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Exploring Task-completion Processes in L2 Reading Assessments: Multiple-choice vs. Short-answer Questions

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Abstract

This study was to compare the processes that second language learners implemented when completing reading tasks in a multiple-choice question format (MCQ) with those in a short-answer question format (SAQ). Sixteen nonnative English-speaking students from a large Midwestern college in the United States were invited to complete MCQ and SAQ English reading tasks and then to engage in retrospective verbal reporting and semi-structured interviews. Results showed that when processing information in the source texts, students constructed text and situation models to (a) obtain a general understanding of the texts and (b) deepen their textual understanding. As students answered the comprehension questions, their question-answering processes were informed by the test format itself. Moreover, students employed different styles of interactive processing depending on whether they were completing MCQ or SAQ tasks. The implications of the study encourage test developers and teachers to implement a variety of test formats when possible.

Keywords*:* test format, multiple-choice questions, short-answer questions, L2 reading assessment, reading processes, interactive processes, writing about reading

The two most common test formats used to assess second language (L2) reading proficiency are multiple-choice questions (MCQs) and short-answer questions (SAQs). In the MCQ format, test takers are given comprehension questions that provide prescribed options, from which the best answer should be chosen. Rather than offering prescribed options, the SAQ format requires test takers to answer comprehension questions by constructing two to three sentences based on their understanding of the reading passage. MCQs are usually preferred over SAQs because they require less rating time, have no issue regarding interrater reliability, and offer extensive content coverage (Plakans & Gebril, 2015; Qian & Pan, 2013). Because of the popularity of MCQs, researchers have paid more attention to investigating the effects of MCQs than of SAQs. The present study was thus designed with the purpose of comparing the completion processes elicited by MCQ and SAQ test-response formats. Identifying how MCQs and SAQs differ in terms of the completion process has valuable implications, not only for L2 teaching but also for large-scale and classroom assessments.

Review of Relevant Research

Completion processes in MCQ and SAQ reading tasks

A number of researchers have studied the completion process typical of MCQ reading tasks alone. In a study of 28 English learners in Denmark, Dollerup et al. (1982) interviewed learners about their question-answering processes and found that MCQ reading tasks generally involve two types of reading processes: macro- (obtaining the main idea of a text via a quick reading) and micro- (decoding specific information) levels. To gain a deeper insight into how test takers complete MCQ tasks, Anderson et al. (1991) used verbal reporting to explore strategies implemented by 28 English as a second language (ESL) students when completing MCQ reading tasks. The researchers classified the participants' strategies into five categories: supervising strategies (e.g., recognizing a loss of concentration), support strategies (e.g., skipping unknown words), paraphrase strategies (e.g., translating into first language), test-taking strategies (e.g., random guessing), and strategies for establishing coherence in the text (e.g., using contextual clues to interpret a word or phrase). Among these categories, the test-taking strategy was the most expansive in that it incorporated a wide range of strategies used more frequently than those of other categories. This was especially the case when students encountered challenging reading questions.

Building on previous studies, Rupp et al. (2006) not only studied strategy use in MCQ tasks but also investigated students' attitudes toward MCQ tasks. Rupp et al. (2006) likewise found that the strategies students used could be categorized into macro- and micro-levels (Dollerup et al., 1982). Moreover, even though the MCQ tasks were not timed, students nevertheless tended to approach them as they would with time-constrained problem-solving tasks. For example, students would often first assess the overall difficulty of the text to decide whether they should read the text first and then answer the questions or read the questions first and then look for key words and information in the text. Similarly, Cohen and Upton (2007), in studying the behavior of ESL students completing an untimed MCQ reading task, found that students classified the task itself as a problem-solving task because they focused on answering each question "correctly" rather than gaining knowledge from it. Based on students' introspective verbal reports, Cohen and Upton discovered that test-wiseness strategies were frequently implemented to help select the answers. Test-wiseness itself is defined as "a subject's capacity to utilize the characteristics and formats of the test and/or the test taking situation to receive a high score" (Millman et al., 1965, p. 707). In the field of L2 testing, test-wiseness strategies can be used as shortcuts to identify correct answers (e.g., by eliminating the incorrect options), though such strategies also run the risk of students failing to comprehend the actual content (Allan, 1992; Cohen, 1998; Cohen & Upton, 2007; Yang & Plakans, 2012).

Rather than solely focusing on MCQ tasks, other studies compared the task-completion processes typical of MCQ reading tasks with those of SAQ reading tasks. Pressley et al.'s (1990) exploration of test takers' approaches to MCQ and SAQ task completion suggested that students' reading comprehension was influenced by test format. They found that students were more likely to reread the texts when answering SAQs rather than MCQs in order to monitor and deepen their understanding. Gordon and Hanauer (1995) also noted the importance of test format in reading comprehension. However, unlike Pressley et al. (1990), Gordon and Hanauer found that MCQs, in contrast to SAQs, provided students with more opportunities to deepen their reading comprehension by integrating existing information (the source text) with new information (the prescribed options of the question), thereby

facilitating in-depth textual understanding. Indeed, this finding suggests that an interactive process may exist between test takers and MCQ reading tasks. Although MCQs might support reading comprehension, nonetheless, students still identified MCQ reading tasks as problem-solving or test-taking tasks rather than as opportunities for learning (Cohen & Upton, 2007; Rupp et al., 2006).

