The role of reading strategies in integrated L2 writing tasks

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Abstract

Integrated second-language writing tasks elicit writing performances that involve other abilities such as reading or listening. Thus, understanding the role of these other abilities is necessary for interpreting performance on such tasks. This study used an inductive analysis of think-aloud protocol data and interviews to uncover the reading strategies of 12 non-native English writers who completed an integrated reading-writing task. Strategy frequency was considered overall, during composing, and across writers. Word-level strategies were most common along with global and mining strategies. Higher scoring writers used more mining and global strategies, while lower scoring writers showed similar frequency in overall strategy use but differences in choice of strategy. These results suggest that reading plays a role in the process and performance of integrated writing tasks, an important consideration when using such tasks for learning or assessment.

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1. Introduction

In language learning contexts, academic writing tasks are often integrated with reading, listening, or speaking to elicit more authentic integrative language use (Hinkel, 2006); however, interpreting performance on such tasks raises questions about the role of each skill as well as the interaction among them. To increase our understanding of how learners approach these tasks, the present study focuses on the role of reading strategies in writers’ completion of an integrated reading-writing task through think-aloud verbal protocols, interviews, and the resulting written products. The following questions were explored: What reading-related strategies did these writers report while composing their responses to an integrated reading-to-write task? What differences occurred in strategy use during the stages of these writers’ composing processes? What were the differences in strategies used by writers who scored higher or lower on the task?

2. Background

2.1. Reading and writing connections in second language tasks

Connections between second language (L2) reading and writing remain largely unexplored, and scholars have recognized that a construct or model of L2 reading-writing is lacking in the field (Hirvela, 2004). Fortunately, L1
research sheds some light on possible relations between reading and writing. Shanahan and Lomax (1986) proposed three theoretical models of the reading-writing relationship and analyzed L1 data to determine which model was supported empirically. Their results supported the interactive model, rather than a linear model (writing-to-reading or reading-to-writing), which suggests that writing can influence reading development and that reading can impact writing development. In this same vein, numerous studies have confirmed that good readers make good writers, suggesting a connection between these skills (Kennedy, 1985; Spivey, 1984; Spivey & King, 1989).

While L1 researchers have provided evidence and possible heuristics for the connections in reading and writing, only a few studies have investigated this issue in integrated L2 academic writing tasks. Watanabe (2001) analyzed test-takers’ performances on a reading-to-write task, which he correlated with both an independent writing task and a reading test. His results showed that the writing performance on the independent task was a stronger predictor of score on the reading-to-write tasks, and that the predictive power of the reading test was more likely due to general language proficiency rather than reading ability. Asención Delaney (2008) also investigated the relation between reading ability and score on reading-writing tasks, and found low correlations between a measure of reading ability and scores on two types of integrated tasks—summaries and response essays. These results suggest that reading ability was not a major factor in the scores for the reading-to-write task. However, Esmaeili (2002) also investigated the role of reading in a reading-to-write task by focusing on the test-takers’ process when completing the task. By analyzing writing strategies through a post-task questionnaire and interview, he found that reading played a critical role and concluded that for integrated tasks, “Examining participants’ writing strategies, overall, reveals how writing involves reading. In fact, one can hardly view reading and writing as stand-alone skills” (p. 615).

Plakans (in press) studied the discourse synthesis process in reading-writing tasks and found reading ability (a) facilitated writing by providing content but (b) hindered writers’ comprehension of the source texts. Such studies lead to the supposition that, while reading ability may not be clearly determined by the scoring of reading-to-write tasks, the underlying construct and process to complete the tasks does entail reading. Given this assumption, the goal of the present study is to investigate the role of reading further in integrated reading-writing tasks by isolating reading strategies in writers’ processes for heuristic purposes and to draw implications about the validity of using such tasks in academic writing contexts.

2.2. Reading strategies in L2 reading tasks

In order to inform L2 reading instruction and develop a model of multilingual reading comprehension, scholars have investigated reading strategies using several categorizations including cognitive/metacognitive, local/global, purposive/functional strategies as well as a combination of these. This research has applied and resulted in various taxonomies for L2 reading strategies as well as implications about L2 proficiency, L2 reading success, L1-L2 transfer, culture, and cognitive processes. Distinguishing reading strategies as top-down or bottom-up appears often in research on L2 reading strategies, a contrast that runs parallel to global and local strategies (Abbott, 2006; Barnett, 1988; Block, 1986, 1992; Carrell, 1989; Young & Oxford, 1997). Top-down reading strategies focus on main ideas, discourse organization, and the use of background knowledge, while bottom-up strategies center on word level meaning, sentence structure, and textual details. Another perspective on reading strategies considers the difference between cognitive and metacognitive strategy processing (Phakiti, 2003a, 2003b; Purpura, 1998) based on the L1 research of Flavell (1979). Metacognitive strategies are defined as self-regulating thoughts that monitor cognition while cognitive strategies process the language for the task. Reading strategies have also been grouped by purpose or function, arranging them as goal-motivated actions. Anderson, Bachman, Perkins, and Cohen (1991) generated a taxonomy after reviewing prior reading research and theory, and then created a list of strategies grouped according to the following purposes: supervising, supporting, paraphrasing, establishing coherence in a text, and test taking. Cohen and Upton (2007) looked at TOEFL performance on selection response reading test items in 32 students’ verbal reports, and also designed a list of grouped strategies based on early research with four purposes: approaches to reading the passage, use of passage and main ideas to help understanding, identification of important information and discourse structure in the passages, and inferences. They included strategies for test management and test wisdom as well. These superordinate categories differ from those of Anderson et al. (1991), but many of the same strategies appear in both studies.

