

**The Application of Metacognitive Note-taking Skills in
Reading Lessons to EFL College Students**

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Abstract. Metacognition has been considered as a key element for successful self-regulated learning. However, it seemed foreign to EFL college students. The present study examined students' changes in metacognitive strategy use in the two conditions: one condition with the intervention of metacognitive note-taking skills (MNT) and one with the conventional teaching approach. Fifty-four students were randomly assigned to an experimental group (n=27) and a control group (n=27). Each group separately took part in a seven-session instruction outside school time, and then took a pretest and a posttest measuring their awareness level of reading strategy use. Nineteen out of the experimental participants individually attended semi-structured interviews, exploring their perceptions of the effect of MNT use while reading. The tests' results demonstrated that there were significant differences in their recognition of reading strategy use in both conditions. The qualitative findings reported on positive perceptions of the MNT application during reading sessions. Also, the participants showed some difficulties in the application of MNT. This study potentially provides an effective and innovative educational tool to enhance students' academic learning and their lifelong learning as well.

Keywords: metacognitive strategies, metacognitive note-taking, self-questioning, self-regulation

Metacognition is one of the most important objectives of teacher training, student learning and curricula development in higher education (Alena et al., 2017). Metacognition is regarded as a key factor to foster critical thinking, problem-solving and decision-making (Zhao et al., 2014). Additionally, it is an interconnection with self-regulated learning, the most efficient predictor of academic performance of modern student generations (Pintrich & De Groot, 1990). A conceptual framework for self-regulated learning demonstrates metacognitive processes (planning, monitoring, controlling and reflecting) in four core areas of self-regulation: cognition, motivation, behavior, and context (Pintrich, 2004). Although the implementation of metacognitive strategies in curricula is challenging, ample studies have shown that the frequent use of these strategies enables students to actively set out their learning plans, monitor their behaviors, affections, skills and knowledge, and reflect their thinking (Boyle et al., 2014; Zhao et al., 2014). Self-reflection contributes to a meaning-making process which relates learners' own experiences to the next deeper understanding and experiences (Bruning et al., 2011).

This study is developed from the work of Phan (2019) on the MNT application in reading lessons to second-year English Majors at a College. However, this term is still new to non-English-major students at Binh Dinh College. In the present EFL context, students are heavily influenced by the grammar-translation method and

teacher-centered approach. EFL university students have the lowest use of reading meta-strategies such as planning, organizing, orchestrating strategies, monitoring, and evaluating (Thuy, 2018).

The study investigated changes in the students' awareness of metacognitive strategy use before and after two differently assigned instructions. It also discovered students' perceptions of the effects of MNT in reading practice. Hopefully, this study could improve students' metacognitive reading behaviors with great effort to plan, monitor their comprehension skills, seek help and reflect reading outcomes. They were expected to metacognitively see their development in meaning-making process through three reading stages. Furthermore, they could broaden extensive reading outside the class to support in-class reading lessons and apply MNT across different lessons and courses.

Literature Review

Note-Taking Strategies

Rahmani and Sadeghi (2011) present a difference between traditional notes and unconventional ones, graphic organizers or outlines. Conventional notes are the results of students' from-left-to-right full note-taking styles for a lecture or a speech, whereas the latter depict the organization of concepts in an abbreviated visual and verbal format. Unconventional note-taking may foster students to realize important ideas and then write them down into notes, essential for interactive reading process (Haghverdi et al., 2010). In addition, they assist students in relating their previous input to new concepts and presenting complex ideas in a creative format, using pictures, icons, numbers or key words (Buzan & Buzan, 2010). Unconventional notes are products of students' re-expressions, supporting concentration and retention (Haghverdi et al., 2010). Some beneficial unconventional notes include Cornell Method, Outlining Method, Mind-mapping, and Charting Method (Massey University, 2019).

Strategic Reading

Reading is a complex receptive process involving a reader's linguistic knowledge, world knowledge and knowledge of a reading topic (Nunan, 1999). Burchiellaro (2013) notes that a reader forms various representations for comprehension including the meaning of exact word, main ideas of the text and the thinking in the mind. Reading is an interactive process between the text and a reader's prior schemata (Nunan, 1999). To attain reading final outcomes, a reader uses numerous strategies to activate their low-level reading processes (phonological recognition, word awareness and vocabulary knowledge) and higher-level processes (inference-making, working memory, questioning, synthesizing, and background knowledge) (Chen et al., 2015). Strategic reading aims to acquire a three-level series of developments of vocabulary, comprehension, and critical thinking (Richards & Eckstut-Didier, 2011). Mokhtari and Reichard (2004) note good readers have high level of awareness of metacognitive strategies and strategy frequent use while reading.