A more recent study that focused solely on strategies in response to SAQs involved the completion of a reading task (Weigle et al., 2013). Thirty-five ESL students provided interviews, as well as introspective and retrospective verbal reports, to describe how they completed the reading task. Based on the reported strategies, Weigle et al. (2013) found that students built a text model (e.g., by summarizing paragraphs and identifying the main argument and the relationships between ideas) as well as a situation model (e.g., by connecting text content to background knowledge and evaluating information) when processing the texts.

Unlike prior studies, which explored strategies involved in completing MCQ and SAQ reading tasks, Liu's (2021) study explored students' perceptions of the impact of questioning strategies on reading comprehension as mediated by MCQ and SAQ tasks. Nevertheless, the results of his study revealed that when completing SAQ tasks, students were more likely to use strategies to help build a text model to deepen their reading comprehension (Weigle et al., 2013). Liu explained that the SAQ tasks encouraged students to constantly question their understanding of a text, thereby providing them with opportunities to reread the texts and re-inspect relevant textual information. This helped students recognize, retrieve, and reorganize textual information (the process of building a text model), thereby promoting their reading comprehension.

The interactive process between reading and writing

In L2 academic writing contexts, the integration of reading and writing skills has received much attention. As Grabe and Kaplan (1996) asserted, "reading and writing are reciprocal activities; the outcome of a reading activity can serve as input for writing and writing can lead a student to further reading resources" (p. 297). Despite this claim, however, there does not appear to be similar consideration given to the integration of these two skills in L2 academic reading contexts.

Because the SAQ format requires written responses based on textual information, it is necessary to review prior research that addresses the relationship between reading and writing in L2 contexts. Indeed, many studies have examined the relationship between reading and writing in L2 reading-to-write tasks. When studying learners' task-completion processes in L2 writing tasks, for instance, Plakans (2008) discovered the existence of an interactive process between reading and writing. She noted that English learners involved in the reading-to-write task utilized strategies (e.g., summarizing the texts, reacting to ideas of the texts, positioning themselves, and identifying rhetorical structures) that enabled them to integrate and synthesize the reading content into their writing construction, thus providing evidence of an interactive process. In examining the construct of *discourse synthesis* (Spivey, 1997), Plakans (2009) found more evidence of the interactive process between reading and writing in L2 writing tasks. In her study, she compared the writing processes of high- and low-proficient ESL learners tasked with completing integrated reading-to-write tasks. Results showed that higher-proficient writers used strategies more frequently that enabled them to both connect their background knowledge with the reading content and incorporate the source

texts into their essays. In support of the existence of the interactive process between reading and writing, McCulloch (2013) also discovered that the strategies L2 writers used were often related to the use of source texts. For example, writers often commented and elaborated on such source texts, building connections across them and making inferences about the reading content. Building on these studies, Barkaoui (2015) and Li (2014) highlighted the interactive process between reading and writing by detailing English learners' strategy use in integrated writing tasks. Based on the results, both researchers noticed that students frequently implement a variety of strategies (e.g., referring to sources, evaluating the text, and reflecting on the reading topic) that help them integrate the source text content in a way that supports their own writing content during task completion. To further understand the completion process involved in integrated writing tasks, Michel et al. (2020) conducted an eye-tracking study with retrospective verbal reports to examine behaviors that underlined L2 learners' reading and writing processes. Michel et al. found that students' pauses were mainly attributed to resource use (e.g., reading the source text and viewing the notes) and their written products (e.g., monitoring and revising the essays). These findings provide more evidence with a different research perspective to support the existence of the interactive process in integrated writing tasks.

Although previous studies have shown that learners' task-completion processes might be affected by test format, within that research domain, most of the attention has been dedicated to MCQ testing. In comparison to the completion processes in MCQ tasks, little is known about learners' completion processes in SAQ tasks. While studies have identified the existence of the interactive process between reading and writing in L2 reading-to-write tasks, it is unclear whether SAQ reading tasks themselves produce this interactive relationship. Indeed, considering Gordon and Hanauer's (1995) suggestion that MCQ reading tasks may be capable of generating an interactive process between source texts and prescribed options, it is important to understand how such an interactive process could contribute to reading comprehension in comparison to the interactive relationship between reading and writing in SAQ tasks. With these objectives in mind, this present study aimed to explore L2 readers' MCQ and SAQ task-completion processes, focusing primarily on the following questions:

1. What processes do L2 readers engage in when reading the source texts?
2. What are the similarities and difference in L2 readers' responses to MCQs and SAQs?
3. What strategies do L2 readers frequently implement when completing MCQ and SAQ tasks?

Methods

Participants

Participants for this study included sixteen voluntary ESL learners from the intensive ESL program of a large Midwestern college in the United States (see Appendix A for participant demographic information). Among these participants, nine were male and seven were female. Seven of them spoke Arabic, three spoke French, three spoke Swahili, one spoke Bengali, one spoke Mandarin, and one spoke Spanish. Based on participants' ESL course level and their performance on the Accuplacer test developed by the College Board, the participants' reading and writing proficiencies were mostly low-intermediate or intermediate level.

Reading tasks

The English reading task was adopted from the test-booklets *Get Ready to Read: A Skills-Based Reader* and *Ready to Read More: A Skills-Based Reader*, both of which were published by Pearson Education. The English reading task included four reading passages followed by twenty comprehension questions. The reading topics of these passages centered upon an historical figure and event, business, and science. The average length of each reading passage was about 300 words; readability statistics (see Appendix B) showed that the text difficulty levels ranged from intermediate to high-intermediate. The comprehension questions consisted of eight factual queries, seven vocabulary queries, and five inferential queries. The reading questions had two different test formats: MCQ and SAQ. Before both MCQ and SAQ tasks were used in this present study, they were piloted and carefully examined by experienced English teachers and testing experts.

