Reciprocal Teaching and Reading Comprehension: An Integrative Review

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Abstract

The success of reading comprehension process through meaning construction is attainable when readers use linguistics and background knowledge to apply cognitive and metacognitive reading strategies to interact with the text. Strengthened reading strategies facilitate more significant progress in text comprehension. In recognition of the importance of reading strategies in improving reading comprehension, this paper therefore aims at synthesizing the existing relevant literature to establish the theoretical foundations of reciprocal teaching, highlighting the use of the four reading strategies and reviewing research that focused on the impacts of using reciprocal teaching in reading comprehension. Conclusively, reciprocal teaching fulfills 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 background, age and levels of education.

Keyword: reciprocal teaching, reading strategies, multiple strategy instruction, reading interventions, and comprehension.
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Introduction

Reading comprehension is a pervasive, complex, and multidimensional procedure that encompasses multiple interaction in which the reader bridges their background knowledge with the textual information through the application of reading strategies. Linguistic knowledge, awareness on the functions of reading strategies and mutual interpretations of reader's background knowledge and text structure are three prerequisites to reading comprehension. Scholars in the field of reading comprehension are adamant that application of cognitive and metacognitive reading strategies (Anderson, 1999; Carrell, 1989; Grabe, 1991, Pressley, 2006) is crucial in the process of comprehension regulating and monitoring. In order to establish a methodical depiction of the information presented on the text (Cain, 2010), skilled readers use these reading strategies for comprehension regulation and monitoring (Grabe & Stoller, 2002).

Over the last decades, colossal amount of interest has been given to reading strategy instruction (Brevik, 2019). Unequal interest inclining towards first language is worrying considering the diverse students population and the demanding expectations for academic success that place heavy emphasis on the needs for the English as second language (ESL) learners to acquire the abilities to comprehend texts more efficiently. In line with the stance that a repertoire of reading strategies employed by readers to empower them in meaning construction will result in better comprehension, this paper therefore, reviews the most popular and influential multiple comprehension strategy instruction; reciprocal teaching, in order to establish its theoretical foundations by synthesizing the existing relevant literature, to accentuate the use of four reading strategies; predict, clarify, question and summarize, and the impacts of practicing reciprocal teaching in secondary schools' reading comprehension classrooms.

Literature Review

Reciprocal Teaching
Reciprocal teaching which is coined by Palincsar and Brown (1984) is a collaborative comprehension-monitoring instructional procedures in which small groups of students learn the application of four reading strategies through scaffold instruction. Similarly, in Rosenshine and Meister's (1994) influential meta-analytical study, reciprocal teaching is defined as explicit instruction that disseminates metacognition during the process of meaning construction.

Carter (1997) asserts that reciprocal teaching is parallel with the paradigm shift in reading which views reading as concerted effort, in which the success of comprehension now depends on the readers' ability to construct meanings based on their background knowledge and textual evidence. The construction of meaning from the text enables the reader to either affirm or contrast the author's message. McAllum (2014) refers to reciprocal teaching as a fusion of reading strategies in an inclusive instructional practice that incorporates explicit teaching of metacognitive skills and dialectic process that enables the construction of understanding and comprehension.

Aiming at designing an approach that helps students to acquire the reading comprehension strategies and later become self-regulated readers, Palincsar and Brown (1984) initially delineated that reciprocal teaching is intended for students with poor comprehension skills by influencing the way they interact with the text using four concrete strategies. The four strategies are summarizing, clarifying, questioning and predicting.

Summarizing
First, summarizing is modelled as a self-review activity. Summarization is simultaneously consolidating information by allotting attention to the major content and checking for understanding. This synthesis of key ideas and paraphrasing them in own words function as self-assessment for content understanding. Inability to synthesize should not be regarded as decontextualization incapability but as an alarming notification that remedial actions such as rereading, are necessary.

Clarifying
Clarifying eventuates when there were textual uncertainties or confusions in interpretation. Extraction of team members' collective knowledge on the critical evaluation over the meaning of unfamiliar words while the text is being read occur in clarifying. In addition, the discernment of gist, main ideas and themes in the text is crucial in this stage. Williams (2010) suggests that clarification of single words or phrases should precede the clarification of ideas. Palincsar (1986) asserts that the process of clarification is an indication of many reasons for comprehension difficulties such as unknown words, unclear phrases, and new concepts.

