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The Effectiveness of a Web 2.0-based Reciprocal-teaching Paradigm in Developing Saudi-university Students' Reading Comprehension

Mahmoud Abd Al-Naser Nasr*

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Abstract: The present study's intent was to propose a web 2.0-based reciprocal-teaching paradigm, test its effectiveness in developing reading comprehension of Saudi-university students and examine the differences between males and females in reading comprehension as per the effect of the proposed paradigm. Participants comprised 120 students selected randomly from Al-Qassim University distributed between the experimental and control groups. A Web-2.0 based reciprocal-teaching paradigm and a reading-comprehension test were designed by the researcher. Both groups were pretested. The experimental-group students were taught using the proposed paradigm implementing the suggested strategy. The control-group students had their regular classes. The posttest was administered after that. Results indicated no statistically significant differences between the mean scores of the students of the two groups in the pre-administration of the test. Significant differences were detected between the mean scores of the two groups in the post-administration of the test in favour of the experimental group. There were significant differences between the mean scores of the experimental-group students in the pre -and post-administrations of the test in favour of the post-administration. No significant differences were detected between the mean scores of the control-group students in the pre and post-administrations. Similarly, no significant differences were found between the mean scores of males and females in the experimental group in the post-administration of the test. The proposed paradigm proved to be effective in developing reading comprehension of Saudi-university students.

(**Keywords**: Developing Reading Comprehension, Saudi-University Students, Reading Comprehension, Reciprocal-Teaching Paradigm, Web 2.0)

فعالية نموذج تدريس تبادلي مقترح قائم على ويب 2.0 في تنمية الفهم القرائي للطلبة الجامعيين السعوديين

محمود عبد الناصر نصر، جامعة القصيم، السعودية.

ملخص: تمثل هدف الدراسة الحالية في تصميم نموذج تدريس تبادلي قائم على ويب 2,0, واختبار فعاليته في تنمية مهارات الفهم القرائي للطلبة الجامعيين السعوديين, وبحث الفروق بين الجنسين في الفهم القرائي التي قد تعود إلى النموذج المقترح. اشتملت الدراسة على 120 طالبًا وطالبة تم اختيارهم بطريقة عشوائية من جامعة القصيم, وتم توزيعهم على مجموعتين تجريبية وضابطة. استخدمت الدراسة نموذج تدريس تبادلي قائم على ويب 2.0 واختبار فهم قرائي من إعداد الباحث. بعد تطبيق الاختبار القبلي، درست المجموعة التجريبية باستخدام النموذج المقترح بالاعتماد على الإستراتيجية المقترحة, بينما تلقت المجموعة الضابطة دراستها المعتادة. بعدها تم تطبيق الاختبار البعدي. وأوضح التحليل الإحصائي عدم وجود فروق ذات دلالة إحصائية بين متوسطي درجات طلبة المجموعتين في التطبيق القبلي للاختبار. ووجدت فروق دالة إحصائيًا بين متوسطي درجات طلبة المجموعتين في التطبيق البعدى للاختبار لصالح المجموعة التجريبية. كما أوضحت النتائج وجود فروق ذات دلالة إحصائية بين متوسطي درجات طلبة المجموعة التجريبية في التطبيقين القبلي والبعدي للاختبار لصالح التطبيق البعدى, في حين لم توجد فروق دالة إحصائيًا بين متوسطي درجات طلبة المجموعة الضابطة في التطبيقين القبلي والبعدى للاختبار. كما لم توجد فروق دالة إحصائيًا بين متوسطي الذكور والإناث في المجموعة التجريبية في التطبيق البعدى للاختبار. وقد أثبت النموذج المقترح فعاليته في تنمية مهارات الفهم القرائي للطلبة الجامعيين السعوديين.

(**الكلمات المفتاحية**: تنمية الفهم القرائي، طلبة الجامعة السعوديون، الفهم القرائي، نموذج تدريس تبادلي، ويب 2.0)

Introduction

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Modern technology is a fertile avenue for teachers' ongoing professional development in English-language teaching (Bett & Makewa, 2020). It has paved the way for teachers' use of new applications (Heidari, Khodabandeh & Soleimani, 2018:144). Web 2.0 technologies and tools have come to emphasize interaction, collaboration and creativity. Web 2.0 tools include wikis, blogs, social networking sites and web applications for community interaction, inputs, content sharing and collaboration (Kumar, Bhattacharjee, Devi & Barman, 2020).

Such applications proved to have a positive effect (Onbasili, 2020) to be highly adaptable and promote greater degrees of interaction and collaboration. Upon the advent of these technologies, they were primarily used for recreational purposes. However, through ingenuity in the classroom, they have become more and more relevant to the daily on-goings of language instruction (Dizon & Thanyawatpokin, 2018). Researchers have attempted to analyze these tools and how applicable they are to L2 students.

* Al-Qassim University, Saudi Arabia.

Reciprocal teaching as an instructional practice tends to make benefit from such applications. This teaching strategy has developed out of research related to monitoring and constructing meaning from text. The foundation of the strategy is the assumption that knowledge and comprehension occur as a result of creative socializing that is formed through talks and negotiations between teachers and students or students and students (Pilten, 2016). The more the students experience analytical-thinking skills for themselves, the more sophisticated their repertoire of learning skills becomes (Rattanavich, 2017). Reciprocal teaching is an instructional practice identified as a way of improving reading comprehension through explicit teaching of skills needed for meta-cognition. It is also recognised as an example of inclusive practice. Students observe teachers completing various tasks and modeling them. Afterward, students attempt the tasks with little support from the teachers. Eventually, the students assume the role of the teacher using one of the reciprocal-teaching strategies. Students involved in reciprocal learning cooperate in well-defined roles of doer and observer (i.e., tutor and tutee) to maximize their own and each other's learning. While one learner is doing (doer), the other learner (observer) observes, analyzes the doer's performance and gives performance-related feedback. Reciprocal teaching as an instructional practice has developed out of research related to monitoring and constructing meaning from the text. It is based on the old saying "to teach is to learn twice" (Lelis, 2017). Reciprocal teaching also improves meta-cognition which is the process of reflecting on the building of knowledge. Through this strategy, students explain their learning to other students and essentially take turns being the teacher with the teacher acting as a facilitator to assist student-teachers in clarifying their ideas and activities. This process forces students to put their ideas into words, which aids in organization and retention (Liu & Bu, 2016). There are four strategies used in reciprocal teaching: predicting, clarifying, questioning and summarizing. Predicting occurs by utilizing prior knowledge and discussing what will happen next in the text. Clarifying means that students use their meta-cognitive processes while monitoring comprehension. The questioning strategy allows students to identify the main ideas and remember important information by creating relevant questions to the text. Finally, summarizing is the strategy that tells whether or not the students understood the text (Todd, 2006).