Data collection procedures

Sixteen participants were divided into two approximately equivalent reading proficiency groups based on their performances on the Accuplacer test. There were two stages of data collection: During the first stage, one group was assigned the MCQ reading task, while the other group was assigned the SAQ reading task; during the second stage, which occurred roughly one month after the first stage, the group that had taken the MCQ reading task took the SAQ reading task, and those who had taken the SAQ task completed the MCQ task for the same passages and reading questions. The participants were given two hours for each assigned task, thus providing them sufficient time to respond.

When the participants completed the first reading task (i.e., MCQs or SAQs), retrospective verbal reports and semi-structured interviews (see Appendix C for interview questions) were implemented to establish the participants' demographic information, as well as to capture their task-completion processes and strategy use. For the retrospective verbal reports, the reading task was returned to the participants so that they might recall how they completed the task (Bowles, 2010). After they completed their second reading task, verbal reports and interviews were carried out again to compare the completion processes of both the MCQ and SAQ tasks. The data collection procedures are detailed in Appendix D.

As the participants' speaking proficiency levels were mostly low-intermediate or intermediate, I chose to adopt retrospective verbal reports instead of think-alouds to avoid cognitive burden, which may risk altering their behaviors and performance (e.g., Cohen & Upton, 2007; Goo, 2010; Sanz et al., 2009; Stratman & Hamp-Lyons, 1994). To ensure that the participants had ample time to reflect upon their task-completion processes, retrospective verbal reports and subsequent semi-structured interviews were considered the most appropriate course of action (Bowles, 2010).

During the data collection process, the participants were twice provided the same reading passages with different test formats, as I was interested in whether varying test formats would impact the task-completion processes of the participants. To fully capture MCQ and SAQ completion processes without the influence of reading the same passage a second time, the verbal reports and the interviews were administered immediately after the participants completed their first reading task. Precautionary steps were also taken to minimize the potential carryover effects between the first task and the second task. First, there was a total of four texts in each reading task, rather than one or two. Second, the order of reading

passages and comprehension questions was shuffled randomly in the second reading task. Third, the participants were not provided with the answer sheet nor the opportunity to discuss the content after completing the first reading task. Fourth, there was a one-month interval between the first and second reading tasks. Lastly, an independent sample *t*-test was employed to compare task performance between the participants who were first assigned the MCQ task and those who were assigned the MCQ task in the second stage; the same procedure was implemented for the groups that were assigned the SAQ task. Results showed that there was no statistically significant difference between the MCQ groups nor the SAQ groups, which indicates that the carryover effects were minimal.

Data analysis

When analyzing the data, I adopted an inductive approach that was heavily impacted by Charmaz's (2014) and Creswell's (2013) descriptions of grounded theory. Moreover, idea-unit scoring was implemented for data analysis, which is a common approach to studying L2 comprehension in terms of reading, listening, and writing.

I first transcribed audio recordings and reviewed the content with the participants. After the content accuracy of transcriptions was ensured, I read each transcription several times in order to obtain a general sense of the dataset. The transcriptions from five participants were randomly chosen for initial coding. While reading these transcriptions, memos were made in the margins to segment the entire dataset into idea units (Saldaña, 2015). Such idea units contain major ideas, supporting ideas, or details, and are generally captured in individual simple sentences or phrases (Kroll, 1977).

After segmenting the interview content, I assigned initial codes. I then reviewed memos and initial codes collectively to identify emerging patterns and focal codes. I later used these patterns and codes to identify themes within the strategy use; these themes were themselves largely based on prior studies (e.g., Cohen & Upton, 2007; Plakans, 2008, 2009; Rupp et al., 2006). To ensure alignment, I re-coded the data from the five participants using the identified themes and the initial list of focal codes (which was later refined as a final coding scheme). I used the final list of codes to analyze the data from the remaining eleven participants using a similar procedure that involved making memos and segmenting the content. At the end, I used a sample of the transcription (25% of the data) for re-coding to ensure the reliability of the coding process.

Results

To answer the research questions in this study, the participants' retrospective verbal reports and interviews were analyzed for the purpose of (a) understanding how the participants processed the content information of the reading texts, (b) exploring how they responded to reading questions in MCQs and SAQs, and (c) identifying and categorizing their strategy use when completing MCQ and SAQ reading tasks.

Processes of reading source texts

The participants' verbal reports and interviews revealed that their reading processes were constructed based on two reading models: a text model of comprehension and a situation model of interpretation (Weigle et al., 2013). The text model of comprehension involves

building a network of ideas and relationships by connecting the newly received information and the existing active information (e.g., word recognition, syntactic parsing, meaning proposition encoding, and working memory). In contrast, the situation model of interpretation involves integrating background knowledge, interest, or attitudes with textual information in order to assist the reader's interpretation of the text (Grabe, 2009).

An analysis of the participants' verbal report and interview data suggested that, when reading a text, the participants focused on constructing a text model to obtain a general understanding of the text. Indeed, the participants reported that they liked to read each sentence carefully to understand the meaning of each word. Abdelrahman added, "When I take my test, first time, I read the paragraph and I focus in all the words here. And I know what the meaning for everything."