Questioning

Similarly, questioning is to be practiced cooperatively among the four strategies. Performing questioning strategy on the content places heavy emphasis on the understanding of main ideas for meaning explication. Frequent confusions over the clarifying and questioning procedures are highlighted by Seymour and Osana's (2003) study that revealed the struggles experienced by the teachers in differentiating between both procedures. In detail, elucidation of unknown vocabulary and concepts happens in clarifying, whereas questioning provides answers that will help to explicate the main ideas of the text.

Predicting

Predicting is less complicated as compared to questioning and clarifying. Gruenbaum (2012) refers to prediction as generation of hypothesis or assumptions about the text. Prediction is attempted by using background knowledge and contextual cues to prognosticate forthcoming materials. Halting to draw and test inferences about future context at critical points in reading helps to reevaluate the predictions and make any revision when necessary. Predictions on the context of the text can be drawn even by reading the title. In attempting predicting for a subsequent paragraph of a text, readers can search for hints of the overall organization from earlier paragraphs. Their predictions, therefore, represent their postulations of the author's intention.

The employment of these four strategies in reciprocal teaching is able to strengthen students' reading comprehension (Gruenbaum, 2012; Palincsar & Brown, 1984; Yang, 2010). The emergence of new meanings from difficult texts through the application of these reading strategies supports the students' journey of becoming active readers who have overcome their intimidation caused by challenging texts (Gowlerski & Moon, 2011).

Theoretical Foundation of Reciprocal Teaching

The theoretical framework of reciprocal teaching as discussed by Palincsar and Brown (1984) is based on three theories; social constructivism (Vygotsky, 1978), scaffolding (Wood, Bruner & Ross, 1976), and Proleptic Teaching (Rogoff & Gardner, 1984; Wertsch & Stone, 1979).

Social Constructivism

As envisaged by Vygotsky (1978), social interaction is rudimentary process that precedes development as cognition resulted in socialization. This theory holds that before a learning can be internalized by a child (intra-psychological), it has to be first mediated on a social level (inter-psychological). This theory also indicates that inter-psychological learning often involve mentoring provided by more knowledgeable persons such as teachers, trainers, coaches, or peers who are engaged in the same activity. The interaction often result in the process of guidance or collaboration, which implies the closing of gap between what is achievable individually and what is attainable with guidance from a more skilled partner, thus leads to Vygotsky's (1978) ZPD; the difference in the child's actual development and his potential capabilities in peer collaboration.

Reciprocal teaching falls comfortably within social constructivism. Palincsar and Brown (1984) also believed that understanding is co-constructed through small groups discussion. Process of guidance happens in the initial modelling by the expert or teacher and collaboration is seen throughout the discussion with more knowledgeable peers assuming the role as dialogue leaders. This type of interaction enables the new construction of ideas or understanding in learners by shaping their background knowledge, thus allowing the learners to move across their zone of proximal development.

Scaffolding

Building upon Vygotsky's ZPD, Wood et al.'s (1976) scaffolding theory is defined as learner's constructive interaction with an expert. The expert's role is to assist the learner by guiding the unattainable tasks. Scaffolding provides proper, sufficient and specifically tailored support to advocate the process of learning when dealing with new concepts or ideas. These supports may include learning tools, enthralling tasks, lesson plans or modules and could be employed through modelling the task, giving suggestions or coaching and even guidance.

Scaffolding, as elaborated by Wood et al. (1976), is acculturated to the readers' current learning state and as learning independence progresses, these supports are gradually reduced or faded. This 'fading' is categorized as an essential element in scaffolding by Collins, Brown and Newman (1989) as it is necessary to facilitate learner's independence. As readers become more competent in applying the new knowledge or skill, the scaffolding is removed with expert 'fades' or reduces his or her interference through the provision of minimal cues, treatments and feedback. Nevertheless, substantial assistance that shape readers' understanding can be given if they encounter challenging texts.

