A Study on Designing a Teaching and Learning Model Using Internet Reciprocal Teaching

: Focusing on the Upper Elementary School Class

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I. Introduction

With the development of new information and communication technologies and digital media devices, reading activities in a digital environment have become a daily routine for students living today (Lee, 2010). Immediate access to virtually limitless information via the Internet is a key characteristic of reading in a digital environment (Coiro, 2011; Kim, 2020). However, as it has become more important to select necessary information than to have access to it, reading in a digital environment is becoming more complex or requiring a new level of reading ability (Cho, 2012; Coiro & Dobler, 2007). In line with these changes, education in Korea is also preparing a 2022 revised curriculum that actively reflects literacy activities in the digital environment (Ministry of Education, 2021).

The field of Korean language education has been paying attention to digital reading activities early on and conducting related studies (Lee & Kwon, 2014; Ok, 2013; Pang, 2017). Many studies have been conducted mainly to check the performance status of digital reading or Internet reading or to develop a tool to evaluate digital literacy competency (Cho, 2012; Han & Chung, 2015; Kim & Choi, 2020; Kim et al., 2016). Digital reading skills or competencies explored by many studies can be enhanced by learning Internet reading strategies.

However, there is still little interest in teaching methods or educational activities that can be used in teaching and learning situations in South Korea.

Based on this awareness of the problem, the purpose of this study is to propose a teaching and learning model of Internet reciprocal teaching that can be applied in the educational field for elementary school students to cultivate digital reading ability and develop Internet reading strategies.

II. Reciprocal Teaching

In the 1970s, under the influence of cognitive psychology, reading began to be recognized as a problem-solving process (Olshavsky, 1977). Reading education researchers have begun to be interested in reading strategies that can be effectively used in the reading process (Afflerbach & Johnston, 1984). In addition, several studies were conducted to explore reading strategies used by readers using verbal reports and protocol analysis (Afflerbach, 2000; Kucan & Beck, 1997), and various methods for teaching and learning reading strategies were devised based on them. The most famous teaching and learning method among those whose effectiveness has been verified is the reciprocal teaching proposed by Palinscar and Brown (Palinscar & Brown, 1984). This teaching and learning method is based on Vygotsky's social learning theory, which states that teaching and learning takes place in the zone of proximal development between the real and potential development domains, where the assistance of experts such as teachers and more competent peers is effective.

The core of reciprocal teaching method is that the provision of appropriate scaffolds by experts in the zone of proximal development can ensure effective learning. Furthermore this help should be continued until the learner is able to carry it out on his/her own, gradually shifting responsibility until it is no longer needed by the learner. In

summary, the key concepts here are scaffolding and the gradual release of responsibility.

Scaffolding is a way in which experts assist novices in explaining and modeling cognitive processes, mainly through dialogue (Moore, 1988). In this case, the more explicit and specific the scaffolding is provided, the more helpful it is to learners.

Next, the gradual release of responsibility is for the successful transfer of cognitive strategies, and as the teaching and learning cycles are repeated, the role of the expert gradually decreases and the role of the student increases. In a teaching and learning situation, a beginner participates in a group activity with an expert before the student performs it on his/her own without assistance. Also, it usually begins with expert demonstrations.

According to Palinscar and Brown (1984), the gradual release of responsibility consists of the following sequence. Initially, experts do most of the cognitive tasks themselves, guiding students' activities. At first, students only watch, but at the beginner level, they participate in the actual activity with very little responsibility. Thereafter, as the student continues to be modeled by the expert, gaining experience and being able to perform the more complex aspects of the task, the responsibilities of the activity are gradually transferred from the expert to the student. After that, the student takes the initiative and the expert plays the role of helping the student to solve their problems. Finally, the expert hands over the main role to the student and plays the role of a cooperative and sympathetic spectator. At first, experts help students develop by playing roles such as models, critics, and interrogators, but later, students themselves can fulfill those roles through self-regulation and self-questioning.

Palinscar and Brown (1984) selected summarizing, questioning, clarifying, and predicting as reading strategies for developing reading comprehension skills in their reciprocal teaching model. Through summarizing and questioning, readers can focus their attention on key information in the text and check their own understanding of the

text content. Clarifying involves the reader's critical evaluation of the text's content (e.g., internal consistency, adequacy of argument, etc.), while predicting involves drawing and testing inferences text contents (e.g., interpretation, prediction, conclusion, etc.).