In the case of reciprocal-teaching strategy, the emphasis is on collaborative rather than independent learning. Students are taught to help one another. In this strategy, students work together as peer partners, each functioning in turn as the "doer" and the "guide" in completing the task. Peer feedback does not mean that students "grade" each other or score papers. Instead, the goal is for students to clarify what is correct or incorrect (Liu & Bu, 2016). Over time, reciprocal teaching has developed three main purposes. First, it is a framework for explicit instruction and the practice of four specific comprehension-fostering strategies to develop the self-monitoring central to effective comprehension. Second, it uses a clearly-defined process for interactive engagement. This process has been shown to ensure that learning is maintained over time, is generalized across settings and is transferable within conceptual domains. Third, it is a vehicle for inclusive practice (Westera, 2002). Reciprocal teaching is an inclusive teaching model, because it combines three practices that are identified as effective for inclusion: meta-cognitive strategies, cooperative learning and authentic context. It delivers an overarching philosophy of participation, contribution, critical reflection and inclusiveness (Alton-Lee, Westera & Pulegatoa-Diggins, 2012). The idea behind reciprocal teaching is to have the teacher instruct students in the strategies until they have mastered them enough to gradually shift the dialogue from student to student (Clark, 2003). Reciprocal teaching has also been recognized for building learner capacity in the key competencies: thinking; using language, symbols and text; managing self; relating to others and participating and contributing (Alton-Lee et al., 2012). Learning-to-work is another identified perspective to see a collaborative mode centered on discursive thinking and reasoning to many (Abu Hatab, 2017). In this case, the student's role is no longer a subject of active and creative learning, but rather as a learning object. The responsibilities of the student in relation to learning are to develop, discover, investigate and disclose his/her knowledge to be reduced (Darsono, 2015). Reciprocal teaching can assist in improving understanding, critical-thinking skills, problem-solving skills and communication skills of learners. It helps learners, especially in higher education, increase their involvement, both individually and

socially, in exploring and critically evaluating a text (Doolittle, Hicks, Triplett, Nichols & Young, 2006). The reciprocal-teaching strategy follows the constructivist philosophy that students should be encouraged and motivated to explore ideas and ask for explanations from their friends or teacher about difficult concepts without hesitating or being ashamed (Sumarmo, 2013). Reciprocal teaching encourages student interaction by allowing students to lead discussions and facilitating their learning through peer feedback or peer tutoring (Gruenbaum, 2012).

As per reading comprehension, it is an interaction between decoding, thinking about the text and cross-checking with what is already known. Reciprocal teaching as an example of meta-cognitive-strategy instruction emphasizes thinking about thinking and skills for self-regulated learning during the reading process. Reciprocal teaching encloses some learning activities; namely: to read written learning materials carefully, to summarize them, to pose some relevant questions and to construct an explanation and/or a prediction (Sumarmo, 2013). A skilled reader will allocate time and effort to untangling comprehension failures, while less-skillful readers do not seem to use monitoring strategies well and do not seem to allocate the time and effort to clarifying comprehension failures. In information-processing terms, skilled readers are able to move fluidly between performance components to construct meaning and monitor for understanding. Several information-processing strategies have been attested to be used by skilled readers in the process of clarification: explicit and implicit understanding of the purpose for reading; activation of relevant background knowledge; focusing attention on important content; critical evaluation of content for internal consistency and compatibility with prior knowledge and common sense; periodically reviewing and interrogating self for understanding; and finally, testing inferences and predictions. These strategies underpin the four concrete activities of predicting, clarifying, questioning and summarizing, that framework reciprocal teaching to foster comprehension and monitoring for understanding (Doolittle et al., 2006).

Empirically speaking, some ardent research efforts have been exerted to investigate the inherent relationship between Web 2.0 tools, reciprocal-teaching strategies and reading comprehension. Gomaa (2015) investigated the effect of using reciprocal-teaching intervention strategy on improving reading comprehension. A total of 66 students participated in the study. Findings indicated the effectiveness of reciprocal-teaching intervention strategies in improving reading comprehension in the target students. Abd Al-Fattah (2016) attempted to determine the effectiveness of using Web 2.0 tools in developing students' reading skills. Participants were 22 first-level university students. The experimental group used teacher's blog with an independent reading programme, whereas the control group did not have any additional exercises. Results revealed that using blogs yielded significant effects on students' reading skills; i.e., the experimental group outperformed the control group. Pilten (2016) investigated the effects of reciprocal teaching in comprehending expository texts. The quantitative dimension of the research was designed in accordance with the pre-test-post-test control group experiment model. The work group of the research consisted of 54 students. A reading-comprehension evaluation scale was developed and implemented as a pre-test and post-test. Teacher/student interview forms were used for collecting qualitative data. At the end of the 11-week teaching process, expository text comprehension skills of the experimental-group students who implemented reciprocal-teaching strategy were developed at a statistically significant level. Shafie, Yaacob & Singh (2016) examined Facebook activities of L2 learners in the English language. Participants were four diploma students who were active Facebook users. Findings revealed five Facebook activities: (a) writing posts and comments in English, (b) reading news feeds in English, (c) participating in interest-based Facebook groups, (d) watching movies in English and (e) communicating with foreign Facebook friends. The most popular Facebook activities were writing posts and comments in English and reading news feeds in English.

