

Original Article

Research Trends in Reading of School-Aged Children: Focusing on Domestic Academic Journal Articles

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Purpose This study aimed to analyze research trends in school-aged reading by examining 71 studies on reading in school-aged children published in Korean academic journals between 2021 and 2024, and to identify recent trends and the conceptual structure of reading research in Korea.

Methods Reading ability functions as a core foundational skill for overall academic achievement in school-aged children, and difficulties in reading, including reading disability, may have long-term effects on subsequent learning and development. Based on this background, the present study conducted descriptive statistical analysis and title-based text network analysis on studies collected from major academic databases.

Results The analysis of annual distributions showed that school-aged reading research exhibited different distribution patterns across the analyzed period, with the highest proportion of studies published in 2024. In terms of study types, survey studies and intervention studies accounted for 74.6% of the total, indicating that research has primarily focused on identifying reading characteristics and examining the effects of interventions. In contrast, diagnostic-assessment studies and literature reviews accounted for a relatively smaller proportion. The keyword network analysis revealed a structured network centered on "reading," with major concepts such as "intervention," "fluency," "comprehension," and "dyslexia" being closely interconnected. These findings indicate that school-aged reading research encompasses a wide range of topics related to reading performance, its subcomponents, and reading disability. In particular, "dyslexia" was positioned adjacent to concepts related to phonological processing and writing, reflecting a tendency for multiple subdomains to be examined together in related research.

Conclusions This study provides a technical overview of the annual distribution, study types, and structural relationships among key concepts in school-aged reading research in Korea. By delineating the overall research trends and knowledge structure, the findings offer foundational information to inform future reading intervention research and related study design.

Keywords Reading, School-aged children

INTRODUCTION

Human language ability begins with spoken language at birth and gradually expands toward written language, and reading development does not start with formal schooling but rather begins much earlier and continues across the lifespan as a unique developmental process. Reading is a complex psychological and cognitive process

through which written language is understood by the reader (Kwak & Shin, 2022), and it is generally composed of two core components: word recognition and reading comprehension. Among these, reading comprehension—constructing and understanding the meaning of text—represents the ultimate goal of reading.

As children transition from early childhood into the school-aged period, they acquire knowledge primarily

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through textbooks and various written materials; thus, reading ability becomes an essential prerequisite for achievement across all academic subjects. Given that most school-based learning is mediated through written text, reading ability functions as one of the strongest predictors of academic achievement (Yang & Seo, 2009). In particular, as grade level increases, students are increasingly exposed to texts that contain abstract or technical vocabulary, complex sentence structures, and demands for integrative understanding based on prior knowledge (Kim & Kim, 2013), further amplifying the importance of reading ability. Moreover, Kim and Park (2018) reported that limitations in reading ability negatively affect higher-order cognitive skills—such as factual understanding, inferential reasoning, and creative thinking—as expressed through language, which in turn relates closely to academic success, social interaction, and problem-solving in daily life.

Considering the foundational role of reading ability in subsequent learning, early identification and intervention for students who experience reading difficulties during the lower elementary grades is widely recognized as a critical task in both educational policy and clinical practice. In Korea, the Ministry of Education (2019) emphasized the importance of systematic management of students with early learning difficulties through its Basic Academic Skills Support Plan, explicitly highlighting the need for early diagnosis and remediation. Furthermore, national data indicate that the proportion of students performing below the basic academic level increases sharply with grade level—0.7% in elementary school, 3.6% in middle school, and 4.6% in high school as of 2016—underscoring the urgency of proactive intervention in reading.

Reading disability refers to a condition in which individuals with normal intelligence and adequate socio-cultural and educational opportunities exhibit marked difficulties in reading and writing relative to their chronological age (Lombardino, 2012). Reading disability is often described in terms of dyslexia, which emphasizes

neurobiological origins, or as a reading learning disability from an educational perspective (Kim, 2014), and is commonly characterized by deficits in phonological processing (Snowling et al., 2000). These difficulties lead to impairments in word recognition and reading fluency and, over time, extend to restricted vocabulary development due to limited reading experience (McFalls et al., 1996), as well as reduced reading comprehension and memory. Children with reading difficulties can also be classified into subtypes based on performance profiles; for example, those who demonstrate adequate word recognition but poor reading comprehension are categorized as poor comprehenders (Ko, 2020), whereas dyslexia—characterized by difficulty decoding printed text—is considered a subtype of specific learning disability.

Reading intervention represents one of the most extensively studied areas within the field of learning disabilities, and early intervention has been shown to reduce the severity of reading disability and improve long-term educational outcomes (Bender & Larkin, 2009). However, Korean reading intervention studies have reported heterogeneous findings depending on participant characteristics, intervention approaches, and reading subtypes, and comprehensive discussions regarding which interventions are most effective for specific reading profiles remain limited (Kim, 2006). As a result, speech-language pathologists and special education professionals often face challenges in selecting evidence-based interventions in clinical and educational settings.

In addition, the prolonged shift to remote instruction following the COVID-19 pandemic since 2020 has led to substantial changes in early literacy development and reading ability among school-aged children, with growing concern that learning gaps have been exacerbated for students with reading difficulties and reading disability. These educational changes call for a re-examination of existing reading research and highlight the need to derive new insights based on recent research trends. Accordingly, this study selected Korean reading disability research pub-

lished since 2021 as the analysis target, taking into account the post-COVID-19 educational context and the implementation of national basic academic skills policies.

