Impact of Language of Instruction on Academic Performance: A Bibliometric Review

Lazaro A. Kisumbe, Mashala L. Yusuph & Wakara I. Nyabakora
The Local Government Training Institute, Dodoma, Tanzania
https://orcid.org/0000-0003-2324-7906
Email: wnyabakora@gmail.com

Abstract: *The "role of language in education" has been a focal point of scholarly inquiry for decades, with "increasing attention" given to "the relationship between the language of instruction" and student performance. This bibliometric review offers an in-depth analysis of the influence of "the language of instruction on learners' academic performance." By systematically reviewing existing literature using data from the Scopus database and VOSviewer software, the study identifies major research themes, prominent authors, sources, countries, and emerging trends in the field. The research questions are: What is the trajectory of study productivity progress in the influence of LoI on learners' academic achievements? How can the current intellectual framework of the influence of LoI on learners' academic achievements literature be characterized? What are the primary areas of focus within the influence of LoI on learners' academic achievements? What is the extent of influence of key "contributors" in the influence of LoI on learners' academic achievements? The findings highlight instructional language's intricate and multidimensional impact on cognitive growth, academic achievement, and workforce preparedness. The language of instruction plays a crucial role in skill development, with important implications for education and policy. Addressing existing research gaps and limitations will enhance understanding of this complex relationship, enabling the development of more effective instructional strategies and policies that support optimal skill acquisition and cognitive growth. Nevertheless, research gaps have emerged due to the recent nature of the words and their continued presence in the current period. This will help researchers understand their implications across past, present, and future contexts.*

Keywords: *Academic performance, Citations, Language of instruction, Learners' performance, LoI*

How to cite this work (APA):

1. Introduction

The "role of language in education" has been a focal point of scholarly inquiry for decades, with "increasing attention" given to "the relationship between the language of instruction" (LoI) and student performance (Agirdag & Vanlaar, 2016). "Language of instructions" Is the language used as the media of instructions for a formal education (Brock-utne, 2010; Macaro & Macaro, 2019; Skattum & Brock-utne, 2006). In an increasingly globalized world, where multilingualism is prevalent, understanding how language mediates learning outcomes is critical for shaping effective educational policies and practices. This topic gains particular importance in contexts where students are taught in a second language (L2) or foreign language, such as in "Content and Language Integrated Learning (CLIL)," "Content-Based Instruction (CBI)," and "English as a Medium of Instruction (EMI)" frameworks (Agirdag & Vanlaar, 2016). These approaches, widely implemented across Europe, Asia, and other parts of the world, aim to simultaneously develop language proficiency and subject-specific knowledge. However, the academic outcomes of these instructional methods, particularly in

subjects like mathematics and science, have been subject to debate.

Empirical studies on "language of instruction" (LoI) reveal both potential benefits and challenges (González-Martín et al., 2024). On the one hand, instruction in an additional language can enhance linguistic skills, metalinguistic awareness, and cognitive flexibility, as suggested by Cummins' interdependence hypothesis (Cummins, 1981). On the other hand, it can pose significant challenges for learners, especially in mastering complex academic content due to increased cognitive demands. Mathematics, for instance, requires students to navigate abstract concepts, technical vocabulary, and specialized discourse (González-Martín et al., 2024). Consequently, the extent to which LoI influences mathematical competence remains an open question. Given the growing use of bilingual and multilingual instruction, understanding its impact on learners' performance is crucial for optimizing educational strategies.

Graham et al. (2018) examined "the language and content" upshots of CLIL as well as EMI, though not specifically in math but similarly in other focusses like "natural and social sciences." Nevertheless, the quantity of researches included that definitely address arithmetic, is limited to two. Macaro et al. (2018) focused solely on EMI in higher education, examining the beliefs of both instructors and scholars and investigated whether instructing "academic subjects in English as a non-native language" improves English language skills without negatively impacting content knowledge. Additionally, we found a review that explores "CLIL and EMI in the field of physical education" (Gil-López et al., 2021). As far as we are aware, there has been a limited previous bibliometric review dedicated exclusively to examining this theme, which is the unique contribution of this paper.