From these studies of reading strategies, a number of individual characteristics related to strategy use have been identified. Readers with higher proficiency use more strategies (Anderson et al., 1991; Phakiti, 2003a) and strategies...
that are more global (Block, 1986; Carrell, 1989; Koda, 2005). Research exploring the effectiveness of strategies found that, while low performing readers may use quite a few strategies, they may not be using them appropriately or they are using detrimental strategies (Cohen, 1994). This research has concluded that there is more to be gained than simply asking what strategies are used and by whom, but when and in what combinations (Anderson et al., 1991; Phakiti, 2003a). While the studies described thus far have used various schemes to organize strategies, all have employed reading comprehension tasks involving reading a passage followed by answering questions, often as selected response items such as multiple choice. What has been largely under-researched is reading strategies used in performance-based tasks that integrate reading with writing.

2.3. Reading strategies in reading for writing

Many have made the point that the purpose for reading affects processes and strategies (Alexander, Graham, & Harris, 1998; Brantmeier, 2002; Koda, 2005; Phakiti, 2003a), and readers will adjust their strategy use depending on text difficulty, demands of the task, and other task-related variables. For this reason, L2 reading strategy research that has focused on reading comprehension using selected response items may not transfer to reading strategies used in performance-based integrated reading-writing tasks. As Cohen (1994) pointed out, students read summaries differently than they read for comprehension. To consider reading strategies for reading-writing, the L1 literature has proposed two kinds of reading—mining and writerly reading (Hirvela, 2004). Mining, an analogy for reading-writing, is the process of reading for the purpose of culling information from a text for a specific goal (Greene, 1992). Writerly reading is for the purpose of improving one’s writing by example, such as looking at word use or considering argument structure. Because of their relation to writing, these purposes for reading may appear in strategy use for reading-to-write tasks, but not in reading comprehension taxonomies.

Cohen (1994) and Esmaeili (2002) have examined the role of reading strategies in integrated writing tasks. Cohen investigated the reading strategies used by five Portuguese speakers of English when they composed for summary tasks. He found that the two higher proficiency writers used more strategies, while the two middle proficiency writers used fewer and more detrimental strategies. The lowest proficiency writer used the most strategies but did not use them effectively. Apparently reading strategies used by writers in composing integrated tasks are impacted by their proficiency levels. Esmaeili (2002) worked with 34 engineering students enrolled in an ESL class to study strategy use in thematically linked reading-writing test tasks. His focus included writing strategies that involved the use of the reading text, which might be considered mining, such as borrowing words/phrases, recalling content from reading, and/or accepting/rejecting viewpoints from reading. This analysis of strategies led him to conclude that reading-writing were bi-directionally linked in the integrated task.

Although these studies have shown that reading and mining strategies are used by writers in reading-writing tasks (Cohen, 1994; Esmaeili, 2002), little is known about the nature of the strategies used in integrated writing tasks, the sequence of their occurrence and their relation to resulting performance. This information would be useful for teachers and test developers who need to make inferences and decisions using such tasks.

3. Methods

This study of patterns sought to discover if certain reading strategies appeared in relation to stages of completing the tasks and what relationship existed between strategies and writers’ resulting performances.

3.1. Participants

Twelve students from two large U.S. universities were recruited for this study (see Table 1 for information about their degree status, majors, TOEFL scores, and first languages). There were six full-time graduate students, four first-year undergraduates, and two who attended a pre-admission intensive English program. Their majors also varied; the diversity of backgrounds provides insights into a heterogeneous group of writers who represent the body of international students at the universities where the study was completed.

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3.2. The reading-to-write tasks

Two tasks on the topics of cultural borrowing and technology were developed to elicit argumentative essays involving some synthesis of source texts for support. These tasks were developed for use in a university English placement exam that determines if non-native English speakers will be required to take additional coursework in academic English. The topics of technology and cultural borrowing were chosen from topics considered successful in earlier writing-only versions of the placement exam. Two source texts for each topic were selected because they were interesting, at an appropriate level, and somewhat parallel to each other in rough measures, such as word count and readability indices. The tasks were piloted on four writers (similar to those who would be selected for the study) and then revised before data collection began. The tasks were also reviewed by three ESL writing teachers who suggested revisions and wording of the instructions (see Appendix A for Tasks).

3.3. Think-aloud protocols and interviews

Think-aloud verbal protocols were used to capture the writers’ thoughts as they completed their assigned task. Each writer received instructions and listened to a recording of a sample think-aloud, then participated in a practice session where they uttered their thoughts aloud while completing two shorter tasks. Before the writing session began, they were provided feedback on this practice session. To lessen the concerns about think-aloud data collection suggested by Ericsson and Simon (1993), Green (1998), and Russo, Johnson, and Stephens (1989), precautions were taken, such as not limiting the time for the task, reminding writers to “keep talking” when they fell silent, and asking them not to interpret their thoughts, only to verbalize them.