Previous trend analyses of reading disability research have primarily focused on frequency-based classifications of research topics or intervention types; however, such approaches have limitations in capturing the core concepts addressed across studies and the structural relationships among them. Text network analysis is a methodological approach that visualizes central concepts and their interconnections based on relationships among key terms within research literature, and it has recently been applied in education and speech-language pathology to facilitate more in-depth exploration of research trends. Therefore, the present study applies text network analysis to systematically examine the core concepts, shifts in research focus, and conceptual structure of Korean school-aged reading disability research.

The purpose of this study is to analyze research trends in reading disability among school-aged children published in Korean academic journals from 2021 to the present, to derive practical implications applicable to speech-language pathology and educational practice, and to suggest future directions for Korean reading disability research.

RESEARCH METHODS

Data collection

To explore overall domestic research trends in reading among school-aged children, multiple academic databases were searched, including DBpia (www.dbpia.co.kr), Earticle (www.earticle.net), Google Scholar (scholar.google.com), KISS (kiss.kstudy.com), and RISS (www.riss.kr). The literature selection criteria were established based on keywords, research domains, and publication type (Kim & Kim, 2022; Lee et al., 2021; Peltopuro et al., 2014).

Literature selection procedure

The literature search covered studies published from 2021 onward to capture recent trends in reading-related research in Korea. A comprehensive search was conducted using combinations of the following keywords: reading, school-aged, speech, literacy assessment/intervention, communication, diagnosis, assessment, evaluation, test, treatment, rehabilitation, and intervention. All searches were applied to article titles to ensure topical relevance, and identified records were cumulatively collected and archived.

Study selection process

Stage 1: Identification

The initial title-based search yielded 265 records. Duplicate records were reviewed, and theses and dissertations were excluded. Only studies published in academic journals were retained at this stage.

Stage 2: Screening

Abstracts of the remaining studies were screened to identify research addressing reading-related domains, including reading fluency, reading comprehension, decoding, phonological awareness, spelling, and writing. As a result, 154 studies were retained. Studies from medical, pharmaceutical, educational, psychological, counseling, and non-speech-language rehabilitation fields that did not include language therapy-related content were excluded during this stage.

Stage 3: Eligibility

In terms of publication status, studies indexed in SCOPUS or KCI were considered eligible. Based on these criteria, 107 domestic journal articles were selected. Conference proceedings, unpublished manuscripts, and academic theses or dissertations were excluded.

Included studies

After applying all inclusion and exclusion criteria, a total of 71 studies were finally included in the analysis (Appendix 1).

Inter-rater reliability

To ensure the reliability of the study selection and classification process, inter-rater reliability was assessed. A second trained speech-language pathologist independently reviewed the selection procedures and eligibility decisions. The agreement rate between the two raters was 96%, indicating a high level of reliability.

Literature analysis method

The analysis of the selected studies was conducted to systematically examine research trends in school-aged reading by adapting and refining the analytical framework proposed in a previous study that reviewed trends in school-aged communication and language-related research (Lee et al., 2021), in accordance with the aims of the present study. The specific procedures were as follows.

First, trends by publication period were examined by quantitatively calculating the annual number of studies on school-aged reading disability published since 2021. Annual distributions and year-to-year changes were compared using a time-series approach to identify recent patterns in research output.

Second, trends by study type were analyzed by classifying studies conducted with school-aged children into four categories based on research purpose and methodological characteristics: Diagnosis and Assessment, Intervention, Survey, and Literature Review. When a single study included both intervention-effect verification and parent or teacher satisfaction surveys, it was classified as an intervention study, as the primary objective was to examine changes in children's reading ability. This classification approach was applied to ensure consistency and to clarify

the clinical implications of the included studies.

Third, for the core keyword network analysis, article titles of studies related to school-aged reading disability were used as the analytical data source. Prior to keyword extraction, text preprocessing was conducted in a step-wise manner. Specifically, functional words such as particles, affixes, and endings that did not contribute to semantic analysis were removed, and stopwords were excluded. From the morphologically segmented tokens, noun-based core terms were selected to construct the final keyword list.

Relationships among keywords were defined based on co-occurrence within the same article title, such that a connection was established when two or more keywords appeared together in a single title. To reduce the likelihood of spurious associations, keyword pairs with a co-occurrence frequency of one were excluded from the network analysis, and a minimum co-occurrence threshold of two was applied. This procedure was used to control network density and enhance interpretability.

Network analysis was conducted using a Python-based in-house script. The primary network indicators included degree centrality, betweenness centrality, and the clustering coefficient. All indicators were calculated using standard graph-theoretic definitions, and analyses were performed on an undirected and unweighted network.

Data analysis

Descriptive statistical analysis

Basic trends according to publication period and research type were analyzed using descriptive statistics. Frequencies and percentages were calculated to summarize the distribution of studies across years and categories.

Text network analysis

To visualize and quantify the knowledge structure of research on school-aged language disorders, a text network analysis was conducted following the procedures

outlined below.

Analytical tool and network construction

To analyze unstructured textual data extracted from article titles, this study employed a self-developed web-based text network analysis tool utilizing *Vis.js*, a JavaScript-based visualization library. Major keywords related to school-aged language disorders were defined as nodes, while co-occurrence relationships between keywords within the same article were defined as edges. Based on these relationships, an undirected weighted network was constructed.