Questioning Strategies

Questioning is an essential strategy in teaching and learning contexts, boosting learners' own meaning-making construction (Harvey & Goudvis, 2007). Self-questions can be generated by instructors or learners (Joseph et al., 2016). Teacher's questions used in the stages of reading lessons aim to increase students' interests, assess comprehension and develop higher-thinking skills. Meanwhile, learner-generated questions during reading process are likely to activate their background, self-monitor comprehension, and interact with the text. Harvey and Goudvis (2007) note that a proficient reader inclines towards employing strategic questions about authors, contents, events and ideas throughout reading process. Questioning a text promotes readers' expressions of uncertainties which drive them to explore plenty of possibilities (Janssen, 2002).

In addition, it can be more efficient to use higher-level questioning to boost learners' guessing, inferential and evaluative cognition (Ziyaeemehr, 2016). High-quality questions by teachers can stimulate learners to strategically self-question while they read (Williamson, 1996). Joseph et al. (2016) revealed a multitude of effective instructions to promote effective questioning strategies for a range of diverse learners' reading comprehension performances across various educational settings. For instance, strategies comprise ART (ask, read with alertness, tell), KWL (what I know, what I want to know, and what I learn), SQ3R (survey, question, read, recite, review), SRQ2R (survey, read, question, recite, and review), or TWA (think before reading, think while reading, and think after reading).

Empirical Studies

There has been little research on MNT in reading lessons. However, the previous findings on the benefits of explicit instructions of metacognitive reading strategies, self-questioning and note-taking can spur the pursuit of the present study. Mokhtari and Reichard (2004) stated that the first-language (US) and second-language (Moroccan) readers were both aware of the importance of frequent use of metacognitive strategies such as planning, adjusting reading speed, paraphrasing, note-taking, self-questioning, help-seeking and evaluating when encountering problems. The instructions of metacognitive reading strategies were proved to boost students' achievements in vocabulary and reading comprehension (Djudin, 2017). The primary students in Muara Brunei District being exposed to the six-lesson treatment of metacognitive strategies to read expository lessons attained the higher mean of comprehension performance than the control group using conventional reading approach (Othman et al., 2014). Similarly, Caliskan and Sunbul (2011) found that the intervention of metacognitive reading strategies enabled experimental students to control their reading process and gain higher consequences in academic achievement. In particular, they reported that they used metacognitive strategies for further practice outside the classroom. The participants became more motivated and confident in utilizing metacognitive strategies after some interventions (Zhao et al., 2014).

Previous studies cited in the article review by Joseph et al. (2016) reported mixed results on reading comprehension after the instructions of strategies to develop self-questioning abilities of K-12 students. However, positive findings might suggest that the self-questioning application could enhance reading comprehension performance across diverse students and across diverse academic settings. Ninety students in Adult Education Programs were randomly assigned to three experimental groups and two control ones (Rich & Shepherd, 1993). Experimental participants were instructed self-questioning and summarizing strategies (total condition), self-questioning strategies only, or summarizing ones only. Meanwhile, in control conditions, participants also took experimental materials without instruction and tests, or tests only.

During six sessions, each lasting 45 minutes, experimental students were instructed assigned instructional methods. On the first measure, the participants in total condition and the one with self-questioning instruction outperformed the two control ones. In the next free recall task, experiment participants with self-questioning and summarizing instruction were significantly better than the control groups. However, the subjects in total condition did not considerably outperform the other experimental conditions. Furthermore, 72 nine-grade students studying science were randomly arranged to three conditions: questioning-training with the provisions of prompts (G1), question-generation without prompts (G2), and no question employment (Garcia et al., 2014). The study found that G1 gained the highest means, and enhanced students' metacognitive awareness, self-regulation, and learning control in Science.