Despite the proliferation of studies exploring "the intersection of language and education," bibliometric reviews focusing specifically on the effect of LoI on student performance remain limited. While previous reviews have examined the broader outcomes of "CLIL, CBI, and EMI," there is a paucity of research that consolidates findings from diverse contexts to offer a complete considerate of how LoI shapes learning outcomes across various academic disciplines. Thus, this study seeks to bridge this gap through a bibliometric review to analyze the trends, patterns, and insights emerging from the literature on the impact of LoI on student performance.

To meet the objectives outlined above and address the research questions, we conducted a bibliometric review following the guidelines set by the "Preferred Reporting Items for Systematic Reviews" (PRISMA) (Moher et al., 2009).

By integrating bibliometric study with "social network analysis" methods, it becomes likely to statistically characterize formal academic networks and visualize data such as international associations, citation patterns, co-citations, keyword connections, and interrelations between areas of study, often represented as networks (Priyan et al., 2023a). For a detailed understanding of the theme, an inclusive review of the research is essential. This approach provides a stronger foundation of information and clarifies the state of the field by evaluating the various components of the global discourse on "language of instruction." However, the specific trajectory of research trends in earnings management decisions remains uncertain.

This bibliometric review aims to offer scholars deeper insights into the current and historical trends in the influence of LoI on learners' academic achievements while highlighting potential avenues for upcoming research (Priyan et al., 2023b). It also seeks to recognize prominent writers and contributors to the most highly cited papers and publications in this area. To achieve this, a knowledge mapping style was employed to conduct a bibliometric examination, focusing primarily on the following study questions:

1. What is the trajectory of study productivity progress in the influence of LoI on learners' academic achievements?
2. How can the current intellectual framework of the influence of LoI on learners' academic achievements literature be characterized?
3. What are the primary areas of focus within the influence of LoI on learners' academic achievements literature?
4. What is the extent of influence of key "contributors" in the influence of LoI on learners' academic achievements?

By offering a structured and comprehensive analysis of the works, this evaluation seeks to offer insights to the ongoing discourse on multilingual education and inform educational policymakers, practitioners, and researchers about the potential implications of LoI on student success.

2. Literature Review

The connection between the language of instruction and skill development has been a key focus of academic research due to its profound impact on educational success and workforce preparedness. Studies across various disciplines—such as linguistics, education, psychology, and economics—underscore the complex ways in which language shapes skill acquisition and cognitive growth (Baker & Wright, 2017). This bibliometric review aims to analyze the existing literature, highlight major research themes, and identify emerging trends and gaps in understanding how instructional language influences skill development.

Cummins' (1981) Threshold Hypothesis serves as a fundamental framework in this field, proposing that cognitive benefits arise only when students attain a certain level of expertise in the "language of instruction." Extensive research supports this theory, showing that students with higher proficiency in the instructional language tend to excel academically and develop stronger cognitive skills (Collier, 1995; Thomas & Collier, 1997). Moreover, studies indicate that well-designed bilingual education programs can produce more significant cognitive advantages than monolingual instruction (Barac & Bialystok, 2011; Bialystok, 2016).

Research also highlights "the significance of the mother tongue" in early education and its impact on skill development. Numerous studies emphasize that instruction in a child's first language enhances comprehension, improves retention, and strengthens foundational skills (Ball, 2010; UNESCO, 2003). This is especially crucial in multilingual societies, where students may struggle when taught in a language that is not their own (British-Council, 2019). Beyond academic benefits, mother-tongue instruction also plays a vital role in cultural preservation and identity formation (Skutnabb-kangas, 2009).

Using a second or "foreign language as the medium of instruction" presents both opportunities and challenges. Proficiency in "a global language like English" can improve career prospects and facilitate international mobility. However, if students lack sufficient proficiency, it may lead to cognitive overload and impede the development of complex skills (Choi & Lee, 2008; Tollefson & Tsui, 2014). Research underscores the importance of support mechanisms, such as bilingual education programs and targeted language development strategies, to help students overcome these challenges and enhance learning outcomes (García, 2009)

Another key area of investigation concentrates on the role of language policy and planning in shaping educational outcomes and skill development. These studies explore how language policies at governmental and institutional levels determine the medium of instruction, which in turn impacts students' learning experiences and skill acquisition (Shohamy, 2009). Well-crafted language policies that encourage multilingualism and inclusive education are crucial for meeting the varied linguistic needs of students and promoting equal learning opportunities (British-Council, 2019).