For visual representation, a force-directed layout based on the Barnes-Hut algorithm was applied to clearly illustrate cohesion and diffusion patterns among research topics in the field of school-aged language disorders. To ensure the reliability of the analytical procedures, inter-rater reliability was assessed. A second trained speech-language pathologist independently conducted the analysis following the same procedures. Inter-rater agreement was calculated at 95%, indicating a high level of reliability.

Network analysis parameters

To identify structural characteristics and core thematic trends in research on school-aged language disorders, several network metrics were calculated. The clinical and academic implications of these parameters are described below.

A. Degree centrality

Degree centrality measures the extent to which a given keyword is directly connected to other topics within the network. Keywords with high degree centrality represent *mainstream research topics* that have been most actively addressed in both academic and clinical contexts during the target period.

B. Betweenness centrality

Betweenness centrality quantifies the extent to which a keyword lies on the shortest paths connecting different research topics within the network, calculated using the Brandes algorithm. Keywords with high betweenness centrality function as *brokers* that link distinct subdomains—such as dyslexia, learning disabilities, and developmental language disorder—and are interpreted as key drivers of knowledge diffusion.

C. Clustering coefficient

The clustering coefficient indicates the degree to which neighboring nodes connected to a given keyword are also interconnected, expressed as a value between 0 and 1. Higher values suggest that the topic forms a well-defined and specialized subdomain within the field of school-aged language disorders.

D. Community detection and modularity

Topic communities with dense internal connections were identified using the Label Propagation Algorithm. Each detected community was defined as a *topic group* representing research conducted within a similar thematic context (e.g., reading intervention, assessment tool development). Higher modularity values (Q) indicate a clearer structural differentiation among subtopics within the research field.

E. Average path length

Average path length represents the mean distance between all pairs of topics within the network and reflects the efficiency of the knowledge structure in the field of school-aged language disorders. Shorter path lengths indicate a structure that facilitates active information exchange and interdisciplinary integration among research topics.

RESEARCH RESULT

Research trends by year in school-aged studies

An analysis of the annual distribution of the 71 selected studies showed that 8 studies (11.3%) were published in 2021, 17 studies (23.9%) in 2022, 14 studies (19.7%) in 2023, and 32 studies (45.1%) in 2024. Year-to-year changes were calculated as relative percentage changes. In 2022, the number of studies increased by nine compared to the previous year, corresponding to a relative change of 12.5%. In 2023, the number decreased by three studies, yielding a relative change of -17.6%. Subsequently, in 2024, the number increased by 18 studies compared to the previous year, resulting in a relative change of 128.6%. These values illustrate the annual distribution and year-to-year changes in school-aged reading disability research during the analyzed period (Table 1).

Research trends by study type in school-aged research

From a methodological perspective, analysis of the 71 selected studies indicated that survey studies (29 articles, 40.8%) and intervention studies (24 articles, 33.8%) constituted the majority of the research, accounting for approximately 74.6% of all publications. In contrast, diagnosis and assessment studies examining reading abilities and characteristics comprised 13 articles (18.3%), while review studies focusing on theoretical considerations represented a relatively small proportion, with only 5 articles (7.0%) (Table 2).

Table 1. Comparison of School-Age Research by Year

Year	Number of Studies	Percentage
2021	8	11.3%
2022	17	23.9%
2023	14	19.7%
2024	32	45.1%
Total	71	100%

Core keyword network analysis in school-aged research

Analysis of keyword frequency

To identify the core research themes in studies focusing on school-aged children, a keyword network analysis was conducted. Analysis of keyword frequency revealed that "reading" was the most dominant keyword, appearing a total of 56 times and accounting for the largest proportion of research topics. Keywords representing the study population, "students" and "children," appeared 22 and 21 times, respectively. Regarding school level, "elementary" appeared 18 times, indicating that research on school-aged children has primarily focused on the elementary school population.

Major subthemes included "comprehension" (18 occurrences), "intervention" (17 occurrences), "school" (17 occurrences), "fluency" (13 occurrences), and "dyslexia" (12 occurrences). These findings suggest that a substantial body of research has focused on interventions aimed at improving reading comprehension and fluency, as well as on dyslexia-related topics (Table 3).

Centrality analysis

To examine the structural relationships among keywords, degree centrality and betweenness centrality were analyzed. In terms of degree centrality, which indicates the number of direct connections a keyword has with other keywords, "reading" showed the highest value (27), confirming its role as the primary hub within the research network. This was followed by "children" (21), "students"

Table 2. Comparison of Reading Research by Study Type

Type	Number of Studies	Percentage
Literature Review	5	7%
Survey	29	40.8%
Diagnostic Assessment	13	18.3%
Intervention	24	33.8%
Total	71	100%

(19), "intervention" (18), and "skills" (18), suggesting that interventions targeting skill development in children are closely interconnected with reading research (Table 3).

Betweenness centrality

Betweenness centrality, which reflects the extent to which a keyword mediates connections between other keywords within the network, revealed that "reading" had a markedly high value (120.33). This value was substantially greater than those of the next highest keywords, "children" (49.22) and "intervention" (37.28), indicating that *reading* plays a pivotal mediating role in linking di-

verse research themes within the field (Table 3).