Reciprocal teaching methods may have several variations. There is *reciprocal teaching only* (RTO) method, in which the teacher's modeling and strategy teaching is conducted only during conversation, and *explicit teaching before reciprocal teaching* (ET-RT) method, in which explicit teaching that introduces reading strategies precedes reciprocal teaching (Rosenshine & Meister, 1994). Both methods are effective, but ET-RT is known to be more effective (Rosenshine & Meister, 1994).

Another characteristic of reciprocal teaching methods is the emphasis on encouraging students to provide instructional support to each other (Rosenshine & Meister, 1994). This is a great feature that distinguishes it from guided practice, where the teacher only introduces the skills to the students gradually and helps the students to perform. In actual studies, when group activities were conducted with peers, there was still a significant positive effect on reading achievement (Palinscar et al., 1987) and the satisfaction of teachers and students was also high (Elbaum et al., 1997; Harris & Pressley, 1991). Therefore, active participation of students in reciprocal teaching methods is important.

Usually, reciprocal teaching activities consist of an activity in which the teacher demonstrates and students observe and imitate the teacher's behavior, and an activity in which students perform independent activities through collaborative peer interaction. And through these two activities, reading strategy transfer would occurs while observing, imitating, acquiring, and developing the strategies of teachers and peers. Another interesting fact is that, although the transfer effect of peer activity alone was not as notable as previous studies involving teacher-student interaction, reading comprehension was encouraging for both tutors and tutees (Moore, 1988). However, it may not be ef-

fective for all students, for example, it may not work for students with poor decoding skills, or the tutor may provide inappropriate strategies or information. Reciprocal teaching methods are also known to be particularly effective for poor readers (Rosenshine & Meister, 1994). Poor reader means students who have not reached the minimum academic achievement standards in reading for various reasons, such as learning deficits, except for birth defects caused by physical defects requiring medical treatment, and who have the potential to improve sufficiently through educational treatment (Kim & Kang, 2010).

In South Korea, studies on reading strategy teaching and learning using reciprocal teaching methods have been rarely conducted (Kim & Kang, 2010; Kim et al., 2011; Lee & Lee, 2002).

Lee and Lee (2002) taught metacognitive reading comprehension strategies for 12-17 weeks through reciprocal teaching methods to middle school students with learning. Results showed that the reading comprehension level of middle school students with learning difficulties could be improved to the level of normal students, and that it was more effective to focus on one strategy each lesson than to teach several strategies at once.

Kim and Kang (2010) found a significant difference in reading fluency and reading comprehension between the experimental group and the control group as a result of conducting a 7-week reciprocal reading strategy teaching for students with poor reading in upper grades of elementary school. In particular, it was noteworthy that there was a significant improvement despite the fact that it was composed of peer group activities after the teacher's demonstration reflecting the realistic conditions of the classroom where the teacher could not continue to guide all students.

Kim and her colleagues (2011) implemented a reciprocal reading strategy teaching method 20 times for students with poor reading learning in upper grades of elementary school. As a result, it was found that there was an improvement in the students' factual, inferential, and applied comprehension, and the effect was maintained even

after the intervention. However, it is difficult to generalize the results since only three students were included.

III. Internet Reciprocal Teaching

There have been continuous attempts to extend traditional reciprocal teaching to digital and online spaces. This is regarded as an effort to reflect the natural change in literacy activities due to the change in the literacy environment caused by the development of new information and communication technologies such as the Internet and digital devices. Some researchers have coined the term *Internet reciprocal teaching* for these attempts (Henry et al., 2012; Leu et al., 2008). Internet reciprocal teaching is a concept that extends existing reciprocal teaching methods to digital and Internet environments (Leu et al., 2008).

Leu et al. (2008) drew a detailed picture of Internet reciprocal teaching in a digital environment through comparison with traditional reciprocal teaching (see Table 1). First, unlike reciprocal teaching method, which mainly consists of non-fiction and narrative texts, Internet reciprocal teaching method mainly deals with informational texts.

Table 1. Comparison of characteristics between reciprocal teaching and Internet reciprocal teaching

Reciprocal teaching	Internet reciprocal teaching
Traditional printed texts mainly narratives	Online informational texts
A common text	Unique texts
Small group	Small or bigger group
Modeling of reading strategies by a teacher	Modeling of reading strategies by teacher and students
Summarizing, predicting, questioning, clarifying	Information location, meaning making, source evaluation, self-monitoring
Collaboration and discussion of all students in each group is important.	

