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## ARTICLE

# Reading–Writing Connections: A Systematic Review Of Second Language Synthesis Writing

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Synthesis writing is a widely practiced form of academic writing in which students incorporate into their writing multiple perspectives from various sources. Although scholars have acknowledged that synthesis writing is particularly challenging for writers using a second language, few of them have systematically reviewed the relevant literature. The purpose of the current study was to investigate the discrepancy between extensive practice and the scarcity of reviews by assessing 92 empirical studies on synthesis writing produced during the last two decades (2004–2024). The aim of this review was a comprehensive examination of patterns in research contexts, theoretical frameworks, methodological approaches, and key research findings. The main findings suggest that most previous research was conducted in higher education settings, predominantly focusing on undergraduate students in North America (the US and Canada), followed by Asia (e.g., China, Japan, United Arab Emirates, and Iran). Regarding the theoretical orientations used in these studies, most researchers used cognitively oriented approaches, followed by social or sociocultural approaches. Methodologically, quantitative approaches were used slightly more than qualitative ones, followed by an approach emphasizing quantitative methods, or eclectic (QUAN + qual). The areas of synthesis writing receiving the most attention were source use, predictors of writing scores, task representation, and writing processes. Overall, many empirical studies highlighted students' continuous struggles with source use, underscoring the need for systematic instruction to enhance their synthesis writing skills.

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## INTRODUCTION

Academic literacy, which involves both reading and writing skills, has always been regarded as the sine qua non for success in academic settings. In researching it, significant attention has been directed toward synthesis writing, in which students read and connect multiple perspectives based on source texts. Van Ockenburg et al. (2019) defined synthesis writing as the process of “integrat[ing] different information sources” and generating a “representative” text (p. 402). In this sense, synthesis writing surpasses simple amalgamations of parts and is instead an act of transformation (Bereiter & Scardamalia, 1987) because synthesizing facilitates new critical thought (Martínez et al., 2015) or novel perspectives (Vandermeulen et al., 2020).

Typical examples of synthesis writing are argumentative essays (Zhang, 2013), literature reviews (Dovey, 2010), and research papers (Ene et al., 2019) in which multiple viewpoints from reading sources are examined, compared, and integrated. Synthesis writing is also known to be a highly demanding task—cognitively, linguistically, and rhetorically (Zhao & Hirvela, 2015)—because the writer must accurately understand source material, extract only essential information for the chosen themes, and reflect those ideas in a well-formed text (Doolan & Fitzsimmons-Doolan, 2024). Many student writers, particularly second language (L2) students, struggle with synthesis writing because they need to manage two or more linguistic and rhetorical systems at once (Grabe & Zhang, 2013; Hirvela, 2016).

Most of the existing body of research on synthesis writing is grounded in Spivey (1984), who described synthesis processes through a model of discourse synthesis with three subprocesses—organizing, selecting, and connecting. First, writers engage in organizing when they examine the structure of their reading sources and contemplate a plan for their paper. Then, they choose the most important source ideas related to the chosen theme(s). Writers also explore relationships among the source materials to create appropriate syntheses. Although Spivey's (1984) model was originally constructed with data from first language (L1) students, it has been widely applied in research on L2 synthesis writing.

Several representative L2 writing researchers incorporated Spivey's discourse synthesis. For example, Plakans (2009a) provided evidence that Spivey's L1-based model was applicable in L2 students' synthesis process by demonstrating that ESL undergraduate and graduate students engaged in organizing, selecting, and connecting. Zhang (2013) examined the pedagogical effects of discourse-synthesis instruction and found that it promoted significant growth in L2 students' synthesis writing. More recently, Doolan (2021) illustrated that both L1 and L2 students rarely integrated source information (2% of true synthesis) despite the specific requirement of synthesis, emphasizing the challenge that synthesis writing poses to students of all backgrounds.

My primary motivation for the current study was, therefore, to respond to the dearth of systematic reviews published specifically on L2 synthesis writing. Recently, Nelson and King (2023) undertook a review of discourse synthesis, but it was a conceptual piece without the systematic inclusion or analysis of empirical studies. The only two broader reviews on source-based writing were published nearly a decade ago. Cumming et al. (2016) analyzed 69 empirical studies to investigate L2 writers' source-based writing and found significant differences depending on their disciplines, educational levels, and task conditions. They also found important differences between L1 and L2 students in their citation of sources. Then, in a larger thematic review of 135 studies, Liu et al. (2016) identified source-use problems that L2 students encountered, finding that they engaged in inappropriate source use practices, such as illegitimate textual borrowing, in part due to differing cultural norms. Such plagiarism issues were also explained by insufficient institutional guidelines and the faculty's use of plagiarism detection software (e.g., Turnitin) to punish rather than to educate students. To help students better understand source-use practices, authors made two pedagogical recommendations: (a) invite students to various workshops on responsible use of sources and (b) engage faculty in conducting more concrete source-use activities in class to narrow the gap between faculty expectations and student understanding.

My secondary motivation for the current study was the emergence of generative artificial intelligence (GenAI) tools, which are capable of producing texts involving sources (Sun, 2024). Some language educators (Lee, 2024; Szabó & Szoke, 2024) have stated that GenAI represents a breakthrough that can enhance writers' thoughts and elevate their work (Barnett, 2024), whereas other scholars in composition (Bedington et al., 2024; Cummings et al., 2024) have voiced their apprehension about overreliance on AI content (Zou & Huang, 2023). Although I did not expect to find a significant amount of research on the topic of generative AI and synthesis writing at this point, especially empirical studies with L2 learners as the subjects, I nevertheless made an effort to search for such studies because they have the potential to bring new foci and perspectives to the field of L2 academic writing.

Clearly, the time is ripe for a systematic examination of research on synthesis writing. Thus, I conducted a critical examination of 92 empirical studies, providing an overall picture of synthesis writing research and addressing the following research questions:

RQ 1: In what geographical and educational contexts has synthesis writing research

been conducted?

RQ 2: What theoretical frameworks have been used to investigate synthesis writing?

RQ 3: Which methodological approaches have been adopted to investigate synthesis writing?

RQ 4: What are the key thematized research findings on synthesis writing?

## METHODOLOGY

In this systematic review I followed the conventional protocols recommended by leading scholars in L2 research (Norris & Ortega, 2007). In total, I analyzed 92 empirical investigations of synthesis writing, published in 29 peer-reviewed journals between 2004 and 2024. I chose this period first, because synthesis writing was consistently used at that time as a standard task in writing education (Hirvela, 2016) and second, because the challenge posed by the recent arrival of GenAI technology to the field of L2 composition merits further discussion.

During this period (2004–2024), researchers proposed several new perspectives on L2 learning. Specifically, the social turn (Block, 2003) encouraged educators and researchers to view language learning as a relational activity shaped by interactions and power dynamics in society (Lave & Wenger, 1991; Norton, 2000). The bilingual turn challenged monolingual perspectives and advocated for heritage learners' knowledge of their first language as an asset (García, 2008). The multilingual turn questioned binary monolingual versus bilingual conceptualizations and emphasized knowledge of multiple languages as a norm reflecting real-world language use (May, 2014). More recently, the translanguaging turn promoted learners' use of their entire linguistic repertoire to express themselves fully and to learn a language effectively (Canagarajah, 2013). These new perspectives resulted in a shift in the topics, theories, and methodologies examined in the field of L2 education overall, including L2 writing research, necessitating a further investigation of synthesis writing through the systematic review below.

I executed this review systematically and reliably in three stages by doing the following:

1. Searching relevant studies exhaustively until reaching data saturation for consideration for inclusion,
2. Using transparent and reliable procedures throughout the stages of conceptualizing, searching, condensing, and drawing conclusions, and
3. Reviewing the material recursively with sufficient time intervals to reduce reviewer bias.

### Data Collection

#### *Inclusion–Exclusion Criteria*

I used the following questions to determine whether a piece of research qualified for inclusion:

1. Was the study empirical with original findings? In the current study, I compared theories, methodologies, and findings in the selected studies, necessitating the inclusion of only primary research.
2. Was the study published between 2004 and 2024? If so, I considered it recent and relevant for this review (see explanation above).
3. Were participants L2 or multilingual writers? Studies with both L1 and L2 participants were considered relevant for the current review only if they offered

separate analyses for L2 participants' writing. If, however, only L1 participants were involved or if the researchers had not explicitly mentioned participants' language background(s), the study was excluded.

4. Did the study focus on the participant writing that involved at least two sources for synthesis? Studies with zero sources or only one source text/material (e.g., summary writing) were excluded.
5. Was English used as a second language (ESL) or as a foreign language (EFL) in the L2 writing examined in the study? I chose English as the output language because most empirical studies on source writing were conducted in English. Selecting studies with the same output language allowed for precise and rigorous comparisons and analysis.
6. Was the study peer-reviewed? Initially, I considered book chapters, theses, and dissertations to capture as many studies as possible for a broader scope of discussion; however, to ensure similar levels of academic rigor, I ultimately included only peer-reviewed journal articles.

### ***Search Procedure***

I undertook the search process in the following stages. First, I used the Ball State University library website to access various research databases, such as the Education Resources Information Center (ERIC), Journal Storage (JSTOR), PsycINFO, the Modern Language Association (MLA), ProQuest Educational Journals, Language and Linguistics Behavior Abstracts (LLBA), and EBSCOhost. The key search terms I used were “source use,” “citations,” “source-based writing,” “synthesis writing,” “reading-to-write,” “integrated writing,” and “discourse synthesis.”

Second, after manually examining relevant peer-reviewed journals I used Google Scholar to locate studies undetected with the strategies noted above. Finally, I inspected the reference lists in the retrieved studies to locate other frequently cited studies. Table 1 shows the complete list of journals that published the included studies. Journal of Second Language Writing and Journal of English for Academic Purposes published the highest number of L2 synthesis writing studies because of the nature of the target task.