The think-aloud sessions were recorded, transcribed, and checked for accuracy, then sections where writers were reading or thinking about the source texts were highlighted as activities or episodes for coding and analysis. After these highlighted sections were divided into idea units to capture individual thoughts, they were coded as strategies in the composing process.

The resulting 12 compositions written during the think-aloud sessions were scored by two raters using a holistic rubric that incorporated use of sources, language use, development, and organization (see Appendix C). Raters scored the essays independently with an agreement rate of 93%.

Table 1
Basic Information on Participants.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Degree Status</th>
<th>Major</th>
<th>TOEFL score</th>
<th>First language</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Undergraduate</td>
<td>Computer Science</td>
<td>None (citizen)</td>
<td>Spanish</td>
</tr>
<tr>
<td>2</td>
<td>Graduate</td>
<td>Asian Languages</td>
<td>267 (630*)</td>
<td>Japanese</td>
</tr>
<tr>
<td>3</td>
<td>Graduate</td>
<td>Foreign Language Education</td>
<td>617</td>
<td>Chinese</td>
</tr>
<tr>
<td>4</td>
<td>Graduate</td>
<td>Business</td>
<td>255 (610*)</td>
<td>Korean</td>
</tr>
<tr>
<td>5</td>
<td>Graduate</td>
<td>Instructional Technology</td>
<td>243 (590*)</td>
<td>Chinese</td>
</tr>
<tr>
<td>6</td>
<td>Graduate</td>
<td>Statistics</td>
<td>573</td>
<td>Chinese</td>
</tr>
<tr>
<td>7</td>
<td>Undergraduate</td>
<td>Pre-dentistry</td>
<td>227 (567*)</td>
<td>Korean</td>
</tr>
<tr>
<td>8</td>
<td>Applying to graduate school</td>
<td>Industrial Engineering</td>
<td>527</td>
<td>Spanish</td>
</tr>
<tr>
<td>9</td>
<td>Graduate</td>
<td>Women’s Studies</td>
<td>69 (523*)</td>
<td>Bengali</td>
</tr>
<tr>
<td>10</td>
<td>Undergraduate</td>
<td>Psychology</td>
<td>520</td>
<td>Chinese</td>
</tr>
<tr>
<td>11</td>
<td>Undergraduate</td>
<td>Biochemistry</td>
<td>520</td>
<td>Chinese</td>
</tr>
<tr>
<td>12</td>
<td>Applying to graduate school</td>
<td>Urban Planning</td>
<td>500</td>
<td>Korean</td>
</tr>
</tbody>
</table>

* Paper-based TOEFL conversion scores are provided for comparison across writers.

4. Strategies are often distinguished from processes by their level of consciousness (Cohen & Upton, 2007; Koda, 2005). Since thinking aloud forces the writer’s process to become conscious, one might argue whether these are conscious strategies or automatic processes; however, given that the writers could verbalize them, they are likely to be strategies.
3.4. Analysis

Several steps were taken to develop the strategy coding protocol. First, the transcripts from four participants were coded separately by the two raters, who assigned each segment a code based on the taxonomy of Anderson et al. (1991) as well as a short line-by-line code descriptor. Although the taxonomy revealed general patterns in the data based on prior reading strategy research, strategies included in this taxonomy were not used prescriptively because they were based on selected response test items rather than performance-based tasks. The added coding descriptors identified strategies not covered in the earlier coding scheme.

The first stage of coding refined the actual process: determining which strategies from previous coding were occurring, eliminating codes for strategies not appearing, and identifying new strategies based on the line-by-line coding. The agreement between raters in the initial coding was 73%; after the revision of the coding scheme, the raters re-scored the four transcripts with an agreement of 92%. Following the development, revision, and reliability check of reading strategies in the integrated tasks, the other eight transcripts were coded for reading strategies to achieve saturation in each category and to explore further how the strategies corresponded to the sequence of codes. To reveal general patterns in strategy use, frequency counts were used because these categories may be considered nominal and are commonly used in L2 strategies research (Anderson et al., 1991; Esmaeili, 2002).

To identify the sequence of strategies in the composing process, each segment of reading in the think-aloud protocol was marked according to the stages in the writer’s process: prewriting (P), writing (W), or revising (R). While this division may oversimplify the writing process, writers did follow a linear progression, perhaps because the tasks were completed in one session; however, simplification provides a meaningful way to view when the strategies were occurring in the process. Lastly, the scoring pattern of each writer’s composition was analyzed to explore the relationship between score and strategy.

4. Results

Through this multi-stage analysis, the following questions were addressed: Which strategies did writers use? When did these strategies occur in the composing process? How did the use of strategies differ among the writers?

4.1. Reading strategies used in L2 integrated tasks

Based on the verbal protocols of the 12 L2 writers, five categories of strategies were found: (a) goal-setting for reading the source texts, (b) cognitive processing, (c) global strategies, (d) metacognitive strategies, and (e) mining the source texts for use in writing. Table 2 lists these categories along with samples from the protocols.