One of the main characteristics of Internet reciprocal teaching methods is that students construct their texts on the Internet. The reader visits various websites and webpages through hyperlinks to achieve the purpose of the task and encounters various texts. This is a feature that distinguishes reciprocal teaching methods from being taught as a common single text. Teachers and students can model their selection process by revealing them through thought and dictation.

Internet reciprocal teaching encourages students to share original strategies along with teachers' modeling of Internet reading strategies. As digital natives, today's students may have creative strategies in addition to teacher-prepared Internet reading strategies and can demonstrate those strategies to each other. Encouraging students to demonstrate strategies can encourage students to consider themselves experts and reinforce their active participation in activities.

In addition, Internet reciprocal teaching focuses on the four types of strategies emphasized in Internet reading (information location, meaning making, source evaluation, self-monitoring), although it also includes traditional reading strategies emphasized in traditional reciprocal teaching (summarizing, questioning, clarifying, and predicting).

Both reciprocal teaching and Internet reciprocal teaching have in common in that they gradually release the responsibility of modeling reading comprehension strategies. Internet reciprocal teaching method consists of three main steps (Colwell et al., 2013; Henry et al., 2012; Leu et al., 2008). In the first stage, basic skills and strategies for Internet use for all students are directly taught. In the second stage, group activities are held and students exchange Internet reading strategies with each other. Finally, in step 3, individual or collaborative online inquiry activities are conducted.

In Step 1, the teacher explicitly demonstrates Internet reading strategies and Internet/computer use skills to the student. In addition, the teacher introduces students to the procedure for conducting a group discussion. In the second half, students work in pairs to prac-

tice applying what they have learned, and move on to the next step when most students can demonstrate applying the skills and strategies.

In step 2, teachers and students introduce Internet reading strategies and demonstrate when and in what situations they are useful. Small groups of students are guided to discuss solutions to common problems while exchanging Internet reading strategies (e.g., information location, source evaluation, information synthesis, etc.) with each other. Lessons at this level are designed to minimize the teacher's speech and maximize the time students spend on the task. While the student demonstrates the strategy to another student or teacher, that student can develop more independence and the teacher or other peers can provide feedback.

In the third stage, students conduct independent online inquiry activities related to the curriculum. It can be performed individually or in small groups. A teacher plays the role of a facilitator. Students have the opportunity to select a research topic and use the Internet reading strategies learned in Step 2 to solve problems. At first, content can be shared and communicated within the classroom, but as it progresses, it can also communicate with students from other schools and countries remotely, non-face-to-face.

When exchanging strategies among students, explicit discussion of which strategies are appropriate to use in a particular online context is emphasized. This is because it promotes students' awareness of their own thinking processes through explicit discussion and the application of these strategies to new digital contexts.

Although few in South Korea, many studies have been conducted abroad. Colwell et al. (2013) applied Internet reciprocal teaching to seventh-grade science subjects. In the first 8 weeks of the 16-week period, researchers had time to demonstrate the Internet reading comprehension strategy for 20 minutes each. The results revealed that information location and source evaluation are difficult but important strategies.

Salyer (2015) used Internet reciprocal teaching for elementary and lower grades. Students first read the informational text on paper and activated the predicting, articulating, summarizing, and questioning strategies used in traditional reciprocal teaching. Next, the activities of searching and evaluating information on the Internet were performed. It was limited to a search engine called *KidRex* that emphasizes child-friendly websites through a teacher's guide, and new strategies such as information location and source evaluation were modeled. And when reading Internet information texts, students used the strategies of predicting, clarifying, summarizing, and asking questions used in offline texts. The value of this study is that this study designed an activity that leads from offline information text reading to online information text search and reading.

In Internet reciprocal teaching method, online inquiry is the main activity of students' Internet reading activities (Leu et al., 2008). Online inquiry activity is an activity with a series of procedures to explore a topic and generate results based on the research contents. Online inquiry activities can be classified according to the degree of autonomy of participants. This involves a gradual release of responsibility from the teacher to the student. Sekeres et al. (2014) divided into modeled inquiry, structured inquiry, guided inquiry, and open inquiry. Sekeres et al. (2014) conducted a structured inquiry in which the teacher guides the overall task performance targeting upper elementary school students. Teachers prepared topic-related reading materials in advance to activate background knowledge, and then students performed activities to search for information in pseudo-Internet space. They found that partners were more productive when they developed each other's ideas, actively applied reading strategies, and monitored task performance.