Table 1

#### *Journals Publishing the Included Studies*

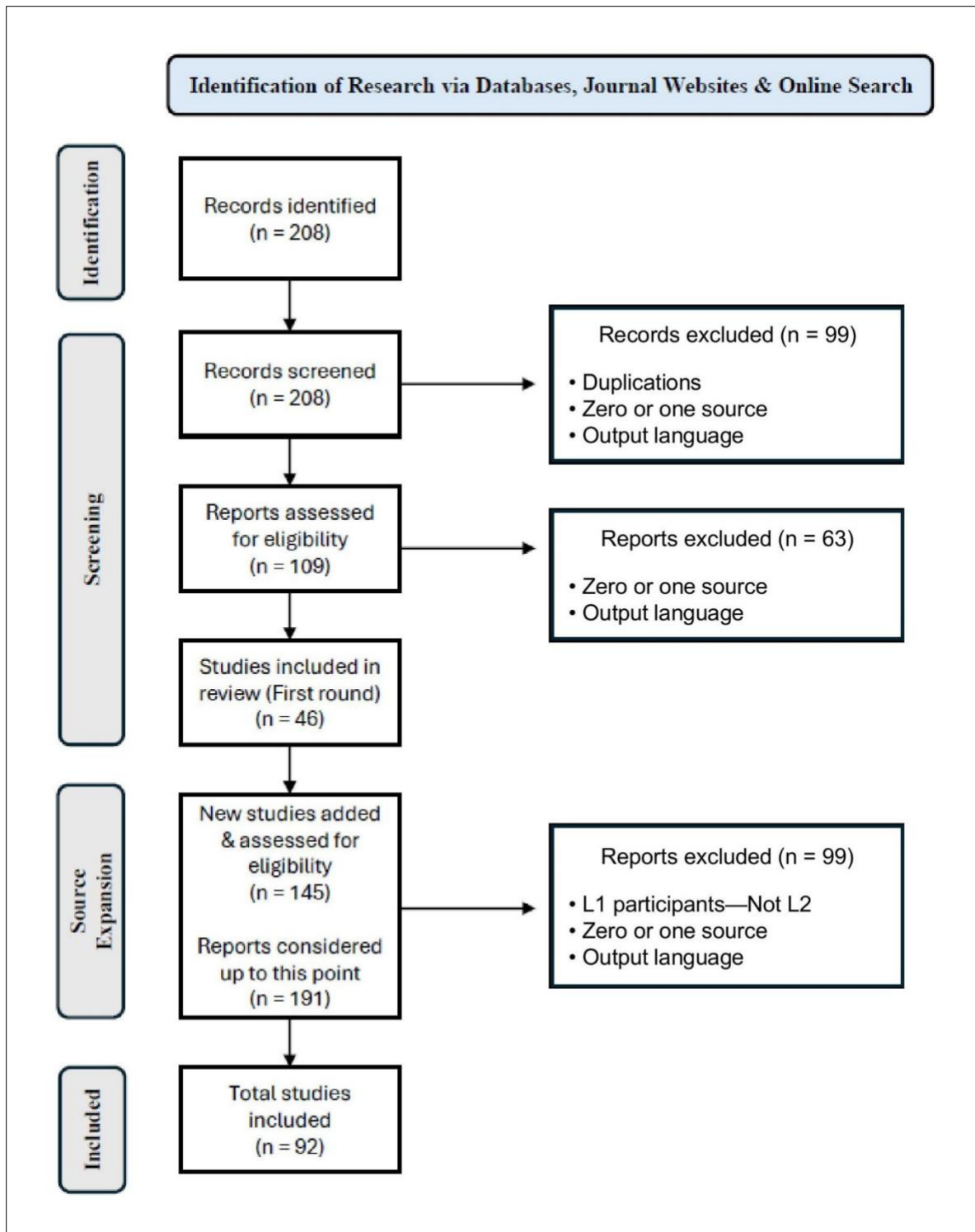
Journal Title	n (%)
<i>Journal of Second Language Writing</i>	26 (28%)
<i>Journal of English for Academic Purposes</i>	25 (27%)
<i>Assessing Writing</i>	7 (9%)
<i>Language Testing</i>	4 (4%)
<i>TESOL Quarterly</i>	3 (3%)
<i>Language Testing in Asia</i>	3 (3%)
<i>Canadian Journal of Applied Linguistics</i>	2 (2%)
Other journals*	22 (24%)
Total	92 (100%)

\*Note: One article came from each of the following journals: Cogent Education; Computer Assisted Language Learning; Computers and Composition; Educational Media International; English for Specific Purposes; English Language Teaching; ETS Research Report Series; Journal of Asian Pacific Communication; Journal of Language Teaching and Research; Journal of Pan-Pacific Association of Applied Linguistics; Language and Sociocultural Theory; Language Assessment Quarterly; Language Education and Assessment; Reading and Writing; Reading in a Foreign Language; RELC Journal; Second Language Research; Sustainability; Technology, Knowledge and Learning; TESL Canada Journal; TESOL Journal; and The Modern Language Journal.

Figure 1 illustrates my overall search and selection process for the review, involving two rounds. In the first round, I initially identified 208 studies, with 99 studies later excluded for reasons related to duplication, sources (e.g., having one or fewer sources), and output language. This left me with 109 studies to assess for eligibility, over half of which ( $n = 63$ ) I excluded for issues with sources and output language, resulting in 46 studies in the first round. The second round, in which I aimed to include more recent studies, led to identifying 145 new studies. I then considered these 191 studies (46 studies from the first round and 145 new studies in the second round), excluding 99 of them after assessing eligibility. Ultimately, I selected 92 studies for inclusion in the current review.

Figure 1

*A PRISMA Flow Diagram of the Literature Selection Process (Modified from Page et al., 2021)*



## Coding and Analysis

Overall, I adopted an iterative analytical approach to code and analyze the data in the studies I retrieved. The coding scheme (see Appendix) comprised 10 codes: author(s) and publication year, topic and theme, main finding, sample size, language (L1/L2), research context, theoretical framework(s), research design, data sources, and research duration. I developed this coding scheme, guided by other systematic reviews and synthesis writing studies (see Liu et al., 2016; Nelson & King, 2023; Riazi et al., 2018; van Ockenburg et al., 2019).

Using this scheme, I coded and analyzed the collected data. To analyze categorical (e.g., research context) or quantifiable variables (e.g., research duration), the process involved descriptive statistics, such as calculating frequencies, percentages, or means. In contrast, for qualitative variables (e.g., research focus), I adopted Corbin and Strauss' (2015) framework to explore concepts and approaches used; these were later subsumed under larger categories to form a thematic unit.

To ensure rigor for the analysis process, I implemented two techniques: (a) intracoder reliability and (b) transparent coding procedures. I achieved the former through consistency checks through multiple rounds of time-gap coding (summer 2023, fall 2023, spring 2024, and summer 2024). This allowed for systematic comparison as I revisited my coded data after each semester to verify whether my coding decisions remained consistent. To establish transparent coding procedures, I used a codebook, updated after each cycle, and engaged in a thorough iterative coding process.

I completed four analysis cycles in total. Specifically, Cycle 1 (summer 2023) involved familiarizing myself with data and identifying initial narrower codes. Based on results, during Cycle 2 (fall 2023), I searched for larger and higher-level themes that could subsume lower-level codes. For example, a narrower code, “constructing information during writing,” associated with Kocatepe (2021), was subsumed into a larger theme, “composing process.” In Cycle 3 (spring 2024) I checked the accuracy of all previously inserted codes for consistency and refined the names of themes, resulting in 13 drafts. Once I detected insufficient details provided by some studies regarding research methods, I reached out to some authors to cross-check and updated the information in an Excel spreadsheet accordingly. Between Cycles 3 and 4, I added new studies to ensure the current study was not outdated. Hence, Cycle 4 involved generating or selecting codes for the newly added studies and rechecking the entire codes thoroughly, which involved 54 attempts. This led to the addition of new codes, such as “translingual composing” and “stance.” Each cycle was always followed by an iterative checking process to confirm the inserted data multiple times. Finally, to ensure that the coded data were accurate, I performed a randomized final check on half the studies ( $n=46$ ). Based on thematic units from the data, I created analytical notes, which became the basis for the findings section of this paper.

## FINDINGS

This section, which illustrates the findings of the review, is organized into the following subsections. The first section addresses RQ 1 on the geographical context (e.g., countries and continents) and educational level (e.g., university) in which the research on synthesis writing was conducted; participants' characteristics are also included. The second section presents the theoretical backgrounds adopted by the researchers whose work was included (RQ 2), followed by a discussion of research methodologies, including research duration and data

sources (RQ 3) in the third section. Last, the findings of key areas in synthesis writing are discussed thematically (RQ 4) in the fourth section.

## RQ 1: Research Contexts

### *Geographical Context*

Most research on synthesis writing covered in this review was conducted in North America, followed by Asia, Europe, and Oceania (see Table 2). Despite the adoption of English as an official language in many countries in Africa, only one study was conducted there, perhaps because source-based writing is not a common practice. I found no studies conducted in South America, possibly because of the dominance of Spanish or less emphasis on source-based writing.

Table 2

#### *Geographical Locations of the Included Studies*

Continent	Country or area	n (%)
North America (47%)	United States	30 (33%)
	Canada	12 (14%)
Asia (26%)	Hong Kong	8 (9%)
	China (Mainland)	5 (6%)
	Japan	2 (2%)
	United Arab Emirates	2 (2%)
	Iran	2 (2%)
	One study from each of the following countries: South Korea, Taiwan, Indonesia, Afghanistan, Lebanon	5 (6%)
Europe (9%)	United Kingdom	7 (7%)
	Greece	1 (1%)
Oceania (3%)	Australia	1 (1%)
	New Zealand	2 (2%)
Africa (1%)	Egypt	1 (1%)
Multisite or greater context (7%)	United Kingdom and Turkey, United Kingdom and Iran, Eastern Europe and Asia, Middle East, Central Europe	7 (7%)
Unspecified (7%)	N.A.	7 (7%)
Total		92 (100%)

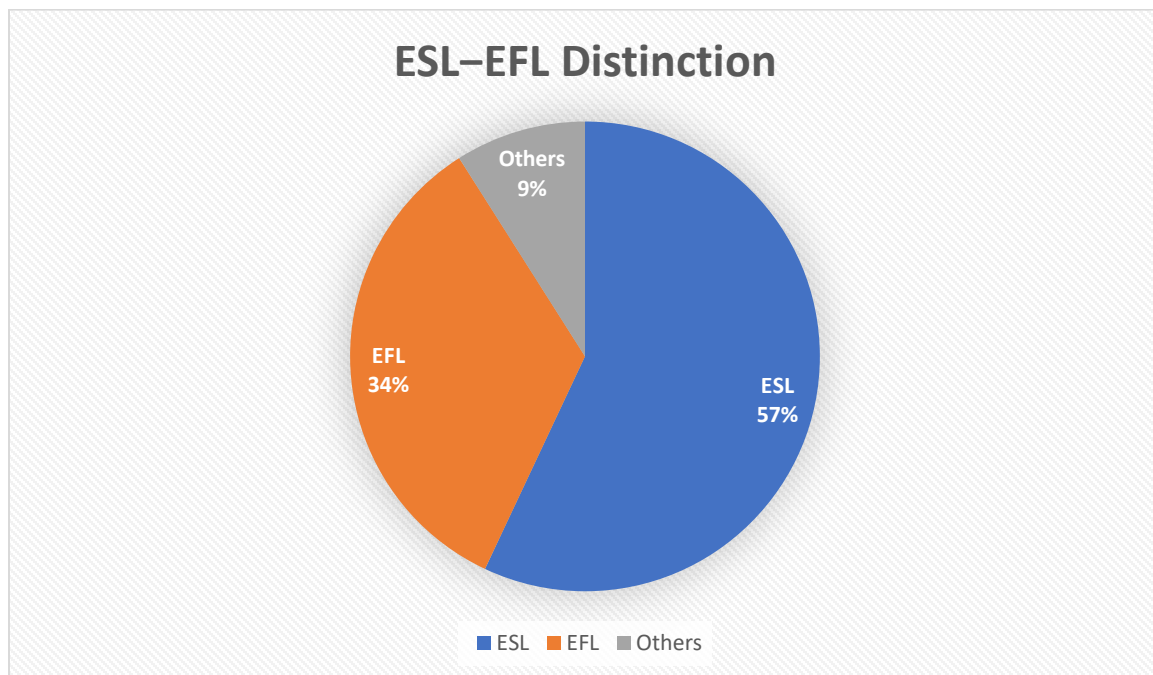
Clear disproportions existed even among Anglophone contexts: Significantly fewer studies of synthesis writing were conducted in the United Kingdom (7%), Australia (1%), and