The rise of digital technology and its incorporation into education have created new research opportunities regarding the language of instruction and skill development. Research indicates that digital tools can aid in language learning and improve cognitive skills, especially when they are tailored to be culturally and linguistically sensitive (Godwin-Jones, 2015).

Despite the wealth of study on the influence of the "language of instruction" on skill development, there are still notable gaps and extents for further examination. Longitudinal studies are required to examine the long-term effects of various instructional languages on skill development and career progression. Additionally, more research should focus on the intersection of language with factors such as socioeconomic status, gender, and cultural background to create a wide-ranging understanding of how these elements intermingle to shape skill acquisition (May, 2014).

In conclusion, the literature on the influence of the "language of instruction" on learners' "academic performance" reveals a multifaceted and evolving "association between language proficiency," cognitive growth, and academic outcomes. This bibliometric review has provided an inclusive overview of the prevailing body of research, highlighting key trends, identifying significant gaps, and offering valuable insights for future studies. These findings will be instrumental in guiding research directions and informing policy decisions in this vital area of education.

3. Methodology

This paper examines the evolution of research on the influence of LoI on learners' academic achievements over the past decades, spanning from 1994 to 2024. The decision to focus on the influence of LoI on learners' academic achievements was driven by its contemporary relevance, with particular emphasis on manuscripts "indexed in the Scopus database" (Vagner et al., 2021). A total of 482 manuscripts on this topic were analyzed.

The evaluation of discrete manuscript was conducted using a procedure that combined mixture to establish contextual association between the influence of LoI and learners' academic achievements (Vagner et al., 2021). Key factors such as co-occurrences, co-citations, and citations were explicitly represented using a free VOSviewer designed for generating and picturing bibliometric systems (Benziane et al., 2022; Priyan et al., 2023a).

VOSviewer can analyze research elements such as topics, publications, researchers, journals, and countries, organizing the data into clusters based on citation, co-citation, co-authorship, and co-occurrence patterns (Benziane et al., 2022; Priyan et al., 2023a). It then presents the information visually, enhancing clarity and comprehension (Vagner et al., 2021). VOSviewer can process data from Scopus and Web of Science databases, effectively presenting key information through mapping. This study examines research from 1994 to 2024 to explore how perceptions of the influence of LoI on learners' academic achievements have evolved. Analyzing this concept over an extended period provides insight into how views on the theme have shifted over time.

Before initiating data collection, we established inclusion criteria following the PRISMA framework "Preferred Reporting Items for Systematic Reviews and Meta-Analyses," (Moher et al., 2009). PRISMA is a set of evidence-based guidelines designed to assist researchers in systematically reporting various types of reviews, particularly those evaluating the benefits and risks of healthcare interventions. It emphasizes methods to ensure that such research is transparently and comprehensively documented (Gough et al., 2012).

3.1 The Review Data Sources

There is evidence that the Scopus index is a better choice than the Web of Science for finding and retrieving papers because it covers more fields in the social sciences (Mongeon & Paul-Hus, 2016). The claim that the limited scope of the Web of Science leads to higher-quality sources is disputed, with some arguing that this assertion should be empirically verified based on the specific field (Hallinger & Kovačević, 2019). Additionally, Scopus' export features are more advanced compared to "Google Scholar's features (Benziane et al., 2022; Nyabakora & Mohabir, 2024). Moreover, Scopus employs a more standardized paper "indexing system" (Benziane et al., 2022). To justify their decision, the authors referred to the earlier study by Archambault et al. (2009), which explored the multidisciplinary field and demonstrated a significant correlation between publications and citations in the Web of Science and Scopus.