Ample studies investigated the effects of note-taking strategies across various learning contexts. Despite inconsistent findings of the effects of graphic organizers (GOs) on comprehension, the majority of researchers acknowledged that GOs could benefit classroom learning in one way or the other (Manoli & Papadopoulou, 2012). Note-taking strategies played an effective tool for students to cognitively remember concepts and recall knowledge (Kiewra, 1985; Piolate et al., 2005). Significant changes were seen in the use of strategy categories such as analysis, inference, evaluation, inductive reasoning and deductive reasoning before and after the implementation of concept mapping on participants (Cyr & All, 2009). GOs' effects at primary school level and graduate education were higher than figures for other educational levels such as high school education, undergraduate education and secondary school education accordingly (Kansizoglu, 2017). Thirty-five English-major subjects at a College were instructed metacognitive note-taking strategies in reading lessons (Phan, 2019). After 8-week intervention, the majority of subjects showed their awareness of the use metacognitive reading strategies in reading practice. Nearly half of participants acknowledged they became more motivated, thoughtful and communicative.

Methods

Participants and Setting

Fifty-four students, with 47 females, were invited from the Tourism Management Faculty at Binh Dinh College at the mean age of 18.42. According to their official course, they take four English units: two units of General English in the first two semesters, and English for Tourism in the following two semesters. These students were heavily affected by traditional approaches of learning reading skills, that is, learning vocabulary by rote, answering textbook-designed comprehension questions or translating an English text into Vietnamese. Moreover, the forms of reading tests they received were mainly based on content-based questions and vocabulary. It seemed to be difficult to take advantage of reading passages to promote other high-thinking levels.

With the approval of College Institutional Board and the students' consent, the students were randomly assigned to two groups: the experimental condition (n=27), and the control one (n= 27). Each group separately took part in the seven 75-minute sessions after their school time. They were offered small gifts to attend the study. The experimental participants were guided to apply MNT while the control ones were taken the conventional teaching approach without MNT. The researcher designed the lesson plans for sessions in both conditions and then directly instructed the students in the seven-lesson instructions.

Procedures

The experimental classroom included seven 75-minute sessions. In Session One, the instructor introduced the effective forms of note-taking and guided the students how to take-note ideas. They were encouraged to employ graphic organizers with key words, symbols, pictures or icons to emphasize comprehension. In Session Two and Three, the instructor presented some useful reading strategies (e.g., scanning, skimming, using dictionary, guessing, and inferring). The teacher explicitly directed the students to apply metacognitive reading strategies in each stage of reading practice such as setting up objectives based on some important cues, for example, headings, key words, charts or photos. They were instructed methods of learning control, for example, improving their attention, self-questioning for clarification, keeping on their objectives, paraphrasing, visualizing information, and evaluating their comprehension or strategies.

In the next two sessions, they were provided a guide for applying MNT (Appendix). This MNT model was adapted from the version designed by Faculty Innovate (2012). It supported a learner to take note their ideas through pre-reading, while-reading and post-reading stage. It contained heuristic questions which guided learners to formulate, regulate and present their cognition on paper in each reading stage. In Session 6 and 7, the teacher engaged the participants in freely applying the MNT model individually or in groups. Reading passages were taken from the book of Falla and Davies (2012). The students were encouraged to keep their own note-taking and then share them in groups for learning one another's thinking,

evaluating comprehension performance and advancing their knowledge (Chiu & Kuo, 2009).

The control group took the same reading materials as the experimental without the instruction of MNT in the independent condition. Reading activities were already designed in the book of Falla and Davies (2012). A consecutive mixed methods approach was applied in this study. Both groups took a pretest and post-test examining the levels of metacognitive strategy awareness before and after the assigned instructions. After that, nineteen experimental participants voluntarily took turn participating in face-to-face interviews which help respondents to provide elaborate answers or ask for clarification for interview questions (Lavrakas, 2008).

Instrument

All of the control and experimental participants filled out an anonymous questionnaire package given before and after the separately assigned instructions. This questionnaire measuring the recognition of metacognitive reading strategies was adapted from the Survey of Awareness of Reading Strategies (SARS) (Mokhtari & Reichard, 2004). It included 30 items concerning three main domains: Global Strategies, Problem-solving Strategies and Support Strategies. The SARS's items involved numerous essential reading strategies, and Global strategies are specifically in strong relation to metacognitive strategies (Mokhtari & Sheorey, 2002). The SARS used a 5-point Likert scale of 1-5: 1 (never), 2 (sometimes), 3 (often), 4 (usually) to 5 (always) (Mokhtari & Reichard, 2004). The package was stated as a reliable instrument with the high internal consistency reliability coefficient: 0.83 for Global Strategies; 0.81 for Problem-solving Strategies; 0.80 for Support Strategies (Mokhtari & Sheorey, 2002). The SARS package was claimed to be clear and understandable for ELF students (Vo et al., 2014).