Palincsar and Brown (1984) also reiterate that expert scaffolding is crucial to reciprocal teaching. Scaffolding procedures in reciprocal teaching manifest in the form of prompts, clues or guidance that aims at achieving the attainment of the task. The procedures include explanations, more manageable tasks, stimulation of readers' interest, highlighting the critical features, and solving the problems (Palincsar & Brown, 1984), thus, enabling task performance and problem solving with experts support until gaining learning independence. The experts in reciprocal teaching acts as a mentor, providing support in shaping the learning process whenever necessary (Rosenshine & Meister, 1994). As scaffolding is an adaptive process, it depends entirely on the expert's constant judgements over reader's ability and knowledge (Wood et al., 1976). Within the framework of reciprocal teaching, a common scaffold is through modelling, in which the experts actually attempt the task and explicitly vocalize their thoughts as they attempt the task.

Proleptic Teaching

Besides social constructivism and expert scaffolding, proleptic teaching which is a procedure in apprenticeship instruction also establishes the theoretical ground for reciprocal teaching. Proleptic teaching refers to teaching in expectation for competency (Brown et al., 1991). One main characteristic of proleptic teachers is their high surmises over students' ability to accomplish the task regardless of their level of proficiency. Guidance is however given until task accomplishment can be performed independently.

Another prominent characteristic of proleptic teaching is teacher's empowerment of learning process to students. A proleptic teacher describes and instantiates the learning process, has high expectations, believes in the students' ability to excel beyond their current performance and gradually empowered the cognitive responsibility to the students (Brown & Palincsar, 1989; Rogoff & Garner, 1984).

The procedure of proleptic teaching is seen in all the reciprocal teaching activities. The demonstration on the application of reading strategies is conducted by the teacher or team leader. The necessary guidance from the experts and gradual empowerment of cognitive responsibility escalate the progress of the team members in becoming more proficient readers. In order to enable readers' reflection upon their progress and overall purposes of the task given, the instructions and guidance from the expert are performed throughout the entire session.

Methodology

Integrative review was adopted into this study to synthesize, compare and contrast the impacts of utilizing reciprocal teaching in ESL reading comprehension classrooms. Torraco (2005) refers to integrative review as an emblematic type of research that effectuate the construction of new knowledge by reviewing, critiquing and synthesizing literature of specific topic in an integrated way so as to enable the emergence of new frameworks or perspectives.

The postulation of Whittemore and Knafl (2005) regarding the incorporation of various methodologies advocates a greater role of integrative review in evidence-based practice. In order to perform this review, Whittemore and Knafl's (2005) five stages were undertaken to identify the relevant studies to be included in this synthesis. They are: (i) problem identification stage, (ii) literature search stage, (iii) data evaluation stage, (iv) data analysis stage, and lastly (v) presentation stage.

In guiding the literature search, a research question was defined. The five databases that were chosen are Scopus, ScienceDirect, Springer, JSTOR, and ERIC. Using the search terms "reciprocal teaching" or "reciprocal reading" and "reading comprehension" or "text comprehension" for all referred journal articles that were written in English between the years of 2010 and May 2020, the search yielded 216 results. Duplicates removal resulted in 187 studies.

To ensure a thorough search, snowball sampling was conducted through manual searching of reference lists from selected papers. Based on the inclusion criteria; (a) the study must have been relevant to the instruction of reading comprehension in ESL or EFL setting, (b) the study focused on mainstream schools, (c) the study ranged from the elementary school to university levels, and (d) the study involved only primary data, the abstracts of the 41 articles were read. The 15 papers that fulfilled the criteria were studied thoroughly and content analysis was performed.

Results

Background Characteristics: Research Design and Samples

Experimental design (n = 8) tops the list, followed by mixed methods (n = 4) and qualitative studies (n = 3). Of the 15 studies, 6 were conducted in the Taiwan, 3 studies in Iran, 2 studies from Malaysia and a study from Jordan (AlSaraireh & Ku Hamid, 2016), Netherlands (Muijselaar et al., 2017), the Philippines (Cuartero, 2018) and Indonesia (Komariah et al., 2015).

The 15 studies totaled 1416 ESL/EFL students. The size of the sample varies from 14 to 510 students, with 695 (49%) college or university students, taken from 10 studies, 4 studies amounted 211 (15%) secondary school students and a study (Muijselaar et al., 2017) focused on a large sample size of 510 (36%) elementary school students.