In addition to understanding the meaning of each word, three participants used their native language or scanned to identify and interpret important ideas, including main ideas and supporting details. For example, Elisa mentioned that sometimes it was necessary for her to use her native language to better understand the meaning of the words, thereby helping her grasp the reading content, saying, "Because some vocabulary—I don't know the meaning. I use to translate in my first language. This has helped me more to understand about the paragraph." Rather than focusing on word level alone, Emmett applied a more comprehensive perspective when looking for important ideas, saying, "First thing, I go through the passage and I scan…I try also to underline the important sentences. There's some sentences talking about the date and the year, so I underline."

Four participants reported that, when reading the passage, they began by brainstorming the reading topic and identifying the topic sentence. They then read the subheadings and connected them with the information they had already received from the text, thereby helping them make a simple inference about the forthcoming reading content. Aron explained that the topic or subheadings helped him predict the reading content, saying, "It's like when you read this small title [heading], you can quickly imagine what you're going to read on the paragraph." Being able to bridge ideas within the text and predict the content facilitated the participants' reading processes and comprehension. To strengthen the activity of networking textual elements, two participants skipped any unfamiliar words so that they might maintain the fluency of the reading process. As Vanessa described,

> First, I read the passage, and I read the words I know. Sometimes they have some words I don't know there. Sometimes I just skip it. And if I didn't understand it, I go back and ask [myself] what's that mean.

Vanessa explained that skipping difficult words first and finding the meanings later helped her gain a better understanding of the text.

The participants' expectations about the reading content and their proclivity for skipping unfamiliar words seemed to indicate that they were simultaneously building a text model of comprehension and tapping into the construction of a situation model. The most obvious example of this phenomenon occurred when the participants drew on their background knowledge in order to obtain a better sense of the passage. Samuel, for instance, reported that when he was reading one of the passages, he found himself turning to his previous knowledge about history. He said, "When I read the history, I think about all the history and I can—when

they ask me the question, I can choose the answers." Samuel believed that his background knowledge helped him gain a deeper understanding of the passage.

Based on Samuel's report, it can be inferred that constructing a situation model of the reading can also occur when answering comprehension questions. For example, Eveline indicated that she often compared prescribed options of MCQs and chose the best one for the question, saying, "When I read the paragraph two, I read the question. You need the meaning of the word. And I will read all the A, B, C. I need [to know] which [option] is better…." To Eveline, understanding the reading content was insufficient when attempting to answer the comprehension questions. She needed to evaluate the information provided by the question's prescribed options to determine which choice was the best answer. Moreover, as mentioned previously, the participants would often skip difficult words to maintain reading fluency, though this was not the only factor that was considered when processing textual information. How the participants read the passage when answering SAQ questions was to some degree determined by how the participants chose to construct their written responses. For example, ten participants reported that they preferred either to summarize or paraphrase the text when constructing their written responses for SAQs. Abdelrahman described how his reading process was informed by his written responses:

> Like…what are two benefits of planting new trees in Kenya? You need to write more. So sometimes you start to write—instead of copying, you kind of write your own sentence here. For this one, you need to write your own ideas here.

Abdelrahman added that copying was not the only way to construct written responses; indeed, different reading questions required different reading processes. Some questions, for instance, required reading the text in order to understand what content he could integrate into his own ideas when constructing his written responses.

Because the passages used for MCQ and SAQ tasks were the same, the participants did not distinguish their reading approaches according to MCQ or SAQ tasks. However, since the test formats for these two tasks were different, it is reasonable to assume that the approaches required to complete MCQs and SAQs would differ as well. While this section has focused on how the participants processed the textual information to choose or construct their answers, the following section will compare their processes for responding to MCQs and SAQs.

Processes of responding to comprehension questions

When answering comprehension questions, the participants, in completing both MCQ and SAQ tasks, frequently used parts of the question statements to locate key information in the texts. In other words, the participants comprehended and followed the clues that the questions provided in order to identify the answer. For example, Elisa stated that she used the question statement to find the correct answer, saying, "For me, when I read some questions, I first see the word and go to the paragraph, and find that…same word. That [helps] me quickly to find the answer." Eveline added that, quite often, the questions effectively guided her toward the correct answer and as such she simply had to follow the instructions, noting,

> Because you already give the key for the answer. You said, in paragraph two. That means just you need to look just for the paragraph two… Yes, I'm looking for the answer just inside paragraph two. I never go further….

When the participants were asked if their processes differed when answering MCQs and SAQs, they responded by saying that there were certain ways to answer each task. In terms of MCQs, the participants used the prescribed options to identify the key information in the passage, thus helping them identify the correct answer. For example, when answering each MCQ, Gisele would read through all the prescribed options to see which options were or were not mentioned in the passage to locate the best answer. When prompted to choose an option that identified when a specific event took place, she said, "This part [prescribed options] here has a lot [of] years over here, but you have to read which one [the passage] is talking about, which year, and then you find the answer over here." According to Gisele, the question asked about 'when' and provided different years as prescribed options. To choose the correct answer, she simply needed to find out which year was specifically mentioned in the passage.

On the other hand, since SAQs did not provide any prescribed options, the participants had to adopt a different approach to construct the answer. First, the SAQ participants located the potential answer in the passage by using the question statement. Then, they would either copy, paraphrase, or summarize the passage's content. In terms of copying, two participants chose to copy a short paragraph, while four participants copied the key point or sentence. Elisa claimed that she copied the reading content for most SAQs to avoid including any incorrect information, saying, "90% I copy…the copy is the perfect answer." Similarly, Fola reported that, because her English proficiency inhibited her from effectively expressing her ideas, she had no choice but to copy the reading content: "I copy the answer about the question. If…I don't know what to say in English, I copy for my question because this is [the] answer."