Asiksoy (2018) investigated the effect of Web 2.0 tools on improving ELT students' language skills (listening, speaking, reading and writing) and attempted to identify the Web 2.0 tools used by the students. The sample of the study encompassed 207 students studying English. Results indicated that students were aware of the existence of Web 2.0 tools used in learning English and that they had a positive attitude towards the use of the tools. Navaie (2018) investigated the effectiveness of the reciprocal-teaching procedure (RTP) on the

reading comprehension of intermediate Iranian EFL learners. Two intact groups out of 76 participants were chosen non-randomly, one as the control group and the other as the experimental group. An IELTS reading test was administered as a pretest. The experimental group received treatment by applying RTP as an instructional strategy. The control group was taught reading through the conventional method. Results showed that reciprocal teaching improved reading comprehension of Iranian EFL learners. Wijekumar, Meyer, Lei, Hernandez & August (2018) investigated the implementation of instruction about the text-structure strategy to accommodate the linguistic and comprehension needs of students of English in Grades 4 and 5. Strategy instruction on the web for English learners was designed to deliver instruction about the text-structure strategy. A randomized controlled study with pre-and post-tests was conducted with 14 classrooms. The analysis showed moderate-to-large effects favoring the students in the experimental group on a standardized reading-comprehension test. Okkinga, Van Steensel, Van Gelderen & Sleegers (2018) investigated the effect of reciprocal teaching on improving low-achieving adolescents' reading comprehension in whole-classroom settings. Over one year, experimental teachers (N=20) were given extensive training and coaching aiming at using principles of reciprocal teaching, while control teachers (N=20) used their regular teaching method. Results showed that reciprocal teaching contributed to adolescent low achievers' reading comprehension only when experimental teachers provided high-quality strategy instruction.

Matinde (2019) adopted reciprocal-peer-tutorial assessment as an instructional strategy. Fifty-two participants took part in the experiment. Results highlighted the delicate balance between the obvious benefits and the unintended consequences of adopting reciprocal peer assessments during tutorials. The obvious benefits of RPTA included opportunities for synergistic peer learning, healthy competition among students and self-directed learning. Suardika, Alberth, Siam & Pasassung (2020) examined the extent to which students interacting using Web 2.0 tools experience a different level of social presence, sense of community and perceived learning compared to those interacting face-to-face. Participants were100 students at Halu Oleo University. They were randomly divided into two groups. Group one attended conventional face-to-face classroom instruction over seven weeks, group two used WhatsApp for learning. Questionnaires measuring social presence, sense of community and perceived learning were administered. The Web-2.0 group reported a stronger sense of community, but both groups experienced an equal level of social presence and perceived learning. Reported benefits of Web 2.0 far outnumbered its drawbacks.

As far as the review of pertinent literature could elucidate and according to the researcher's present knowledge, none of the previous studies has attempted to design a Web 2.0-based reciprocal-teaching paradigm for Saudi-university students and so, the current study was conducted in order to fill in the gap in that area.

Statement of the Problem

Hinging upon the aforementioned theoretical backdrop, the problem of the current study stemmed in the first instance from the low level of Saudi-university students in reading comprehension as evidenced by their scores in the pre-administration of the test as well as their scores on the periodic tests and quizzes. Such a *status quo* is not at all odd. Rather, it is a net result of the weak emphasis reading receives in the courses taught as well as using methods and strategies which are not in accord with the nature of such a skill. Moreover, as proven by a pilot study, activities currently utilized have fallen short of enabling students to master these skills. Okkinga et al. (2018), Matinde (2019), Börekci & Aydin (2020) and Bett & Makewa (2020) give support to this idea. As observed by the researcher, most reading classes are consecrated totally to a single reading skill, sometimes skimming, sometimes scanning, other times loud reading, which may give momentum to pronunciation skills rather than reading. This state propelled the researcher to propose a Web 2.0-based reciprocal-teaching paradigm and to test its effectiveness in developing reading comprehension of Saudi-university students.

Rationale of the Study

Reading is one of the receptive language skills. However, it has not been given due care in teaching. Such neglect may be intentionally or haphazard. To the researcher's best knowledge and according to the review of research he conducted, no study has been launched to propose a Web 2.0-

based reciprocal-teaching paradigm for developing reading comprehension of Saudi-university students. The researcher was motivated to conduct the present study *via* a bevy of factors. First, an intensive review of pertinent literature in the area revealed that there is a noticeable dearth in research conducted to develop reading comprehension of Saudi-university students *via* modern technology. Second, recommendations of other researchers in the field (e.g. Shadiev et al. (2014), Abu Serhan (2014), Hafez (2015), Tarchi & Pinto (2016), Chen & Kong (2017), Abu Hatab (2017), Sumadi, Nyoman & Degeng (2017), Gilbert (2018), Erawati, Caswita, Darsono & Ambarita (2019), Börekci & Aydin (2020), Bett & Makewa (2020) and others), the plethora of which stressed the significance of reading and recommended that more studies should be conducted to devise strategies in order to develop it. Third, the wide-range and rich experience of the researcher in English-language teaching for a long time (more than 25 years) documented that reading does not receive the attention it should have in teaching. This is supported by Suardika et al. (2020). The researcher got convinced that more research is needed to find new innovative strategies that are apt to develop such a complex skill.

Objectives of the Study

The current study aimed at fulfilling a two-fold objective:

1. **An instructional objective**; proposing a Web 2.0-based reciprocal-teaching paradigm intended to develop reading comprehension of Saudi-university students.
2. **A research objective**; testing the effectiveness of the proposed paradigm in developing reading comprehension of Saudi-university students and examining the differences between males and females in reading comprehension as per the effect of the proposed paradigm.