IV. An Example of a Teaching and Learning Model Using Internet Reciprocal Teaching

In this section, I provided an example of teaching and learning model using the Internet reciprocal teaching method that can be applied in the actual classroom. Internet reciprocal teaching activities can be effective teaching and learning activities in terms of developing reading comprehension strategies and learning content knowledge. Since a teacher and students utilize the Internet and digital media to teach and learn reading strategies during Internet reciprocal teaching, it is appropriate to target the upper grades of elementary school, where the teaching and learning of media reading begins. In this study, I explored the applicability of Internet reciprocal teaching activities by examining the connection with the Korean language curriculum for upper elementary school students, and constructed an example of Internet reciprocal teaching program spanning 20 sessions.

1. Connectivity with the Korean language curriculum

Internet reciprocal teaching is an activity that is directly related to developing critical and creative thinking skills and data and information utilization skills among the Korean language competencies specified in the 2015 revised Korean language curriculum.

> "Critical and creative thinking competency is the ability to interpret and evaluate various situations, materials, discourses, and texts from an independent perspective to give or create new and original meanings, and data and information utilization competency is the ability to collect, analyze, evaluate, and use them effectively to make decisions or solve problems. (Ministry of Education, 2015, p. 3)"

Cultivation of critical and creative thinking skills and data and information utilization skills means that readers have a high level of

reading comprehension skills. And for this, readers should be able to use reading comprehension strategies that analyze, synthesize, interpret, and evaluate the information in texts. In addition, in the draft of 2022 revised Korean language curriculum, the data and information utilization skill was strengthened into digital and media capabilities in consideration of the language environment that has changed in the era of digital multimedia (Ministry of Education, 2022). Since Internet reciprocal teaching is the teaching and learning activity aimed at developing students' Internet reading strategies, it is expected to play a very important role in cultivating the above competencies.

In detail, the achievement standards of the 2015 revised Korean language curriculum that can apply Internet reciprocal teaching with direct connections are as follows (Ministry of Education, 2015).

[6 Kor[1] 01-02] Suggest opinions, coordinate and discuss together.
[6 Kor 02-03] Read the text and identify the argument or theme the author wants to say.
[6 Kor 02-04] Read the text and judge the validity of the content and the appropriateness of expression.
[6 Kor 02-05] Understand and appropriately apply and read various reading methods according to media. Understand various reading methods according to media and read them by applying them appropriately.
[6 Kor 02-06] Check one's own reading habits and have an attitude of finding and reading texts on one's own.

Among them, the listening achievement standard [6 Kor 01-02] is closely related to the Internet reciprocal teaching method in that it is a cooperative activity in which opinions are presented and discussed together. In addition, the reading achievement standard [6 Kor 02-05] is related to the Internet reciprocal teaching method in that it is about the reading method in the Internet and digital media environment.

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1   Originally, the corresponding character was 국, which is an abbreviation for 국어 (Korean language subjects), so Kor was used as a translation of 국.

In addition, according to the draft of the 2022 Korean language curriculum, since the 'media' area is newly established in the common curriculum, more direct achievement standards that can be applied to the Internet reciprocal teaching are expected to be prepared. For example, among the achievement standards for the upper grades of elementary school, [4 Kor 06-01] and [6 Kor 06-01] are related to reading activities using the Internet, so the relevance with Internet reciprocal teaching is high.

> [4th Bureau 06-01] Explore various materials necessary for learning on the Internet and select them according to the purpose.
> [6th Bureau 06-01] Use information search tools to find media materials suitable for your purpose.
> [6 Bureau 06-02] Evaluate the reliability of news and various information media materials.

As can be seen from the above, Internet reciprocal teaching can be a teaching and learning method suitable for the goals and detailed achievement standards of the Korean language curriculum.

2. Internet reciprocal teaching model

The researcher judged that organizing at least 20 classes seemed reasonable according to the suggestions of previous studies (Rosenshine & Meister, 1994), and accordingly devised an Internet reciprocal teaching model consisting of 20 classes. Four stages were set: strategy acquisition, teacher demonstration, teaching support, and teaching support discontinuation, and the reading materials were selected based on the texts included in Korean textbooks for the 5th and 6th grades of elementary school. Details are shown in Table 2.