Two main goal-setting strategies—checking on source integration and checking on citation—occurred when writers would return to the prompt to reread and interpret the instructions. These strategies seemed to help writers determine what to do with the source texts and also to confirm that they were completing the task appropriately. In other words, it clarified their purpose in reading for the task.

A number of comprehension strategies occurred; some might be considered part of the readers’ cognitive processing, such as slowing down their reading pace or rereading words. Writers used these strategies whenever comprehension broke down. Other comprehension strategies were more global, for example, skimming to understand the gist of the source texts or asking questions. Metacognitive strategies indicated the reader’s lack of comprehension or affirmed their understanding, which allowed for high-level processing of the source texts as well as regulating the other comprehension processes.

Another category of strategies appeared as writers mined the texts. Often these strategies involved returning to the text to reread or scan sections, then selecting information and shaping it through paraphrase and integration.

Once the strategies had been identified, their frequency could be calculated to determine which were used most often and which were only needed occasionally. For each category of strategy, the frequency and percentage of use are shown in Table 3. Comprehension processing strategies were used most commonly, followed by global strategies and then mining. Both goal-setting and metacognitive strategies were used infrequently.

Investigating the individual strategies revealed patterns in their use (see the table of frequency of all strategies in Appendix D). Overall, the most common strategy was breaking up and sounding out words, which appeared in the think-alouds of all but one of the writers. The next most common strategies involved slowing down the pace of reading.
Table 2
Strategies in integrated reading-to-write tasks.

Goal-setting
Checking the task to integrate sources

“So I’m supposed to read the passages and write an essay, okay, and the passage is the Lexus and the Olive Tree by Thomas Friedman, New York Times reporter, okay”

Checking the task for appropriate citation

“I have to cite the authors, author”

Cognitive processing
Slowing reading rate (pausing)

“[slows down on the last phrase]… ten… hours… old.”

Breaking lexical item into parts/using phonological cues

“com-pu-ter-i-za-tion computerization”

Rereading word

“french fries what? franchises”

Rereading phrase/sentence

“[rereads this sentence] what I mean is that they have made it possible for hundreds of millions of people around the world to get connected and exchange information”

Rereading passage

Global
Skimming for gist

“[skims over this list not reading all the words] news, knowledge, money, family photos, financial trades, music or television shows in…”

Asking questions

“So what’s his idea to report something?”

Recognizing text structure/rhetorical cues

“So these are topic sentence… and the following sentences are the details for the topic”

Identifying/summarizing main ideas

“Second writing… is basically ah… talking about the economic impact of this new technologies is… uh”

Responding to text with personal experience/opinions

“forcing its ideals… forcing its ideals sometimes is true… sometimes they force… forcing… forcing directly…”

Metacognitive
Recognizing lack of comprehension

“Star … Wars movies. I have no idea what he’s talking about movies… star wars… star wars movies”

Confirming understanding

“Okay, he’s for… this idea. Okay.”
and repeating words. These three strategies point to bottom-up reading processes focused on word- and sentence-level comprehension. They may also be considered compensatory strategies when readers become aware of their weakness or encounter trouble (Koda, 2005). However, they also occur with more frequency because of the nature of the strategy: there are more words to stop and sound out than when a writer mines the text for ideas. Thus, while the frequency counts provide evidence for the existence of different strategies, comparisons of these frequencies should be viewed with caution.

The global strategy of scanning the source texts for ideas to use in writing appeared often, as well as skimming them to understand the main ideas, and responding to ideas in the sources text with personal opinions. These three strategies showed test-takers moving beyond comprehension toward the use of the texts in their writing. Rereading sentences also occurred with the same frequency as responding to text.

The least used strategies were paraphrasing, confirming understanding, checking for plagiarism, and rereading entire passages, which were employed by only a few writers and not frequently. While scanning for ideas to cite was fairly common, writers spent less time on the mechanics of actually integrating the source text into their writing. Perhaps the reason for the difference was because of the amount of time needed for the strategies or the degree of difficulty in paraphrasing the source text.

4.2. When reading strategies occurred during the L2 composing process

Previous research on L2 reading strategies has shown that when strategies are employed is as significant as what strategies are used (Alexander et al., 1998; Anderson et al., 1991; Phakiti, 2003a, 2003b). Table 4 shows how often each strategy category was employed during the three stages of composing. Clearly, the prewriting stage was filled with more strategic activity than the writing and revising stages. During prewriting, the subjects read the source text for the first time, which required comprehension strategies, such as slowed reading and breaking words into parts. It also led them to check the task goals and global strategies, such as skimming for the main ideas and responding with personal opinions. Only two strategies did not appear in prewriting—paraphrasing and rereading to check for plagiarism.
plagiarism, both of which logically occurred later in the composing process. For this same reason, mining strategies also appeared with more regularity in the writing stage. In fact, it might be argued that paraphrasing and checking for plagiarism occurred exclusively while writing and revising because they are writing or discourse synthesis strategies, which do not fall into traditional conceptualizations of reading.

