

## COMMENTARY

## WHY SHOULD THE FACULTY ADOPT RECIPROCAL TEACHING AS PART OF THE MEDICAL CURRICULUM?

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Understanding the text is crucial to achieve depth in understanding of complex concepts for students at all levels of education for whom English is not their first language. Reciprocal teaching is an instructional activity that stimulates learning through a dialogue between teachers and students regarding segments of text. The process of summarizing, question-generating, clarifying and predicting allows the gaps to be recognised and filled by the student, who is in control of the learning process and able to analyse and reflect upon the reading material. Whereas reciprocal teaching has been applied at school and college level, little is known about its effectiveness in medical education. Incorporating reciprocal teaching in early years of medical education such as reading the literature and summarizing the flow of information in the study of integrated body systems could be an area to explore. Feasibility exercises and systematic validation studies are required to confirm authors' assertion.

**Keywords:** Reciprocal teaching; Curriculum; Adult education; Adult learning

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## INTRODUCTION

The concept of "reciprocal teaching" was introduced by Palincsar in 1982.<sup>1</sup> It is usually defined as an instructional activity that takes place in the form of a dialogue between teachers and students regarding segments of text. Four basic strategies are used in the construction of this dialogue between teacher and students: Summarizing, question generating, clarifying and predicting (SQGCP). The basic purpose of whole exercise is to bring meaning and create understanding about the text. This task is achieved through an iterative process between student and teacher, where the teacher takes a lead by asking questions and gradually shifts leadership to the student.

Reading is an important part of learning at any level of education. Reading scientific language and understanding the comprehension of a paragraph or passage is important for achieving the depth of complex concepts, or else, there arise a number of gaps in the knowledge of a learner. The fact holds true not only for children at the beginning of their learning, knowledge and gaining insight of the world, but for medical professionals throughout a life-time of learning. Mastering the skill of comprehension when reading requires additional considerations when English is not the first language of a student.

Using the SQGCP process when reading triggers awareness of what is already understood by activating background knowledge, what has yet to be learned, and provides a mechanism for learning that is validated by the teacher or other

students. This realisation is an important step in the 'conscious competence' model attributed to Maslow.<sup>2</sup> SQGCP allows the gaps to be recognised and filled by the student, who is in control of the learning process and able to analyse and reflect upon the reading material. The interaction with the teacher and other students eliminates errors in learning. This practice can clarify the meaning of new terms and difficult concepts and, as the SQGCP process requires an understanding of the meanings of words and concepts. Once the concept is clear, the student can relate the ideas in the previous text with the coming passage (Figure-1). This whole construct of serial segmented learning steps has been shown to increase the level of understanding and comprehending the knowledge of students at primary, secondary, college and in fewer studies at higher education level. Students with learning disabilities are benefited in particular with this style of teaching and learning.<sup>1,3,4</sup>

**Purpose of reciprocal teaching**

The purposes of the individual components of reciprocal teaching are:

- **Summarizing** enables the student to understand and integrate the most important information in the paragraph or passage.
- The student is then encouraged to self-generate questions from the information, on the basis of his/her understanding and answer them. This enables the student's comprehension quality. When students ask question, they get the deeper meaning of the text.

- By Clarifying the student is required to explain the difficult concepts, which raises questions about why they are difficult to understand. The student is then asked to find a means of answering and understanding those concepts. This removes the creation of possible gaps in the acquisition of knowledge, and leads the student to a higher level of comprehension.
- **Predicting** develops awareness of what the author is going to discuss in the following parts of the text. Thus the student is able to follow the logical flow of the text and challenge the assertions made by the author.

As a whole, the student gets the opportunity to understand, comprehend and link different ideas in the text to give meaning to what is read (Figure-1).<sup>5</sup>

**Applying the principles of reciprocal teaching**

Reciprocal teaching improves reading comprehension by teaching students the various strategies needed to analyse, comprehend and construct meaning. Initially, the students see the strategies being modelled by the teacher and an

explanation is given as to what is expected of them. Teachers and students share equal responsibility for adopting the strategies for reading.

The teacher usually assumes major responsibility for imparting the strategies and then gradually shifts control towards the student. Every student is expected to participate in group discussions and the teacher’s role is to facilitate the students’ interactions. The teacher will pass control of the dialogue to the student to allow him/her ownership of developing independent thinking.