Clustering coefficient and network structural characteristics

Analysis of the clustering coefficient showed that keywords such as "word" (1.0), "vocabulary" (0.93), and "development" (0.86) exhibited high clustering values. This finding indicates that these keywords tend to be studied within tightly connected and specialized subtopic clusters. In contrast, the central keyword "reading" demonstrated a relatively low clustering coefficient (0.39), suggesting that it is not confined to a specific subgroup

Table 3. Keyword-Centered Network Analysis of School-Age Research

Keyword	Frequency of occurrence	Degree	Betweenness	Clustering Coefficient
reading	56	27	120.3338	0.39886
students	22	19	34.69134	0.491228
children	21	21	49.22071	0.461905
comprehension	18	16	23.20119	0.541667
elementary	18	17	18.98142	0.595588
intervention	17	18	37.28294	0.496732
school	17	17	18.27904	0.602941
fluency	13	11	8.06627	0.636364
dyslexia	12	11	7.70754	0.636364
skills	11	18	32.47587	0.522876
disabilities	10	14	13.54095	0.626374
difficulties	10	10	3.436183	0.755556
writing	8	13	13.85913	0.564103
language	8	12	10.60952	0.606061
poor	8	8	2.502381	0.75
intellectual	8	7	1.003247	0.809524
phonological	7	11	7.379365	0.636364
processing	7	10	7.149206	0.622222
based	7	11	2.704365	0.8
ability	6	9	2.662374	0.777778
characteristics	6	8	1.660714	0.785714
awareness	6	9	1.479762	0.833333
development	6	9	1.194444	0.861111
vocabulary	6	8	0.40404	0.928571
analysis	6	5	0.285714	0.9
abilities	5	7	1.688492	0.666667
program	5	4	0.2	0.833333
word	5	4	0	1

but instead functions as a broad, integrative theme spanning the entire research network (Table 3).

Analysis of visualized network nodes

Figure 1 presents a title-based text network constructed from keywords extracted from the titles of the selected studies. Each node represents a keyword, and edges indicate co-occurrence relationships between keywords appearing within the same article title. A minimum co-occurrence threshold of two was applied to reduce noise and highlight meaningful conceptual connections. Node size is proportional to keyword frequency, and edge thickness reflects the frequency of co-occurrence, allowing both the prominence of individual keywords and the strength of their relationships to be visually identified.

Within the network, "reading" is positioned at the center and appears as the largest node, reflecting its highest frequency and centrality values. This central placement indicates that reading functions as the core concept linking multiple research themes. Surrounding this hub, keywords related to participants and educational contexts, such as "students," "children," "school," and "elementary," form dense connections with the central node, suggesting that a substantial portion of reading research focuses on school-aged populations and instructional settings.

In addition to the central structure, several localized thematic groupings are evident. Keywords related to comprehension and language (e.g., "comprehension," "vocabulary," "language") and those associated with reading difficulties and disabilities (e.g., "dyslexia," "disabilities," "difficulties") form relatively cohesive substructures within the network. Intervention-related terms (e.g., "intervention," "skills," "fluency") connect these subgroups, indicating their bridging role between foundational research and applied instructional approaches. Overall, Figure 1 illustrates a research landscape characterized by a dominant central concept accompanied by multiple interconnected yet thematically focused subareas. (Figure 1).

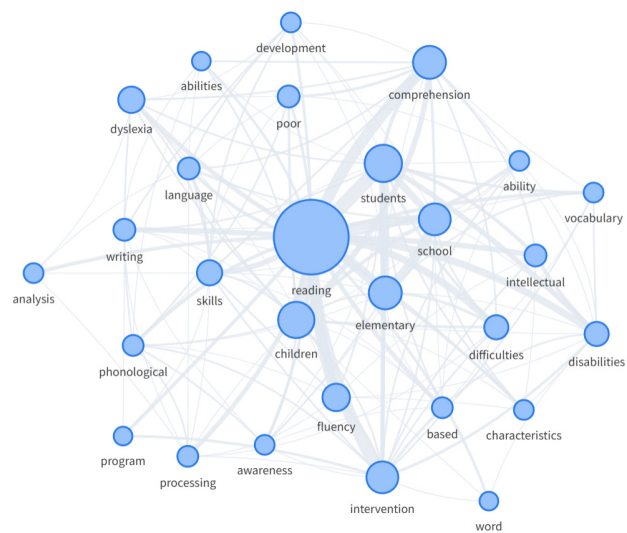


Figure 1. Results of node analysis for school-age research.

DISCUSSION

The analysis results of this study confirmed that research on school-aged children with reading disabilities has shown a distinct trend toward field-oriented practical research alongside remarkable quantitative expansion over the past four years. First, looking at the year-over-year trends, research that amounted to only 8 studies (11.3%) in 2021 surged more than fourfold to 32 studies (45.1%) in 2024. After an initial spread of interest in 2022, there was a brief pause in 2023 (14 studies), but the fact that nearly half of all research was concentrated in 2024 is highly significant. This empirically demonstrates that as the decline in basic academic ability and learning gaps among school-aged children have emerged as major social issues, this topic has risen as a core agenda requiring urgent attention in both academia and clinical settings.