Reading comprehension strategies do not occur at certain times or in a step-by-step process when reading, but are more behavior-related (Purpura, 1998; Phakiti, 2003a). In this study, however, writers activated the strategies as needed during all stages of their writing process. Thus, they revealed a difference in when strategies occurred in the composing process: Writers read the source texts early on, reread some more while planning, and then returned to the text as they tried to integrate source ideas into their writing.

4.3. Differences in strategies by performance level

Although individuals differences in strategy use is a natural and expected phenomenon (Chapelle, 1995; Sarig, 1987), patterns seen among writers can reveal some trends. In this study, the writers’ essays were scored to compare strategies used at different performance levels. The 12 writers’ scores were within a range of 3 to 5, based on the task rubric (included in Appendix C) with four writers at level 3, five at level 4, and three at level 5. To provide information about L2 proficiency along with these scores, Table 5 shows that generally those with a score of 5 on the writing task had higher TOEFL scores than those scoring 3 or 4.

There are clear differences in the means on compositions scored as 5 and the other two levels; however, when considering the range across individuals and the small numbers in each group, these differences are less conclusive (see Table 6). Comparing the strategy means across the three score levels reveals that those at the highest level used on nearly one third more reading strategies than the lower two levels.

More revealing is the difference in the types of strategies used between these levels (see Table 7). These results corroborate other research that has emphasized that it is the choice as well as the frequency of the strategy that distinguishes readers. The level 5 writers employed more global strategies, such as goal setting by checking the task, skimming for the gist, and asking questions. They also used more mining strategies, particularly scanning for ideas and rereading to use source texts in their writing. These writers also paid more attention to setting goals and employing metacognitive self-regulating strategies when reading—all of which suggests that they were more focused on reading for the purpose of the task and that word-level comprehension was not a major preoccupation for them. Koda (2005) points out this tendency in reading strategy use:

> in demanding tasks, requiring information retention for further interrogations and reflections, as in essay writing or critical reviews, even a vague sense of the task objective provides indispensable guidance during both reading (e.g. how much information needs to be extracted from the text) and post-reading contemplation (e.g. how best to use extracted information in achieving the objective). Strategically savvy readers, therefore, consciously make efforts to sort and organize text information for later use (p. 207).

Table 4

<table>
<thead>
<tr>
<th>Strategy category</th>
<th>Prewriting</th>
<th>Writing</th>
<th>Revising</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehension processing</td>
<td>158</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Global</td>
<td>72</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>Mining</td>
<td>18</td>
<td>43</td>
<td>6</td>
</tr>
<tr>
<td>Goal-setting</td>
<td>23</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Metacognitive</td>
<td>22</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Total strategies</td>
<td>293</td>
<td>73</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 5

Comparison of writing and TOEFL scores.

<table>
<thead>
<tr>
<th>Score level</th>
<th>5</th>
<th>4</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writers’ TOEFL score</td>
<td>630</td>
<td>617</td>
<td>590</td>
</tr>
<tr>
<td></td>
<td>610</td>
<td>567</td>
<td>527</td>
</tr>
<tr>
<td></td>
<td>523</td>
<td>573</td>
<td>520</td>
</tr>
<tr>
<td></td>
<td>520</td>
<td>500</td>
<td></td>
</tr>
</tbody>
</table>

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In terms of quantity, there was not a large difference between the low and middle level groups; instead the difference was in which strategies were used to complete the task, as seen in Table 7. Those at the middle score level slowed their reading rate for comprehension and skimmed the article for the main idea, which suggests that they found comprehension more challenging than the higher scoring group. Since these writers showed some evidence of mining and checking the task instructions, they seemed to be trying to use the reading in their writing.

The lowest performing group employed more word-level reading strategies, sounding out and re-reading words while trying to comprehend the text. They used almost no mining and few global reading strategies. These results correspond to earlier studies that revealed lower proficiency readers using more word-level but fewer other strategies than those with higher proficiency (Carrell, 1989; Koda, 2005). The use of more word-level strategies may be simply an indicator of lower level English proficiency: three of the four at this score level have TOEFL scores below 530. Their struggles to comprehend the task may have limited their ability to mine or use the source texts in their writings.

5. Discussion

5.1. Bottom-up strategies in integrated tasks

That word-level comprehension and general compensatory strategies were used the most reflects their nature, because many words were needed to understand the readings. However, low-scoring writers’ frequent use of these strategies, suggests that the bottom-up reading strategies played an important role in reading-to-write tasks. As Watanabe (2001) concluded, the use of bottom-up strategies by lower scoring writers may be related to lower language proficiency; beginning L2 readers tend to use more decoding in their reading process (Koda, 2005). Proficiency as reflected in the writers’ score suggests that they depended on less successful strategies as well as possessing lower writing ability. Either or both of these characteristics may result in a lower writing score, which is important in the interpretation and use of the task.

