	√
Hamdani (2020)	√	√	√	√	√				√	√	√	√			√	√							
Huang & Yang (2015)	√	√	√					√	√	√	√	√			√	√	√					√	√
Humaira et al. (2015)		√	√			√	√	√			√		√	√		√							
Izadi & Nowrouzi (2016)		√	√		√			√		√	√	√			√	√	√						
Kamdideh et al. (2019)	√	√	√					√	√	√	√	√			√		√			√			√
Komariah et al. (2015)	√		√		√	√	√		√	√	√	√			√	√		√		√			√
Muijselaar et al. (2017)	√												√	√									
Navaie (2018)	√	√				√	√		√	√		√		√		√				√	√	√	√
Ningrum & Chakim (2020)	√	√	√	√	√	√	√	√	√	√	√	√			√	√	√					√	√
Rawengwan & Yawiloeng (2020)	√		√	√	√	√	√			√	√	√			√	√				√		√	√
Qutob (2020)	√		√		√		√		√	√	√	√			√	√						√	√

Tseng & Yeh (2017)	√	√		√	√		√	√		√	√		√		√	√	√	√	√	√	√
Yang (2010)	√	√			√		√	√		√	√		√	√			√	√				√
Yeh et al. (2016)	√	√		√		√	√		√	√		√	√	√		√		√	√		√		√	√

4.0 DISCUSSION

This section discusses the features and outcomes of reciprocal teaching strategies in terms of the intervention procedures and benefits of reciprocal teaching strategies. A general result from this review demonstrated the importance of engaging students in supportive learning environment, of providing explicit reading instruction to small groups of students, and of gradually transferring the responsibility of learning to students after modelling and guidance. Building on the potential benefits that could be gained from these characteristics, reciprocal teaching combines these elements in its instructional procedures to ensure the success in the knowledge transfer of reading strategies after the intervention on the reading comprehension.

Interventions in the reviewed articles were generally focused on either to provide remedial or supplemental reading interventions in small group setting, to college or university students, followed by secondary school students. They were mostly identified through standardized test measurement as adequate decoder with limited comprehension skill. With a minimum duration of 4 weeks to a maximum intervention length of 18 weeks, face-to-face intervention was a more preferred method as compared to using online platforms or blended learning as it is easier to foster collaboration in the traditional face-to-face method.

The first notable issue is the participants selection criteria. Within the extensive range of selection criteria to identify good decoder with comprehension difficulties, standardized tests were most commonly adopted into their studies. Theoretically, standardized tests such as achievement tests, are carried out to measure the extent to which a student has mastered certain skill or area of knowledge. Similar to imposing diagnostic tests to identify problematic areas, executing standardized tests and cut-off value in participant selection may result in identifying distinct groups of students that fit well into the category of good decoders but with poor comprehension skill.

However, the employment of teacher nomination technique in the process of selecting participants for the intervention could result in more accurate selection as compared to standardized tests. This selection process can be as informal as asking the teachers to just think about a few students in their class who might qualify as participants, or as formal as completing checklists or rating scales of perceived behaviors and known characteristics of their students using specific forms. One way to ensure the validity of selection methods would be to precede the use of standardized language proficiency test with teacher nominations method. By combining these two methods, it enables the students' objective performances to be measured via tests and their subjective elements to be highlighted by teacher nomination.

Apart from the technique employment in selecting the participants, a variation of instructional group structure was also highlighted in the reviewed articles. Consistent findings demonstrated positive effects of small-groups reading interventions; elementary (Faggella-Luby & Wardwell, 2011; Nielsen & Friesen, 2012) and secondary school levels (Bemboom & McMaster, 2013). The incline towards this group structure is understandable as small groups discussion is more likely to engage active participation from all the members as compared to larger grouping. This is evident in Vaughn et al.'s (2003) study that compared the effects of the three variations of group structures; (a) a group of 10 students, (b) a group of three students, and (c) one-on-one instruction, on the outcomes of reading intervention. Results indicated that significant gains in reading comprehension scores was achieved by the students in small groups and one-to-one instruction than those in groups of 10. When comparison was made in between the students who received one-to-one instruction and small groups of three students, statistically significant differences were not observed, thus implies the unnecessity in performing one-to-one instruction, as small groups can bring about similar desired outcomes.

Furthermore, Lowry, Roberts, Romano, Cheney, and Hightower (2006) and Pollock, Hamann, and Wilson (2011) also perceived active student engagement and higher quality of interaction in small face-to-face groups, thus explained the preference of the majority of the studies towards face-to-face interaction. When discussions are involved, small face-to-face groups seem to galvanize students' interest, thus enhance their engagement with the materials (Pollock et al., 2011).

Besides the group structure, another notable issue is the intensity of intervention. The intensity of intervention is congruent with the duration and frequency of the intervention, session length, the size of the instructional group and other relevant factors, including the settings of the intervention, the knowledge of the experts, and how each task is carried out during the intervention. Students' characteristics and their needs are the main determinants for the intensity level of an effective intervention. In the meta-analysis of one-to-one instruction performed by Elbaum, Vaughn, Hughes, and Watson Moody (2000), better results were seen in the interventions of 20 weeks or less as compared to those interventions longer than 20 weeks. This indicated the possibility of students making sizeable gains early in intervention. Therefore, instead of prolonging the duration of intervention, a better alternative is to intensify the intervention by increasing the number of sessions over the same numbers of weeks or the hours of intervention.

A good example of an intense intervention is the study conducted by Torgesen et al. (2001) that focused on intervention on word reading and comprehension for sixty students of

the aged 8 to 10 years old, with severe reading disabilities. They received one-to-one instruction over the duration of 8 weeks, with 2 sessions of 50 minutes per day. Substantial improvements resulted from these 67.5 hours of intense one-to-one instruction. Their study also reported that students' improvements were sustained over the next 2 years of follow-up.

Lastly, a majority of the reviewed articles focused on the sequence of reciprocal teaching reading strategies. A conjecture that the success of reciprocal teaching relies strongly on the application of the strategies and not the sequence was affirmed when Chang and Lan's (2019) 4 combinations of sequence did not provide any statistically significant result.

5.0 CONCLUSION

This systematic review presents the methods and procedures of reciprocal teaching as reading comprehension intervention over the last ten years for students who have good decoding skill but lacking in comprehension skill. The findings, though preliminary due to predetermined criteria, provide a summary of the reviewed literature that provides assistance for future studies. The variety of methodological quality and limitation in the available information do not hinder the identification of a wide range of intervention criteria for ESL or EFL learners.

Two conclusions derived from the findings of this review. First, reciprocal teaching is an amalgamated approach that has been used extensively in reading comprehension intervention for students with comprehension difficulties. Reviewed articles have proven that reciprocal teaching is effective in improving reading comprehension with students of varying ages, backgrounds and abilities. Second, three key features that attributes the success of reciprocal teaching are; (a) the use of the four strategies, (ii) the explicit instruction and scaffolding, and (iii) the collaborative interaction among the students (Palincsar & Brown, 1984). The concerted efforts of these features ensure the improvement in students' ability to resolve comprehension difficulties. Consequently, this enables them to internalize new knowledge and develop their reading potential. Therefore, future research should address these features in order to enhance the effectiveness of the reading interventions.

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