This quantitative increase in research is developing in a direction that reflects "practical field demands" in terms of research methodology. As a result of analyzing 71 total papers, survey research aimed at understanding the current status (40.8%) and intervention research aimed at practical improvement (33.8%) accounted for approximately 75% of the total, forming the mainstream of

research. The high proportion of survey research is interpreted as an attempt to establish that reading disabilities are intertwined with various variables, such as home, school, and emotions beyond simple language development issues, while the strength of intervention research is interpreted as a result reflecting the academic community's effort to secure "Evidence-Based Practice (EBP)" that is immediately applicable to clinical settings beyond theoretical exploration.

However, the concentration of research topics also requires reconsideration. Diagnostic assessment research, a prerequisite for successful intervention, remained at only 18.3%, and literature review studies solidifying the theoretical foundation showed a relatively low proportion at 7.0%. At this point, where research has achieved quantitative growth with an explosive increase in 2024, the development of precise diagnostic tools to support accumulated survey and intervention data and qualitative research that systematically synthesizes existing studies must be reinforced. This is considered an essential task for establishing future guidelines for Korean reading disability intervention and strengthening the internal stability of the research.

As a result of analyzing the frequency of elementary school age and practical reading skill keywords, the fact that 'reading (56 times)' takes an overwhelming share while 'elementary (18 times)' ranks high shows that the main interest of this academic field is concentrated on elementary school-aged children. This is attributed to the fact that the elementary school period is a critical period transitioning from the 'learning to read' stage to the 'reading to learn' stage. Also, the frequent appearance of major sub-topics such as 'comprehension', 'fluency', and 'intervention' suggests that researchers' interests lie in establishing practical intervention strategies to improve reading fluency and reading comprehension beyond simple reading phenomena.

The analysis results of 'Reading' as a network Hub and the Centrality of intervention clearly support this trend.

'Reading' recorded the highest values in both degree centrality (27) and betweenness centrality (120.33), performing a unique hub role connecting different research topics. Particularly notable is the high degree centrality of 'intervention' and 'skills'. This implies that the school-age reading research network is closely connected to intervention aimed at improving children's skills rather than remaining in theoretical discussions. In other words, it can be seen that domestic school-age reading research forms a knowledge structure centered on the practical goal of 'solving reading problems'.

The Clustering Coefficient and visualization analysis show the trend of research topic segmentation. While 'reading' functions as a comprehensive topic covering the whole with a low clustering coefficient (0.39), 'word', 'vocabulary', and 'development' show high clustering coefficients, indicating that research related to vocabulary development and word recognition is being conducted densely within specific subgroups. Additionally, the structure where 'dyslexia' is adjacent to 'phonological' and 'writing' nodes in the visualized network holds important academic implications. This is a result that visually proves that dyslexia research is taking a multidimensional approach that is not limited to reading difficulties but encompasses underlying mechanisms such as phonological awareness ability or writing ability that is prone to comorbidity with reading problems.

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REFERENCES

1. Bender WN, Larkin MJ, Ellis J. Reading strategies for elementary students with learning difficulties. Corwin;

- 2009.
2. Easley D, Kleinberg J. *Networks, crowds, and markets: Reasoning about a highly connected world*. Cambridge University Press; 2010.
3. Kim AH. Interventions for students with learning disabilities in Korea: A research synthesis. *J Spec Educ Theory Pract*. 2006;7(2):265-99.
4. Kim K, Kim DG. A study on growth patterns in reading comprehension ability of students at risk for reading disabilities. *Korean J Spec Educ*. 2013;48(3):207-25.
5. Kim M, Park B. The effects of the meaning-centered sentence pause reading strategy on reading fluency and comprehension of children with hearing impairments. *The Study of Education for Hearing-Language Impairments*. 2018;9(1):79-97.
6. Kim SH, Kim WS. Overseas literature review of non-specific language impairment (NLI) research. *J Speech Hear Disord*. 2022;31(2):53-62.
7. Kim YT. *Diagnosis and treatment of language disorders in children*. Hakjisa; 2014.
8. Ko SH. Literature review on intervention in children with poor reading comprehension. *J Spec Educ*. 2020;36(2):1-24.
9. Kwak S, Shin SA. A comparison between the performances of verbal and nonverbal fluency tests in discriminating between mild cognitive impairment and Alzheimer's disease patients and their brain morphological correlates. *Dement Neurocogn Disord*. 2022;21(1):17-29.
10. Lee ES, Choi SY, Hwang M. A review of the use of telepractice in speech-language pathology. *Culture and Convergence*. 2021;43(1):785-807.
11. Lombardino L. *Assessing and differentiating reading and writing disorders*. Delmar Cengage Learning; 2012.
12. Peltopuro M, Ahonen T, Kaartinen J, Seppälä H, Närhi V. Borderline intellectual functioning: A systematic literature review. *Intellect Dev Disabil*. 2014;52(6):419-43.
13. Snowling MJ, Bishop DVM, Stothard SE. Is preschool language impairment a risk factor for dyslexia in adolescence? *J Child Psychol Psychiatry*. 2000;41(5):587-600.
14. Yang M, Seo YJ. The effects of a reading intervention for students with reading difficulties through a college student mentoring program. *Special Education Research*. 2009;8(1):87-110.