These participants were identified from an immense range of measurement specifications for individuals who are known as good decoders with limited comprehension skills. These measurements include teacher nominations and standardized tests. Standardized test results were used in 9 studies. For instance, Test of English as International Communication (TOEIC) were used by Yang (2010), Yeh et al. (2016) and Tseng and Yeh (2017), whereas General English Proficiency Test (GEPT) was performed by Hou (2015) and Huang and Yang (2015), to confirm the required criteria for their study. The selection of participants who fit into the criterion of good decoder but weak in comprehension through teachers' nominations was employed by the remaining 6 studies.

Based on the methods of measurement, 818 (57.7%) students from 7 studies (Komariah et al., 2015; Hou, 2015; Humaira et al., 2015; Izadi & Nowrouzi, 2016; Jafarigohar et al., 2013; Muijselaar et al., 2017; and Navaie, 2018) were categorized as mixed abilities while the remaining 8 studies resulted in 598 (42.3%) struggling readers.

Characteristics of Intervention: Duration and Types
A great difference in the duration of intervention is discerned in the studies. Out of the 15 studies, 11 indicated the duration in weeks, 3 studies used sessions and a study did not include the details regarding the duration of the intervention. The 4 weeks (n =3) and 12 weeks (n = 3) duration were preferred by the researchers who indicated the duration in weeks in their studies. This is followed by 10 weeks (n =2) and 18 weeks (n = 2).

Hou's (2015) study was the only one that incorporated 16 weeks of intervention. The mean of intervention weeks of the 11 studies was 10.9 weeks (SD = 5.24), ranging from 4 to 18 weeks. For the duration of intervention indicated by sessions, the mean was 8.6 sessions (SD = 5.50), with 5, 6 and 15 sessions respectively for the 3 studies.

The intensity of each intervention session was detailed in 10 studies. Within the range of 60 minutes to 240 minutes per intervention session in a week, it averages up to 120 minutes (SD = 65.99) per weekly intervention. In totaling the intensity (minutes per session) and frequency (number of sessions) of the sessions for the 10 studies, an average of 1445 minutes (SD = 988.05) was reported. This ranges from from 320 minutes to 2880 minutes of total minutes spent.

It is important to highlight that the intervention of the 15 studies were conducted in 3 ways; face-to-face, online platforms and blended learning. The most prevalent type of intervention was conducted face-to-face (n = 10), followed by online platforms (n = 4) which were all from studies conducted in Taiwan and only Chang and Lan's (2019) study used blending learning; both face-to-face and online.

Characteristics of Implementation: Sequence, Group Structure and Materials
In regard to the sequence of strategies in Reciprocal Teaching; predicting (P), clarifying (C), questioning (Q) and summarizing (S), during implementation, the most preferred sequence started with the predicting strategy (n = 9); P-C-Q-S (n = 5), followed by P-Q-S-C (n = 2), P-Q-C-S (n = 2). The 2 studies that used questioning as the first strategy are conducted by Izadi and Nowrouzi (2016); Q-P-S-C, and Navaie (2018); Q-S-C-P. Interesting the study by Chang and Lan (2019) incorporated 4 combinations; P-Q-C-S, S-P-Q-C, C-S-P-Q and Q-C-S-P. The 3 studies that did not mention the sequence of reciprocal teaching in implementation were Jafarigohar et al. (2013), Hou (2015) and Huang and Yang (2015).

With only 9 studies indicated the grouping structure, the dominant structure in all the 15 studies is groups, specifically small groups of 3 or 4 students (n = 6). Huang and Yang (2015) used a formation of large group; 6 in a group, Tan et al. (2011) combined individual and group tasks during implementation, whereas only Yang (2010) preferred individual task. Furthermore, of the 14 studies that mentioned the types of reading materials used in their study, the most favorable type of texts used is expository texts (n = 10), while 3 studies used narrative texts and a study utilized both expository and narrative texts.

Outcomes of Intervention
In general, majority of the intervention resulted in positive outcomes in reading comprehension (n = 14). Only the study conducted by Muijselaar et al, (2017) resulted in challenging outcome, denoting the failure of reciprocal teaching in improving young learners' reading comprehension.

Discussion

This integrative review aims at scrutinizing the empirical researches focused on intervention to improve reading comprehension that incorporated reciprocal teaching for ESL or EFL learners. 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.

A general result from this integrative review demonstrates the importance of engaging students in learning, providing explicit reading comprehension instruction to small groups of students, and 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.