Table 2. Stages of the internet reciprocal teaching program and reading materials

Stage	Session	Reading materials
Strategy acquisition	1 – 2	Firefly, *Daegeum*
Teacher demonstration	3 – 9	*Seokbinggo*, Lynx, *Pyeongyeong*, *Yun Dong-ju*, *Hanji*, Internet Etiquette, *Onggi*
Teacher support	10 – 14	Tug-of-war, *Dolhareubang*, Phyllotaxis, Dung beetle, Extinction of dinosaurs
Teacher support discontinuation	15 – 20	Photosynthesis, Artificial intelligence, Fair trade, Silk road, *Yi Sun-shin*, *Uigwe*

First, the 1st and 2nd classes are the strategy acquisition stage. Here, the teacher provides students with an explanation of what each detailed strategy of Internet reading strategy is. There are reading materials assigned to each session, but much of the class is spent explaining Internet reading strategies rather than focusing on learning about the topic.

Next, sessions 3-9 are the teacher demonstration stage, in which the teacher demonstrates how Internet reading strategies are used when conducting a series of Internet inquiry activities, through think aloud and action sharing through computer screens. In sessions 3-6, one focus strategy is selected for each session, and students have time to intensively train on a specific strategy. And from the 7th to the 9th sessions, students have time to comprehensively train all Internet reading strategies.

Next, the 10th to 14th sessions are the teacher support stage. At this stage, the best student from each group takes turns performing the demonstration online inquiry activity that the teacher did. The teacher supports the student's activity by providing feedback such as praise, encouragement, and error correction.

The 15th and 20th sessions are the stage in which teacher support is discontinued, and students lead Internet inquiry activities. Students perform the activities independently using Internet reading comprehension strategies, and the teacher does not provide extra help. Stu-

dents help each other through dialogue and carry out activities on their own.

The clear difference between this model and the existing reciprocal teaching is that it conducts online inquiry activities that read multimodal texts in the Internet environment. Therefore, acquiring and developing Internet reading strategies in Internet reciprocal teaching becomes a major goal. Representative Internet reading comprehension strategies can be divided into information location, meaning making, source evaluation, and self-monitoring strategies (Cho et al., 2017).

Information location is a strategy that is newly emerging due to the characteristics of the Internet environment, such as generating/modifying keywords, looking at search result pages, and selecting links. Due to the nature of the Internet space, incomplete, distorted, or incorrect information is scattered everywhere, so a strategy to search for appropriate and reliable information suitable for the purpose in the flood of such information has become important. It mainly involves the search process of generating keywords on a search portal site or skimming the contents of a search result page to access potentially useful text. Immediate judgment is also important because in a short amount of time you need to determine if the information is relevant to the topic and is a reliable source.

Meaning making is a strategy that has a significant part in common with traditional reading comprehension strategies, such as reserve important information, reasoning, analyzing, and intertextually integrating. Because it is mainly related to the activity of constructing meaning in one or more texts, it is considered a very important strategy not only in traditional reading comprehension but also in Internet reading comprehension.

Source evaluation is another strategy that is emphasized a lot in the Internet environment, and includes relevance evaluation, reliability evaluation, and significance evaluation. It is divided into strategies that evaluate the relevance and reliability of sources with a limited

amount of information in the information search process and strate-
gies that evaluate the semantic relevance and reliability of information
through comparison and contrast of information between texts in text
reading (Damico & Baildon, 2007).

Self-monitoring is a metacognitive strategy and is an important
strategy that affects task performance and reading comprehension
strategy regulation. It includes monitoring the use of reading compre-
hension strategies such as information search and meaning construc-
tion processes, as well as checking overall task performance.

3. An example of lesson plan of Internet reciprocal teaching

Next, an example of an Internet reading strategy teaching and
learning process through an Internet reciprocal teaching method is
proposed. The 7th session was selected as an example and the topic
of this session was *Hanji* (Korean paper) (see Table 3). This session
is the turn to comprehensively train the Internet reading strategy
after proceeding with the individual focus study sessions for each
Internet reading strategy in the previous sessions. At this time, the
teacher's demonstration is the main part, and based on this, it also
includes activities to practice applying the strategies learned by the
students.