Appendix 1. List of Analyzed Literature

1	Eun Ju Lee. (2023). ADHD symptoms and literacy characteristics of elementary school students. <i>Communication Sciences and Disorders</i> , 28(4), 776-790.
2	Kim, Y., & Kim, H.-S. (2024). The effect of reading intervention for borderline intellectual functioning. <i>International Society for Multicultural Communication</i> , 23(1), 121-125.
3	Yang, H. M., & Kim, H.-S. (2022). Listening and reading comprehension in individuals with mild intellectual disabilities: A literature review. <i>International Society for Multicultural Communication</i> , 23(1), 24-31.
4	Ki, W., Jeong, Y. S., & Kang, M. (n.d.). A case study of word decoding intervention using graphic symbols in children with mild and borderline intellectual disabilities. <i>Korean Association for Learner-Centered Curriculum and Instruction</i> , 22(6), 881-893.
5	Lim, J., Cheon, J. H., & Kim, Y. T. (2023). The relationship of text inference abilities and reading comprehension in children with high-functioning autism spectrum disorder. <i>Communication Sciences and Disorders</i> , 28(4), 733-748.
6	Jeon, Y. J., Kang, M., & Jeong, Y. S. (2023). Phonological change error patterns according to type of tasks (reading, writing) of students with dyslexia. <i>Communication Sciences and Disorders</i> , 28(1), 52-70.
7	Kwon, S. M., Cheon, H. I., Kim, S. D., & Pae, S. Y. (2024). Literature review on reading and writing characteristics of Korean developmental dyslexia. <i>Journal of Special Education & Rehabilitation Science</i> , 63(1), 229-271.
8	Kim, E.-H., & Song, S.-H. (2021). Mediating effects of reading training and auditory-perceptual stimulation training in the high-risk group of dyslexia. <i>Journal of Korea Academia-Industrial Cooperation Society</i> , 22(10), 210-222.
9	Yoon, H. (2024). Phonological retrieval and phonological memory skills in children with dyslexia and poor comprehension. <i>Phonetics and Speech Sciences</i> , 16(2), 83-90.
10	Kim, B., & Yang, M. (2021). Predictors of oral reading fluency among children with dyslexia. <i>The Korea Journal of Learning Disabilities</i> , 18(3), 51-68.
11	Kim, D., Jeon, Y., & Kim, H. (2022). A study on the effectiveness of reading intervention focusing on reasoning for slow learner middle school students. <i>The Journal of Developmental Disabilities</i> , 26(3), 61-87.
12	Kim, J. Y., & Lee, K. J. (2021). The effect of peer tutoring reading programs on reading fluency and types of errors of underachievers. <i>Journal of Elementary Education</i> , 37(3), 19-39.
13	Seo, S. M., Choi, Y., & Kim, Y. T. (2024). The effect of a 3D model of Hangul syllabic structure intervention based on the phonics approach on the reading ability of children with reading disabilities. <i>The Journal of Special Children Education</i> , 26(2), 1-26.
14	Cho, Y. Y., Kang, R. W., & Kim, Y. T. (2024). Characteristics of Korean consonant and vowel processing in children with reading difficulties in visual processing tasks. <i>Journal of Special Education: Theory and Practice</i> , 25(2), 57-78.
15	An, E.-S., Jeon, J.-H., Lee, M.-J., & Kim, Y. T. (2024). The effect of phonological awareness intervention through remote collaboration for CCK. <i>Communication Sciences and Disorders</i> , 29(2), 269-288.
16	Kwon, M. Y., & Ko, S. H. (2024). Effects of remote phonological processing intervention on word identification and reading fluency in poor readers. <i>Journal of Special Education and Rehabilitation</i> , 29(1), 135-156.
17	Kim, H. J. (2022). Analysis of the difference in inferential comprehension ability of low-achieving groups in reading according to fluency and factual comprehension. <i>Journal of Education & Culture</i> , 28(5), 627-642.
18	Byun, S. J., Kim, S. K., & Jung, K. (2024). The effects of phonics training based on phonological and morphological awareness on reading and writing abilities in children with reading difficulties. <i>Communication Sciences and Disorders</i> , 29(2), 289-309.
19	Kim, K. J. (2022). The effect of group intervention program for phonological processing skills on knowledge of grapheme-phoneme correspondence and reading/writing fluency. <i>The Journal of Society for Cognitive Enhancement and Intervention</i> , 13(1), 51-71.
20	Baek, S. J., & Yim, D. (2022). An eye-tracking study on reading comprehension and reading processing in children with reading difficulties according to story type and processing load. <i>Communication Sciences and Disorders</i> , 27(3), 518-540.
21	Hwang, H. J., Kim, U., & Kim, H. I. (2022). The effects of story retelling using story maps and educational applications on reading comprehension and reading attitude of elementary school students with intellectual disabilities. <i>Journal of Special Education</i> , 38(1), 111-141.
22	Kim, B. (2024). Classification of dyslexia subtypes based on cognitive processing and language skills: An application of latent profile analysis. <i>The Korea Journal of Learning Disabilities</i> , 21(1), 27-54.
23	Sim, Y., & Jung, P.-G. (2022). Analysis of characteristics of oral reading fluency and types of reading errors for typically developing students, students with underachievement in reading, and students with intellectual disabilities. <i>Journal of Intellectual Disabilities</i> , 24(1), 31-54.
24	Shim, J., Ha, E. B., & Lee, E. J. (2024). Trends in reading comprehension focusing on language ability research in school-age children at risk for reading and with poor reading in Korea. <i>Journal of Special Education</i> , 40(1), 227-259.
25	Cheon, J. H., Kim, Y. T., & Lee, Y. (2022). The effects of reading fluency intervention via tele-practice parent coaching on parents' intervention strategies and the reading fluency skills of children with cochlear implants. <i>Communication Sciences and Disorders</i> , 27(2), 220-238.
26	Kim, J. K. (2021). A literature review of single-subject studies on reading fluency intervention. <i>The Journal of Special Children Education</i> , 23(4), 51-75.

