The use of Reciprocal Questioning (ReQuest) in the teaching of reading comprehension

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ABSTRACT

Many researchers in the West have come up with different teaching instruments to teach reading comprehension. Reciprocal Questioning (ReQuest) is one of them. According to Manzo (1969), ReQuest was designed to help students generate their own questions, encourage inquiring attitude and develop independent comprehension skills. This study aims to find out whether students would be able to generate higher order thinking questions and if so, will ReQuest lesson work well in Singapore English curriculum. 21 high and middle progress Primary five students from a local school were taught and observed. The findings point out that more than half of the students were able to generate higher order questions and produce acceptable answers. As observed through the discussions, students negotiated meaning and picked out salient information presented in the reading text. They also exhibit desire to search deeper into text through clarification, re-reading before coming to a consensus the type of questions they wanted to generate. They asked speculative questions such as how and why which opened up the floor for further discussions. This implies that ReQuest is a good tool to be used in Singaporean reading comprehension lessons. It gives students opportunity to go deeper in their response to the text. The process of re-reading allows students to pick up salient information from the text. It also offers students to be active participants in the comprehension process, encourages critical literacy and enhances questioning techniques which they could use it to practise self-questioning for other academic readings.

INTRODUCTION

Reading comprehension is the essence of reading. It is considered the most essential academic skill learned in school (Mastropieri & Scruggs, 1997). Across disciplines, teachers use questioning as a mode of teaching, assessing and developing students’ reading comprehension abilities (Ruddell, 1999; Pressley, 2000). Mehan (as cited in Corley & Rauscher, 2013) contend that an approach that is widely used traditionally is the recitation model of questioning. Even though this model can give teachers feedback on learners’ factual knowledge, it does not stimulate higher-order thinking. Hence, teachers are encouraged to use appropriate questions to motivate and activate students’ critical thinking skills.

Many researchers in the West have come up with different teaching instruments to teach reading comprehension. Reciprocal Questioning (ReQuest) is one of them. According to Manzo (1969), ReQuest was designed to help students generate their own questions, encourage inquiring attitude and develop independent comprehension skills.

In addition, recent research by Mason (2004) who investigated the effects on expository reading comprehension among struggling readers offers evidence that students reading comprehension improved through ReQuest strategies. Another research by Rufinus and Wijaya (2014), which aimed at knowing the effect size of ReQuest in teaching reading comprehension reported that Indonesia students score a higher reading comprehension test grade after the ReQuest reading comprehension sessions. Hence, my research serves to find out if ReQuest will work well in Singapore English lessons.

This research aims to address the following questions:

1. To what extent do students ask higher order questions during a ReQuest lesson?
2. To what extent does ReQuest help students pick out the most salient information presented in the reading text?
3. In what way is ReQuest a good reading comprehension teaching tool in Singaporean reading comprehension lessons?

LITERATURE REVIEW

Zimmermann and Hutchins (2003) shared that reading is an interactive process in which readers engage in constant internal dialogue with the text. The ongoing dialogue aids readers to comprehend and elaborate on what they have read. Researchers have identified specific reading strategies that have shown to be effective in improving reading comprehension. Some components suggested by Tompkins (2010) that are
necessary to understand the text in general include (1) connecting to self, world and wider linguistic context, (2) making predictions, (3) drawing inference, (4) brainstorming a list of questions before reading followed by asking questions during grand conversations and other discussions (5) summarising and evaluating. Similarly, Zimmermann and Hutchins (2003) recommended using relevant prior knowledge, making inferences and generating questions before, during and after reading to clarify meaning, and focus the attention on what were salient. Harvey and Goudvis (2007) also suggested readers to stop, think and record their questions throughout the reading process.

These strategies emphasise active meaning negotiation and provide the readers with opportunities for interaction. Such interaction encourages active thinking that stimulates higher-level comprehension processing (Goldenberg as cited in Ruddell, 1999). Hence, using questioning strategies by involving students in discussion can help develop higher-level thinking.