While the participants reported that copying was an effective strategy for constructing their SAQ answers, ten out of sixteen participants preferred to summarize the critical information or even to create their own sentences that combined their ideas or their understanding of the texts. For example, Eveline stated that she sometimes did not want to copy all the sentences in the passage because she preferred to summarize the information, saying, "Sometimes I don't like [the] answer from the reading. Just you have…what you read…summarize for the questions." Similarly, Edward explained that copying the content from the passage was ineffective, and thus he chose to create his own sentences when answering: "Oh, no. I can't copy all, but I make my sentence. And I know, in that question, my own idea, I want to put the idea to improve my own sentence."

Although the participants used similar approaches when completing many of the MCQ and SAQ comprehension questions, there were also certain approaches they used only when responding to MCQs or SAQs, which is distinct from how they approached reading the passages. Whereas this section has taken a rather broad approach to distinguishing how the participants answered the comprehension questions, the following section will illustrate and categorize the strategies the participants frequently used when completing their reading tasks. More specifically, the following section focuses on strategies that the participants often employed when reading the passages, answering the questions, or both.

Strategies for completing MCQ and SAQ tasks

Based on the verbal report and interview data, a picture was obtained of what strategies the participants implemented when completing MCQ and SAQ tasks. These strategies were

grouped into the following categories: (a) micro-level, (b) macro-level, (c) use of background knowledge, (d) comprehension monitoring, (e) test-wiseness, and (f) integration process. These categories, as well as the appropriate samples, are detailed in Appendix E.

During task completion, the participants used micro and macro-level strategies to understand the source texts. The use of micro-level strategies (e.g., decoding the meaning of each word) allowed the participants to focus on small units of textual information, which was helpful not only to facilitate their reading comprehension but also to help locate the answer to the comprehension questions. In addition to micro-level strategies, the participants implemented several macro-level strategies to assist their reading comprehension. For example, the participants often skimmed the passage or brainstormed the reading topic to obtain general comprehension.

Throughout the completion of the reading task, the participants recalled their background or prior knowledge in order to establish a deeper understanding of the reading content or vocabulary, as when Samuel drew on his own knowledge of history when reading a passage related to the subject. Other participants similarly drew on their prior knowledge to make inferences about vocabulary meaning.

Four strategies were linked to the category of comprehension monitoring, which facilitates the processes of reading and answering comprehension questions. To guide their thinking and promote their own comprehension, the participants often asked themselves prompting questions, considered prescribed options to confirm their understanding, or reread passages in order to deepen their reading comprehension or clarify confusing information.

The participants also reported using a variety of test-wiseness strategies that helped them identify answers for MCQ and SAQ questions. Beyond writing in English, the participants tasked with completing MCQs and SAQs also struggled with vocabulary comprehension and question difficulty. In response, the participants often employed various test-wiseness strategies to identify possible correct answers; these strategies included translating, underlining, copying sentences of the readings for SAQs, eliminating incorrect prescribed options, and using the prescribed options to decode the meaning of words. Moreover, the participants tended to skip difficult words or difficult questions to save time and prevent the possibility of interrupting their reading comprehension. The use of these test-wiseness strategies revealed that the participants mustered not only the provided resources (e.g., prescribed options of MCQs) but also their knowledge base (e.g., maintain reading fluency), so that they could outsmart the reading tasks.

Although SAQs do not require test takers to write an essay with a minimum word count, test takers are nonetheless expected to respond to each comprehension question with a short written response. As noted in the previous section, the participants sometimes copied reading content word for word when responding to SAQs. Instead of merely copying sentences from the passage, however, some participants (n = 10) decided either to summarize or integrate key information in a way that engaged with the reading critically.

The retrospective verbal report and interview data revealed that the participants frequently implemented a variety of strategies to help them complete MCQ and SAQ reading tasks. While they used some strategies (e.g., decoding the meaning of each vocabulary word and rereading to deepen reading comprehension) for both MCQ and SAQ tasks, other strategies (e.g., using prescribed options to locate the answer in response to MCQs and combining the

information of the source text with opinions to construct the answer in response to SAQs) only applied to one test format. More specifically, when reading the source texts, the participants tended to use strategies at both micro- and macro-levels to help them focus on detailed information and obtain a general picture of the story. They would then draw on their background knowledge or test-wiseness strategies to deepen their understanding of the texts when answering comprehension questions. During their reading processes, the participants frequently monitored their reading comprehension by asking themselves questions or by rereading the passages. In terms of the question-answering process, test format played a significant role in determining the most effective strategy used by the participants. For MCQ questions, for instance, prescribed options played a key role in the participants' strategy use; the participants used prescribed options to confirm their understanding of the texts, locate the correct answer, or eliminate any incorrect options. For SAQ questions, however, the rate at which the participants reread the text, as well as their own writing skills, determined how they constructed their written responses. Indeed, when the participants were confused by SAQs, they would reread the texts to clarify their understanding; also, when constructing written responses, the participants would either copy or summarize the reading content or integrate the textual information with their own opinions.

Discussion

In this study, I explored how the participants approached MCQ and SAQ tasks, specifically how they processed the information of the source texts and what strategies they carried out to complete the reading questions. Moreover, this study categorized the strategies that the participants frequently used to read the passages, answer the questions, or both. These reported strategies revealed how the participants completed MCQ and SAQ tasks in similar and dissimilar ways, as well as how they interacted with the source texts and reading questions in order to promote reading comprehension and question responding.