Qualitative collection procedure was conducted after the posttest to ensure that quantitative data were not impacted by interviewees. The researcher separately conducted 20-minute semi-structured interviews (Figure 1) and recorded each respondent's responses. Interviews aimed to elaborate quantitative findings and explore students' perceptions of MNT effects on different learning aspects.

Figure 1

Interview Questions

- 1 What learning benefits did you get from the application of MNT?
- 2 What difficulties did you encounter when applying MNT?
- 3 To what extent did MNT application involve you in collaborative tasks?
- 4 Are MNT models are useful for other classes?

Data analysis

Loaded into SPSS Statistics Package, all tests' quantitative data from two conditions were kept secret to all participants. The descriptive statistics were implemented to obtain means and standard deviations, and then the Paired-Samples T-test was to determine whether there were any significant divergences in the metacognitive strategy awareness between the two tests' scores in both conditions.

Qualitative analysis was based on "coding procedures" described by Creswell (2014, pp. 267–269). Firstly, the researcher examined the data to divide the text into information segments. Secondly, the segments were labeled with initial codes, which then continued to be coded to a small number of themes.

Results

Table 1

Differences in participants' use of reading strategies by experimental group and control group

Strategy	Experimental Group (n=27)				Control group (n=27)			
	M	SD	-M	Sig	M	SD	-M	Sig
Glob1	Pretest 1.55	0.58	-1.3	0.000	Pretest 1.63	0.49	-0.96	0.000
	Posttest 2.85	0.72			Posttest 2.59	0.50		
Glob2	Pretest 1.92	0.38	-1.45	0.000	Pretest 1.81	0.55	-1.04	0.000
	Posttest 3.37	0.49			Posttest 2.85	0.60		
Glob3	Pretest 2.41	0.5	-0.89	0.000	Pretest 2.41	0.50	-0.51	0.000
	Posttest 3.30	0.46			Posttest 2.92	0.47		
Glob4	Pretest 1.63	0.49	-1.22	0.000	Pretest 1.85	0.60	-0.33	0.001
	Posttest 2.85	0.71			Posttest 2.18	0.39		
Glob5	Pretest 2.22	0.42	-0.7	0.000	Pretest 2.22	0.42	-0.15	0.043
	Posttest 2.92	0.47			Posttest 2.37	0.49		

Strategy	Experimental Group (n=27)				Control group (n=27)			
	M	SD	-M	Sig	M	SD	-M	Sig
Glob6	Pretest 2.48	0.51	-0.63	0.000	Pretest 2.44	0.50	-0.6	0.000
	Posttest 3.11	0.32			Posttest 3.04	0.44		
Glob7	Pretest 2.44	0.51	-0.63	0.000	Pretest 2.33	0.48	-0.34	0.001
	Posttest 3.07	0.47			Posttest 2.67	0.48		
Glob8	Pretest 1.92	0.38	-1.19	0.000	Pretest 2.03	0.52	-0.6	0.000
	Posttest 3.11	0.32			Posttest 2.63	0.49		
Glob9	Pretest 2.37	0.67	-0.74	0.000	Pretest 2.33	0.55	-0.15	0.161
	Posttest 3.11	0.32			Posttest 2.48	0.51		
Glob10	Pretest 1.78	0.42	-1.48	0.000	Pretest 1.81	0.48	-0.26	0.006
	Posttest 3.26	0.45			Posttest 2.07	0.38		
Glob11	Pretest 1.78	0.42	-1.15	0.000	Pretest 1.74	0.45	-0.26	0.006
	Posttest 2.93	0.67			Posttest 2.00	0.48		
Glob12	Pretest 2.15	0.46	-1.15	0.000	Pretest 2.18	0.56	-0.67	0.000
	Posttest 3.30	0.46			Posttest 2.85	0.76		
Glob13	Pretest 2.15	0.46	-0.48	0.001	Pretest 2.15	0.36	-0.18	0.022
	Posttest 2.63	0.63			Posttest 2.33	0.48		
Prob1	Pretest 2.93	0.38	-0.33	0.000	Pretest 3.04	0.59	-0.22	0.011
	Posttest 3.26	0.44			Posttest 3.26	0.52		