According to Manzo (as cited in Ciardiello, 1998), based on the recommended strategies, one common component is questioning which is strongly emphasised in ReQuest, a collaborative teacher-student questioning training procedure. The teacher and students take turns asking and answering each other’s questions about the reading text. Ciardiello (1998) stated that ReQuest offers students the opportunity to model their questioning behaviour with their peers and construct new knowledge through shared discussion of meaning. It trains students to pick up main ideas, engage in metacognitive thought and think critically while reading. Tompkins (2010) also emphasised that students read more purposely when they read to generate questions and answers as compared to reading to finish a task.

This procedure is mainly used during the ‘during reading’ stage and students are required to identify, classify and construct questions. The task would be divided into smaller parts in order for students to process new information. Ciardiello (1998) stressed that it is more effective to reinforce the skills of question generation in cumulative sequence. Also, presenting students with reading materials in smaller chunks allow for adequate processing as presenting too much information can flood short term memory (Roehler & Duffy, 1991; Rosenshine & Meister, as cited in Ciardiello, 1998).

ReQuest is often used to read and understand information text as these texts have the affordances to allow students to ask questions about the world, expose them to specialised vocabulary, stimulate discussion and serve as a catalyst for students’ interest (Yopp and Yopp, 2006). The teacher guides students through the different types of questioning from literal to higher-order-thinking questions. For instance, questions which require students to make text-to-self, text-to-text or text-to-world connections. Such questions can be found in the text or beyond the text (Tompkins, 2010). The teacher’s scaffolding will gradually fade as the students become more proficient in generating questions. ReQuest will benefit the students as it taps on the various reading strategies such as questioning, connecting and drawing inferences.

In this study, the approach of the ReQuest lesson plan was adapted from Taffy Raphael’s Question-Answer-Relationships and Ciardiello’s Reciprocal questioning (Tompkins, 2010). In order to cater to the specific group of participants, elementary students, 6 suitable types of questions were selected for their activities. They are:

1. Right there questions
2. Think and search questions
3. Author and me questions
4. On my own questions
5. I wonder why questions
6. Text and the world questions

The first three types of questions are typical PSLE English reading comprehension questions. Right there questions are literal questions; answered are found directed from the text. Think and Search questions require readers to draw inferences by reading between the lines. Author and me questions allow readers to use author’s ideas together with their interpretation to answer the question whereas On my own and I wonder why questions require readers to use their own ideas that may not be found in the text. Lastly, Text and the world questions encourage readers to relate the text to readers’ own lives or prior knowledge (Tompkins, 2010).

Hence, this study aims to find out whether students would be able to generate such higher order thinking questions and if so, will ReQuest lesson work well in Singapore English curriculum.

**RESEARCH DESIGN**

**Subjects and grouping**

The participants involved twenty-one high and middle progress Primary 5 (5th Grade) students, ten girls and eleven boys from a local school. They were grouped in twos and threes, according to their seating arrangements assigned by their English teacher.

**Methodology and Procedures**

In the initial month of the research, the researcher read and discussed the articles on ReQuest with the NIE supervisor. Prior to the ReQuest lessons, the researcher met up with supervisor to plan two English reading comprehensions lessons. The lessons, conducted by the researcher, involved participants to read non-fiction text paragraph by paragraph and generate any of the six
types of questions mentioned above together with an acceptable answer. In lesson 1, the researcher introduced the 6 types of questions and modelled how to generate the questions through think-aloud. Then, students were required to work in groups to generating questions and answers. The researcher and students took turns to answer the generated questions followed by a think-pair-share activity. The approach in lesson 2 is similar to lesson 1 except students work independently instead of in groups to generate questions and answers for selected tasks. Both lessons included activities that involved students to answer teacher-generated questions either verbally or in written form and the researcher shared the benefit of using ReQuest. The lessons were audio-taped for researcher to reflect on the lesson and all responses generated by the participants were recorded in their worksheets for data analysis. (For a detailed lesson plan, please refer to lesson plans in Annex 1.)

Both lessons were conducted within the first two weeks of Semester three (July, 2016). Each lesson is followed by a session of debrief with the NIE supervisor. Upon gathering feedback, the researcher reflected and made modification for lesson 2. Table 1 depicts the sequence of activities shared above.