New Zealand (2%), compared to the United States (33%) and Canada (14%). The higher number of ESL writing programs with greater emphasis on synthesis writing in North American contexts (M. Riazi et al., 2018) may explain this phenomenon. Some researchers adopted a comparative approach, using a “multisite” method, involving more than one country (e.g., United Kingdom and Turkey). Some studies (7%) could not be classified geographically because they used writing samples directly from standardized tests (e.g., TOEFL iBT).

In terms of distinctions between English as a Second and English as a Foreign Language (ESL–EFL), my analysis (see Figure 2) showed that that more studies were conducted in ESL contexts (United States, Canada, United Kingdom, Australia, and New Zealand), marking 57% (n=52) of the studies. The ESL proportion was not, however, notably overwhelming, signaling that EFL studies (n=31, 34%) were also increasingly used to examine students’ synthesis writing practices in English. This may also signify that EFL institutions have introduced more globalized curricula, assigning more synthesis writing tasks in English, possibly because of an increase in admissions of international students speaking English. Others (9%) referred to studies in which researchers used TOEFL samples either directly without further data collection or conducted their work in a multisite research context (ESL + EFL); I could not classify these under the ESL–EFL binary distinction.

Figure 2

*The Proportion of ESL and EFL Contexts in Synthesis Writing Studies*



### ***Educational Level***

The widespread practice of using source texts in higher education contexts matched the educational level of participants. Undergraduate students were the most typical participants (n=39, 42%), followed by graduate students (n=20, 22%) and mixed-level participants (n=12,

13%), the latter a combination of participant groups, for example, undergraduate and graduate students. Notably, in K–12 settings, no studies had been conducted in elementary schools, with only a few studies (n=4, 4%) conducted in secondary schools. This signals scant research on K–12 school-aged learners despite the importance of synthesizing skills across all educational levels, including elementary school (Baxter & Neumann, 2023). Only one study (1%) examined teachers as the sole participant group in contrast to the many student-oriented studies. This also highlights the preference in the field for researching learners over teachers even though teacher perspectives and practices are crucial to enhancing writing pedagogies.

### ***Participant Characteristics: First Language, and Discipline***

Participants in the study came from diverse backgrounds, particularly with regard to their L1: Chinese, Arabic, Korean, and Spanish were the most common first languages of the participants, followed by French, Farsi, and Vietnamese. Regarding academic fields, students came from various departments, including business, English, linguistics, engineering, and computer science. The English proficiency level of participants was typically at the B1-B2 level in the CEFR levels (with C2 as the highest grade), 6.5–7.0 on the IELTS exam (out of 9.0), and 60–94 on the TOEFL iBT exam (out of 120), demonstrating that the participants were generally at the intermediate to high-intermediate level. Because the participants, typically recruited from English for Academic Purposes (EAP) courses, had not met language criteria based on the university’s placement exams or standardized tests, they were normally not at the advanced level.

## **RQ 2: Theoretical Frameworks Used in Synthesis Writing Research**

During my analysis of theoretical orientation, I found seven categories: cognitive, social or sociocultural, sociocognitive, genre or rhetoric, critical, two or more orientations, and unspecified. I applied explanations by Riazi et al. (2018) as follows: studies based on *cognitive* approaches highlight mental processes in one’s head, whereas *social* or *sociocultural* studies focus on the interaction between writing and external factors (e.g., communities or tools) or the writer’s beliefs or values. *Sociocognitive* studies address both mental processes and external factors and how they influence the process and products of writing. *Genre-based* approaches are used to investigate how the target rhetoric and structures shape a writer’s composing. Studies with *critical* orientation typically aim to challenge the conventional and rigid norms of academic writing.

Table 3 illustrates various theoretical orientations expressed in the included studies.

Table 3

### *Theoretical Orientations in the Included Studies*

Theoretical orientation	n (%)	Example
Cognitive	34 (37%)	<ul style="list-style-type: none"> <li>• Spivey’s discourse synthesis</li> <li>• Task representation</li> <li>• Bereiter and Scardamalia’s knowledge telling and transforming</li> </ul>

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Social or sociocultural	14 (15%)	<ul style="list-style-type: none"> <li>• Activity theory</li> <li>• Vygotsky’s concept of mediation</li> <li>• Academic discourse socialization</li> </ul>
Sociocognitive	5 (5%)	<ul style="list-style-type: none"> <li>• Transfer of learning</li> </ul>
Genre or rhetoric	2 (2%)	<ul style="list-style-type: none"> <li>• Genre theory</li> </ul>
Critical	1 (1%)	<ul style="list-style-type: none"> <li>• Translanguaging</li> </ul>
Two or more orientations	8 (9%)	<ul style="list-style-type: none"> <li>• Vygotsky’s sociocultural theory and Emig’s writing process theory</li> <li>• Activity theory and translanguaging</li> <li>• Intercultural and translanguaging</li> </ul>
Unspecified	28 (31%)	N/A
Total	92 (100%)	

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According to my analysis, cognitive orientation was the most prominent approach ( $n=34$ , 37%). Among cognitively oriented theories, Spivey’s (1984) discourse synthesis was unsurprisingly the most frequently adopted approach, perhaps because the development of synthesis writing drew on her groundbreaking work. Discourse synthesis extensively influenced the work of later scholars like Segev Miller, Alan Hirvela, William Grabe, and Lia Plakans, who applied the theory in a range of research contexts (e.g., literacy practices, strategy development, and assessment), making the model more influential in both L1 and L2 composition scholarship.

The second most prevalent theoretical orientation was the social or sociocultural approach ( $n=14$ , 15%). In this category, Engeström’s (1987) activity theory was the most dominant. This theory became increasingly significant in source-based writing because of the growing awareness of composing as a complex activity shaped by larger sociocultural factors beyond the narrow act of reading and writing. For example, Pomerantz and Kearney (2012) demonstrated that their participant’s writing was greatly informed by her writer identity and beliefs about what defined “good” writing. These sociocultural perspectives prompted writing scholars to view surrounding mediating artifacts (e.g., tools, and communities) as playing significant roles in source-based writing.

Overall, researchers who adopted critical approaches were rare. Translanguaging was used as a sole theoretical framework in only one study (Zheng & Drybrough, 2023), whereas in two others (Ene et al., 2019; Seloni, 2014), translanguaging–translingualism had been adopted in addition to other theories (categorized under “two or more orientations”). This finding demonstrates that only limited research initiatives have been conceived to examine synthesis writing through an inclusive lens, allowing writers to fully use their entire linguistic repertoire in a fluid manner—reflecting insufficient discourse challenging traditional Western academic writing norms and genre expectations within the domain of synthesis writing.

Last, I was unable to identify the exact theoretical framing of 31 studies (34%) because their authors provided no explicit guiding theories, thus labelled “unspecified.” This raised an important issue because guiding principles typically serve as the foundations for a thorough examination of the target phenomenon. They also allow researchers to compare their findings with other studies systematically and adequately, which is crucial in scholarly practice.

### RQ 3: Methodological Approaches in Synthesis Writing Research

From 2004 to 2024, researchers used a range of methodologies (see Table 4).

Table 4

#### *Methodologies Adopted in Synthesis Writing Research*

Methodology	n (%)	Example
Quantitative	30 (32%)	• <i>t</i> -test, ANOVA, regression models
Qualitative	28 (30%)	• Single–multiple case studies • Ethnography
Eclectic (QUAN + qual)	19 (21%)	• MANOVA with qualitative interview data analysis
Eclectic (QUAL + quan)	8 (9%)	• A multiple case study with descriptive statistics
Mixed Methods	7 (8%)	• Qualitative analysis of interview data and quantitative analysis of questionnaire data
Total	92 (100%)	

*Quantitative* and *qualitative* approaches refer to purely quantitative or qualitative studies respectively, whereas the label *mixed methods* was only given if the author(s) explicitly mentioned the term and if both methods were used in a more balanced manner. Otherwise, studies involving both quantitative and qualitative analyses to differing degrees were labeled either *eclectic (QUAN + qual)* if quantitative analysis was dominant or *eclectic (QUAL + quan)* if qualitative was dominant. The terms and concepts related to eclectic, QUANT and QUAL were adopted from Riazi et al. (2018).

According to my review, *quantitative* (n=30, 32%) and *qualitative* (n=28, 30%) methodologies showed similar levels of dominance, but quantitative approaches were represented with a slightly higher percentage. Looking more closely at the quantitative studies, I found that many researchers used correlation-based designs (Guo et al., 2013) and (quasi)experimental designs (Masrul et al., 2023). Quantitative methods were suitable for these studies because the researchers typically explored what predicted integrated writing quality by

measuring a range of statistical impacts of writing components. Other quantitative researchers also examined pedagogical effects by comparing experimental and control groups' performances.

For qualitative studies, multiple- or single-case study approaches were the most frequently adopted; the researchers often examined in-depth composing processes, considering various social and cultural factors, such as writers' beliefs and perspectives as well as resources available. I also found that a significant number of the researchers used eclectic approaches (n=27, 30%), interpreting synthesis writing through both numerical data and qualitative analysis. I found few *mixed methods* studies (n=7, 8%) examining topics like writing strategies and feedback uptake in a holistic manner.

I also examined research duration and data sources, which showed considerable variation. Despite Wingate and Harper's (2021) criticism of one-shot approaches in researching the composing process, I still found a considerable number of studies (n=36, 39%) with one-time approaches—starting and finishing the writing task in one sitting. Most researchers, however, used longer data collection periods—a few days (n=5, 5%), several weeks (n=17, 18%), and 10 weeks or more (n=27, 29%)—reflecting the trend of conducting studies with longer research duration.