Strategy	Experimental Group (n=27)				Control group (n=27)			
	M	SD	-M	Sig	M	SD	-M	Sig
Prob2	Pretest 2.63	0.56	-0.59	0.000	Pretest 2.74	0.65	-0.3	0.003
	Posttest 3.22	0.5			Posttest 3.04	0.52		
Prob3	Pretest 2.93	0.47	-0.37	0.001	Pretest 2.81	0.68	-0.15	0.103
	Posttest 3.30	0.67			Posttest 2.96	0.65		
Prob4	Pretest 2.67	0.62	-0.59	0.001	Pretest 2.70	0.61	-0.15	0.043
	Posttest 3.26	0.52			Posttest 2.85	0.6		
Prob5	Pretest 2.41	0.57	-0.74	0.000	Pretest 2.52	0.51	-0.26	0.006
	Posttest 3.15	0.6			Posttest 2.78	0.58		
Prob6	Pretest 2.07	0.47	-1.26	0.000	Pretest 2.30	0.46	-0.33	0.004
	Posttest 3.33	0.48			Posttest 2.63	0.74		
Prob7	Pretest 2.74	0.71	-0.63	0.000	Pretest 2.70	0.61	-0.11	0.265
	Posttest 3.37	0.56			Posttest 2.81	0.62		
Prob8	Pretest 3.00	0.55	-0.52	0.001	Pretest 2.85	0.53	-0.11	0.185
	Posttest 3.52	0.58			Posttest 2.96	0.44		
Sup1	Pretest 2.15	0.36	-1.44	0.000	Pretest 2.04	0.34	-0.03	0.713
	Posttest 3.59	0.57			Posttest 2.07	0.38		
Sup2	Pretest 2.96	0.64	-0.11	0.083	Pretest 2.48	0.64	-0.19	0.022
	Posttest 3.07	0.73			Posttest 2.67	0.62		

Strategy	Experimental Group (n=27)				Control group (n=27)			
	M	SD	-M	Sig	M	SD	-M	Sig
Sup3	Pretest 2.59	0.5	-0.37	0.002	Pretest 2.56	0.64	-0.11	0.083
	Posttest 2.96	0.44			Posttest 2.67	0.62		
Sup4	Pretest 2.26	0.45	-1.07	0.000	Pretest 2.33	0.62	-0.52	0.000
	Posttest 3.33	0.68			Posttest 2.85	0.66		
Sup5	Pretest 2.44	0.64	-0.81	0.000	Pretest 2.56	0.64	-0.48	0.001
	Posttest 3.26	0.59			Posttest 3.04	0.58		
Sup6	Pretest 1.78	0.42	-1.26	0.000	Pretest 1.93	0.47	-0.37	0.002
	Posttest 3.04	0.52			Posttest 2.30	0.54		
Sup7	Pretest 1.74	0.52	-1.00	0.000	Pretest 1.81	0.68	-0.22	0.011
	Posttest 2.74	0.52			Posttest 2.04	0.59		
Sup8	Pretest 3.22	0.64	-0.41	0.001	Pretest 3.07	0.67	-0.19	0.022
	Posttest 3.63	0.63			Posttest 3.26	0.65		
Sup9	Pretest 2.07	0.38	-1.23	0.000	Pretest 2.30	0.54	-0.18	0.022
	Posttest 3.30	0.46			Posttest 2.48	0.57		
Overall	Pretest 2.31	0.45	-0.86	0.000	Pretest 2.32	0.39	-0.34	0.000
	Posttest 3.17	0.24			Posttest 2.66	0.36		

Note: Pretest to posttest change is significant at $p \leq 0.05$.

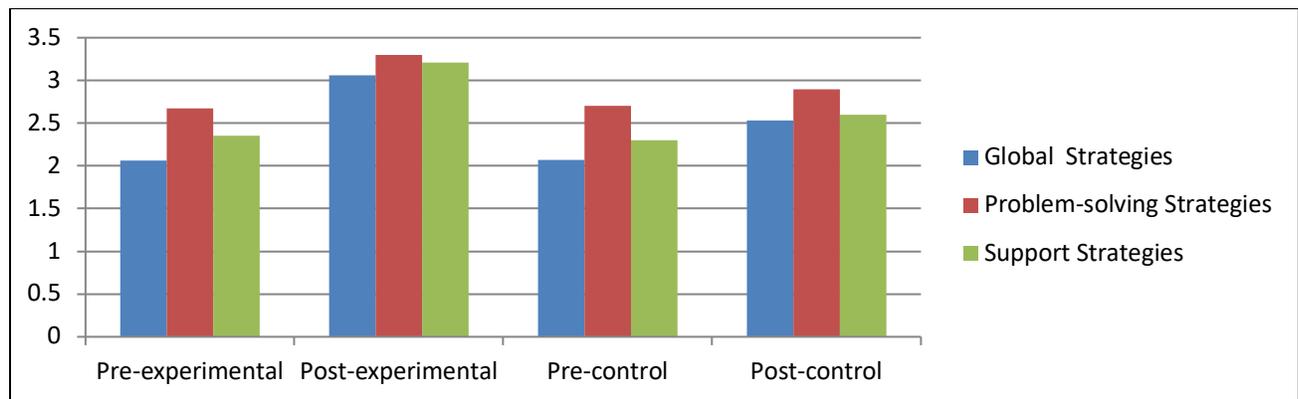
Table 1 indicates that there were, overall, prominent divergences in the use of three strategy domains before and after the interventions in both conditions. For