<table>
<thead>
<tr>
<th>Month</th>
<th>Activities</th>
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<tbody>
<tr>
<td>April</td>
<td>Approach local primary school</td>
</tr>
<tr>
<td>May and June</td>
<td>Research on ReQuest, Planning ReQuest lessons with supervisor, Designing lesson materials and rehearsal.</td>
</tr>
<tr>
<td>July week 1</td>
<td>Conduct ReQuest Lesson 1 (Audio-taped for critique and reflection)</td>
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<tr>
<td></td>
<td>Debrief session with supervisor</td>
</tr>
<tr>
<td></td>
<td>Reflection and lesson modification</td>
</tr>
<tr>
<td>July week 2 - 3</td>
<td>Conduct ReQuest Lesson 2 (Audio-taped for critique and reflection)</td>
</tr>
<tr>
<td></td>
<td>Debrief session with supervisor</td>
</tr>
<tr>
<td></td>
<td>Reflection</td>
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</tbody>
</table>

**TABLE 1: PROCEDURE**

**Data collection and analysis**

Researcher collected the data through participants’ worksheets and researcher’s reflection of the lessons conducted with the help of an audio recording. The researcher also analysed the type of questions asked by the subjects as written in their worksheets, and evaluated the lessons taught which will be analysed from the researcher’s combined reflections from both sessions conducted. All written data were transferred and analysed in a Microsoft Excel spread sheet where ‘1’ stands for higher order thinking (HOT) question and ‘0’ stands for literal question. This is to make data analysis more convenient as information could be sorted depending on the variables required. Furthermore, it would avoid human error when counting for the number of HOT questions and be useful for future analysis.

**FINDINGS AND DISCUSSION**

In the following paragraphs, I will be reflecting on the process of planning the lesson, the lesson itself, the feedback I had received and the modifications made. I will also be analysing and discussing participants’ data and to what extend they were able to generate higher order thinking questions and if they were able to identify the salient information presented in the reading text.

**REFLECTION**

**A. Lesson planning**

The process of lesson preparation was enriching yet challenging. The challenge was to generate not only appropriate questions but also questions that 5th graders may produce. Hence I tried to pre-empt the possible questions with corresponding answers that the participants (students) might generate. In order to be able to answer the students’ questions, I had to be well prepared hence think-aloud responses were prepared for each anticipated question. The question types include questions like *I wonder why, Text and the world* questions; questions beyond the text and they could be anything related to the text. Therefore, I tried to expand on my content knowledge by reading up related articles. Besides exploring the Internet, my other sources were from comprehension assessments books for typical types of questions. I also seek external help from my siblings and two elementary students. However, the responses I received were not suitable. I perceived some to be too easy for my participants (high progress) and others to be too difficult for 5th graders. Nonetheless, it did give me an idea what kind of questions I could ask.

Planning the lesson was enriching as well, as I have learned to generate HOT questions for reading comprehension. In order to generate such questions, I have to do research to have a stronger content knowledge and a deeper understanding of the text itself. As for crafting the think-aloud, it helped me become more aware of my own thought processes and anticipate the students’ thought process when they attempt the questions. These processes allowed me to engage in self-critical practices and prepared me to help students become critical aware of the reading text. Also, in both lessons, the outcome and benefit of using ReQuest were shared explicitly with the students. This as Keene (2009) suggested is to help students see the importance of using such strategies and how it can help them enhance the overall understanding of the text.
B. Lesson conducted

Lesson 1

ReQuest procedure requires the teacher to model the procedure by generating the question, followed by identifying the question types and deriving the answer for each paragraph. Therefore, the material prepared was useful for thinking-aloud during demonstration. The think-aloud notes also came in handy when I had to scaffold students to answer the teacher-generated questions. As mentioned, by preparing various possible questions and guided answers I was able to anticipate students’ responses. In lesson 1, there were six student-generated questions that the teacher had to answer. I took more time than expected to answer some of them. This was because I had prepared too many potential questions and answers which caused me to spend time locating the ‘matching’ think-aloud response. Therefore, I had decided to reorganise the teaching notes for lesson 2. At the same time, I believe I was quite nervous as it was my first session with the students. Furthermore, the Head of Department (HOD), also the English teacher of the class, requested to sit in to observe how Reciprocal Questioning lesson was conducted. This added on to my anxiety.