Table 3. An example of lesson plan of Internet reading strategy teaching using
Internet reciprocal teaching

Session	7	Topic	*Hanji*
Objectives	Comprehensive practice of all Internet reading strategies		
Procedure	Teaching/Learning activities		Note
Intro	• Talk about what students know about Hanji • List Internet reading strategies students have learned so far.		• Activating prior knowledge on topics and Internet reading strategies

	Teacher demonstration	• Demonstrate slowly over and over again.
	• Demonstrate generating/ changing search terms and navigating search results to find information • Demonstrate the process of selecting appropriate text • Demonstrate the process of reading selected text • Demonstrate the process of checking task performance	• Think aloud so that specific thought processes can be explicitly revealed to students.
Body	Students practice information location and source evaluation strategies • Generating search terms to search for *Hanji* • Evaluate relevance and reliability based on search result information • Choose a text and write the reason on the worksheet.	• Encourages student dialogue and collaboration. • Teachers provide help to students who are struggling.
	Practice meaning making and sources evaluation strategies by reading selected texts • Read the selected text and find the main idea • Summarizing content by paragraph • Ask questions and make inferences based on what you read • Selecting important and reliable information by comparing and contrasting information between texts • Linking and synthesizing content among texts	• The teacher judges the appropriateness of the text selected by the student and guides them to select another text if it is inappropriate.
Conclusion	• Students summarize what they have learned about *Hanji* • Students self-monitor how well they have mastered reading strategies	

In the introduction, the teacher activates students' background knowledge about reading topics and Internet reading strategies. First, students are asked to talk about what they know about '*Hanji*', a reading topic, and activate their background knowledge. In addition, background knowledge on Internet reading strategies is also activated by having students list the Internet reading strategies learned in previous classes and simply checking how confidently they can use them.

Next, body is largely divided into demonstration stage by the teacher and practice stage by the students. Thinking aloud activities are very important in the demonstration stage. Teachers should prac-

tice verbalizing the process of information location, source evaluation, and meaning making in as much detail as possible. In addition, students should also receive sufficient think aloud training. This is because think-aloud can actually hinder the reading comprehension process if it is not properly practiced and trained (Afflerbach, 2000). When demonstrating to other students through think aloud, the students who observe it can have a chance to imitate the strategy, and the students who demonstrate it also have the advantage of controlling their own thinking process.

When students engage in strategy training activities, they can be largely divided into activities to explore potential texts that are presumed to have necessary information and activities to compose meaning by reading texts. First of all, information location strategy and source evaluation strategy are mainly used in potential text search activity, and meaning making strategy and source evaluation strategy are mainly used in text reading activity. Teachers carefully monitor students' activities so that help can be provided in a timely manner when needed. In addition, teachers keep in mind that students can access all kinds of information in an open Internet environment, and take special care not to be exposed to inappropriate Internet information. And because it's important to build intimacy among group members, teachers should devise activities to ease awkwardness and create an atmosphere of cooperation.

Finally, in the conclusion, students organize what they have learned about the topic, '*Hanji*', and what they want to know more about, and conduct activities to check how familiar they are with Internet reading strategies.

Several methods can be used to evaluate student performance. First of all, it is possible to evaluate the cognitive process of students through thinking oral statements. Well-trained thought dictation can be a very effective way to observe the reading strategies students use and how they perform on tasks. Students mainly transcribe, code, and analyze recorded videos and thought dictation materials through

computer screen recording. However, in this case, there is a disadvantage that requires a lot of time and effort, such as recording and transcribing all the students' performances.

Next, teachers can use formative assessments to ask students to list Internet reading strategies they have learned, why they are important and when they can be used. In this case, it takes relatively little time and effort, so it can be used in the middle of the Internet reciprocal teaching method program.

In addition, by evaluating the outcome of performance, learning about content knowledge can be evaluated. Depending on the purpose, the form of the result can be various, such as summarizing what has been learned, descriptive writing, and creating Wikipedia.

V. Conclusion

This study proposed Internet reciprocal teaching as a teaching and learning method that can be effective not only for teaching and learning Internet reading comprehension strategies but also for content knowledge learning, and explored the possibility of applying it to Korean language class. As the beginning of that effort, Internet reciprocal teaching model for teaching Internet reading comprehension strategies was devised for 20 classes for upper elementary school students.

Internet reciprocal teaching proposed in this study proceeds in a gradual release of responsibility through four stages: strategy acquisition, teacher demonstration, teacher support, and teacher support discontinuation. While participating in a series of courses, students are encouraged to gradually change from a passive position of observing the teacher's demonstration to an active position where they can gradually take initiative and ultimately carry out Internet reading activities independently without the teacher's help. And in the process, students are expected to acquire and train Internet reading

strategies effectively.