the experimental condition, there were significant divergences in 29 items ($p \leq 0.05$) apart from Sup2 (reading aloud when meeting difficulties) between two tests. In the posttest, the mean result of reading strategy awareness ranged from a low of 2.63 to a high of 3.63. Fifty percent of items were in a high usage with a mean of 3.25 or higher, whereas the rest fell in the medium range between 2.5 and 3.24. The posttest saw a dramatic rise in critically evaluating what you read (Glob10, $-M = -1.48$), using prior knowledge (Glob2, $-M = -1.45$) and taking notes while reading (Sup1, $-M = -1.44$). The other categories including setting purposes for reading (Glob1), checking how text content fits purposes (Glob4), visualizing information (Prob6), using reference materials (Sup6) and asking questions (Sup9) also had a considerable mean gap about 1.22 to 1.30. Six categories with small increases in mean values involved Sup2, Sup3 (summarizing text information), (Sup8) going back and forth in text, (Prob1) reading slowly and carefully, (Prob3) adjusting reading rate and (Glob13) confirming predictions.

Between two tests in the control condition, there were significant differences in all but six categories, that is, Glob9 (using typographic aids), Prob7 (re-reading for better understanding), Sup3, Sup1, Prob3 and Prob8 guessing Vocabulary. Considerable mean rises were in the use of Glob2 ($-M = -1.04$) and Glob1 ($-M = -0.96$). Prob1 and Sup8 fell in high scores with a mean of just over 3.26. There were 18 items in medium usage compared to ten others in the low usage, namely, Glob4, Glob5 (skimming), Glob9, Glob10, Glob11 (resolving conflicting information), Glob13, Sup1, Sup6, Sup7 (paraphrasing) and Sup9.

Figure 2

Means of three strategy domains by experimental group and control group



As can be seen from the figure 2, the mean value of problem-solving subscale in the pretest was likely to be at the highest in both conditions (around 2.70), followed by the figure for Support domain (approximately 2.30). Despite rises in the posttest mean values regardless of different conditions, the experimental participants showed a significantly greater growth of awareness of three strategy domains than the counterpart. The Problem-solving Strategies still remained highest in the posttest with 3.30 in the experimental group and 2.80 in the control one. The mean results of two subscales of Global and Support Strategies of the

experimental group were in the range of 3.10 to 3.25 compared to those of the control group around 2.55.

The participants' positive responses in the interviews were coded into three broad themes: motivation, skill developments and interaction desire.

The majority of respondents showed a high sense of self-efficacy, intrinsic motivation, extrinsic motivation and task value, essential elements of motivation scales (Pintrich et al., 1991). One student stated, "I'm confident to show my opinions in this class." Another said, "I feel pleasant to present ideas on paper in a creative way". They acknowledged they became motivated to freely broaden their knowledge and try to thoroughly understand concepts' relationships. Extrinsic motivation features were stated, "With MNT I can improve my reading results and other skills like speaking and writing" or "deal with long discussions". Five participants valued they would apply MNT across different English lessons and subjects. One reported, "MNT is a useful learning tool", "applicable" or "is used in other classes".

Regarding skill developments, sixteen respondents presented their significant increases in strategic reading. Particularly, one stated, "firing-up questions stimulate me to set purposes before reading, summarize and evaluate their outcomes." Also, they showed they were more willing to make self-questions. A student said, "self-questioning reminds me of vocabulary and interesting ideas", and "helps me actively find and check more information". Twelve students expressed that the choice of effective note-taking forms such as Mindmapping or Cornell methods could encourage them to keep or recall important concepts in a logically organized way. Such notes allowed them to add more ideas after discussion or further reading. MNT aided them in the meaning-making progress (n=7). One told, "I can explain a concept with my prior knowledge." Another showed, "I can orally present a given topic with the aid of notes.", or "compare given information and my prior knowledge".