From the audio recording, it seems like I was rushing towards the end of the lesson. This was due to the limited time I had. The lesson was conducted after their recess break hence the teacher-in-charge took time to settle the students, conduct administrative matters and rearrange the students so that only the participating ones sat together. As a result, the lesson was short by twenty minutes.

Lesson 2

After reflecting on the feedback I have gathered from my supervisor and my own observations, I made some modifications to my lesson material. For instance, I noticed that the students were more engaged when I showed pictures and artifacts (a pumice stone) in the previous lesson. So I added more images in the Power Point slides (Annex 1) and brought along a hieroglyphics stencil to match the theme of the second passage. Reading passages were also distributed prior to the activities as compared to lesson 1 where they read off the slides. This way, students could annotate their ideas on the paper. One of the reasons why lesson 1’s passage was not distributed was mainly because there were predictions involved. I have also modified my think-aloud notes to be more systematic. Overall, I felt well prepared and that the session went smoother than Lesson 1. The students were more confident in their responses because they were familiar with the question types. This gave us more time for post-activity as well. As a result, more students (76%) were able to complete their tasks as compared to lesson 1 (38%).

The English HOD also shared her concerns regarding the number of question types. She believed it could be confusing the students. However, I did not make any changes to the question types. I feel that identifying the specific question type is insignificant for this particular study. The objective of this research is not for students to identify the question types but rather to expose the students to various question types so that they could act as a guide when students generate questions. Also, determining the question type is debatable as it is dependent on the reader’s knowledge, the expected response or the number of vocabulary exposed. For example, a question could be Right there or Think and search depending on whether the reader needs to draw inferences from the text to get the meaning of a word or had prior knowledge and does not need to infer.
STUDENT GENERATED QUESTIONS

Group versus individual generated questions

TABLE 2: PERCENTAGE OF HOT QUESTIONS GENERATED AT LEAST ONCE

<table>
<thead>
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<th></th>
<th>Group</th>
<th>Group challenge</th>
<th>Individual</th>
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<tbody>
<tr>
<td>Lesson 1</td>
<td>86%</td>
<td>86%</td>
<td>-</td>
</tr>
<tr>
<td>Lesson 2</td>
<td>31%</td>
<td>-</td>
<td>67%</td>
</tr>
</tbody>
</table>

Based on the data in Table 2 and my observations from the participants’ group discussions, the classification of the question types encouraged students to ask more HOT questions such as Text and the World, On my own, Think and Search questions. Students were able to clarify with one another before coming to a consensus the type of question they wanted to generate. This is more evident from the group challenge in lesson 1. 86% generated HOT questions and 71% were able to answer the questions. In fact, the only group that decided to ask a right there (non-HOT) question was because they were unable to generate answers for their own questions and time was running out.

TABLE 3: TYPES OF QUESTIONS GENERATED

In terms of questions generated without the group challenge, 44% of the total attempted questions were HOT and 86% of the groups generated at least 1 HOT question. Amongst them, Think and search made up the majority of the questions generated followed by Text and the World, On my own and I wonder why. It is also significant to note that there were more Text and the world and On my own questions found in the group challenge. An example of an On my own question would be “What would you do if you were one of the people in Pompeii during the volcano eruption?” (Group G). This shows that students are trying to explore other types of non-literal questions rather than Think and search and realise that there are no limits to interpreting text.

The percentage of the HOT questions dropped in lesson 2 to 31% for group activity and 25% for individual tasks. There are many factors that affected the drop, firstly the number of questions attempted were 103 which was more compared to lesson 1 (28 attempted questions). This is because in lesson 2, each student had a maximum of 6 individual questions on top of their group/pair questions. Therefore, it would be fair to compare it with students who generated at least 1 HOT question and that makes up to be 14 out of 21 students (67%). Meaning more than half the participants were able to generate HOT questions despite the limited time given for 6 questions. The second reason could be the influence of the English teacher in the classroom. It was observed that she was getting the students to ask Right there questions since it was easier to formulate. It was felt that the teacher seemed to perceive completion of the paper to be priority, causing majority of the questions to be Right there instead. The third reason of the drop in percentage could be because of the group challenge in lesson 1. Due to the nature of the class profile, higher progress, the students were highly competitive. Hence during the group challenge activity, where they need to exchange questions with another group, most groups were motivated to ask higher-order-thinking questions.