In terms of data sources, the two most frequently adopted sources (aside from writing samples) were interview and stimulated recall data, typically collected by researchers asking questions of their participants to help them understand the writer's underlying decision-making processes. Following these, researchers frequently used student logs (Kessler, 2020; Li, 2012; 2013; Overstreet et al., 2023; Stapleton, 2010), student reflection (Kocatepe, 2021; Pomerantz & Kearney, 2012; Wang, 2024; Yang, 2023), and supervisor or teacher feedback (Yang, 2023; Zhang, 2023). Notably, the prevalent use of videotaping or think-aloud protocols in the past has been replaced by technologically advanced methods, such as screen recordings, keystroke logging, and eye tracking to observe writing processes in real time unobtrusively (see Kessler, 2020; Michel et al., 2020; Overstreet et al., 2023).

## RQ 4: Key Thematized Research Findings on Synthesis Writing

### *Source Use and Integration*

The two most extensively researched areas in synthesis writing are source use and integration. A significant number of studies (n=21, 23%) were designed to examine (a) how writers incorporate the research materials that they have gathered and (b) how they merge, combine, or blend these materials into the text using citations (e.g., paraphrasing, summarizing, and quoting). Brief summaries of four example studies appear in Table 5, then elaborated below.

Table 5

#### *Example Studies on Source Use and Integration*

Study on source use and integration	Specific focus
Doolan (2021)	L1 and L2 writers' source integration
Lee et al. (2018)	Stance, form, and function of source use

Liardét and Black (2019)	Writer stance and the use of reporting verbs
Neumann et al. (2019)	Integrating outside sources

Neumann et al. (2019), who explored the source use practices of L2 undergraduates at a Canadian university, specifically how they integrated outside sources into their writing, discovered that students had a tendency to use more indirect citations (e.g., paraphrasing and summarizing) than direct quotations. This aligned with Doolan's (2021) findings on source use, which also showed that both L1 and L2 undergraduates (regardless of English proficiency) engaged in more paraphrasing than direct quotations. This point was contradicted by Petrić (2012), who demonstrated that more proficient L2 English writers tended to include more direct quotations in their master's theses. Such discrepancies might stem from participants' differing academic levels: Graduate students investigated by Petrić (2012) might have been more conscious of conveying messages accurately in their master's theses (a more high-stakes task), resulting in more direct quotations, compared to in-class exams and activities for the undergraduates studied by Doolan and Neumann et al. The divergent outcomes may also derive from Petrić's (2012) participants' shared Eastern European background, possibly shaping how they used sources in academic writing.

Other researchers analyzed how writers expressed their authorial stances in source-based writing. For example, Liardét and Black (2019) found that both L1 and L2 student writers tended to take a neutral stance by acknowledging author-referenced content rather than presenting their own stances directly. J. J. Lee et al. (2018) also confirmed this by demonstrating that many L2 undergraduates used more noncommittal stances, favoring the creation of distance from the cited sources over evaluating them overtly. L2 students' avoidance may be related to their self-positioning as a figure of lower authority compared to published authors, prompting them to use more respectful language toward the cited authors.

Overall, source use and integration have been a primary interest in synthesis writing because effective deployment of source material is an indispensable part of success in synthesis writing. In addition to the studies noted above, other studies were designed to investigate topics like forms and functions of source use, plagiarism issues, and reporting verbs.

### ***Predictors of Writing Performance***

The topic of predicting writing performance has also been part of the central discussion of synthesis writing. Many scholars (e.g., Lia Plakans, Atta Gebril, and Kristopher Kyle) in the assessment sector have scrutinized linguistic features that could anticipate overall writing scores. Table 6 shows some example studies connected to assessment.

Table 6

#### *Example Studies on Predictors of Writing Performance*

Study on predictors of success and assessment tools	Specific focus
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Guo et al. (2013) Mostafa and Crossley (2020)	Predictors of independent and integrated writing performance
Kyle (2020) Payant et al. (2019) Plakans and Gebril (2013) Uludag et al. (2019)	Source use features and overall text quality

First of all, scholars looked closely into students' source use practices and their relationship with the overall text quality (Kyle, 2020; Neumann et al., 2020; Payant et al., 2019; Plakans & Gebril, 2013; Uludag et al., 2019). Overall, source use skills were found to be a prominent predictor of success in synthesis writing. This was corroborated by Plakans and Gebril (2013), who analyzed 480 TOEFL iBT writing samples through multiple regression. They found a substantial influence of source use skills, accounting for greater than half (55%) the overall writing score for the TOEFL integrated task. This finding was highly insightful because the precise impact of source use was reported clearly, unlike in previous studies.

Other scholars, such as Guo et al. (2013) and Mostafa and Crossley (2020), explored the predictive power of linguistic indices (lexical sophistication and syntactic complexity) in the TOEFL iBT integrated writing score. Guo et al. (2013) found that both lexical sophistication and third-person singular verb forms were highly correlated with TOEFL integrated writing performance because they were associated with skillful source use (e.g., selecting useful lexis from sources and referencing the cited studies). Mostafa and Crossley (2020) also shared similar findings, suggesting that using less frequent (but more complex) verb-argument was associated with higher TOEFL integrated writing scores. These findings provide crucial pedagogical implications for EAP practitioners; in fact, they should consider prioritizing their instruction to broaden and deepen students' lexical and syntactic knowledge to enhance their synthesis writing performance.

### ***Task Representation and Writing Processes***

Task representation (i.e., understanding of the nature and requirements of an assignment) and writing processes are two other areas receiving significant attention in synthesis writing; example studies are outlined in Table 7. Generally, students' task representation is an integral part of success in academic writing because it plays a vital role in shaping the form, process, and content of their writing (Wolfersberger, 2013). My review shows far more studies conducted on *students'* task representation than *teachers'* task representation. Understanding student practices is crucial, but listening to teachers' voices is also equally critical: Their understanding heavily influences what materials they choose and how they teach, eventually affecting student learning.

Table 7

#### *Example Studies on Task Representations and Writing Processes*

Study on task representation	Specific focus
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and writing processes

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Cheng (2009) Petrić and Harwood (2013) Plakans (2010) Wolfersberger (2013) W. Zhu (2005)	Students' task representation
Jeon (2021)	A teacher's task representation and transfer
Stapleton (2010)	Overall composing process: time allotment
Plakans (2009a) Plakans and Gebril (2017)	Integrated writing process analyzed through Spivey's discourse synthesis

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I also found that students and teachers often had differing expectations of the task, leading to conflict and tension (Fujioka, 2014). Thus, future researchers should examine teachers' understanding, their in-class practices, and their interaction with students.

Other scholars (n=12, 13%) examined composing processes. For example, Stapleton (2010) investigated those of a master's student at a Hong Kong university and found that she spent 24% of her time researching and 18% planning prior to the writing process, which itself consumed 33% of her time. This finding was particularly valuable because few researchers at the time examined writing processes with an authentic writing task, relevant to the student's major. Therefore, Stapleton's (2010) detailed reports of an L2 student's trajectory advanced understanding in the field of L2 students' composing process in naturalistic environments (i.e., not testing environments).

Some scholars (n=2, 2%) examined the composing process specifically through the lens of Spivey's discourse synthesis. Plakans' (2009a) investigation of ESL students' argumentative writing processes showed that those with higher TOEFL scores engaged in more episodes of discourse synthesis (i.e., organizing, selecting, and connecting) than lower scorers. This was also supported by her later study (Plakans & Gebril, 2017), which showed that organizing and connecting were components essential to the success of integrated writing. These studies pointed to the need for teachers to provide additional and explicit instruction to help students improve their discourse synthesis skills for success in source-based writing. Thus, more detail on the effect of scaffolding instruction and supervisory feedback follows in the next section.

### ***Instruction and Supervisory Feedback***

Compared to many L1 studies investigating the effects of synthesis writing instruction (Alkema et al., 2023; Luo & Kiewra, 2019), fewer L2 intervention studies have been conducted (Doolan & Fitzsimmons-Doolan, 2024). I discovered that most L2 intervention researchers (see Table 8) reported positive instructional effects on posttests after treatment, which is consistent with review findings by Cumming et al. (2016).

Table 8

*Example Studies on Instruction and Supervisory Feedback*

Study on instruction and supervisory feedback	Specific focus
Machili et al. (2020) Nikbakht and Miller (2023) C. Zhang (2013)	Intervention studies for synthesis writing
Kim and Kim (2017) M. Yang (2023)	Role of supervisory feedback

For example, in Zhang's (2013) study of ESL students at a university in the United States, the experimental group receiving synthesis instruction significantly outperformed the control group receiving traditional reading and writing instruction. Given the importance of instruction, what remains a question is how to create such scaffolding materials and activities. Doolan and Fitzsimmons-Doolan (2024) provided some answers by sharing their own in-class activities and lesson plans, but future researchers' empirically proven effective synthesis writing tasks would be highly beneficial in the field.

Regarding feedback practices, findings in studies by Kim and Kim (2017) and Yang (2023) highlighted the beneficial role of supervisory feedback in improving graduate students' source-based writing. Both studies emphasized the depth of reflection on the received feedback as key to significantly enhancing students' writing quality. Pointing to the same conclusion, Sun and Soden (2021) also found that student engagement with feedback was pivotal in improving source-use skills.

## DISCUSSION

In this study, I have reviewed synthesis writing research to address the following issues: common research contexts and participant groups, theoretical backgrounds, methodological approaches, and key findings. I found that most synthesis writing research has been conducted in North American contexts with cognitive approaches. Methodologically, researchers used slightly more quantitative methods compared to qualitative to investigate source use, predictors of writing quality, writing processes, and instructional effects. In this section, I provide possible explanations for the current findings and their relationship with other studies in the literature.

### Prominence of Research Attention on ESL Students in North America

A possible reason for the amount of research conducted in North American contexts with L2 undergraduate students is connected to universities in the United States having accepted the highest number of international students worldwide since the 1950s (Israel & Batalova, 2021), which has led to a surge of "ESL programs." Thus, writing scholars have conducted more research on L2 writing to help meet the needs of these students, especially their challenges in English academic writing (Neumann et al., 2019; Riazi et al., 2018). A similar pattern was

observed in Canada with large numbers of L2 students admitted into ESL writing programs, resulting in many L2 learner-oriented writing studies (Riazi, 1997).