Questions of the Study

The present study attempted to find answers to the following questions:

1. To what extent is the proposed paradigm effective in developing reading comprehension of Saudi-university students?
2. Are there any statistically significant differences between males and females in reading comprehension as per the use of the proposed paradigm?

Hypotheses of the Study

The present study tested the following hypotheses:

1. There will be no statistically significant differences between the mean scores of the students of the experimental and control groups in the pre-administration of the reading-comprehension test.
2. There will be statistically significant differences at 0.01 level between the mean scores of the students of the experimental and control groups in the post-administration of the reading-comprehension test in favor of the experimental group.
3. There will be statistically significant differences at 0.01 level between the mean scores of the experimental-group students in the pre -and post-administrations of the reading-comprehension test in favor of the post-administration.
4. There will be no statistically significant differences between the mean scores of the control-group students in the pre -and post-administrations of the reading-comprehension test.
5. There will be no statistically significant differences between the mean scores of males and females in the experimental group in the post-administration of the reading-comprehension test.
6. The proposed paradigm will be effective in developing reading comprehension of Saudi-university students.

Significance of the Study

The significance of the current study stems from the fact that it may cast light on the crucial role played by reading comprehension in the qualification of university students. The study may urge us to deem reading an active and demanding skill of language that needs to be looked after. Moreover, the study proposes a Web 2.0-based reciprocal-teaching paradigm which aims at developing reading comprehension of Saudi-university students. The study may help students, teachers and course designers *via* helping students develop their reading comprehension, guiding

English teachers by improving their teaching practices of reading comprehension and providing course designers with what's needed to develop reading comprehension of university students. To the best knowledge of the researcher and according to the review of pertinent literature, no study has been conducted to propose and use such a type of teaching paradigm in Saudi Arabia for the stage chosen. As a result, the present study tried to fill in this gap.

Limitations of the Study

The study was conducted in Al-Qassim, Saudi Arabia where the researcher lives and works. It was undertaken on 120 students selected randomly out of Al-Qassim University. The experimental study lasted for 8 weeks, approximately three hours per week.

Definitions of Terms

The following terms were used in the present study:

Web 2.0: Web 2.0 tools encompass a vast array of web-based applications, such as Facebook, Whatsapp, blogs, wikis, discussion forums, voice and video tools, flash files, You-tube, … etc. In the current study, two Web 2.0 tools were utilized; namely, Facebook and Whatsapp.

Reciprocal Teaching: Reciprocal teaching is one of the cooperative models in thematic learning (Erawati et al., 2019). Arends (2012) defines it as a "model in which teaching procedures are designed to teach students about meta-cognitive strategies" (58). It emphasizes interactive communication which is the hallmark of scaffolded instruction. As an instructional strategy, it is based on modeling and guided practice (Doolittle et al., 2006). For the purpose of the current study, reciprocal teaching is operationally defined as a teaching situation consisting of three main components: teaching reading-comprehension strategies, initiating dialogues between the teacher and the students and assuming the teacher's role by the students.

Reading Comprehension: For the purpose of the present study, reading comprehension is operationally defined as the student's skill in determining the main idea in a certain text, giving a summary of a certain text in one's own words, suggesting a suitable title for a certain text, distinguishing the topic sentence and supporting sentences in a certain text, distinguishing true and false ideas in a certain text, drawing inferences from a certain text and scanning a certain text for a certain piece of information.

Methods of the Study

In conducting the current study, the researcher made use of the descriptive method for reviewing pertinent literature, determining reading-comprehension skills suitable for Saudi-university students and identifying the general outline of the proposed paradigm. The researcher also used the quasi-experimental method while conducting the experiment, administering the proposed paradigm and the reading-comprehension test, analyzing data and interpreting results.

Participants in the Study

The study was undertaken on 120 students randomly chosen from Faculties of Science and Arts, Al-Qassim University. Students were distributed equally between the experimental and control groups including both males and females.

Instruments of the Study

I-The Proposed Paradigm

The researcher proposed the paradigm in light of reviewing pertinent literature in the area of Web 2.0 technology, reviewing related literature in the area of reciprocal-teaching strategies, browsing pertinent literature in the field of developing reading-comprehension skills and determining reading-comprehension skills which are suitable for Saudi-university students. In order to propose the paradigm, the researcher put a crop of crucial points into consideration: objectives of the English department as specified by the university, objectives of the present study as specified previously by the researcher, the nature of the courses taught in the English department, the nature, values and attitudes of the Saudi society and emphasizing the student's role in reading-comprehension skills. The paradigm's major goals were to develop reading skills of Saudi-university students and give momentum to students' role in reading comprehension. The major objectives of the paradigm were to develop these reading-comprehension skills: determining the main idea in a certain text, giving a summary of a certain text in one's own words, suggesting a suitable title for a certain text, distinguishing the topic sentence and supporting sentences in a certain text, distinguishing true and false ideas in a certain text, drawing inferences from a certain text and scanning a certain text for a certain piece of information. The content comprised the first five units of *Interaction2 Reading* (2007) by Pamela