Task-completion processes and strategies

In terms of reading the texts, both the text model of comprehension and the situation model of interpretation were constructed to facilitate the participants' reading processes (Grabe, 2009; Weigle et al., 2013). The participants constructed these models by decoding small units of textual information (e.g., the meaning of words), identifying critical points, making an inference about the texts, integrating the reading content into their background knowledge, and evaluating the given information as a final step.

While responding to questions, the participants frequently used parts of the question statements to help them locate key points in the passage. In addition to this strategy, they used the prescribed options that were provided by MCQs to identify critical information (Rupp et al, 2006; Wu et al., 2018). With respect to SAQs, the participants copied, paraphrased, or summarized passages from the text when crafting their written responses (Plakans et al., 2019; Weigle et al., 2013).

The strategies the participants used to construct the reading models and answer comprehension questions can be classified according to six strategy categories. Among these strategy categories, it is noteworthy that, when engaging in both MCQ and SAQ tasks, the participants tended to use micro- and macro-level strategies to decode specific information

and identify the main idea of the source texts (Brunfaut & McCray, 2015; Dollerup et al., 1982; Rupp et al., 2006).
Moreover, the comprehension monitoring strategy *rereading* was frequently implemented to deepen the participants' understanding of the texts or to clarify any confusing information. Several participants indicated that SAQs required a higher frequency of rereading than MCQs, as SAQs made greater demands on writing skills. This finding is supported by previous research which has found that the degree of question or task difficulty might encourage test takers to adjust their strategy use such as rereading the source texts more frequently (Plakans et al., 2019; Liu, 2021; O'Reilly et al., 2018; Pressley et al., 1990; Wu et al., 2018).

More importantly, similar to the findings of Anderson et al. (1991), the participants in this study tended to use a wider variety of test-wiseness strategies in order to locate the answer in the texts, eliminate incorrect prescribed options of MCQs, or copy the reading content when constructing SAQ written responses; other strategy categories (e.g., micro- and macro-level and comprehension monitoring) were, by comparison, less diverse. This suggests that as long as students are in a test-like situation, receiving a higher score on their performance will always be one of their primary goals, and that use of the test-wiseness strategy will help them achieve this goal (Millman et al., 1965; Wu & Stone, 2016; Yang & Plakans, 2012; Yeom & Jun, 2020).

The interactive process in MCQ and SAQ tasks

Based on the reported strategy use, I found that the participants in both MCQ and SAQ tasks implemented certain strategies (e.g., drawing on prior experience, brainstorming the topic, and rereading), allowing them to interact with the texts and reading questions in a way that facilitated their task completion. It should be noted, however, that the participants' interactive processes varied based on whether they were completing MCQ or SAQ tasks.

Similar to Gordon and Hanauer (1995), this study found that the participants tasked with completing MCQs tended to integrate the information that was provided by prescribed options into the source texts, thereby deepening their understanding of the texts. Although the participants' reading comprehension was enhanced because of the prescribed options, the main reason for integrating these options with the source texts was to locate the answer for the reading questions. This finding further confirms previous studies that found MCQ test takers tended to treat MCQ tasks as problem-solving tasks rather than knowledge-acquiring tasks (Cohen & Upton, 2007; Gordon & Hanauer, 1995; Lim, 2019; Rupp et al., 2006).

Although SAQs do not provide prescribed options, test takers nonetheless have other opportunities to interact with the source texts. In this study, I found that SAQ participants integrated their opinions with the reading content when constructing written responses. The participants indicated that creating their own sentences tended to draw out their own personal responses about the content, thereby allowing them to engage critically with the texts. This finding not only reveals the existence of the interaction between reading and writing in SAQ reading tasks—similar to that of integrated writing tasks (Barkaoui, 2015; Li, 2014; Michel et al., 2020; Plakans, 2008; Primor, et al., 2021)—but also builds upon Plakans et al. (2018, 2019), who found that writing about reading can deepen L2 learners' understanding of the texts. As Kauffmann (1996) indicated, writing about the texts encourages learners to be aware of the information they retrieved from the texts so that they may gain deeper insight about the reading. By establishing their own opinions about the texts, SAQ participants can

return to the reading in order to identify information for their questions or potential concerns, thus enhancing their interpretation of the texts. It should be noted that both MCQ and SAQ formats generated the interactive processes between source texts and reading questions, albeit for different purposes.

Conclusion

This study set out to understand ESL learners' completion processes of MCQ and SAQ reading tasks. The findings of this study showed that learners constructed text and situation models and adopted different kinds of strategies to facilitate their reading comprehension and question responding. The participants' strategy use indicated that interactive processes may exist between source texts and comprehension questions, though the specific processes involved in completing MCQ and SAQ tasks varied depending on whether the participants considered the tasks to be problem-solving or knowledge-gaining (Cohen & Upton, 2007; Gordon & Hanauer, 1995; Rupp et al., 2006).

There are various limitations to this study that should be considered. First, the chosen participants were from an intensive ESL program, and thus their approaches to task completion could be different from those of matriculated ESL learners. Second, neither think-alouds nor introspective verbal reports were used in this study, out of consideration for the participants' English speaking proficiency. Instead, all the data reflected retrospective verbal report data. Had the data been collected during the completion of the tasks themselves rather than afterwards, the picture obtained may have been more reliable. In addition, most participants in this study were from Arabic-speaking countries, which could be viewed as a limitation since students from East Asian countries contribute significantly to the international student groups in the U.S. Another limitation to this study might be the carryover effects. Although it is possible that the participants remembered the first reading task and applied that knowledge when completing the second reading task, steps were taken to minimize this possibility. The impact of these carryover effects is therefore believed to be minimal.