A close examination of two specific periods, 2004–2014 and 2015–2024, revealed that the United States has always been the most dominant research site for synthesis writing ( $n=12$  of 31, 39% for 2004–2014 and  $n=18$  of 61, 30% for 2015–2024). Canada has, however, become the second most dominant ( $n=10$  of 61, 16%) only in the latest decade (2015–2024), overtaking Hong Kong ( $n=4$  of 61, 7%), which was originally the site of 13% ( $n=4$  of 31) of the studies. This pattern was supported by a review of 272 L2 writing studies by M. Riazi et al. (2018), who also found that L2 undergraduate students in the United States were the most common participants. Collectively, these results suggest that synthesis writing has been the center of interest in EAP classrooms for incoming international undergraduate students in the United States and Canada (Liu et al., 2016; Neumann et al., 2020).

### **Need for Further Specification of Source Use**

Source use and integrations have been reported as the single most important topic in synthesis writing not only because they are a core component of the synthesis construct but also because of the need to respond to students' continued challenges (Doolan, 2021; Payant et al., 2019). The importance of source use became more pronounced after the revision of the TOEFL by the Educational Testing Service in 2005, incorporating new features including an integrated writing task (ETS, 2018). Such an assessment change can account for the results of the current review—a large number of studies exploring what predicts the quality of the TOEFL integrated-writing tests. Such assessment-oriented studies might have led to the increase in the adoption of short-term quantitative designs, implemented in controlled environments (McCulloch, 2013; Wingate & Harper, 2021).

One unresolved issue emerging from my review is that the construct “source use” remains generic; the term could benefit from a more fine-grained conceptualization. Nelson and King (2023) noted that “blurred boundaries [exist] between reading and writing” (p. 774) during synthesis writing. Similarly, “source use” appears to broadly cover multiple dimensions as a general term, referring to using source material for (a) reading purposes (e.g., searching for sources or comprehending the source material), (b) writing purposes (e.g., citing sources or establishing connections between sources), or (c) other purposes (e.g., understanding the topic or enhancing one's language). This issue has been also noted by other researchers, which motivated Uludag and McDonough (2022) to provide a three-step model, illustrating what source integration is and what it involves conceptually. More effort is needed to clarify the precise underlying elements of source use. Such effort would assure that researchers conduct studies with clarity and would help practitioners choose instructional methods more appropriate to helping students improve.

### **Limited Discussion of Theory Expansion**

Nancy Spivey (1984), a founder of the model of discourse synthesis, played a decisive role in the development of academic discussion on synthesis writing; however, the model was developed over 40 years ago with L1 student data. I was intrigued by the minimal discussion in L2 scholarship regarding how to expand and transform the existing discourse synthesis model for L2 students, keeping pace with changes in society. Over the four decades, scholars in the field have observed that various factors can influence source-based writing processes,

including writer identity, agency, community discourses, and technology; however, insufficient discussion has taken place regarding how to make connections between these factors and the existing model (Yoo, 2023).

Some attempts, however, have been made. Plakans et al. (2019) specified five subprocesses of integrated writing among L2 undergraduate and graduate students, some of which include using prior knowledge and metacognitive monitoring. Schneider (2022) demonstrated the criticality of writers' identity and their imagined communities in composing with sources. Hirvela and Belcher (2016) and Barzilay et al. (2023) also noted how technology and multimodality can play a pivotal role in synthesis writing. Currently, despite the attention to GenAI, little research effort has been made to address its role in synthesis writing, which has considerable potential for theory expansion. Thus, future researchers' examination of up-to-date elements that can be added to the model of discourse synthesis would be highly beneficial in advancing the scholarly discussion to the next level.

## IMPLICATIONS

Given that this review showed the positive role of instruction in improving students' synthesis writing skills, discussing exactly how to provide such effective pedagogies to truly facilitate students' learning may be beneficial. The following three pedagogical approaches are recommended for instructors and practitioners teaching synthesis writing. First, the teacher can incorporate instruction that bolsters student agency as a writer. Previous studies demonstrated that when students' sense of agency is enhanced (i.e., having greater control over their writing), their willingness to voluntarily develop and implement various strategies to improve their writing is bolstered naturally (Bhowmik, 2016; Rutemeyer, 2024).

One way to foster student agency is by assigning highly authentic writing tasks. The instructor can design a writing task that carries significant meaning beyond the writing classroom and is genuinely connected to students' personal lives, identities, or future aspirations. For example, when students worked on a project closely connected to self-identity (e.g., racial identity) or future jobs, they voluntarily practiced investment strategies to fully express themselves and communicate their messages (Schneider, 2022). Personal connections to their academic tasks powerfully motivated students internally to (re)examine available resources to continuously improve their work. One way to create such connections between EAP courses and the students' majors is to design graded tasks in which students consult a disciplinary-focused writing topic with their advisor in their program and seek their feedback on initial drafts. This not only empowers students to identify a significant and meaningful topic in their major, expand their knowledge, and enrich their identity in their field, but it also helps dispel a common myth of EAP as generic writing and promote students' greater awareness of transferability between EAP and their disciplinary writing.

Second, embracing inclusive teaching approaches in EAP contexts is essential. One way to do so is by actively acknowledging students' funds of knowledge, constructed through their prior language and cultural experiences, as valuable assets for synthesis writing. Instructors should also encourage students to express their ideas and insights through various modalities (e.g., images or diagrams) and use them as resources to help build their mental synthesis effectively. Instructors of EAP writing have traditionally prioritized familiarizing students with predetermined genre expectations and rhetorical structures informed by Western ideologies of writing (de Magalhães et al., 2019), but some L2 students have chosen to detach from their classroom writing practices if their perspectives were dismissed as

unimportant or inadequate (Canagarajah, 2024). To foster students' engagement and their willingness to participate in class and learn, incorporating inclusive teaching approaches is vital.

Most importantly, students' synthesis writing does not improve overnight (Hirvela, 2016); thus, careful step-by-step guidance is needed (Doolan & Fitzsimmons-Doolan, 2024), ranging from source searching, extracting common ideas, and effectively incorporating them into writing. Many studies have shown that college students often struggle with synthesis writing, perhaps because they are not well-trained in K–12 education (Baxter & Neumann, 2023). If so, K–12 teachers, especially those in high school, may need to allocate more time to carefully guide students in comparing, contrasting, and analyzing multiple perspectives with greater specificity. A possible method to achieve this is teachers' clear demonstrations of organizing arguments and perspectives, using mind maps or other semiotic resources to model for students how to use them to create and refine their syntheses. The effectiveness of these multimodal approaches in improving both the quality of students' synthesis and written arguments has been supported by research findings (Barzilai et al., 2023).

Finally, for world language teachers, investing more time in examining the transfer effects between languages would be beneficial; for example, Spanish language teachers with native English-speaking students can scrutinize how synthesis writing in English is similar to and different from that in Spanish in terms of genre, rhetoric, and source use norms. Surpassing mere contrastive analyses, language teachers can collaborate to discuss common patterns and struggles experienced by students from a range of backgrounds and examine the underlying rationale for better supporting students' needs in their literacy development. This review suggests that teachers may understand the same task differently, so regularly engaging in structured discussion to share one another's beliefs, experiences, and expectations for a task for the sake of professional learning and development would be helpful.

## CONCLUSION

Overall, in my systematic review of the literature, I suggest that students continue to struggle with synthesis writing, especially from a *transformative* perspective, in which synthesis writing is understood as an act of producing a novel perspective rather than simply amalgamating source ideas. This created an important implication that long-term, focused instruction with scaffolding feedback is crucial to help students understand the nature of the task and develop effective strategies for success in synthesizing and integrating sources.

Although I aimed to conduct an exhaustive review, several limitations remain. Reviewing 92 studies required considerable effort, but I may have overlooked some L2 synthesis-writing studies. Moreover, some of the reviewed studies provided limited detail about the source texts used and how students were guided to synthesize. Had I been able to include such information, I could have achieved greater depth in the review; nevertheless, this study has generated a valuable overview of the current scholarship on synthesis writing. Moving forward, if future researchers investigate the roles of underexplored topics (e.g., translanguaging or GenAI technology) in synthesis writing, they can enrich existing discourse and knowledge in the field.

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## APPENDIX CODED DATA

Author & publication year	Topic & theme	Main finding	Sample	L1/L2	Context	Theory	Research design	Data source	Duration
Alinasab et al. (2021)	Writing strategies • Revision strategies	Students' most common revision strategies were expansion, reformulation, and addition.	12 grad students	English L2 Farsi L1	EFL (Iran)	Genre theory	E (QT+ql)	A research paper and a stimulated recall	10 sessions
Awada & Diab (2023)	Feedback • Peer review modality	Students who received online peer review feedback performed better than those who received face-to-face peer review feedback.	122 undergrads	English L2 Arabic L1 Kinyarwanda L1	EFL (Lebanon)	Sociocultural theory, writing process theory	E (QT+ql)	2 argumentative synthesis essays and a peer review	12 weeks
Barkaoui (2014)	Predictors of writing scores • L2 proficiency • Keyboarding skills	Overall English language proficiency was a stronger predictor of TOEFL writing scores than keyboarding skills.	97 undergrads and grad students	English L2 Chinese L1 Spanish L1 Farsi L1 Korean L1	ESL (Canada)	Cognitive models of writing: Fayol, Hayes, Kellogg	QT	3 TOEFL writing tasks (1 integrated & 2 independent) and typing skills tests	25–30 min (timed writing tasks)
Barkaoui (2015)	Composing processes • Writing activities	Test-takers engaged in various activities, such as interacting with sources and generating and retrieving	97 undergrads and grad students	English L2 Chinese L1 Vietnamese L1 Korean L1 Bengali L1	ESL (Canada)	Hayes and Flower's model of writing, Scardamalia and Bereiter's	QT	3 TOEFL writing tasks (1 integrated & 2 independent), typing skills	25–30 min (timed writing tasks)

		information during TOEFL writing tasks.		Farsi L1 other L1s		knowledge telling and knowledge transforming		tests, and a stimulated recall	
Barkaoui (2016)	Composing processes • Revision behavior (what, when, and how often L2 writers revise)	Participants made more precontextual revisions (at the point of writing) compared to contextual revisions (revising what has already been written). More lower-level revisions were made than higher-level ones.	54 undergrads and grad students	English L2 Chinese L1 Spanish L1 Korean L1 Farsi L1 other L1s	ESL (Canada)	Faigley and Witte's model of revision changes, Scardamalia and Bereiter's process model, Lindgren and Sullivan's internal and external revisions	QT	3 TOEFL writing tasks (1 integrated & 1 independent) and typing skills tests	25–30 min (timed writing tasks)
Baxter & Neumann (2023)	Source use and integration • L2 writing proficiency and source integration patterns	L2 writers with high writing scores included less word-for-word source copying and showed more thorough source attribution as well as integration of sources indirectly with citations.	43 high school students	English L2 French L1 other L1s	ESL (Canada)	No explicit mention	QT	A discussion essay	5 days (3 days for reviewing source texts, two 75-min classes for writing the essay)