Hartman and Elaine Kirn, McGraw-Hill Education. The textbook is prescribed for level 2, English-language students, Department of English and Translation. Topics were as follows: Unit 1:Education and Student Life, Unit 2: City Life, Unit 3: Business and Money, Unit 4: Jobs and Professions and Unit 5: Lifestyles Around the World. The researcher made the best use of these aids while teaching: LMSs; Question-Mark, Facebook, Whatsapp application, flash and digital cards, You-Tube, online dictionaries, websites, data show, multimedia, visual aids, the smartboard, the student's textbook, handouts devised by the researcher, students' own devised aids suitable for each lesson, … etc. The researcher made good use of these activities: thinking-aloud protocols, webinars, teleconferences, using online dictionaries, using Google search, whole-class discussions, intensive reading, extensive reading, brainstorming, concept mapping, using realia, warm-ups, student projects, peer correction, teacher/peer feedback, watching English movies, providing feedback and feedforward, working in pairs and groups, think-pair-share, student presentations, extensive internet surfing, taking notes and records while reading, summarizing, self-reviewing, scaffolded instruction, questioning for meta-cognition, role-play, reciprocal conversations, co-teaching, … etc. Three types of evaluation were used while conducting the paradigm: Pre-evaluation before administering the paradigm through administering the pretest, ongoing evaluation while administering the paradigm *via* the reading-comprehension exercises following each lesson and post-evaluation after administering the paradigm *via* the posttest. The experiment lasted for 8 weeks, approximately 3 hours per week. The total time spent in conducting the experiment was 24 hours. To validate the proposed paradigm, its layout was submitted to a panel of specialists in curricula, instruction and linguistics to show their opinions. Some objectives were reformulated. Some skills were added. Others were paraphrased. The researcher put the juries' observations into consideration while preparing the final layout of the proposed paradigm. The researcher piloted the paradigm using the proposed strategy prior to the real experiment. The pilot study lasted for six hours. Fifteen students participated in this pilot study.

2-The Suggested Strategy

The researcher suggested a web-based reciprocal-teaching strategy consisting of the following main components: teaching reading-comprehension strategies, initiating dialogues between the teacher and the students, modeling when, why and where to use previously determined strategies, and assuming the role of the teacher by the students. Each individual reading-comprehension lesson used to go through four sequential stages: first, questioning which included identifying information, topics, themes and ideas. These were used to generate questions which were later used as self-tests for the students. This stage allowed students to focus on detailed information, infer information and offer possible solutions; second, summarizing which included identifying important information, topics, themes and ideas in a certain text. This could be conducted on a single paragraph, a part of a text or an entire text. This stage provided an opportunity for students to identify, paraphrase and integrate important information in the text; third, clarifying which included identifying and clarifying difficult, unclear or unfamiliar aspects of the assigned text. This stage guided the students to look for parts of the text that were confusing and unclear; and fourth, predicting which included bringing together the reader's prior background knowledge and new knowledge to generate hypotheses. This stage provided a purpose for reading: to confirm or disprove hypotheses. As for the role of both the teacher and the student, the general design used in the present study involved the teacher and the students, usually in small groups' in every phase of the lesson. The objectives of each lesson were demonstrated. The teacher explained, in small groups, the nature of the reading-comprehension skills and strategies and when to use such strategies. He/she led a discussion of the assigned text, while modeling appropriate reading-comprehension strategies. During such dialogue-and-modeling stages, the teacher asked students to pose questions about the text as well as the strategies. The teacher used such dialogues to augment both reading-comprehension skills and strategic expertise. Such a process of reading, dialoguing and clarifying went on all through the lesson. As students became more experienced with the dialogue process and the reading-comprehension strategies, the teacher asked students to assume the role of the teacher or dialogue leader. As students led the dialogue

themselves, the teacher began to assume the role of a guide, observer and facilitator.

3-The Reading-Comprehension Skills Test

The test aimed at testing reading-comprehension skills of Saudi-university students. It was employed as a pre-post test in order to determine the effectiveness of the proposed paradigm. The test assessed students' skills in determining the main idea in a certain text, giving a summary of a certain text in one's own words, suggesting a suitable title for a certain text, distinguishing the topic sentence and supporting sentences in a certain text, distinguishing true and false ideas in a certain text, drawing inferences from a certain text and scanning a certain text for a certain piece of information. The researcher prepared the test in light of the goals, objectives and skills previously specified. The material was adapted from the *TOEFL iBT test*. The test consisted of 14 questions. It was submitted to a jury committee of specialists in curricula, instruction and linguistics to show their opinions. The jury members agreed upon the validity of the test. Thus, content validity was assured. Moreover, the researcher proved the self-validity of the test which reached 0.92. The researcher used the test-retest method with a time span of 15 days. The reliability coefficient reached 0.86. Facility, difficulty and discrimination indices were computed. They were 0.73, 0.27, and 0.20, respectively. The researcher administered the test to a pilot sample of 15 students not taking part in the experiment. The purpose was to ensure the suitability of the test, calculate the meantime needed, compute reliability and diagnose problems that might arise while administering it.

Procedures and Administration

The researcher created *two groups; the first was a Whatsapp group. He was the administrator of the group and a member at the same time.* He was always there as a facilitator, participator, observer and coordinator. *He named the group "Reading Group"*. Participants were asked to use their real names. The researcher offered some monitoring directives as for the use of Whatsapp in teaching reading. He called all members for an orientation session during which study objectives and regulations were stated. The schedule of the sessions was announced. Students were allowed to interact *via* text messages, voice messages, images, videos, voice recordings, … etc. They were also asked not to send messages that were irrelevant to the topics they would study. Certain regulations were set for the use of Arabic only for translation. Every session, the objectives of the lesson were sent to students in advance. Skills to be practiced were determined from the very beginning. The target text to be dealt with was sent to the group in a message. The text was presented with images, sometime emoticons and audio files at the same time. Components of the reciprocal-teaching strategy were elucidated: teaching the reading-comprehension strategies in perspective, initiating dialogues between the teacher and the students, modeling when, why and where to use previously determined strategies and assuming the role of the teacher by the students. Each lesson used to go through certain sequential stages: first, questioning which included identifying information, topics, themes and ideas. These were used to generate questions which were later used as self-tests for the students; second, summarizing which included identifying important information, topics, themes and ideas in the text; third, clarifying which included identifying and clarifying difficult, unclear or unfamiliar aspects of the text; and fourth, predicting which included bringing together the reader's prior background knowledge and new knowledge to generate hypotheses. Students were allowed to use the note feature, text messages, the camera, the voice recorder, the video recorder, the internet browser, the mobile dictionary, … etc. The Quizlet platform was made good use of. Students used to sign up with Google, Facebook or e-mail. The researcher created online classes which students were invited to join *via* a special link. Group discussions used to result in an accumulated experience of various students from differing social backgrounds. Upon making sure that the new text was read and assimilated by the majority of students, different exercises were given in order to consolidate reading-comprehension skills. Having finished with the text content, a short quiz was always sent to the students over Question Mark. Students were asked to create a Google Gmail account in order to be able to open the Google-Docs website and so to get an access to the cloud. They were trained in how to create their files for each session, save them in the cloud using Google Drives and retrieve them whenever they needed them. The cloud provided a stable storage service and secure platform *via* enabling several students to work together without geographical or temporal limits simultaneously.