5.2. Using successful strategies for integration

The results support the hypothesis that appropriate strategy choice is as important as quantity of strategies used (Alexander et al., 1998; Phakiti 2003a). Higher-scoring writers may have used more strategies overall, more global strategies, and more integrated reading with writing. Mid- and low-level writers differed not in the number of strategies they used but in the variety of strategies. Low-level writers used more word-level compensation strategies with little or no mining. Such results confirm previous strategy research (Block, 1986; Carrell, 1989; Cohen, 1994; Phakiti, 2003a). The prevalence of global and mining strategies among higher scorers may suggest these are successful strategies for reading-to-write tasks. Although strategies and scores are also tied to language and reading
ability, teasing them apart is not possible in this study. It remains unclear which comes first, strategy choice or L2 proficiency.

5.3. Reading in the composing process of integrated writing tasks

As noted earlier, most reading strategies were used in prewriting, except for mining, which tended to appear more during writing and revising. For these tasks, reading was clearly an important process in prewriting as it helped writers make sense of the texts and perhaps the topic. Since the reading provides the content for the task, it may be inseparable from planning (Plakans, 2008). Those who returned to reading when writing used the source texts more; they were, in fact, modeling the academic writing process.

These results may also be related to the context, which was similar to a test-taking situation. Writers had to complete the task in one sitting, and thus, they may not have used as much integration of the source texts in their writing stages because time constraints did not allow it. In viewing the readings as information for their writing, they may not have considered that the writing task required appropriate synthesis of sources. In fact, while the task instructions asked writers to use source texts for support, it was not included among the criteria for evaluation given to writers. Therefore, using the readings during the prewriting but not the writing process may be a test-taking strategy rather than evidence of a lack of academic writing ability.

5.4. Implications for integrated reading-writing tasks

Given these findings, several implications regarding integrated tasks emerge. The results show that “strategic competence” (Canale & Swain, 1980) for integrated tasks includes strategies not just for reading comprehension, but also for mining when reading. A construct of academic writing should include both kinds of reading strategies when making inferences, particularly for those higher-scoring writers who used more mining as well as metacognitive and goal-setting strategies. The tasks seem to elicit such strategic competence, and the scoring recognizes this fact. The results reveal that reading is especially important in prewriting, which parallels a process of academic writing. Furthermore, mining strategies occur concurrently with writing, which for experienced academic writers would be a synthesis process. More longitudinal study of reading for L2 writers in academic settings is needed (for example, Allen, 2004), but this study shows the possibility that the integrated tasks require mining, goal-setting, and local/global strategies for success in the composing process.

5.5. Limitations

First of all, a number of issues with think-alouds may affect the results of this study. Writers differ in terms of how much they verbalize due to factors such as verbosity, ability to voice their thoughts, and L1/L2 challenges. While interviews were used to substantiate the think aloud data, the distraction of speaking while reading and writing may have influenced writers’ performances and led to lower scores. Secondly, the limited number of participants in this qualitative study means the results are not generalizable. Given the large amount and depth of data from a think-aloud study, however, the size had to be manageable. Thirdly, while this study chose to focus on a reading-to-write task requiring argumentation, many other integrated tasks exist. More research is needed about tasks requiring different modalities, such as listening or speaking, and various academic writing tasks, such as summarizing or reviewing the literature (Asención Delaney, 2008).

5.6. Conclusions

This study leads to several empirical, theoretical and practical conclusions. The analysis of writers’ thinking during the integrated task generated a taxonomy of strategies for integrated reading-writing tasks (Table 2), which may be useful in future research on these types of tasks. This taxonomy includes some strategies from earlier L2 reading research as well as strategies used in academic writing contexts for synthesizing source texts. Reading strategy research is relevant to integrated reading-writing tasks as patterns emerged between final scores and reading strategy.

In terms of a construct for integrated academic writing, the study suggests that mining strategies should be included, along with reading comprehension and goal setting. Including these strategies in the construct would align...
them with the results to reveal differences across proficiency and writing score levels. As other studies have shown (Phakiti, 2003a), there may be developmental differences in strategy use and choice. Alexander et al. (1998) found that strategies used by young L1 learners change developmentally in a number of ways. Their use of strategies becomes (1) more efficient, (2) more effective, (3) more flexible, (4) less reliant, and (4) qualitatively different (increasing the use of deeper processing) as they mature. More research is needed on L2 writers; particularly between writers with difference score levels.

In terms of practice, mining as well as reading comprehension strategies should be incorporated in integrated writing tasks in academic writing courses. Strategy training has developed in the field in terms of language learning strategies and reading comprehension strategies, which could provide a basis for inclusion in writing curricula. Introducing students to reading-writing strategies should include both explicit teaching, but also allow them to reflect on what strategies they already use and provide activities that require strategy use that is valued (Alexander et al., 1998).

Second language learning and testing tasks that integrate writing with reading should provide inferences about the process and performance of reading as well as of writing. This multi-dimensional interpretation allows for more depth in utilizing second language abilities through these tasks that can make them highly useful and meaningful in both learning and testing situations. However, more research into roles of the skills being integrated in the tasks as well as how the abilities are integrated in real world situations will continue to build greater understanding and better application of such tasks.

Acknowledgements

I thank Elaine Horwitz and Barbara Plakans for their suggestions to improve this article, as well as the twelve participants who made the research possible. A portion of the data used in this study was collected with the assistance of a Language learning Dissertation grant.