Chan (2017)	Composing processes	A writer with a higher writing score showed more linear composing process and paused less with higher fluency. Local revisions did not affect the writing score greatly.	2 grad students in engineering and linguistics	English L2 Chinese L1	ESL (UK)	Discourse synthesis	E (QT+ql)	An argumentative essay and a retrospective interview	60 min (timed writing task)
Chen & Wang (2022)	Source use and integration	Students' main source integration method was paraphrasing, most of which was satisfactory; some showed verbatim copying and patching. Students struggled to find, comprehend, and integrate sources.	59 undergrads in English	English L2 Chinese L1	EFL (China)	No explicit mention	MM	An expository essay and an interview	3 weeks for the writing task and 60 min for the interview
Cheng (2009)	Task representation	Students' individual task representations led to the use of different reading and writing strategies.	3 undergrads in English	English L2 Chinese L1	EFL (Taiwan)	Task representation	QL	An argumentative essay, think alouds, and 2 retrospective interviews	6–9 hr (over 3 sessions)
Cheong et al. (2019)	Predictors of writing scores	Students' multiple-text comprehension and discourse synthesis skills significantly predicted both of their Chinese and English integrated writing tasks.	415 secondary school students	English L2 Chinese L1	EFL (HK)	Spivey's discourse synthesis	QT	2 integrated writing tasks (Chinese & English)	60 min for each writing task

Chuang & Yan (2022)	Predictors of writing scores	The writer's argument structure and quality together correlated with the differences in writing scores, but argument structure alone did not predict writing scores.	150 undergrads	English L2 Chinese L1 Korean L1 Indonesian L1 other L1s	ESL (USA)	Toulmin's argument structure	QT	An integrated writing task	100 min
Davis (2013)	Source use and integration	Students developed their own unique source-use strategies, but not all of them reached a proficient level.	3 grad students	English L2 Chinese L1 Japanese L1 Sinhala L1 Arabic L1	ESL (UK)	No explicit mention	QL	A master's thesis, a case study paper, a grad report, and 4 semistructured interviews	2 years
Doolan (2021)	Source use and integration	Students showed very low instances of synthesis in their writing, demonstrating their struggles and signaling the need for more structured instruction.	149 undergrads	English L1, L2 Chinese L1 Arabic L1 other L1s	ESL (USA)	Spivey's discourse synthesis	E (QT+ql)	A problem-solve essay and a demographic survey	40 min for the writing task
Du (2019)	Instruction and intervention, constructs of source-use skills	Structured instruction significantly improved L2 students' source use skills.	35 undergrads	English L2 Chinese L1	EFL (China)	Coffin's source-use framework	QT	2 argumentative essays (pre- and posttests)	12 hr (over 6 weeks) for instruction

Ene et al. (2019)	Translingual composing, composing processes	Students' translingual practices differed depending on their English proficiency levels and norms in their L1 culture.	3 grad students and 1 visiting scholar	English L2 Arabic L1 Chinese L1 Serbian L1	ESL (USA)	Intercultural rhetoric, translingualism	QL	A research paper, a stimulate recall, and a survey	1 semester
Fogal (2024)	Collaborative writing	The collaborative writing group was able to develop a more complex and holistic perception of a "writing space" compared to that of the independent writing group.	33 undergrads	English L2 Japanese L1 Chinese L1 Korean L1	EFL (Japan)	Simple systems approach	E (QT+ql)	A final paper, a mid-term paper, 22 response papers, 5 mapping activities, and an interview	1 semester
Fujioka (2014)	Student–teacher negotiations and interactions	A student's enactment of agency while negotiating with the professor mutually informed writing expectations, leading to changes in the professor's teaching approaches.	1 grad student and 1 professor	English L2 Japanese L1 (for the student)	ESL (USA)	Activity theory	QL	A final paper, a mid-term exam, reaction papers, notebook entries, interviews, and class observations	1 semester
Gebril (2009)	Predictors of writing scores • Comparability between integrated and independent writing tasks	Students' scores on integrated and independent writing tasks were comparable despite the higher mean score for the integrated task.	115 undergrads and 3 raters	English L2 L1s not reported	EFL (Egypt)	Generalizability theory	QT	An integrated writing task and an independent writing task	55 min for the integrated task and 45 min for the independent task

Gebriil & Plakans (2014)	Source use and integration • Rater evaluations	Raters engaged in more judgment strategies (assessing text quality) than interpretation processes (making sense of the text).	145 undergrads and 2 raters	Students: English L2 Arabic L1  Raters: English L1, L2 Chinese L1	EFL (Middle East)	No explicit mention	E (QL+qt)	An argumentative essay, think alouds, and an interview	60 min for the writing task
Gebriil & Plakans (2016)	Predictors of writing scores • Relationships between lexical diversity, textual borrowing, and writing scores	Students' act of text borrowing influenced the lexical diversity scores in their integrated writing task.	120 undergrads	English L2 Arabic L1	EFL (Middle East)	No explicit mention	QT	An integrated writing task	60 min for the writing task
Guo et al. (2013)	Predictors of writing scores	Lexical sophistication was a powerful predictor of both integrated and independent writing, whereas syntactic complexity and cohesion were good predictors only for integrated writing.	240 TOEFL test-takers	English L2 Chinese L1 Spanish L1 Korean L1 Japanese L1 other L1s	N.A. (TOEFL)	No explicit mention	QT	An integrated writing task and an independent TOEFL writing task	20 min for integrated writing, 30 min for independent writing
Hirvela & Du (2013)	Source use and integration • Paraphrasing practices	L2 writers struggled to paraphrase for knowledge-transforming purposes and switched to direct quoting when they lost confidence in paraphrasing.	2 undergrads	English L2 Chinese L1	ESL (USA)	Bereiter & Scardamalia's knowledge telling and knowledge transforming	QL	A short research paper, a long research paper, think alouds, and text-based interviews	1 semester

James (2010)	Transfer effects • Learner transfer	Skills learned from EAP courses (e.g., synthesizing multiple source texts) can be transferred to future disciplinary courses.	11 undergrads	English L2 Korean L1 Japanese L1 Chinese L1 Serbian L1	ESL (USA)	Learning Transfer	E (QL+qt)	Interviews, writing samples (e.g., lab reports, essays, worksheets), and a questionnaire	1 year
Jeon (2021)	Transfer effects • Teaching for transfer	The EAP teacher recognized the value of teaching for transfer; however, more active approaches, such as asking students to bring their syllabi from disciplinary courses to examine together, might have made the transfer stronger.	1 teacher (grad student)	English L2 Korean L1	ESL (USA)	Learning Transfer	QL	Interviews, observations, field notes, stimulated recalls, and instructional materials	1 semester
Jia & Zhang (2023)	Predictors of writing scores • Rater processes	To evaluate integrated writing, raters built text images by creating isolated nodes individually and synthesizing them holistically to make distinctions between scores.	6 raters	English L2 Chinese L1	EFL (China)	Problem-solving theory	E (QL+qt)	An integrated writing test, think alouds, interviews, and a confidence-level questionnaire	Average of 96 min for think alouds and 17 min for interviews per rater

Kessler (2020)	Multimodal composing • Technology-mediated strategies	L2 students' composing processes were largely shaped by sociocultural factors, such as communities and artifacts (e.g., use of technology and multimodal strategies).	2 grad students	English L2 Chinese L1	ESL (USA)	Activity theory	QL	A research proposal, a short analysis paper, process logs, screen recordings, interviews, and stimulated recalls	42 days for the data analyzed for the article
Kim & Kim (2017)	Feedback • Instructor feedback	Overall, instructor feedback grounded in LOLA was beneficial to enhance students' reading-to-write skills and performance, including concreteness of content.	10 grad students and 1 instructor	English L2 Korean L1	EFL (Korea)	Learning-oriented language assessment (LOLA)	QL	12 reading-to-write drafts, a literature review, instructor feedback, and interviews	7 weeks
Kocatepe (2021)	Composing process • Constructing info during writing	Students did not merely "find" information but actively "constructed knowledge" by triangulating their own interpretations and viewpoints.	22 undergrads	English L2 Arabic L1	EFL (UAE)	Activity theory	QL	An argumentative essay, screen recordings, interviews, and reflection notes	3 weeks
Kyle (2020)	Predictors of writing scores • Source use features	Word overlaps between the listening source and the writing response led to higher writing scores; however, overlaps between the source text and the writing	480 TOEFL test takers	English L2 L1s not reported	N.A.	No explicit mention	QT	480 TOEFL integrated writing responses	20 min

		response resulted in lower scores.							
Kyle & Crossley (2016)	Predictors of writing scores • Lexical sophistication	Lexical sophistication was not a powerful predictor of success in integrated writing tasks.	480 TOEFL test takers	English L2 L1s not reported	N.A.	No explicit mention	QT	480 TOEFL integrated and independent writing responses	20–30 min
J. J. Lee et al. (2018)	Source use and integration • Form, function, and stance	L2 student writers mostly used paraphrased summary as a main reporting structure and cited sources to demonstrate their knowledge. A majority of them took a noncommittal stance, distancing themselves from the sources.	100 undergrads	English L2 Chinese L1 Arabic L1 Korean L1 Spanish L1 other L1	ESL (USA)	No explicit mention	QT	100 high-rated research papers	N.A. (corpus)
Li (2012)	Source use and integration • Searching and reading strategies	L2 students often combined their research process with writing and took referential notes to document which part	11 undergrads	English L2 Chinese L1	EFL (HK)	No explicit mention	QL	Source-based essay drafts, source texts, process logs, reading notes, and an interview	3 semesters

		of the target source needs to be cited later.							
Li (2013)	Source use and integration	Students adopted various strategies (e.g., consulting Chinese webpages, and using information booklets) to overcome source-related challenges.	3 undergrads	English L2 Chinese L1	EFL (HK)	Activity theory	QL	A policy paper, interviews, and process logs	1 semester
Li & Casanave (2012)	Source use and integration • Plagiarism	Students' understanding of source use was not reflected properly in writing practices because they engaged in patchwriting and inadequate citation practices.	2 undergrads	English L2 Chinese L1	EFL (HK)	Textual borrowing	QL	A source-based essay, 6 interviews, observation notes, research memos, case profiles, and source texts	1 month