Given these findings, this study has a number of significant implications for L2 reading assessment and L2 teaching. The results showed that both MCQ and SAQ tasks generate different styles of interactive processes. MCQ prescribed options could serve as a means for students to confirm their understanding of the reading, while SAQ writing features may encourage students to reread the source texts or summarize the reading content when answering the questions. These findings suggest that different types of test formats could potentially improve test takers' understanding of source texts, which might contribute to their test performance. With this in mind, when designing a reading test, developers should consider adopting a variety of test formats to more fully understand learners' L2 reading proficiency. Based on the findings of this study, teachers in reading classes should give instruction in strategies, such as drawing on prior experience, brainstorming about the topic, and rereading the texts, to help students interact with the source texts and develop their own opinions, thereby deepening their reading comprehension (Plakans, 2008). More importantly, teachers should also give instruction in interactive strategies using the MCQ's prescribed options (i.e., using prescribed options of MCQs to confirm understanding of the source texts) and SAQ writing features (i.e., summarizing the reading content with own ideas for answering SAQs and combining the information of the source text with opinions to construct the answer for SAQs) to provide students with the opportunity to practice utilizing the test

format components, thus allowing L2 learners to gain a deeper understanding of the source texts.

In addition to the above teaching implications, there are several possibilities for future research based on the findings. First, although the present study has discovered the possible existence of the interactive process between source texts and question responses in MCQ and SAQ tasks, more studies are needed to understand how and why learners use particular interactive strategies. Second, because this study is qualitative, it is unknown whether the interactive process of MCQs and SAQs can contribute to learners' task performance. Researchers should thus investigate how MCQs and SAQs affect task performance in relation to the interactive strategy use. Furthermore, learners' thoughts on test format should be taken into consideration; as such, future studies should focus on exploring learners' task perceptions in order to identify the most ideal test format for assessing L2 reading proficiency.

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Appendices

Appendix A

Participant Basic Information

Pseudonym	Gender	First language	Accuplacer reading score (range: 20-120)	Accuplacer writing score (range: 1-6)
Mai	Female	Bengali	31	3
Fola	Female	Swahili	55	4
Gisele	Female	Swahili	67	4
Eileen	Female	Arabic	87	4
Eveline	Female	Arabic	62	3
Vanessa	Female	Arabic	82	3
Elisa	Female	Arabic	44	2
Abdelrahman	Male	Arabic	31	2
Oscar	Male	Arabic	34	3
Emmett	Male	Arabic	69	3
Aron	Male	French	60	3
Samuel	Male	French	45	3
Kade	Male	French	79	3
Edward	Male	Swahili	49	2
Liu	Male	Mandarin	84	5
Alex	Male	Spanish	48	2

Appendix B

Readability Statistics for Reading Passages

Reading passage	Earth Day	Infomercials	Mechanical Inventions	Wangari Maathai
Words	316	303	369	282
Sentences	26	22	24	17
Words per Sentence	11.7	13.5	15.2	16.1
Flesch Reading Ease	65.3	49.7	60.5	40.5
Flesch-Kincaid Grade Level	7.0	9.6	8.6	11.6

Appendix C

Interview Questions

Interview questions for the first reading:

1. What is your native language?
2. What is your gender?
3. What is your reading score of the placement exam?
4. What is your writing score of the placement exam?
5. Can you tell me about the process of reading this passage (i.e. before/while/after reading the passage)? Tell me about the strategies you used to help you better understand.
6. What strategies did you use to help answer the questions?
7. How did you use the reading passage to support your response/answer?

Interview questions for the second reading:

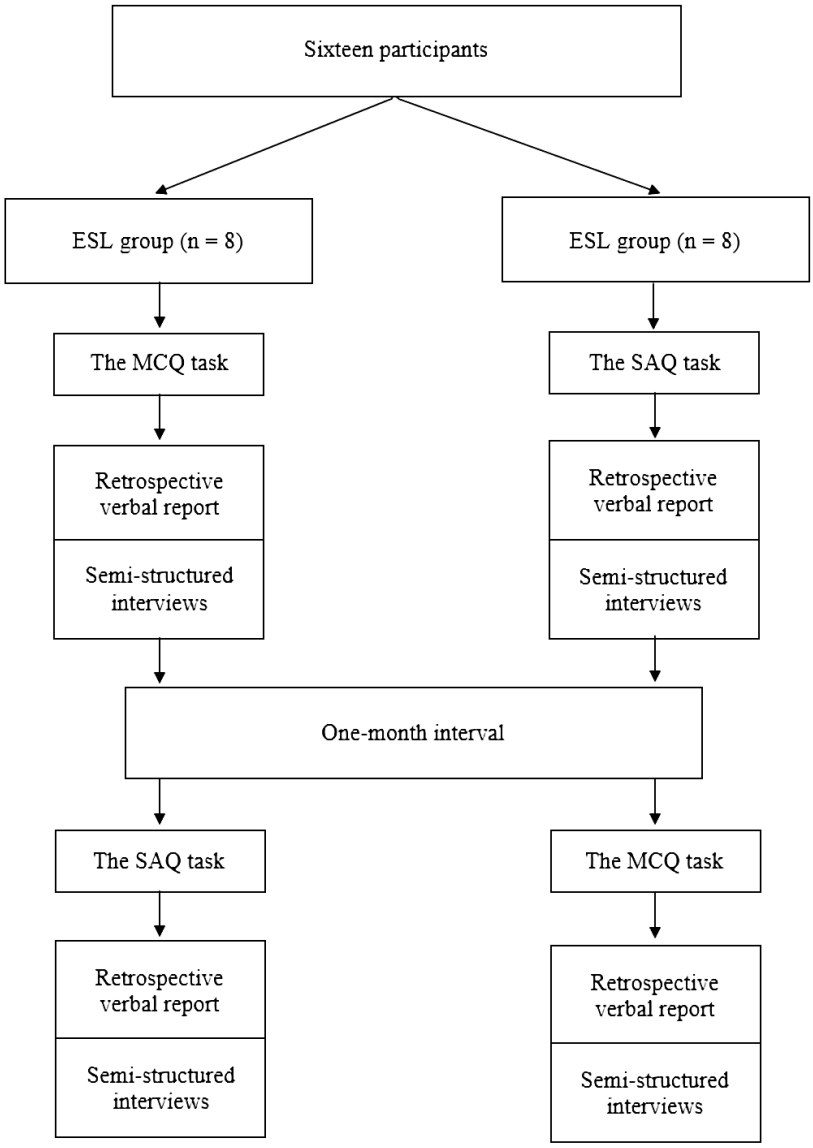
1. Did you do anything differently when reading the passages for the MCQ tasks vs. when you read the passages for the SAQ tasks?