3.2 Data Search Criteria

The preliminary exploration was conducted on the Scopus record on January 14, 2025, using the pre-planned search string. Following the modified PRISMA method (Hallinger & Nguyen, 2020), the "TITLE-ABS-KEY" operator was applied and obtained manuscripts that had undergone a peer review procedure. The search was restricted to final papers published in English up to January 14, 2025, from any global location. The results were refined by applying specific inclusion and exclusion criteria. The initial search produced 1,241 articles, which were further filtered in four steps to identify those relevant to this review (Figure 1). The search was restricted to manuscripts from the areas of "Arts and humanity," "business, management, accounting, economics, econometrics, finance, and social sciences," resulting in 1,125 relevant articles. Next, the keywords were applied to further focus on articles related to the influence of LoI on learners' academic achievements, which led to a total of 487 articles. A review and bibliographic analysis were performed exclusively on final journal articles published in English, excluding 5 articles written in other languages. This left us with 482 articles for inclusion in the bibliometric review.
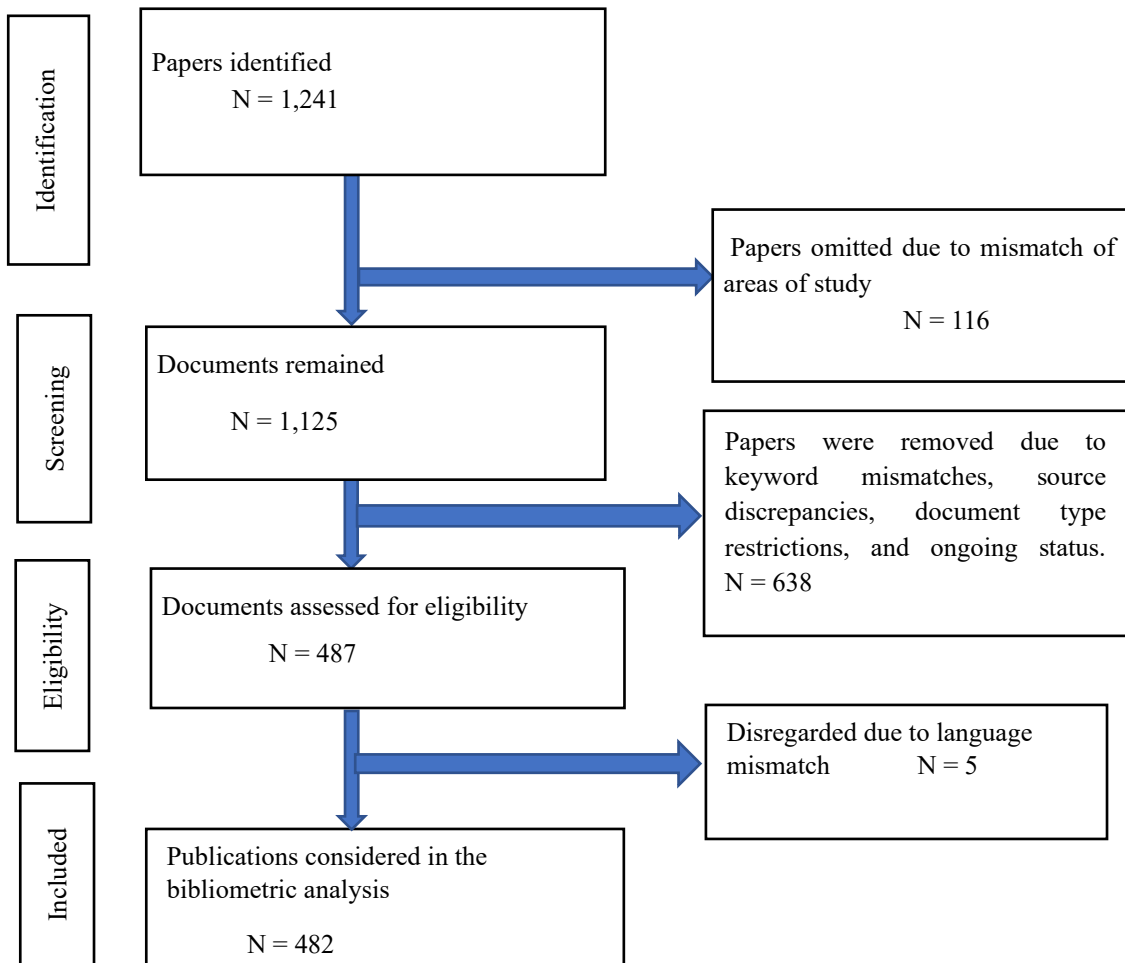
Figure 1. Research Growth in the Influence of LoI on Learners' Performance

The PRISMA method guided the document search process (Hallinger & Nguyen, 2020). Parentheses were employed to ensure the accuracy of the results. The question mark "?" and asterisk "*" were used to broaden or narrow the exploration, correspondingly, to refine the exploration keywords. Furthermore, boolean operators (AND, OR) were utilized to more improve the exploration. The exploration terms ("Language of instruction") AND ("academic performance*" OR "academic achievement*" OR "student* understanding") were used to identify appropriate archives. Initially, the exploration returned 1,241 papers, but after excluding those that fell short of the standards and were considered of limited relevance, the figure was reduced to 482 (Figure 1).