Liardét & Black (2019)	Source use and integration • Reporting verbs	Expert writers tended to use stronger verbs that represent a proposition (e.g., show or find), whereas both L1 and L2 student writers used verbs that reflect more neutral stances (e.g., suggest or state).	65 L2 undergrads  125 L1 undergrads	English L1, L2 Mandarin L1 Cantonese L1 Bengali L1 Korean L1 other L1	ESL (AUS)	Appraisal theory	E (QT+ql)	Persuasive essays, integrative summaries, business reports, and research articles	1 semester
Lombardi (2021)	Source use and integration • Form and reporting verbs	Overall, integral citations were preferred. Skilled writers cited more often but quoted less, with a greater range of reporting verbs.	99 undergrads	English L2 L1s not reported	ESL (USA)	Intertextuality	QT	An argumentative essay and comprehension questions	2.5 hr for the essay and comprehension questions
Lombardi (2022)	Source use and integration • Stance	Two different essay prompts resulted in different linguistic features. For the deontic topic, students predominantly used linguistic markers expressing ethical judgments; whereas for the epistemic topic, they adopted markers reflecting the possibility.	41 undergrads	English L2 L1s not reported	ESL (USA)	Hyland's interaction model	QL	An argumentative essay and comprehension questions	2.5 hr for the essay and comprehension questions

Macbeth (2010)	Writing samples or models	Students perceived samples as ideal products rather than possible cases. Models may give students false expectations or promises.	19 undergrads	English L2 Chinese L1 Indonesian L1 Korean L1 other L1	ESL (USA)	Genre theory	QL	A source-based essay, sample essays, videotaping, field notes, and interviews	10 weeks
Machili et al. (2020)	Instruction and intervention	The intervention on video-mediated integrated writing was effective; the experimental group receiving strategy instruction outperformed the control group.	118 undergrads	English L2 Greek L1	EFL (Greece)	Spivey's discourse synthesis	QT	A writing-and-watching-to-write task	1 semester
Masrul et al. (2023)	Instruction and intervention	The strategy instruction significantly enhanced students' idea development and their synthesis writing skills	100 undergrads	English L2 Indonesian L1	EFL (Indonesia)	No explicit mention	QT	A synthesis paper	14 hr for intervention
McCulloch (2013)	Source use and integration	Students exhibited different source-use behavior, including how they responded to source texts and made inferences about them.	2 grad students	English L2 Spanish L1 Tamil L1	ESL (UK)	No explicit mention	E (QT+ql)	A master's thesis, think alouds, and interviews	No explicit mention

Michel et al. (2020)	Composing processes • Writing speed fluency, pausing, eye-gaze behaviors and the cognitive processes	Writers engaged in more dynamic and varied processes during integrated writing. They wrote more slowly with longer but fewer pauses compared to the independent task.	60 undergrads and grad students	English L2 Chinese L1	ESL (UK)	Kellogg's model of writing	MM	An integrated writing, an independent writing, screen recordings with eye- tracking, stimulated recalls, a questionnaire, and a typing test	20–30 min for writing
Mostafa & Crossley (2020)	Predictors of writing scores • Syntactic complexity and task effects	L2 students' inclusion of syntactic complexity and their overall writing performance varied across tasks (integrated, independent and descriptive).	240 essays (corpus data & TOEFL dataset)	English L2 L1 not reported	N.A. (TOEFL)	No explicit mention	QT	Descriptive essays (corpus) and TOEFL independent and integrated essays	20–30 min for writing
Nasseri (2021)	Predictors of writing outcomes • Syntactic structures of master's theses	EFL theses largely contained syntactic subordination, whereas ESL theses contained comparative levels of subordinate and phrasal structure.	210 master's theses	English L1, L2 Various L1s (but not reported)	Multiple (ESL–UK, EFL–Iran, L1)	No explicit mention	QT	Master's theses	N.A. (collection of theses)

Neumann et al. (2019)	Source use and integration	L2 students faced great challenges when they tried to comprehend sources and formulate their source-based essay.	73 undergrads	English L2 Chinese L1 French L1 Arabic L1 other L1	ESL (Canada)	Intertextuality	E (QT+ql)	Two essay exams, resource sheets, and an interview	Several days (6 hr for two essays, scaffolding of source texts, an interview for 20–30 min)
Neumann et al. (2020)	Predictors of writing scores • Relationships between source notes and essay scores	The degrees of transformation in source language and avoidance of direct copying predicted writing scores.	24 undergrads	English L2 French L1 Chinese L1 Arabic L1 other L1	ESL (Canada)	No explicit mention	QT	A source-based essay (final exam) and note sheets	Several days: 3 hr for the essay and scaffolding of source texts
Niimi & Matsuura (2022)	Predictors of writing scores	L2 students were found to focus too much on reviewing source texts and arranging their thoughts.	32 high school students	English L2 Japanese L1	EFL (Japan)	No explicit mention	E (QT+ql)	A source-based essay	25 min for writing
Nikbakht & Miller (2023)	Instruction and intervention • Effects of reading instruction for synthesis writing	The students in the experimental group showed more awareness of appropriate source use and practices of connecting sources compared to the control group.	24 undergrads	English L2 Chinese L1 Arabic L1 other L1	ESL (USA)	Discourse synthesis; appraisal framework	MM	Two synthesis essays (pre- and posttests)	One week with 50 min for writing

Noor (2021)	Predictors of writing scores • Effects of task orders (a synthesis essay and a gap filling task)	Task order mattered. A synthesis essay task presented before a gap-filling task led to higher synthesis writing performance.	54 undergrads	English L2 Dari L1	EFL (Afghanistan)	No explicit mention	QT	A synthesis essay, gap-filling activity, and a survey	45 min
Overstreet et al. (2023)	Composing processes • Mediating artifacts shaping writing process	One participant engaged in a “brain-bound” writing approach, in which he composed straight from source texts. Another participant engaged in an “extended” approach, in which she formulated coherent prose after transforming her own source notes.	2 undergrads	English L2 Arabic L1	EFL (UAE)	Vygotsky’s mediation	QL	An argumentative essay, research logs, instructor feedback, screen recordings, course materials, and an interview	5 weeks
Park & De Costa (2015)	Writing strategies	A participant used various sociocultural strategies such as artifact-mediated, community-mediated techniques to compose her literature review effectively.	1 grad student	English L2 Nepali L1	ESL (USA)	Activity theory	QL	A literature review, an interview, two stimulated recalls, and other written assignments	A semester

Payant & Maatouk (2022)	Collaborative writing	Although English learners in Quebec, Canada, frequently used their L1s to support their English collaborative writing, only some recognized the value of French knowledge to support their English learning.	6 adult students	English L3 French L2 Russian L1 other L1	ESL (Canada)	Plurilingualism	QL	A letter writing task, a semi-structured interview, survey questions, and news articles	1.5 weeks
Payant et al. (2019)	Predictors of writing scores	Reading scores and writing anxiety significantly predicted integrated writing performance.	111 undergrads	English L2 Chinese L1 Arabic L1 French L1 Spanish L1 other L1	ESL (Canada)	No explicit mention	E (QT+ql)	An integrated writing task, a questionnaire, and an interview	175 min
Petrić (2007)	Source use and integration • Citations	High-rated theses included more rhetorically complicated citation functions (e.g., citing for knowledge-transforming purposes) compared to low-rated theses mainly including citations for descriptive functions (e.g., attributions).	16 grad students	English L2 L1s not reported	EFL (Central Europe)	No explicit mention	E (QT+ql)	16 master's theses	N.A. (collection of theses)

Petrić (2012)	Source use and integration • Direct quotations	High-rated theses included more direct quotations than low-rated ones to preserve original meanings and avoid issues of plagiarism.	16 grad students	English L2 Russian L1 Czech L1 Hungarian L1 other L1	EFL (Eastern Europe + Asia)	Textual borrowing	E (QT+ql)	16 master's theses	N.A. (collection of theses)
Petrić & Harwood (2013)	Task representations	A successful L2 grad student engaged in various citation practices (e.g., citing to support arguments or appeal the topic).	1 grad student	L1 not reported	ESL (UK)	No explicit mention	MM	Two research papers (direct, open) and an interview	Two modules (semesters)
Plakans (2009a)	Discourse synthesis	All participants adopted discourse synthesis, yet the degree of discourse synthesis differed according to their L2 proficiency, field of study, prior education, and topics.	6 undergrads and grad students	English L2 Spanish L1 Korean L1 Japanese L1 Chinese L1	ESL (USA)	Spivey's discourse synthesis	E (QT+ql)	An integrated writing task, think alouds, and two interviews	Approx. 1 hr for writing
Plakans (2009b)	Reading strategies	Reading played a significant role in the performance of integrated writing.	12 undergrads and grad students	English L2 Spanish L1 Korean L1 Japanese L1 other L1	ESL (USA)	No explicit mention	E (QT+ql)	An integrated writing task, think alouds, and two interviews	No explicit mention

Plakans (2010)	Task representations	Students' task presentations shaped their composing processes. Participants engaged in recursive processes during integrated writing but engaged in linear processes during independent writing.	10 undergrads and grad students	English L2 Spanish L1 Korean L1 Japanese L1 Chinese L1 other L1	ESL (USA)	Task representation	QL	An integrated writing task, an independent writing task, and think alouds	No explicit mention
Plakans & Gebril (2012)	Source use and integration • Functions of source use	Students used source material as a tool to generate ideas and extract topical-appropriate language.	145 undergrads	English L2 Arabic L1	EFL (Middle East)	No explicit mention	MM	An integrated writing task, think alouds, a questionnaire, and an interview	No explicit mention
Plakans & Gebril (2013)	Predictors of writing scores • Source use	Source use (e.g., incorporating essential ideas) was the strongest predictor of success in integrated writing.	480 TOEFL writing samples	English L2 47 L1s	N.A. (TOEFL)	No explicit mention	QT	TOEFL integrated writing samples	20 min
Plakans & Gebril (2017)	Predictors of writing scores • Organization and connection • Discourse synthesis	Organization and connection were good predictors of overall integrated writing scores.	480 TOEFL writing samples	English L2 47 L1s	N.A. (TOEFL)	Spivey's discourse synthesis	QT	TOEFL integrated writing samples	20 min

Plakans et al. (2019)	Composing processes	Iterative integrated writing involved five main processes: word-level processing, activating background knowledge, metacognitive monitoring, rereading source texts and summarizing.	11 undergrads and grad students and a visiting scholar	English L2 Korean L1 Chinese L1 Arabic L1 other L1	ESL (USA)	No explicit mention	E (QL+qt)	An integrated writing task, a think aloud, reading comprehension questions, a questionnaire, and an interview	No explicit mention (approx. several hours)
Pomerantz & Kearney (2012)	Composing processes	The participant's writing process was largely shaped by her perceptions of what counts as good academic writing and her identity as a writer.	1 grad student	English L2 Chinese L1	ESL (USA)	Narrative theory	QL	Coursework including synthesis essays, interviews, journal entries, video recordings, and diagrams	15 weeks
Safari & Ahmadi (2023)	Feedback • Checklist for assessing and providing specific feedback	The diagnostic checklist developed for evaluating students' integrated writing was also helpful to provide students specific feedback.	17 L2 students, 4 raters, 2 writing experts, and 480 TOEFL writing samples	17 students: English L2 Persian L1  TOEFL: English L2 Chinese L1 Korean L1 Japanese L1 Spanish L1	EFL (Iran)	Cognitive diagnostic assessment models	MM	TOEFL writing samples, a checklist, and a questionnaire	20 min for TOEFL integrated writing