Appendix A. Tasks

Prompt 1: cultural borrowing, reading-to-write task

Globalization has had a strong impact on the world. One issue of globalization is cultural borrowing or adaptation.

– Read the following passages about this issue.
– Then consider your opinion about the impact of globalization on culture.
– Plan and write an essay supporting your position and using examples.
– Incorporate relevant information from the passages appropriately. Do not copy exact phases; cite the authors.

Your writing will be evaluated on:

a) content
b) organization
c) grammar and vocabulary
d) punctuation and spelling

Whose culture? (excerpt)

Adapted from Globalize it! By Brendan January.

For many people in the world, globalization and Americanization are the same. They see an advancing tide of American youth culture—fast-food franchises, rap music, MTV, and Star Wars movies.

This is making people nervous. To some, the United States is forcing its ideals, its economic structure, even its culture and language on the rest of the world. They call it “cultural imperialism.”

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“Never before in modern history has a country dominated the earth as totally as the United States does today,” wrote the German magazine Der Speigel in 1997. “The Americans are acting, in the absence of limits put to them by anybody and anything, as if they own a blank check in the ‘McWorld.’”

By the 1990s, American “soft power” seemed virtually unstoppable. In Spain, Great Britain, Germany, and Italy, at least nine of the top ten movies in 1998 came from the United States. McDonald’s restaurants, of which there are more than 29,000 franchises in 121 countries, feed 1 percent of the world’s population every day.

At anti-globalization protests, the most common targets are franchises of American companies—such as Starbucks and McDonald’s. Anti-Americanism, which varies in intensity and degree according to its location, is growing.

*In defense of globalization: why cultural exchange is still an overwhelming force for good (excerpt)*

Adapted from an article by Philippe Legrain, economics correspondent, *The International Economy*

The beauty of globalization is that it can free people from the tyranny of geography. Just because someone was born in France does not mean they can only aspire to speak French, eat French food, read French books, and so on. That we are increasingly free to choose our cultural experiences enriches our lives immeasurably. Otherwise, we could not always enjoy the best the world has to offer.

Globalization not only increases individual freedom, but also revitalizes cultures and cultural artifacts through foreign influences, technologies, and markets. Many of the best things come from cultures mixing: Paul Gauguin painting in Polynesia, the African rhythms in rock’n’roll, the great British curry.

A big worry is that greater individual freedom may undermine national identity. Yet such fears are overdone. National cultures are much stronger than people seem to think. They can embrace some foreign influences and resist others. Foreign influences can rapidly become domesticated, changing national culture, but not destroying it. Clearly, though, there is a limit to how many foreign influences a culture can absorb before being swamped. Traditional cultures in the developing world that have until now evolved (or failed to evolve) in isolation may be particularly vulnerable.

*Prompt 2: technology, reading-to-write task*

Modern technology, such as high-speed computers, cell phones, and the Internet, has impacted our lives and our world. Some believe this is good; others are not so sure.

– Read the following passages related this issue.
– Then consider your position on the impact of modern technology.
– Plan and write an essay supporting your position and using examples.
– Incorporate relevant information from the passages appropriately. Do not copy exact phases; cite the authors.

Your writing will be evaluated on

a) content
b) organization
c) grammar and vocabulary
d) punctuation and spelling.

*The Lexus and the Olive tree (excerpt)*


When I say that the innovations in computerization, miniaturization, telecommunication and digitization have democratized technology, what I mean is that they have made it possible for hundreds of millions of people around the world to get connected and exchange information, news, knowledge, money, family photos, financial trades, music or television shows in ways never witnessed before.
In the old days, if you were living in New York and your child was living in Australia and had a new baby boy, he used to have to go out, get a camera, buy some film, take the baby pictures, have them developed, put them in an envelope and send them by mail. If you were lucky, you got to see your first grandchild’s cute face ten days later. Not anymore. Now your kid can take those baby pictures with a digital camera, record them digitally, edit them digitally and then transmit them digitally to you over the Internet—all before the baby is ten hours old.

Today’s globalization isn’t just about developing countries shipping raw materials to developed ones, letting them produce the finished goods and then shipping them back. No, today all sorts of countries have the opportunity to assemble the technologies, raw materials and funding to be producers of highly complex finished products or services.

*Globalization and technology (excerpt)*

Adapted from an article by Robert K. Schaeffer, Professor of Global Sociology at Kansas State University, *Phi Kappa Phi Forum*

Technology plays an important role in contemporary globalization. Most observers argue that technology is a force for integration, making the world a small, better place. Technology, it is said, brings “good things to life.” This is true, but only in part. New technology also plays a role that few people consider. It may contribute to integration, but it also may result in economic and political disintegration, a process that distances people living in different parts of the world.

Consider the technological developments associated with the communications revolution. Fiber-optic cable and wireless technologies have transformed telecommunications in recent years. By most accounts, these technologies have made it easier and less expensive for people to talk with family, friends, and business associates and to do so while on the move, from great distances. But these technologies have had other less obvious consequences. The introduction of new communications technologies contributes to the substitution of these technologies for old ones. This substitution results in the decreased need for the raw materials used in their manufacture. And this trend in turn has resulted in falling prices and economic and social problems for the producers of raw materials, that is poor countries across Africa, Latin America, the Middle East, and South Asia.