As mentioned in many previous studies, Internet reciprocal teaching can be an effective teaching and learning tool, especially for students with low basic academic skills (Kim et al., 2011; Lee & Lee, 2022). The number of students who do not have basic academic ability in Korean by 2021 is close to 6% for second-year middle school students and 7.1% for second-year high school students (Ministry of Education, 2022). Since poor reading accounts for 60-70% of poor learning, Internet reciprocal teaching is expected to play a significant role in developing reading comprehension skills of students with poor reading skills.

Therefore, a follow-up study is needed to verify the effectiveness of the program designed in this study by applying it to the actual classroom. First, as mentioned above, a study can be conducted to verify the change in reading level of students with poor reading. In addition, follow-up studies are needed on the development of high-level reading comprehension or the effect on content knowledge learning of average-level students. In particular, some studies encouraged its application to content subjects such as social studies and science because Internet reciprocal teaching was effective in learning content knowledge (Colwell et al., 2013). Therefore, it will be also possible to conduct research to verify the effects of reading comprehension strategies and content knowledge in other content subjects.

REFERENCES

Afflerbach, P. (2000). Verbal reports and protocol analysis. In M. J. Kamil, P. B. Mosenthal, P. D. Pearson & R. Barr (Eds.), *Handbook of reading research* (Vol. 3, pp. 163-179). Mahwah, NJ: Erlbaum.

Afflerbach, P., & Johnston, P. (1984). On the use of verbal reports in reading research. *Journal of Reading Behavior*, *16*(4), 307-322. https://doi.org/10.1080/10862968409547524

Cho, B. Y. (2012). A review of research on adolescent readers' Internet reading strategy use. *Korean Language Education Research*, *44*, 483-515. https://doi.org/10.20880/kler.2012..44.483

Cho, B. Y., Woodward, L., Li, D., & Barlow, W. (2017). Examining adolescents' strategic processing during online reading with a question-generating task. *American Educational Research Journal*, *54*(4), 691-724. https://doi.org/10.3102/0002831217701694

Coiro, J., & Dobler, E. (2007). Exploring the online reading comprehension strategies used by sixth-grade skilled readers to search for and locate information on the Internet. *Reading Research Quarterly*, *42*(2), 214-257. https://doi.org/10.1598/rrq.42.2.2

Colwell, J., Hunt-Barron, S., & Reinking, D. (2013). Obstacles to developing digital literacy on the Internet in middle school science instruction. *Journal of Literacy Research*, *45*(3), 295-324. https://doi.org/10.1177/1086296x13493273

Damico, J., & Baildon, M. (2007). Examining ways readers engage with websites during think–aloud sessions. *Journal of Adolescent & Adult Literacy*, *51*(3), 254-263. https://doi.org/10.1598/jaal.51.3.5

Elbaum, B. E., Schumm, J. S., & Vaughn, S. (1997). Urban middle-elementary students' perceptions of grouping formats for reading instruction. *Elementary School Journal*, *97*, 475-500. https://doi.org/10.1086/461877

Han, H. J., & Chung, H. Y. (2015). An analysis of Internet text reading strategies used by sixth-grade elementary school students. *The Journal of Elementary Education*, *28*(1), 159-184.

Harris, K. R., & Pressley, M. (1991). The nature of cognitive strategy instruction: Interactive strategy construction. *Exceptional Children*, *59*, 392-403. https://doi.org/10.1177/001440299105700503

Henry, L. A., Castek, J., O'Byrne, W. I., & Zawilinski, L. (2012). Using peer collaboration to support online reading, writing, and communication: An empowerment model

for struggling readers. *Reading & Writing Quarterly*, *28*(3), 279‑306. https://doi.org/10.1080/10573569.2012.676431

Kim, J. H. (2020). A literature review on the effects of digital reading on reading comprehension, *Korean Literature & Language Education*, *33*, 155‑181.

Kim, J. Y., Seo, S. H., & Ok, H. J. (2016). Correlational analyses between the constructs of affective instruments for the investigation of affective features of digital literacy. *The Modern Education of Korean Language*, *107*, 37‑65. https://doi.org/10.15734/koed.‚107.201606.37

Kim, M. J., & Choi, G. A. (2020). An analysis on the effect of college students' reading and writing attitudes on their digital literacy attitude. *The Korean Journal of Literacy Research*, *11*(3), 131‑160. https://doi.org/10.37736/kjlr.2020.06.11.3.04

Kim, M. K. & Kang, O. R. (2010). The effect of collaborative strategic reading on reading fluency and comprehension of low‑achieving students in reading, *The Korea Journal of Learning Disabilities*, *7*(2), 97‑117.