Schneider (2022)	Writing strategies, identity	The type and depth of students' writing strategies were largely shaped by their interests, identities, and their imagined communities.	7 undergrads	English L2 Polish L1 Arabic L1 Chinese L1	ESL (USA)	Sociocultural theory	QL	105 writing samples and 54 interviews	1–4 years
Seloni (2014)	Identity, translingual writing, multimodal writing	The participant's dual identity as an artist and a scholar influenced the process and product of his thesis writing.	1 grad student	English L2 Spanish L1	ESL (USA)	Activity theory, translingualism	QL	Thesis writing drafts, interviews, researcher journal, conceptual maps, timelines, visual annotated bibliographies, and dual language annotations	1 year
Shin & Ewert (2015)	Predictors of writing scores • Reading and writing connections	The performance of a reading-to-write task highly correlated with both independent reading and writing scores.	83 undergrad students and 6 ESL instructors	Undergrads: English L2 L1s not reported	ESL (USA)	Generalizability	QT	A reading-to-write task, an independent writing task, an independent reading, and a developed rubric	40 min for a reading-to-write task

Stapleton (2010)	Composing processes • Time allotment	More time was spent on preparation for writing—researching (24%) and planning (18%)—compared to the actual writing process (33%), which was followed by revising (11%).	1 grad student	English L2 Chinese L1	EFL (HK)	No explicit mention	MM	A critique essay (4,000 words), a log, a questionnaire, and interviews	3 weeks
Sun & Soden (2021)	Feedback • Learner engagement and uptake • Source use and integration	High learner engagement with feedback led to significant improvement in source use skills	2 grad students	English L2 Chinese L1	ESL (UK)	No explicit mention	E (QL+qt)	A literature review of a thesis, supervisor feedback, interviews, and other written artifacts	1 year
Tywoniw & Crossley (2019)	Predictors of writing scores • Cohesive features	Cohesive features were a good predictor of L2 writing performance.	480 TOEFL writing samples	English L2 L1s not reported	N.A. (TOEFL)	No explicit mention	E (QT+qt)	Integrated writing samples and independent writing samples	N.A. (TESOL samples)
Uludag et al. (2019)	Predictors of writing scores • Source use	The accuracy of source content and the extent to which source ideas were incorporated predicted overall integrated writing performance.	111 undergrads	English L2 Arabic L1 French L1 Spanish L1 other L1	ESL (Canada)	No explicit mention	QT	Canadian Academic English Language (CAEL) integrated writing task and a questionnaire	55 min

Uludag & McDonough (2022)	Predictors of writing scores • Rater evaluations	Raters' evaluation of integrated writing was mainly influenced by three criteria: (a) utilizing sources to support one's arguments, (b) transforming source language, and (c) incorporating source information accurately.	6 raters and 48 student essays (corpus)	English L2 Chinese L1 Arabic L1 French L1 Spanish L1 etc.	ESL (Canada)	Source Integration Model	E (QL+qt)	Stimulated recall interviews, 48 students' integrated essays, and evaluations of the 48 essays	2 weeks
Uludag et al. (2021)	Predictors of writing scores • Effect of pre-writing planning	Prewriting planning had no significant effect on the overall writing scores.	111 undergrads	English L2 Mandarin L1 Arabic L1 French L1 Spanish L1 Farsi L1 other L1	ESL (Canada)	Process-based approach	E (QT+ql)	CAEL Test (integrated writing, reading, listening), a semistructured interview, and a background questionnaire	150–180 min
Wang (2024)	Composing processes • GenAI perceptions & experiences	Students used GenAI to respond to their writing difficulties, such as brainstorming ideas and structuring their essay and improving their grammar.	6 undergrads	English L1 (3 students) English L2 L1s not reported	ESL (USA)	Sense-making theory	QL	Written products, ChatGPT screenshots, self-reflections, and an interview	3 weeks

Westbrook & Holt (2015)	Assessment test • Generating a valid placement exam	The newly source-based writing exam included response to the previously identified validity issues with positive washback effects.	52 undergrads	English L2 Turkish L1 Arabic L1 other L1	Multiple (UK + Turkey)	No explicit mention	QT	Take-home essays, outcome-based education test essays, and a questionnaire	10 days
Wette (2010)	Instruction and intervention	Students showed significant improvement in source use skills after the intervention.	78 undergrads	English L2 Chinese L1 Korean L1 Japanese L1 other L1	ESL (NZ)	No explicit mention	E (QT+ql)	Pre- and post-tests, referenced essay, literature review, and reflective comments	2 years
Wilson & Soblo (2020)	Transfer effects	Students adjusted their writing and adopted rhetorical strategies according to the target audiences (e.g., cultural, disciplinary) by transferring appropriate prior knowledge.	6 undergrads	English L2 Arabic L1 Chinese L1	ESL (USA)	Adaptive Transfer	QL	A secondary source essay and an interview	1 semester
Wolfersberger (2013)	Task representations	Students' different task representations led to different writing processes and products.	4 undergrads	English L2 Chinese L1	ESL (NZ)	Task Representation	QL	An argumentative essay, interviews, and classroom observations	2.5 weeks

Wu et al. (2023)	Collaborative writing	Enacting leadership during peer collaboration was influenced by factors including individual identity, gender imbalance, and the nature of the task.	5 undergrads	English L2 Chinese L1	EFL (China)	Northouse's leadership theory	E (QL+qt)	Synthesis essays, individual argumentative essays, audio recordings, semistructured interviews, and worksheets	1 semester
Xie (2017)	Writing strategies • Rhetorical moves	Students often struggled to demonstrate effective rhetorical moves and structures for a literature review (e.g., disproportionately discussing existing literature).	25 grad students	English L2 Chinese L1	EFL (China)	Martin and White's (2005) appraisal framework and Kwan's move model	QT	Literature review chapters from 25 master's theses	N.A. (collection of theses)
H. Yang & Plakans (2012)	Writing strategies	Successful integrated writing required good comprehension abilities, language production skills, and regulation skills to manage reading, listening, and writing tasks.	161 undergrads, grad students, and non-matriculated students	English L2 Chinese L1 Portuguese L1 Arabic L1 French L1 Farsi L1 other L1	ESL (USA)	Spivey's discourse synthesis	QT	An integrated reading–listening–writing task and a strategy inventory	20 min for writing

L. Yang (2014)	Collaborative writing	Collaborative writing was greatly influenced by each member's L1 background, L2 proficiency, and shared group rules.	13 undergrads	English L2 Chinese L1 Vietnamese L1	ESL (Canada)	Activity theory	QL	Writing assignments, classroom observations, interviews, and group discussion	2 semesters
M. Yang (2023)	Feedback, student–teacher negotiations	Supervisor–student interactions helped the students develop essential cognitive skills for research writing. Reflections on feedback were critical to improving the student's academic writing.	1 grad student and 1 professor	English L2 Chinese L1	EFL (HK)	Academic discourse socialization	QL	Drafts of a research article, supervisory feedback, student reflections, interviews, and observations	1.5 years
Yoon & Abdi Tabari (2023)	Source use and integration • Authorial voice	Overall, a greater use of textual voices was found in opinion-based writing. More competent writers employed a wider range of hedges in the synthesis section of source-based writing.	55 undergrads	English L2 Chinese L1 Spanish L1 Arabic L1 Portuguese L1 Dutch L1 other L1	ESL (USA)	Hyland's interactional model of voice and Toulmin's model of argumentation	QT	Source-based essays and opinion-based essays	4 weeks

Yu & Poehner (2023)	Instruction and intervention	The experimental group (receiving dynamic assessment-informed enrichment) surpassed the control group in their writing performance on the posttest, indicating its pedagogical potential.	13 students (aged 18–30)	English L2 Arabic L1 Chinese L1 Japanese L1 Vietnamese L1	ESL (USA)	Vygotsky's sociocultural theory	QT	Two integrated reading–writing tasks	5 weeks
C. Zhang (2013)	Instruction and intervention	The experimental group that received discourse synthesis instruction outperformed the control group, demonstrating the instructional effect.	29 undergrads	English L2 Arabic L1 Chinese L1 Japanese L1 Spanish L1	ESL (USA)	Spivey's discourse synthesis	QT	Pre- and posttests and instructional materials	1 semester
Y. O. Zhang (2023)	Feedback • Supervisory feedback	Supervisory feedback greatly shaped how students revised their texts. For example, feedback encouraging them to consider reader perspectives was achieved by providing more meaningful elaborations for their claims.	2 grad students	English L2 Chinese L1	EFL (HK)	Sociohistoric perspectives	E (QL+qt)	A literature review chapter of a master's thesis, supervisory feedback, learning notes, and interviews	1 year

Zhao & Hirvela (2015)	Task representations, composing processes	Students' task representations of synthesis writing greatly shaped their reading and writing processes, especially how they integrated source information into their writing.	2 undergrads	English L2 Chinese L1	ESL (USA)	Spivey's discourse synthesis	QL	A short and long synthesis paper, think alouds, stimulated recalls, interviews, and classroom observations	1 semester
Zheng & Drybrough (2023)	Translingual composing	Students' translanguaging practices facilitated their ability to self-regulate their thesis writing process to reach their desired goals.	5 grad students	English L2 Chinese L1	ESL (UK)	Translanguaging	QL	Drafts of a master's thesis, outlines, reading notes, and interviews	No explicit mention
W. Zhu (2005)	Task representations	Source materials helped the student develop his task representation, which was further shaped by his beliefs and goals.	1 grad student	English L2 Chinese L1	ESL (USA)	No explicit mention	QL	6 library research papers, interviews, reading notes, and coursework materials	3 semesters
X. Zhu et al. (2021)	Predictors of writing scores	Three discourse synthesis skills predicted the writing performance of both Chinese and English integrated writing tasks.	145 high school students	English L2 Chinese L1	EFL (HK)	Spivey's discourse synthesis	E (QT+ql)	Chinese integrated writing, English integrated writing, eye-tracking recordings,	Approx. 1.5 hr

								and stimulated recalls	
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Note: E (QT+ql) = eclectic approach with more dominance in quantitative methods/analysis than qualitative; E (QL+qt) = eclectic approach with more dominance in qualitative methods/analysis than quantitative; MM = mixed-method; QL = purely qualitative; QT = purely quantitative