**Appendix B. Interview questions and (their purpose)**

*Stage 1: pre-protocol*

Tell me your personal history briefly. (General background)
Describe your educational background. (General background)
Talk about your experiences in writing (L1 and L2). Who has influenced your writing? How do you feel about writing? (Writing experience)
Talk about your experiences learning to read (L1 and L2). Who has influenced your reading? How do you feel about reading? (Reading experience)
What are the characteristics of good academic writing in English? (Perceptions of assessment)
How do you use writing in your academic classes? (Writing experience)
How do you use reading when writing in your academic classes? (Reading experience)
What kind of writing tests have you taken before? (Writing experience)
How did you feel about the writing test(s)? (Perceptions of assessment)
How do you think writing tests are scored? (Perceptions of assessment)

*Stage 2: post-protocol*

How did you use the reading texts in the task? (Perception of tasks)
Was this task similar to any writing you have done before? (Perception of task)
Did the task show your writing ability? (Perception of task)
Did the topic affect your writing? (Topic effect)
Do you think talking aloud affected your writing? How? Do you normally think in your first language when writing? (Think-aloud effect)
Appendix C. Rating scale. Reading-to-write scoring rubric

(Adapted from the scoring rubric of the TOEFL iBT integrated task by Gebril, 2006 & Gebril & Plakans, 2008)

<table>
<thead>
<tr>
<th>Score</th>
<th>Task Description</th>
</tr>
</thead>
</table>
| 5     | A response at this level:  
|       | • successfully presents their ideas in relation to the relevant information presented in the reading sources.  
|       | • is well organized with well-developed content  
|       | • occasional language errors that are present do not result in inaccurate or imprecise presentation of content or connections. |
| 4     | A response at this level:  
|       | • is generally good in coherently and accurately presenting their ideas in relation to the relevant information in the reading texts, although may have inaccuracy, vagueness, or imprecision in connection to points made in the readings.  
|       | • has clear organization and logical development.  
|       | • more frequent or noticeable minor language errors; such errors do not result in anything more than an occasional lapse of clarity or in the connection of ideas. |
| 3     | A response at this level  
|       | • conveys some relevant connection to the reading, but only vague, global, unclear, or somewhat imprecise connection to points made in the reading.  
|       | • development is somewhat limited, but some specific support for their argument is provided.  
|       | • occasionally lacks cohesion but has a basic organizational structure.  
|       | • includes errors of usage and/or grammar that are more frequent or may result in noticeably vague expressions or obscured meanings in conveying ideas and connections. |
| 2     | A response at this level  
|       | • contains some relevant information from the readings, but is marked by significant language difficulties or by significant omission or inaccuracy of important ideas from the readings.  
|       | • lacks logical organizational coherence and development. Ideas are very general and lack specific details in support.  
|       | • contains language errors or expressions that largely obscure connections or meaning at key junctures, or that would likely obscure understanding of key ideas for a reader not already familiar with the topic. |
| 1     | A response at this level  
|       | • provides little or no meaningful or relevant coherent content from the readings and does not follow an organization pattern or develop content.  
|       | • includes language that is so low and it is difficult to derive meaning. |
| 0     | A response at this level  
|       | • either merely copies sentences from the reading, rejects the topic, not connected to the topic, is written in a foreign language, or is blank. |

Appendix D. Table of frequency for individual strategies

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Frequency (number of occurrences for all writers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breaking lexical item into parts/using phonological cues</td>
<td>59</td>
</tr>
<tr>
<td>Slowing reading rate (pausing)</td>
<td>39</td>
</tr>
<tr>
<td>Rereading words</td>
<td>34</td>
</tr>
<tr>
<td>Scanning text for ideas to use in writing</td>
<td>30</td>
</tr>
<tr>
<td>Skimming for gist</td>
<td>27</td>
</tr>
<tr>
<td>Responding to text with personal experience/opinions</td>
<td>25</td>
</tr>
<tr>
<td>Rereading phrase/sentence for comprehension</td>
<td>25</td>
</tr>
<tr>
<td>Recognizing a lack of comprehension</td>
<td>19</td>
</tr>
<tr>
<td>Identifying/summarizing main ideas</td>
<td>15</td>
</tr>
<tr>
<td>Checking the task to cite sources appropriately</td>
<td>15</td>
</tr>
<tr>
<td>Asking questions</td>
<td>14</td>
</tr>
<tr>
<td>Recognizing text structure/rhetorical cues</td>
<td>14</td>
</tr>
<tr>
<td>Checking the task to integrate sources</td>
<td>14</td>
</tr>
<tr>
<td>Rereading sentences for use in writing</td>
<td>13</td>
</tr>
<tr>
<td>Rereading entire passages</td>
<td>8</td>
</tr>
<tr>
<td>Rereading to check for plagiarism</td>
<td>8</td>
</tr>
<tr>
<td>Confirming understanding</td>
<td>8</td>
</tr>
<tr>
<td>Paraphrasing</td>
<td>7</td>
</tr>
<tr>
<td>Total strategies</td>
<td>374</td>
</tr>
</tbody>
</table>

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