Kim, Y. H., Kim, J. K., & Baek, E. J. (2011). Effects of reciprocal reading strategy teaching on reading comprehension of children with learning disabilities in reading, *The Korea Journal of Learning Disabilities*, *8*(2), 205‑224.

Kucan, L., & Beck, I. (1997). Thinking aloud and reading comprehension research: Inquiry, instruction, and social interaction. *Review of Educational Research*, *67*, 271‑299. https://doi.org/10.3102/00346543067003271

Lee, S. D. & Lee, K. H. (2002). The effects of reciprocal teaching activities of metacognitive reading strategies on reading comprehension and reading transfer in middle school students with underachievement, *Korean Journal of Educational Psychology*, *16*(4), 397‑422.

Lee, S. Y. (2010). Adolescent readers in the digital age and critical reading, *Journal of Reading Research*, *24*, 85‑107.

Lee, S. Y., & Kwon, E. E. (2014). Teachers' and students' perceptions on reading education in the era of SMART education. *Korean Language Education Research*, *49*(2), 35‑60. https://doi.org/10.20880/kler.2014.49.2.35

Leu, D. J., Coiro, J., Castek, J., Hartman, D. K., Henry, L. A., & Reinking, D. (2008). Research on instruction and assessment in the new literacies of online reading comprehension. *Comprehension Instruction: Research‑based best practices*, *2*, 321‑346.

Ministry of Education. (2015). *Korean language curriculum* (Ministry of Education Notification No. 2015‑74 [supplement 5]).

Ministry of Education. (2021). *Announcement of major points in the general discussion of the '2022 revised curriculum'*.

Ministry of Education. (2022). *Draft of 2022 revised Korean language curriculum*.

Moore, P. J. (1988). Reciprocal teaching and reading comprehension: A review. *Journal of Research in Reading*, *11*(1), 3-14. https://doi.org/10.1111/j.1467-9817.1988. tb00144.x

Ok, H. J. (2013). Digital text reading competence and digital text reading assessment: A Review and Discussion. *The Modern Education of Korean Language*, *94*, 83-108. https://doi.org/10.15734/koed.94.201303.83

Olshavsky, J. E. (1977). Reading as problem solving: An investigation of strategies. *Reading Research Quarterly*, *7*(4), 654-674.

Palincsar, A. S., Brown, A. L., & Martin, S. M. (1987). Peer interaction in reading comprehension instruction. *Educational Psychologist*, *22*(3-4), 231-253. https:// doi.org/10.1207/s15326985ep2203&4_3

Palinscar, A. S., & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction*, *1*(2), 117-175. https://doi.org/10.1207/s1532690xci0102_1

Pang, S. H. (2017). Changes in literacy and the direction of digital literacy instruction. *Korean Literature & Language Education*, *23*, 5-32. https://doi.org/10.24008/ klle.2017..23.001

Rosenshine, B., & Meister, C. (1994). Reciprocal teaching: A review of the research. *Review of Educational Research*, *64*(4), 479-530. https://doi. org/10.3102/00346543064004479

Salyer, D. (2015). Reading the web: Internet guided reading with young children. *The Reading Teacher*, *69*(1), 35-39.

Sekeres, D. C., Coiro, J., Castek, J., & Guzniczak, L. A. (2014). Wondering + online inquiry = learning. *Phi Delta Kappan*, *96*(3), 44-48. https://doi. org/10.1177/0031721714557452

ABSTRACT

A Study on Designing a Teaching and Learning Model Using Internet Reciprocal Teaching
: Focusing on the Upper Elementary School Class

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This study proposed Internet reciprocal teaching as an effective teaching and learning method for Internet reading strategy, and explored the possibility of applying it to Korean language class.

First, this study explored the concept of reciprocal teaching and Internet reciprocal teaching by reviewing previous studies. And based on the results, a program of Internet reciprocal teaching for Internet reading comprehension strategies was devised for upper elementary school students by reflecting the goals and achievement standards of the 2015 revised Korean language curriculum and the draft of the 2022 revised Korean language curriculum.

The Internet reciprocal teaching method proposed in this study was largely composed of four stages: strategy acquisition, teacher demonstration, teacher support, and teacher support discontinuation. Based on the results, educational implications and follow-up studies were suggested.

KEYWORDS Internet reciprocal teaching, Internet reading strategy, Digital reading