The second group was a Facebook group. The researcher offered an intensive introduction to the students about the reading process and the objectives of creating the group. Students who joined this group could interact with each other by posting what they wrote, sharing photos and videos, adding files and so on. Every student gained a unique identity of her/his own. The researcher invited the students to join the new group by sending an e-mail to all of them. The researcher used a snowballing technique in order to invite those students to join the group. Participants in the study were asked to suggest their friends who may be interested in participation. The researcher ensured that all members had become able to log into the page, read the texts, post comments, add "like" comments and hide comments as spam. The researcher started with a brainstorming session about reading, its skills and strategies. Component parts of the reciprocal-teaching strategy were reviewed. The researcher maintained the same reciprocal-teaching procedures: questioning, summarizing, clarifying and predicting. Students were asked to share ideas and opinions with each other. They were asked to post their answers on the group's wall. The researcher used to select good answers so that all members could see and learn from one another. Every time the researcher was always ready to respond in the comment section to students' posts with words of praise in order to encourage them. For the online discussion on Facebook, students were required to contribute at least three postings, including one comment on answers provided by other classmates. Students were encouraged to interact spontaneously in the group to maintain the life interaction on Facebook. Students' comments were corrected immediately if there was any spelling or grammar mistake. Students were allowed to correct each other's mistakes. The researcher made use of contests. Contest tasks had a time limit. Participants were given two days' time to finish the task. Results were announced. A bonus was given to the winner. Such procedures went on for eight weeks. At the beginning of the ninth week, the posttest was administered using QM.

Results of the Study

Concerning the first hypothesis, "there will be no statistically significant differences between the mean scores of the students of the experimental and control groups in the pre-administration of the reading-comprehension test", the researcher used t. test as follows:

Table (1)

Terminal Means, Standard Deviations and t. Test Results for the Scores of the Experimental and Control Groups in the Pre-administration of the Test

Group	Number	Means	Standard Deviations	Difference between Means	D.F.	t
Exp.	60	13.23	7	0.23	118	0.16
Con.	60	13	8.4			

It is obvious from the above Table that there are no statistically significant differences between the mean scores of the experimental and control groups. This means that the first hypothesis was accepted. Attempting to provide a logical interpretation for this result, the researcher assumes that methods and strategies utilized by most of English teachers when teaching reading-comprehension skills may provide a key answer in this juncture. Such methods and strategies may be responsible for the students' low level. Abd Al-Fattah (2016) and Bett & Makewa (2020) lent support to this idea. Out of the researcher's long experience in EFL (for more than 25 years), he has noticed that teaching reading proceeds through certain predetermined steps which teachers (novice as well as old-hand) have become accustomed to and this is the rub. The reading class may be said to be the least well-organized one, since its procedures go routinely as follows: Students are given a certain text. The teacher asks students for a silent reading of the text and to resort to her/him whenever encountering a difficulty. S/he reads the text aloud giving its meaning (mostly in Arabic). S/he asks individual students to read the text aloud. A set time is assigned to answer the questions following the text. Finally, if the time is not enough, such questions are assigned as homework. Such procedures, as the researcher maintains, do not consider the interactive nature of reading. The reader plays an active role by drawing upon and making use of various sources of information

beyond the text, coordinating them with her/his schematic background knowledge. In light of the procedures described above, students regard the text as the main source of information. This can lead students to hinge primarily upon the text, neglecting other sources of information beyond the text. This result is in line with that reached by Nasr (2018).

Concerning the second hypothesis, "there will be statistically significant differences at 0.01 level between the mean scores of the students of the experimental and control groups in the post-administration of the reading-comprehension test in favour of the experimental group", the researcher used t. test as follows:

Table (2)

Terminal Means, Standard Deviations and t. Test Results for the Scores of the Experimental and Control Groups in the Post-Administration of the Test

Group	Number	Means	Standard Deviations	Difference between Means	D.F.	t	Sig.
Exp.	60	24	5.7	10.5	118	7.77	0.01
Con.	60	13.5	8.7				

From the above Table, it may be noticed that there are statistically significant differences at 0.01 level between the mean scores of the students of the experimental and control groups in favor of the experimental group. In this way, the second hypothesis of the study was accepted. This result may be attributed in the first place to the proposed paradigm which was used with the experimental group. The paradigm managed to develop reading-comprehension skills *via* using a Web 2.0-based reciprocal-teaching strategy. Schematic background-knowledge construction and activation rendered through the strategy used may be said to have facilitated and enhanced the processes of reading by enabling students to comprehend the new reading material in light of what they already had of stocks of background knowledge. The proposed paradigm may be said to have accrued a crop of results all at the same time. Students' taking responsibility for their own learning put them in a proper position to make the best use of the proposed paradigm to develop reading-comprehension skills. Students' awareness of such skills in advance provided them with opportunities to get ready for such a near confrontation between them and the challenging reading tasks.

Moreover, providing students with the objectives of each lesson in advance may be said to have upgraded their latent potentialities beforehand as a manner of getting ready. Such a declaration of objectives can be said to have placed the students in a better position to tackle reading-comprehension skills. It helped students capitalize on the task at hand. It also helped them assess their progress when every lesson was over. Providing feedback, also, had a pivotal role to play in this juncture.