Appendix 1. Continued

27	Kim, E., & Lee, K.-H. (2024). A critical review of reading fluency scoring units. <i>Journal of Reading Research</i> , 71, 139-161.
28	Park, W., Yang, Y., Jeong, E., Kim, A., & Yim, D. (2023). Correlation analysis between eye movement patterns and reading comprehension skills by reading condition in children with typical development and language impairment. <i>Communication Sciences and Disorders</i> , 28(1), 39-51.
29	Kim, D., Song, P., Jeon, Y., Jeon, S., & Cho, Y. (2024). Effects of vocabulary intervention by subtypes of elementary students with reading difficulties. <i>The Korea Journal of Learning Disabilities</i> , 21(1), 1-25.
30	Jung, P.-G., Kim, J., Kim, J. H., & Ahn, S. (2021). Examining the usability of reading fluency support system for students at risk in reading. <i>Special Education Research</i> , 20(2), 5-29.
31	Shin, J. (2022). Development of an inference-making assessment for screening students with reading comprehension difficulties. <i>The Korea Journal of Learning Disabilities</i> , 19(2), 51-75.
32	Kim, W., Shin, M., & Yoo, Y. (2023). Comparative analysis of inferencing in low-reading and average-reading comprehenders: Utilizing the think-aloud protocol. <i>Communication Sciences and Disorders</i> , 28(3), 480-491.
33	Yoo, H. K., Huh, H., Jo, M., Lee, H., Hong, I.-H., & Kim, J. H. (2021). Effectiveness of reading disorder intervention program: An open trial. <i>Journal of Korean Neuropsychiatric Association</i> , 60(2), 126-134.
34	Park, S., & Seong, C. J. (2024). A comparative study of coarticulation features between children with and without reading disability. <i>Phonetics and Speech Sciences</i> , 16(2), 99-109.
35	Park, S., & Seong, C. J. (2021). A comparative study of prosodic features according to syntactic diversity between children with reading disability and nondisabled children. <i>Phonetics and Speech Sciences</i> , 13(4), 55-66.
36	Park, H. R., & Lee, H. S. (2023). An analysis of quantitative research on the relationship between literacy and visual processing of reading disabilities: Focusing on research methods and results. <i>Journal of Special Education</i> , 17(4), 271-278.
37	Kim, D., Jeon, Y., Kim, H. E., & Jeon, Y. (2023). A study on the effectiveness of reading intervention for multicultural elementary students with reading difficulties. <i>The Journal of Developmental Disabilities</i> , 27(2), 197-213.
38	Kim, D., Kim, H.-E., & Lee, Y.-J. (2024). The effectiveness of the basic academic reading skills intervention program based on a response to intervention model. <i>Journal of Educational Studies</i> , 45(2), 251-275.
39	Kim, M.-S., & Lim, S.-A. (2024). The effects of an articulation instruction-based reading intervention using augmented reality on letter decoding of students with developmental disabilities. <i>The Journal of Developmental Disabilities</i> , 28(1), 271-301.
40	Kim, D.-I., Kim, M., Lee, D., Kim, H., & Kim, M. (2022). Effect of evidence-based reading programs on the inferential comprehension of students with reading difficulties in elementary school. <i>Journal of Educational Studies</i> , 43(1), 141-165.
41	Ahn, S., & Kim, W. (2024). Effects of vocabulary instruction through book-reading on vocabulary, reading comprehension, and written expression abilities of students with intellectual disabilities. <i>Special Education Research</i> , 23(2), 5-31.
42	Ryu, S.-Y., Kim, E.-J., Cho, J.-R., & Park, S.-G. (2023). Effect of spelling awareness program on spelling recognition, reading, and writing of underachievement children. <i>Journal of Learner-Centered Curriculum and Instruction</i> , 23(21), 651-663.
43	Yoon, H. (2024). Related variables to passage reading comprehension in the early stage of reading development. <i>The Journal of Learner-Centered Curriculum and Instruction</i> , 24, 463-474.
44	Jang, W. J., & Pae, S. (2023). Writing skills in first- to second-graders with language difficulties, typical development, and dyslexia with/without language difficulties. <i>Communication Sciences and Disorders</i> , 28(1), 71-83.
45	Yoon, H. (2024). Reading comprehension and comprehension monitoring in first-grade children with vocabulary delay. <i>Communication Sciences and Disorders</i> , 29(2), 236-245.
46	Yoon, H., Lee, H.-W., & Kim, B. (2022). Narrative writing development of elementary school students in grades 2, 4, and 6 and its relationship with reading, phonological processing, and language abilities. <i>Journal of Research in Curriculum & Instruction</i> , 26(2), 206-217.
47	Kang, D. Y., Kang, E. H., & Lee, J. Y. (2024). Story expression characteristics of dyslexic children in second grade of elementary school. <i>Journal of Speech-Language & Hearing Disorders</i> , 33(1), 35-46.
48	Kim, S. H., Kang, E. H., & Lee, J. Y. (2023). Characteristics of morphological awareness in second grade elementary school students with dyslexia. <i>Journal of Speech-Language & Hearing Disorders</i> , 32(1), 17-23.
49	Yoon, H., & Park, M. (2022). Oral language abilities in children with dyslexia and poor comprehension in grades 3-6. <i>Communication Sciences and Disorders</i> , 27(3), 506-517.
50	Lee, J. M., Jang, W., & Pae, S. (2023). Differences in text comprehension between students with developmental dyslexia and general students in fifth to sixth grade: Effects of text mode and text decoding difficulty. <i>Journal of Speech-Language & Hearing Disorders</i> , 32(3), 41-49.
51	Lee, K. (2024). An analysis of the relationship between phonological awareness and cognitive function factors of children with poor elementary-level reading. <i>The Journal of Yeolin Education</i> , 32(4), 65-84.
52	Cheon, H., Yu, H., & Bae, S. Y. (2022). Text reading fluency error analysis of Korean first and second graders with developmental dyslexia considering semantic knowledge. <i>Communication Sciences and Disorders</i> , 27(3), 483-494.