4. Results and Discussion

For the data investigation, bibliographic details from 482 papers, including citations, titles, authors, abstracts, and keywords, were exported. The extensive bibliometric analysis encompassed several techniques, such as "visualization of similarities," keyword co-occurrence analysis, author co-citation analysis, and citation investigation (Eck & Waltman, 2017; Priyan et al.,

2023a). VOSviewer was employed for the analysis, utilizing tools from Excel and Scopus (Eck & Waltman, 2017). This segment grants the results of the bibliometric analysis of the influence of LoI on the academic achievement knowledge base, addressing the four research questions:

4.1 The growth Trend of the Influence of LoI on Learners' Academic Achievements Research

The sample includes 482 articles published between 1994 and 2024. Figure 2 illustrates the growing global trend in *the* influence of LoI on learners' academic achievements *and* research output. Despite this upward trajectory, there were noticeable fluctuations in growth, with dips observed from 2021 to 2023. The decline in 2023 followed the peak in 2024. The articles in the sample were authored by a total of 1,097 individuals. Notably, approximately 40 percent of the total publications emerged within the last five years, highlighting an emerging area of focus (Figure 2).
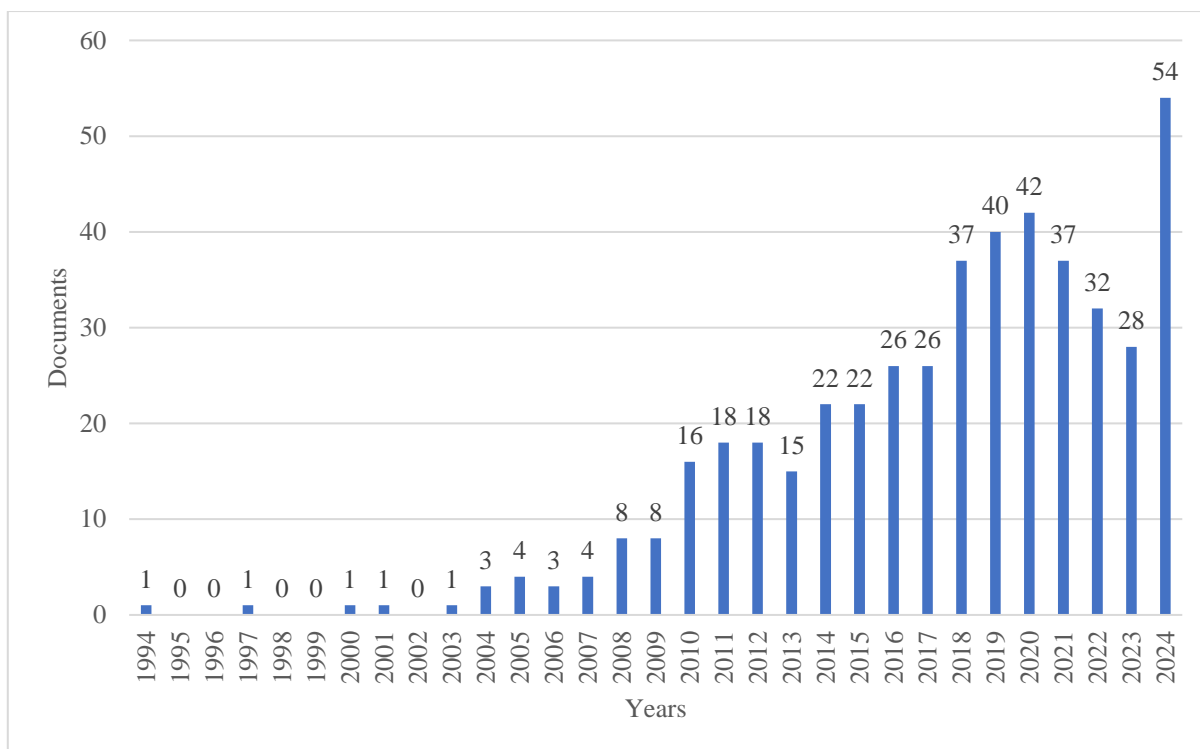
Figure 2. Research Growth in the Impact of LoI on Learners' Academic Performance