For the third theme, ten students reported MNT engaged them to share their ideas and discuss for more clarification. One revealed, "a well-prepared note-taking helps me show my knowledge in a smart way." To have 'interesting notes' they are involved in asking the teacher or friends for clarification and using dictionaries or the Internet for help. A participant expressed, "my questions can be clarified by my peers or the teacher.", or "I can understand my peers' insights or their problems." Besides, respondents expressed some difficulties in using MNT. Their creativity in note-taking was limited by the small note materials. They reported note-taking was time-consuming in designing a note-taking when discussing in groups. They lack vocabulary to re-express opinions while note-taking. Additionally, some noted, "it was difficult to follow ideas in a complicated note."

Discussion

The pretest data from this study, all just under 2.70, were inconsistent with the results by Mokhtari and Reichard (2004) in which mean scores of the three main

subscales used by Moroccan students were between 3.40 and 3.60 in SARS packet. It is cited that the non-native participants in Morocco were rated as skilled readers. It also suggests that reading strategies may be unpopular with Vietnamese EFL students. The pretest data also implies that Problem-solving Strategies and Support Strategies were more likely to be common than the Global Strategies (metacognitive strategies) to EFL students. The results were in line with those by Thuy (2018) in which metacognitive strategies were lower than other reading strategies relating to Cognition, Affection and Sociocultural-interaction.

Ten Global items witnessed a rise of over 0.70 in the experiment condition while only two Global categories (Glob1 and Glob2) increased by over 0.70 in another group. Besides, the overall post-experimental means of three strategy domains were in the frequency range 'often' – 'nearly usually'. However, the counterpart's figures were under 'often' level. This might be explained that MNT explicitly drew students' attention to metacognitive skills, which in turn activate Problem-solving and Support Strategies to gain more insights. These findings supported those in previous studies that explicit instruction of strategic reading, note-taking and self-questioning could improve students' metacognitive awareness (Caliskan & Sunbul, 2011; Harvey & Goudvis, 2007; Murakami, 2014; Williamson, 1996).

However, the existence of fifteen items in the medium mean scores after MNT instruction imply that time allotment for the intervention seemed insufficient for participants' awareness and skill developments. Manoli and Papadopoulou (2012) also pointed that longer interventions would be an important variable to master expected strategies. Despite the conventional instruction, smaller increases in the post-control means of three domains might be explained that students were introduced interesting reading texts providing cultural information (Falla & Davies, 2012). Attractive designs with pictures and lead-in questions could stimulate students to guess or relate their knowledge to texts. Vocabulary tasks and comprehension questions elicited students' concentration. They also had extra listening and speaking tasks based on a text's topic.

The qualitative results showed positive perceptions of the use of MNT in reading practice. These findings were expected to strengthen quantitative results when students acknowledged the influence of MNT on different skill developments. Particularly, students reported MNT improved their use of Global Strategies like planning, monitoring, evaluating during reading lessons. Students stated how they solved reading problems with self-questioning, note-taking, support-seeking. They explained MNT brought about various benefits beyond reading skills, namely, the improvements in vocabulary, social knowledge, writing and presentation. It is worth noting that qualitative reports may widen MNT's effectiveness on other essential learning elements: motivation and collaborative learning. Students with high sense of motivation show more engagement, commitment, curiosity and confidence while peer-learning helps widen their perspectives (Pintrich et al., 1991). In essence, prior studies showed there were correlations between metacognitive skills and motivation (Oguz & Ataseven, 2016; Phan, 2019). Perceptions of the effect of MNT on interaction desire, moreover, contribute a promising solution to the improvement of social skills in educational contexts.

Limitations

There were some limitations in the study. First, the small number sampled from a single faculty of a College can limit the study's generalizability. The majority of female participants also affect the applicability of the study to all population. Next, the researcher directly instructed participants in two conditions may subjectively impact the participants' perceptions of the use of MNT. Additionally, the short-term interventions and practice were likely to reach surfaced conclusions.

Recommendations

Based on the findings, the researcher suggests some recommendations.