Appendix 1. Continued

53	Baek, J. E. (2022). Word recognition and reading fluency characteristics of elementary students with intellectual disabilities: Focusing on accuracy and error patterns. <i>Journal of Korean Council for Children & Rights</i> , 26(1), 133-154.
54	Lee, K., Jang, W., Eom, J., & Pae, S. (2023). Word reading and word writing development of first graders with and without developmental dyslexia: Considering meaning accessibility. <i>Communication Sciences and Disorders</i> , 28(3), 492-504.
55	Kim, D., Kim, M., Lee, D., & Lee, Y. (2023). A study on the effectiveness of a vocabulary intervention program using CBM for elementary school third-grade students with reading difficulties. <i>Journal of Educational Studies</i> , 44(2), 125-148.
56	Lee, Y. R., & Choi, S. Y. (2022). Characteristics of poor comprehenders' understanding of Han-ja compound words using sentence context. <i>Journal of Special Education</i> , 38(4), 99-115.
57	Lee, S. Y., & Yoo, S. A. (2023). The development of expository and narrative writing skills in upper elementary school students. <i>The Korean Journal of Literacy Research</i> , 14(2), 463-487.
58	Chung, B., & Kim, S. (2023). Word learning ability and modifiability in first and second grade poor readers: The role of dynamic assessment format. <i>The Review of Social Science</i> , 8(1), 33-53.
59	Jang, J.-S. (2024). Factors influencing the improvement of elementary students' basic reading skills: A mixed-methods approach from the teachers' perspective. <i>The Review of Social Science</i> , 9(1), 249-265.
60	Park, S. A., & Lee, S. (2024). Relationship between reading fluency and language skills in school-aged children. <i>The Journal of Learner-Centered Curriculum and Instruction</i> , 24(8), 889-904.
61	Moon, B., & Ko, S.-H. (2024). Effects of group reading intervention using phonics principles on decoding ability of students with intellectual disability. <i>Journal of Special Education and Rehabilitation</i> , 29(2), 113-126.
62	Kim, M.-K., & Li, K.-Y. (2024). Comparison of working memory and executive attention characteristics of school-aged children with reading difficulties and typically developing children. <i>Journal of the Korea Entertainment Industry Association</i> , 18(4), 291-301.
63	Im, S. Y. (2024). Effects of derivative word instruction using morphemes of Chinese characters on vocabulary of third- and fourth-grade students with reading disabilities. <i>Journal of the Korean Evidence-Based Education</i> , 5(1), 1-26.
64	Kim, H., & Kim, J. K. (2022). The effects of vocabulary intervention based on morphological awareness on the vocabulary ability of elementary school students with reading disabilities. <i>Communication Sciences and Disorders</i> , 27(3), 541-557.
65	Park, S.-H., & Lee, K.-J. (2024). Predicting children's reading comprehension: A short-term longitudinal approach. <i>Journal of Educational Community Research and Practice</i> , 6(1), 135-153.
66	Chang, H., Kim, W.-J., Lim, Y., & Kim, L. S. (2024). Language skills and predictors of reading comprehension in first grade: Comparing good and poor comprehenders. <i>Journal of Speech-Language & Hearing Disorders</i> , 33(3), 69-80.
67	Jeong, J., & Choi, J. (2024). Development of basic literacy norms for lower-grade elementary school students. <i>Journal of Reading Research</i> , 70, 173-201.
68	Lee, J. H., & Kang, E. H. (2024). Predictive factors for word decoding by types of reading disability in lower elementary school children. <i>Journal of Speech-Language & Hearing Disorders</i> , 33(2), 23-30.
69	Kim, J., Park, H., & Lee, G. (2024). Developing and validating an elementary school literacy test for diagnosing reading literacy. <i>Journal of Reading Research</i> , 71, 163-191.
70	Kwak, S. B., Do, J., & Shin, H. (2022). Review of an elementary reading attitude survey: Differences in language, medium, and purpose. <i>The Korean Journal of Literacy Research</i> , 13(3), 55-83.
71	Kim, H. J. (2021). Study on predictability of reading comprehension in elementary school 1st, 2nd, and 3rd graders. <i>Journal of Education & Culture</i> , 27(3), 367-387.