Intervention in the reviewed studies was generally focused on small group setting, college or university students identified through standardized test measurement as adequate decoder with limited comprehension skill, followed by secondary school students. Only the study by Muijselaar et al. (2017) focused on elementary school students (n = 510), and of all the 15 studies, their study is the only study that reported challenging outcomes as their intervention resulted in the increase of awareness and knowledge of reading strategies but did not have any significant impact on the scores of the students' reading comprehension. The 3 reasons that were accountable for this result are: (a) inappropriate dissemination of reading strategies, (ii) the young age of the participants, and, (iii) the use of standardized test measures that might not be as closely-aligned to researcher-developed test.

A variety of intervention duration and types were also construed from the synthesis of the 15 studies. 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 sequence of reciprocal reading strategies, group structure and reading materials also contributed to the positive outcomes in reading comprehension.

Classification criteria
The first notable issue is the selection criteria. A wide range of criteria can be imposed in identifying good decoder with comprehension difficulties. However, they could be categorized under teachers nominations and standardized test. A dominant preference (9 studies) used standardized language proficiency tests such as TOEIC or GEPT to select participants for their study.

One possible explanation for this preference may be due to the objectiveness of this method in applying a cut-off value for selecting the participants. Theoretically, 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 resulted in identifying distinct groups of students that fit well into the category of good decoders but with poor comprehension skill.

Beside standardized tests, 6 studies used teacher nominations in their selection process. Referred as 'gatekeeper' by McBee (2006), teacher nominations were believed to be a better method than standardized tests (Schroth & Helfer, 2008). This is probably due to the reasons that teachers

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

Intervention Intensity

Besides the selection criteria, 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.

Although the information regarding the frequency of the intervention is missing, information regarding the duration of the intervention and length per session are enclosed. They range from 4 weeks to 18 weeks, with a minimum of 60 minutes per week to a maximum of 240 minutes per week. Three studies disclosed the information in terms of sessions, ranged from 5 to 15 sessions.

In the meta-analysis of one-on-one instruction performed by Elbaum et al. (2000), better results are seen in the interventions of 20 weeks or less as compared to those interventions longer than 20 weeks. This indicates 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 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-on-one instruction. Their study also reported that their improvements were sustained over the next 2 years of follow-up.

In addition, the review also elicited different sequence combinations of the four strategies; predicting, clarifying, questioning, and summarizing. Although in Palincsar and Brown's (1984) study, summarizing is the first strategy introduced to the learners, followed by clarifying, questioning and lastly predicting, this is not a fixed sequence for reciprocal teaching. Hence, allowing researchers to experiment with divergent combinations. Nonetheless, one conspicuous pattern is the preference to kick start the reciprocal cycle with predicting as this is perceived to be the easiest strategies among the four. A conjecture that the success of reciprocal teaching relies strongly on the strategies and not the sequence was affirmed when Chang and Lan's (2019) incorporation of the 4 combinations; (i) P-Q-C-S, (ii) S-P-Q-C, (iii) C-S-P-Q and (iv) Q-C-S-P, did not provide any statistically significant result.

Apart from the varying sequence of reciprocal teaching strategies, the size of instructional group is of equal significance. 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). A variation of group structure is found in

the reviewed studies. However, the most prominent type is small groups of 3 or 4 students. The incline towards this group structure is understandable considering the benefits gained from it. 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 3 students, and (c) one-on-one instruction, on the outcomes of reading intervention. Results showed 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 3, statistically significant differences were not observed, thus implies the unnecessity in increasing the intervention intensity.

Furthermore, Lowry et al. (2006) and Pollock et al. (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).

Lastly, a majority of the reviewed studies focused on higher levels of education such as college or university students, in order to meet the demands of the reading comprehension classrooms, a common practice would be incorporating expository texts in their study. The characteristics of expositions such as technical facts, high density of information, complex and cognitively demanding concepts have positioned expository texts as difficult texts to comprehend, Hall et al., (2005) and Williams (2005) agreed that exposing students to expository texts as early as Grade 2, either at whole class instruction or guided reading in small groups. has proven to be beneficial to the students. Early exposure ensures that children are able to master these texts as they are not only essential component in reading classrooms but a constant companion in everyday life.

Conclusion

This integrative review presented the methods and procedures of reciprocal teaching as reading comprehension intervention over the last 10 years for students who have good decoding skill but lacking in comprehension skill. 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 studies 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, 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 intervention.

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