2. How did you answer the questions in the MCQs and the SAQs? Were there any differences in how you responded to each task?

3. How did you use the reading passage to help construct your answer for the MCQs? How did you do so for the SAQs?

Appendix D

Data Collection Procedures



Appendix E

Strategies in Both MCQ and SAQ Tasks

Strategy category	Example quote
Micro-level	
Decoding the meaning of each word	"Because when I read this text, if I know the word, I can understand, and I read quickly. But if I don't know, I think for this word, the meaning of this word and that takes a few moments to know that."
Identifying/underlining/circling key words or information	"If I found something important, I would underline. I see this, I underline, this is correct, and this makes sense."
Underlining unfamiliar words	"If I don't understand a word, I would underline, and I focus on it and I try to understand it."
Making notes to assist reading comprehension	"I do it with a note for helping. When I'm reading, I do it every time. A note, remember me what I read."
Rereading to look for the answer	"When I read the question and I look at the answer [prescribed options] and then I go back to my reading, I read carefully—and then I choose my answer."
Macro-level	
Skimming to obtain general comprehension	"Yeah. First thing, I go through the passage and I scan [skim]. I do a scan [skim]…. Try to understand what the passage is talking about generally."
Brainstorming about the reading topic to assist reading comprehension	"Ah…I usually read the title [heading] first to understand what the reading passage is generally talking about."
Using reading subheadings to preview the texts	"It's like when you read this small title [subheading], you can quickly imagine what you're going to read on the paragraph. Yes. It's like the previews, you know?"

Strategy category	Example quote
Use of background knowledge	
Drawing on prior experience and vocabulary knowledge	"I use my mind [my vocabulary knowledge]. It was like ask [myself] about the meaning, what's this word meaning on…."
Using native language for interpretation	"Sometimes if there is new word. If the word is new, I try to translate in my native language."
Comprehension monitoring	
Asking questions	"What is this paragraph said?"
Rereading to deepen reading comprehension	"I try to concentrate on reading again, like if there are new words for me, if there is a new sentence, if there is new idea for me. Then I will concentrate on that…I read it again to more concentrate on the passage."
Rereading to clarify confusion generated by SAQs	"This one [SAQ reading task] is kind of complicated because you have to read all the paragraph first, and then you go to the question, and then read, and then come back again to read again and to find out which one you're going to write…yeah, which answer is going with these sentences."
Using prescribed options of MCQs to confirm understanding of the source texts	"For example, when the questions ask me—for example, when I read—the second question, the answer was 2002 [provided as one of prescribed options]. When I come in—the second paragraph here—when I read here, they [the passage] told me, 'However, she continued to be interested in politics and was elected to the Parliament in 2002.' And then I answered the question."
Test-wiseness	
Using reading subheadings to help identify the answer	"I use a title [subheading] because [of] the title [subheading], we can find the necessary words and can give you the way to answer what is the question asking."

Strategy category	Example quote
Using prescribed options of MCQs to locate the answer	"Okay, but this one you can read fast because you have A, B, C option…because then we have a multiple choice. Yeah, A, B, C, so the answer is kind of there already you just need to find the answer in the text. This part [prescribed options] here has a lot [of] years over here, but you have to read which one [the passage] is talking about, which year, and then you find the answer over here."
Eliminating incorrect prescribed options of MCQs	"When I read the paragraph two, I read the question. You need the meaning of the word. And I will read all the A, B, C. I need [to know] which [option] is better…. Yeah…one of them [is] the most correct than the other ones."
Copying sentences from the source text to construct the answer for SAQs	"I copy the answer about the question. If…I don't know what to say in English, I copy for my question because this is [the] answer."
Skipping difficult words to maintain reading fluency	"First, I read the passage, and I read the words I know. Sometimes they have some words I don't know there. Sometimes I just skip it."
Skipping difficult questions to save time	"When I don't found the answer, I pass the question and I come and I see the next question. And I complete all the question and I come back to read again for this question to answer."
Integration process	
Summarizing the reading content with own ideas for answering SAQs	"Sometimes I don't like [the] answer from the reading. Just you have…what you read…summarize for the questions."
Combining the information of the source text with opinions to construct the answer for SAQs	"Yes, because when I read for the last question here…when I read the paragraphs here or the text, I can take some idea here and I put with my idea… I'm trying to write my own sentence."

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