**Basic stages of reciprocal teaching**

Stages in reciprocal teaching are a sequence in the process of understanding meaning in the text and encouraging students to question, reason and reflect upon his/her own questions (Figure 2). The teacher guides the students in the beginning, leading the discussions, but gradually shifts the process towards the students allowing them control over their own reading and learning.

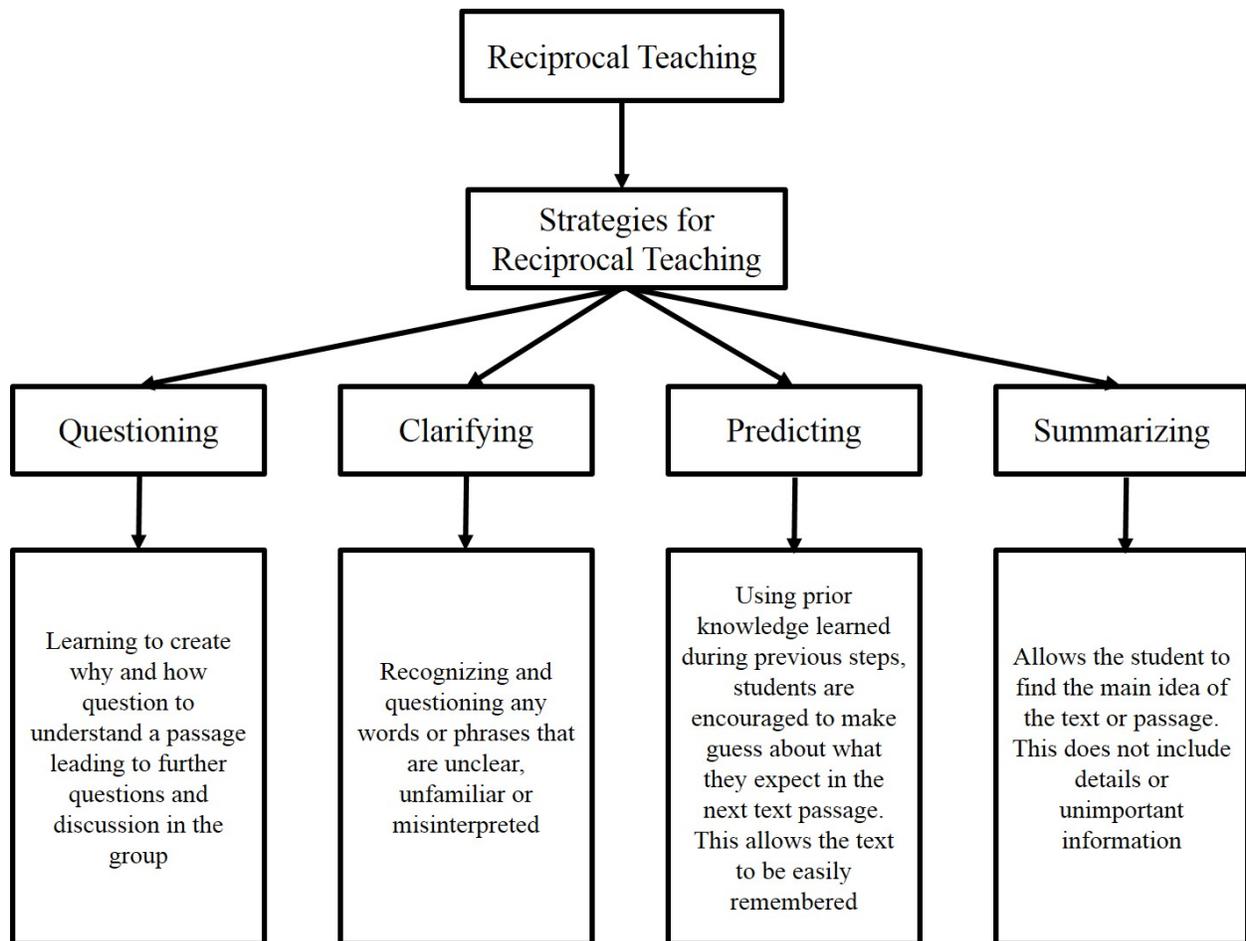


Figure-1: Outline of the process of reciprocal teaching.