It seems that students put in more effort crafting other types of questions to challenge their peers or the teacher. As observed, groups were spending more time planning HOT questions especially during group challenge. In order to do so, they needed to make sure they understood the text, so students were reading the paragraph repeatedly. This could determine that they have the desire to search deeper into the text for meaning but perhaps more so when conditioned by the social environment. As Lave and Wenger stated that learning is contextual and it is best acquired through meaningful activities and social interaction (as cited in Tompkins, 2010). It has also been found that in repeated readings readers initiate comments more and are more involved in drawing inferences (Phillips & McNaughton, as cited in Goh & Silver, 2006).

Though there were lesser variety of HOT questions in lesson 2 and majority (78%) of the questions were Think and search, new attempts (5 out of 28) of Author and me questions surfaced. For example, “Why were the animals used for sports than as a means of obtaining food?” (Participant G2) and “Why do you think most of the breeders came from royal and upper class families?” (Participant H1). This shows the benefit of exposing students to various question types which allowed them to explore other questions.
Amongst the questions, some were phrased in a non-conventional manner for English reading comprehension. An example was by Group G “what is one of the properties of pumice?”. The term ‘properties’ in this context is often used in crafting Science questions. This was a Think and search question directed at the researcher and she misunderstood ‘property’ as ‘substance’. It was later found that the class was participating in an ongoing Science project. In such a situation, it is arguable that teachers who have better understanding of their students would be able to anticipate questions related to students’ current context. This is also a good example of students using vocabulary from other discipline while generating English comprehension questions. The result of the above study could imply that with the right interest and condition, it is possible to a large extent that students can generate higher order thinking questions. This is similar to Rutilus and Wijaya (2014) results where students performed better and showed progress in terms of generating higher level questions and comprehending text after using ReQuest strategy for reading comprehension.

VALUE OF RECIPROCAL QUESTIONING

ReQuest offers students to be active participants in the comprehension process. From the data collected and observation of the group challenge, students are capable of critical thinking. Through the process of generating questions, they were encouraged to think critically. In both sessions, they had the opportunity to re-read each paragraph multiple times while they attempted to generate non-literal questions. And since they were required to generate answers as well, they read even deeper to make sure their answers were accurate. They became more metacognitive as they read. As what Roshenshine, Meister and Chapman had emphasised that the process of asking questions enhance learners understanding through a focus on the main content and also feedback received to see if content is learnt (as cited in Ciardiello, 1998). Moreover, the reading materials are processed in small chunks (paragraphs) to allow for adequate processing. This would benefit the middle progress students with their understanding and as indicated by Rosshenshine & Meister (as cited in Ciardiello, 1998) presenting too much information will drown the students’ short-term memory.

Both ReQuest sessions involved several short group and class discussions; participants who did not manage to give the acceptable responses had help from other participants. They were learning from the shared discussion. This supports Webb (1992) who suggested that the best condition for critical discussion is when the classroom environment is conditioned in a way that students were given opportunities to contribute and discussed critically. Also, all students could learn how the answers were derived through the teacher’s think-aloud as compared to a lesson where answers were only recited at the end of reading the whole text.

More importantly, through the discussions students would be able to negotiate meaning and pick out salient information presented in the reading text. With practice, they would be able to self-question and predict the types of questions crafted in a reading comprehension test. This is evident from lesson 2 individual tasks; most students were able to identify the gist of each paragraph. For example, in paragraph 8 (Text 2), 81% of students generated questions regarding the purpose/benefit of breeding either Spaniel or Labrador with 91% acceptable answers. Besides this question, many of the student-generated questions were similar to researcher-generated questions. Hence, to a great extent, the students were able to grasp the most salient information of the text and formulate appropriate questions and answers.