Furthermore, the researcher assumes that the Web 2.0-based reciprocal-teaching strategy helped focus students' attention on reading for meaning and so gave momentum to students in order to develop suitable comprehension strategies. It helped engage students in meaningful dialogues either among themselves or with the teacher. It made explicit what readers do (question, clarify, predict and summarize). It augmented students' content knowledge and vocabulary about a certain topic. In addition, the feeling of accountability may have caused students to work harder in the groups.

Concerning the third hypothesis, "there will be statistically significant differences at 0.01 level between the mean scores of the experimental-group students in the pre -and post-administrations of the reading-comprehension test in favor of the post-administration", the researcher used t. test as follows:

Table (3)

Terminal Means, Standard Deviations and t. Test Results for the Scores of the Experimental-Group Students in the Pre-and Post-Administrations of the Test

Test	Number	Means	Standard Deviations	Difference between Means	D.F.	t	Sig.
Pre	60	13.23	7	10.77	118	9.20	0.01
Post	60	24	5.7				

It can be noticed from the above Table that there are statistically significant differences at 0.01 level between the mean scores of the experimental-group students in the pre -and post-administrations of the reading-comprehension test in favor of the post administration. This means that the third hypothesis of the study was verified. The researcher assumes that the superiority of the experimental group over the control one is due to the proposed paradigm. The suggested Web 2.0-based strategy can function as the password in this respect. Such a strategy gave vent to all of the learning/teaching situation, thus empowering the students, reducing teacher's domination, eliminating traditional routine and monotony, giving momentum to students' latent potentialities and participation and organizing classroom time for practicing more engaging activities. The researcher assumes that the proposed paradigm with all of the strategies employed may have aided students in dealing with reading-comprehension skills at higher levels of processing. Moreover, the researcher's going throughout every stage of every lesson with the students played a significant role. The classes used to go into an atmosphere that was similar to a workshop. Instant advice was offered. Immediate help was provided. On-the-spot feedback was available. Mistakes were discussed publicly. Moreover, background knowledge provided, instantiated and reinforced *via* the meta-cognitive strategies employed in the paradigm may be said to have aided students to process reading texts in a top-down manner rather than a bottom-up one. In top-down processing, students depend on the formation of expectations, predictions and hypotheses based on prior knowledge and experience. Furthermore, the researcher maintains that transfer of the effect of training may serve as a plausible interpretation for this result. It may be supposed that students used some aspects of the suggested strategy in dealing with the texts encountered in the test.

Concerning the fourth hypothesis, "there will be no statistically significant differences between the mean scores of the control-group students in the pre -and post-administrations of the reading-comprehension test", the researcher used t. test as follows:

Table (4)

Terminal Means, Standard Deviations and t. Test Results for the Scores of the Control-Group Students in the Pre and Post-Administrations of the Test

Test	Number	Means	Standard Deviations	Difference between Means	D.F.	t
Pre	60	13	8.4	0.5	118	0.31
Post	60	13.5	8.7			

It can be noticed from the above Table that there are no statistically significant differences between the mean scores of the control-group students in the pre -and post-administrations of the test. This indicates that the fourth hypothesis of the study was confirmed. The control-group students did not study the proposed paradigm. They did not use the Web 2.0-based reciprocal-teaching strategy. Instead, they had their regular courses in their traditional classes. As a result, it may be said that those students dealt with the test in the same way. They may be said to have been attempting to come up with something off-hand in order to fulfill the requirements encountered in the test. The overuse of traditional teaching strategies has diminished students' enthusiasm for reading. Students' latent reading potentialities have been underutilized so far. On the other extreme, the chance offered to the experimental-group students *via* the proposed paradigm using the Web 2.0-based reciprocal-teaching strategy may be said to have put those students in a proper position to tackle reading-comprehension skills. The teacher (researcher) was always available, ready for any

intervention. Immediate feedback was always offered. As for the control-group students, classes proceeded, for sure, in the same traditional manner they have got accustomed to. Thus, the present result is not at all unexpected.

Concerning the fifth hypothesis, "there will be no statistically significant differences between the mean scores of males and females in the experimental group in the post-administration of the reading-comprehension test", the researcher used t. test as follows:

Table (5)

Terminal Means, Standard Deviations and t. Test Results for the Scores of Males and Females in the Experimental Group in the Post-Administration of the Test

Gender	Number	Means	Standard Deviations	Difference between Means	D.F.	t
Males	30	24.8	6.8	1.3	58	0.84
Females	30	23.5	4.8			

It can be noticed from the above Table that there are no statistically significant differences between the mean scores of males and females in the experimental group in the post-administration of the test. This provides evidence for accepting the fifth hypothesis. This result may pinpoint out that difference in gender did not render difference in reading-comprehension skills. Such skills with all of their latent and inherent complexities, potentialities and cognitive processes may be said to hinge upon the coordination of other cognitive, psychological, technical and methodological variables that may not be affected by gender difference. Since information-processing and cognitive processes may be similar in males and females, such skills may be affected by factors rather than gender differences. This finding is in line with that reached by Nasr (2018) who concluded that no significant difference was found in terms of genders' perceptions of reading skills. Research is still scarce in this area. Therefore, the researcher seizes the opportunity to call other researchers to further investigate this issue.

Concerning the sixth hypothesis, "the proposed paradigm will be effective in developing reading-comprehension skills of Saudi-university students", the researcher used Blake's formula as follows:

Table (6)

Ratio of Gain

Test	N	X	Total Test Score	Gain
Pre	60	13.23	30	1.13
Post	60	24		

It is obvious from the above Table that the ratio of gain lies within the range determined by Blake which is (1-2). This indicates the effectiveness of the proposed paradigm in rendering what it was intended for. The effectiveness of the proposed paradigm in rendering its target may be attributed to a number of reasons; first, adopting a scientific method in its design; second, identifying reading-comprehension skills needed by university students beforehand; third, presenting the objectives of each lesson to the students before starting it; fourth, enriching the paradigm with various activities; fifth, using various minor strategies subsumed beneath the Web 2.0-based reciprocal-teaching strategy; sixth, using different kinds of teaching aids which helped render teaching more interesting and seventh, using various kinds of evaluation before, during and after the experiment. Moreover, types of interaction and inherent relations among the students and between the students and the researcher may be said to have given boom for students' latent potentialities. For sure, students' taking lead of the learning/teaching situation gave them vent that enhanced their performance. Reciprocal dialogues, responsibilities and leaderships had, for certain, their stamping impact.