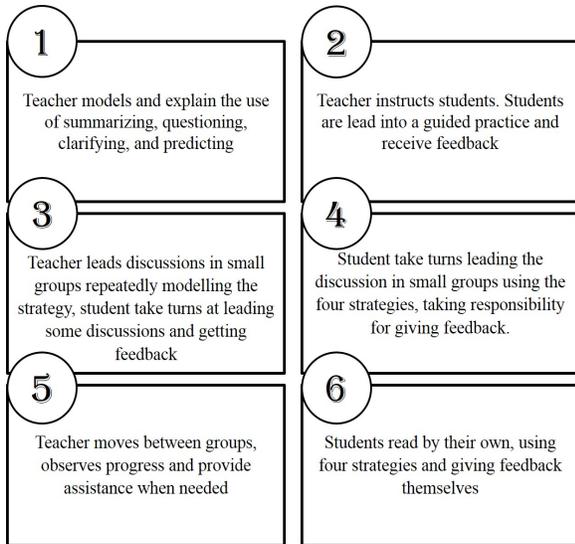


Figure-2: Stages of reciprocal teaching

**Will reciprocal teaching benefit medical students?**

The key question is “can medical students benefit from reciprocal teaching?”. Whilst direct evidence about this in the literature is scarce, there is some evidence from other disciplines.<sup>1,3</sup> that suggests that there may be some benefits. More specifically, there are significant improvements in student dialogue and comprehension, summarizing, predicting questions and detecting incongruences in data, leading to improved academic scores. The effects seem to be durable and sustainable. More significantly, the skills appear to be transferable to other learning experiences, laboratory work, for example, which is quite different from the original context of text-based tutorials.

Learning from text written in English may be a serious barrier for medical students who have English as a second language. Issues related to understanding terminology, in addition to comprehending academic and complex language is a necessary hurdle that has to be overcome in order to access the concepts, which then have to be analysed and understood.

Anecdotal evidence suggests that students find it necessary to repeat the passage and convert it into a simple language with short sentences and diagrammatic representations, in order to understand the meaning. One particular challenge arises from the integrated nature of many biological processes and systems in the body. Collecting and constructing a flow of information about these integrated systems by summarizing the processes may particularly be difficult for an individual working alone. However, the SPGCP process in Reciprocal Teaching can be useful in this regard, as the collaborative approach tests the individuals

understanding and judgement about what is most important.

Medical education prepares an undergraduate to become a medical practitioner who is safe and able to continue through a life-time of self-directed learning.<sup>6</sup> The skills of self-directed learning are therefore a fundamental component of the curriculum, and reciprocated teaching is one important technique that the faculty should include within a matrix of ‘multiple approaches’ to teaching and learning. ‘Reading the literature’ is fundamental skill for under graduates, and also qualified practitioners who adopt evidence-based clinical practice, and the skills to do this are best introduced in Year 1 of the undergraduate programme. An investment of teaching time in this early stage provides each individual a foundation of skills for learning in the successive years and throughout his/her professional life.

The author’s assertions require validation through a feasibility exercise and systematic pilot studies. These would reveal evidence about the optimum amount of time required for RT sessions, the frequency of the sessions, the best position in the curriculum map, and the nature of the formative and summative assessments. This would also address the issue of staff development requirements and evaluation to confirm the ‘added-value’ for students. The authors intend to carry out a pilot study in the near future.

**CONCLUSIONS**

Reciprocal Teaching encourages a high level of performance in critical thinking, reasoning and understanding. It happens through four stages of questioning, clarifying concepts, summarizing and predicting. This promotes independence of thought in the student by generating his/her own ability for reasoning and understanding the text. This is facilitated through a tutor-led peer-group session which provides a supportive learning environment for the student to adopt and adapt the basic skills. The students feel more confident and comfortable in asking questions and engaging in constructive and meaningful discussions as s/he learns to own and lead the discussion.

The method has been widely used in school<sup>7</sup> and college levels<sup>8</sup> and in improving the performance of intellectually deficient students<sup>9</sup>. In these cases, reciprocal teaching has been shown to increase the level of understanding, power of reasoning and questioning the text and relating the ideas to the onwards events. It has also been shown to increase the efficacy of teachers, giving them more meaningful way of evaluating their students’ level of understanding.

However, evidence of its efficacy in medical students is scarce. Substantive of studies on the possible role, applicability and effects of reciprocal teaching are required to validate its use. It is therefore recommended that:

- A feasibility study should be undertaken to establish the practicalities and its compatibility with the scope of medical education.
- Questions regarding time, frequency, location, assessment and staff development should be considered
- Blending with existing, conventional modes of teaching should be considered, to enable each student to identify and complete the gaps in their knowledge.
- An estimate of the impact on the hidden curriculum, and the benefits of 'added-value' should be made.

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