ReQuest is a good reading comprehension tool but many teachers may fear that it might take up too much time due to its procedures. Both Pressley (2000) and Christopher and Nystrand (2001) observed that in most classrooms, teachers rush to complete the activities. They tend to ask questions after reading the whole text and students’ responses are usually short and literal. This does not help the students answer higher order questions. It is possible to conduct ReQuest within the stipulated time. Based on the data, there were more participants who were able to complete the activity in lesson 2. Though there may be contributing factors such as more time was given, less discussion needed as there were more individual tasks. It shows that with the right guidance and consistent practice, a ReQuest reading comprehension lesson could be conducted within the assigned two periods.

In terms of lesson preparation, some novice teachers might face challenges due to lack of content knowledge. No one becomes critical readers naturally, it includes learning, understanding and changing gradually (McLaughlin & DeVoogd, 2011). Once teachers are critically aware, overtime helping students read from a critical stance should be less challenging.

As for materials, teachers could modify the original reading comprehension questions worksheets by taking away some of the literal questions and replacing it by getting students to generate the questions instead. And for the questions that are considered more important, teachers could reuse them as teacher-generated question or assigned them as individual tasks towards the end of the activity. Though teachers may have to spend more time preparing for the lesson, they only have to do the material once and it could be reused the following year or by other teachers. Hence, the challenge is only the initial problem, not long term. In addition, the student-generated questions could act as (1) feedback of students learning and also feedback for the teacher themselves to see which areas are needed for
improvement or modifications. Also, in the data that I have collected, there are some higher level questions crafted by the higher progress students which I have not thought of. Hence, the data could be (2) a good pool of resources that teachers can make reference to in the future if modification of worksheets is needed. (3) Identifying trends in the questions to help students see that different questions generated could result to the same answer. For example, a literal question by Participant B1 “what made the Labrador retriever “ice-repellant”?“ and non-literal question by Participant D1 “how did the Labrador retriever came out of water without being frozen?” produced the same answer. This type of questions could be used to expose students, especially those struggling readers that there are various ways of asking even though the expected answer is the same. (For more examples, please refer to student-generated questions data in Annex 2A and 2B.)

The above findings show that ReQuest is a formative assessment which presents a viable, regular means and quality information about students learning. More crucially, it occurs within the process of teaching and learning and not after the learning.

CONCLUSION

To allow students to be strategic learners and readers, there is a crucial need for teachers to relook at how reading comprehension or any type of text could be taught. Reciprocal Questioning can be one of effective reading comprehension strategies. Teachers can give more attention to the way questions are generated. By modelling through thinking-aloud, there will be more exposure to how different types of questions could be asked around the texts and content. This would not only enhance students reading comprehension skills, critical thinking skills and the questioning techniques while reading English comprehension text but readers could also be able to use similar techniques to practice self-questioning for other academic reading such as Mathematics and Science. As aforementioned example that uses vocabulary from Science to question English comprehension text shows that ReQuest can be used across disciplines. The six types of questions are a good steppingstone for students to learn to monitor themselves and learn to predict and anticipate the types of questions asked in standard examination. The challenge of the teacher is giving the right guidance and instructions. In reciprocal questioning, the role of the teacher starts from modelling, scaffolding and eventually observing. Hence, it is crucial that the teacher understands the goal – students will eventually generate question and derived the answers on their own.

Even though the research was conducted with a small sample size, the data collected does show that reciprocal questioning is possible to be carried out in Singapore curriculum within the designated periods assigned for reading comprehension lessons. Students have a deeper understanding of the content and they enjoyed the lesson. More than half the students were able to generate higher order thinking questions consistently throughout both sessions and based on the data, they were able to identify the salient information presented in the reading text.

Future research could explore a bigger sample size and more number of lessons so that one session could be dedicated to introducing Reciprocal Questioning and the question types. We could also include teaching the lower progress students as higher progress students probably may not have difficulties answering reading comprehension questions and may have some exposures to higher level questions. Nonetheless, it is still an important practice for teachers to model questioning practices that allows students to think beyond the right there (literal) questions and become text critics in everyday life.

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