Discussion and Conclusions

The main target of the present study was to develop the reading-comprehension skills of Saudi-university students *via* a Web 2.0-based reciprocal-teaching paradigm. Statistical analyses of the data indicated legibly that the proposed paradigm proved to be effective in rendering its target. Students' low-level achievement before administering the paradigm and the control group's performance after administering it may be attributed to the improper position reading-comprehension skills hold in learning/teaching processes and traditions. The proposed paradigm may be the password in the interpretation of the results. It hinged primarily on developing reading-comprehension skills *via* the use of a bevy of Web 2.0-based reciprocal-teaching strategies. Such strategies may serve as the password here. The strategies encompassed three main components. The first was teaching reading-comprehension strategies. The second was initiating dialogues between the teacher and the students. The teacher modeled when, why and where to use previously determined strategies. The third was assuming the role of the teacher by the students. While conducting the experiment, each reading-comprehension lesson used to go through certain sequential stages. It started with questioning during which information, topics, themes and ideas were identified. These were used as a basis for generating questions which were later used as self-tests for the students. During the summarizing stage, important information, topics, themes and ideas in a certain text were identified. This was conducted on a single paragraph, a part of a text or an entire text. Summarizing provided opportunities for students to identify, paraphrase and integrate important information in the text. During the stage of clarifying, difficult, unclear or unfamiliar aspects of the assigned text were identified and clarified. This guided the students to look for parts of the text that were confusing and unclear. Finally, during the stage of predicting, the reader's prior background knowledge and new knowledge were brought together to generate hypotheses. This provided a purpose for reading, to confirm or disprove hypotheses previously posed. It can be logically assumed that Web 2.0-based reciprocal teaching provided a positive and comfortable environment with less pressure. It offered opportunities for practice and receiving encouragement. Students were not afraid of making mistakes and preferred their learning with their peers. When learning happened between students and their classmates, they felt relaxed. They not only learnt from each other, but also spent pleasant time. Some students felt proud when taking the role as the leader. Some confessed that they felt easier when making mistakes in front of their classmates. Such learning is quite encouraging. Students felt free to try out new ideas and provide feedback to their classmates. Moreover, students' assuming the role of tutors and learners facilitated class management. Some students showed legibly an improvement in their observation skills, instructional and communication skills and collaboration. Last, it should be clearly stated that in light of the main drawbacks identified in the traditional methods of teaching reading-comprehension skills, the advantages accrued *via* using the Web 2.0-based reciprocal-teaching strategy and based on the main findings of research in modern methods and strategies of teaching these skills, the present paradigm was proposed. Results of the current study are in line with those reached by other researchers. Akkuzu (2014), for instance, proved the effectiveness of reciprocal-teaching strategies in reading comprehension of expository texts. Gheith & Mustafa (2015) confirmed the effect of using reciprocal-teaching strategies on developing comprehension skills. Liu & Bu (2016) documented how reciprocal-teaching strategies have been effective in improving students' language competence. Gonen's (2016) *qualitative analyses put forward that the pre-service teachers advanced in their performance throughout their reciprocal peer-coaching practice and benefited much from such an experience before embarking into professional life*. Rattanavich's (2017) results revealed a tendency among students to increase the frequency of their English-language use in each class due to reciprocal peer-teaching strategies. The quality of the students' reading also significantly improved. Participants expressed positive opinions about the experimental-teaching treatment and its effect on the students' English. Lelis (2017) revealed that the majority of students in his experiment considered the peer-tutor role undeniably positive. The credibility of peers was evidenced as an issue when set against students' high expectations. Onbasili (2020) documented that Web 2.0 tools had positive effects on participants whose responses to the open-ended questions demonstrated that the Web 2.0 tools

improved their higher-order thinking skills, creativity and imagination. Giannikas (2020) concluded that there was an interactive learning element when using a Web 2.0 tool that made learning more appealing than other university's course-management systems.

Recommendations and Suggestions for Further Research

In light of what has been revealed in the current study, the researcher recommends that:

1- Reading-comprehension skills should not be left to look after themselves. They should have due care in teaching. More systematic and deliberate attention should be paid to these skills from the early academic years.

2- Before teaching reading-comprehension skills, orientation directives should be offered about the nature of these skills, so that each student can assess her/his potentialities and attempt to reach the utmost there. Various optional strategies should be available in order to suit each individual learner as well as each skill.

3- Professional reading-comprehension courses should be designed for teachers in order to train them on dealing with reading-comprehension skills.

4- False conceptions about reading-comprehension skills have to be remedied in the light of what has been reached in empirical research about the nature of such skills.

5- Modern technologies should be integrated into reading classes. Web 2.0 proved effective in the current study.

6- Innovative Web-based reciprocal-teaching strategies should replace traditional methods of teaching.

7- Following in the same footsteps of the current study, the researcher thinks that more studies are needed to:

- Investigate the effect of reciprocal-teaching strategies on other language skills.

- Explore teachers' and students' attitudes towards reciprocal-teaching strategies.

- Design similar paradigms using different kinds of strategies for developing other language skills.

- Use other Web 2.0 tools in developing other language skills.

- Replicate the proposed paradigm for other educational stages.

- Investigate in depth the difference between males and females in (reading-comprehension skills).

- Investigate students' preferences for certain kinds of reciprocal-teaching strategies.

- Investigate students' preferences for certain kinds of Web 2.0 tools.

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