The instructions of MNT should be regularly incorporated in the syllabus of reading lessons to enhance students' awareness of metacognitive reading strategy use properly and efficiently. Teachers can provide authentic materials to maximize effects of MNT in reading practice. MNT should be combined with textbook tasks to foster learning achievement to the fullest. In particular, students can have chance to use low-thinking strategies (e.g., scanning, guessing words, remembering, summarizing or note-taking) to high-thinking strategies (e.g., setting purposes, analyzing, relating prior knowledge, asking questions or evaluating).

Teachers should stimulate students' creative note-taking and question-making to facilitate their understanding. Students are encouraged to work in groups and find help for their clarifications. Teachers give immediate facilitation in order to help students avoid wasting their time in designing notes.

The time length of intervention should be longer for students' practice and skill acquisition. Further research is needed to measure MNT effects on different aspects of self-regulated learning. Comprehension tests and class observation should also be applied in the future study for deeper analysis on the effect of MNT use. There should be a pilot study to measure the feasibility of SARS in Vietnamese language version. There need further studies with a large number of participants across diverse disciplines and English proficiency.

Conclusion

After the seven-session instruction of MNT, the experimental participants showed significant changes in their awareness of metacognitive reading strategies. Through the interviews, respondents claimed their growth of motivation, learning skills and interaction with the aid of MNT. The findings from the current study stated that the raise of self-regulation and metacognition awareness can be able to be teachable and transferable. In other words, this study was a promising predictor for the popularity of MNT application in educational contexts. However, to determine the success of MNT use, instructors should have deliberate plans of instruction and provide students with enough practice time. The large number of respondents and various research instruments should be considered to improve the research scale. It is proposed that metacognitive strategy instruction should be integrated into

syllabus design across different courses and English proficiency. The findings from the study can offer instructors at higher education systems an effective and innovative teaching tool to raise students' awareness of strategy use in the reading lessons in particular and diverse skills or courses in general.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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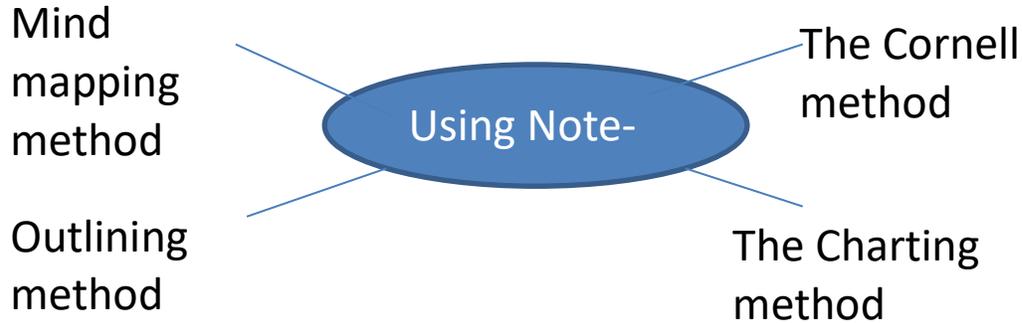
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Appendix

A Guide Of Metacognitive Note-Taking Skills

Beginning of Reading Class - Planning

Date: _____ Course: _____
 What do I already know about this topic?
 How does it relate to something I already know about?
 What questions do I already have about this topic?



Middle of Reading Class – Monitor Learning

Monitoring Learning	Notes
<p>Create a left-hand column for noting key items of the text’s content or thoughts that arise. Present ideas as headings.</p> <ul style="list-style-type: none"> - Insights and “ah-huh!” moments. - Self-questions. - Responses - Strategies - Summary of main ideas - Follow-up items 	<p>Use on-the-right space for taking notes concerning the headings which are being presented in the left-hand column. Possibly use a variety of note-taking</p> <ul style="list-style-type: none"> - If you suddenly realize that you understand something, make sure to write those thoughts down. You may also include feelings, other comments and make a connection between the current materials and your prior knowledge. - Write questions. Questions are the best evidence showing that you are actually thinking about the material. - Note your responses to the questions you have. -What strategies you have used. - Note main ideas - Pay attention to what is happening inside your head (metacognition).

End of Class – Reflect and Evaluate Learning

At the bottom of your notes for each class, draw a line below your notes to write a summary. Below are some guiding questions to assist with writing. The response can be presented in a variety of note-taking

1. What were the most important ideas of today's class session?
2. What did I read today that is in conflict with my prior understanding?
3. How did the ideas of today's class session relate to previous class sessions?
4. What do I need to actively go and do now to clarify my confusing questions?
5. What did I find most interesting about class today?