The chronological evolution of keywords has been analyzed by examining their trajectories and standardizing the frequencies according to the number of keywords in a specific period (Agramunt et al., 2020; Nyabakora & Mohabir, 2024). Table 1 displays how keywords evolved throughout the entire period and across its three sub-periods. The first sub-period, from 1994 to 2015, represents the initial phase, during which an average of only seven publications were released per year. The most frequently co-occurring keywords during this phase—bilingual education, academic performance, language of instruction, language policy, and multilingual education, among the fifteen most occurred terms—account for more than 32% of all keyword incidences. The second sub-period, spanning from 2016 to 2021, is considered the "take-off phase" due to the noticeable increase in the volume of articles published. During this period, an average of approximately 35 papers were published each year. The five most common keywords—bilingual education, academic performance, "English as a medium of instruction," "English language learners," and "higher education," among the fifteen most frequently occurred terms—accounted for over 18% of all keyword incidences. The third period, covering 2022 to 2024, represents the current phase of growth, with an average of about 38 papers published annually. This period marks a significant increase in the volume of publications. Key themes in this phase include "English as a medium of instruction," "academic performance," "higher education," "bilingual education," and "multilingual education," among the fifteen most frequently occurring terms." Notably, "bilingual education," stands out as the extreme used keyword across all periods. Across the entire timeline

from 1994 to 2024, the most commonly appearing terms are "bilingual education," "academic performance," "English as a medium of instruction," "language of instruction," and "multilingual education," among the other fifteen most occurred keywords.

4.2 The Growing Trend of the Topmost Five Individual Study Topics with the Highest Occurrences

In the first sub-period, research on *"bilingual education and its impact on academic performance,"* saw an annual growth rate of 5.5%. However, this growth rate slowed to 4.9% in the second term and further dropped to 3.6% in the third term. Despite these fluctuations, *"bilingual education"* research remained the most prominent among all terms. *"Bilingual education"* exhibited the uppermost growing rate (7%) of all incidences (Table 1). It appears that *the* influence of LoI on learners' academic achievements research, while growing, is still relatively underexplored in the Scopus database (1994–2024). The gradual increase in its presence suggests that interest in this area remains limited, creating a knowledge gap that requires further attention from researchers.

The second-fastest growing keyword, "academic performance," represented 5.2% of all incidences (Table 1). Investigation on "academic performance" began in the first period with a growing rate of 5.6%. In the second sub-period, the keyword was the second most among all keywords, with a growth rate of 4.8%. This rate decreased to 4.4% in the third period.

The term "English as a medium of instruction" emerged as a new focus during the second sub-period (2016–2021), with an initial growing rate of 2.8 percent. Nevertheless, in the third period (2022-2024), the keyword shoots the growth rate to 4.8%. On average, it accounted for 3.7 percent of overall occurrences, making it the third highest in growth rate (Table 1). This highlights a research gap in understanding "the role of English as a medium of instruction" on learners' performance and related areas.

The term "language of instruction" emerged as a new focus in the Scopus database during the first period (1994–2014), with an initial growing rate of 3.5 percent. It decreased the growth rate in the second period to 2.9 percent. However, in the third period (2022-2024), the keyword dropped to 2.3 percent in growth. On average, it accounted for 3.5 percent of overall occurrences, making it the fourth highest in growth rate (Table 1). This highlights a research gap in understanding the role of language of instruction on learners' performance and related areas.

The term "multilingual education" emerged as a new focus in the Scopus database during the first period (1994–2015), with an initial growing rate of 2.7 percent. In the second period, it fell to 1.9 percent of the growth rate. Nevertheless, in the third period, the growing rate was raised to 2.9 percent. On average, it accounted for 2.5 percent of overall occurrences, making it the fifth highest in growth rate (Table 1). This highlights a research gap in understanding the role of the medium of instruction on learners' performance and related areas.

During the third sub-period, new key phrases such as "English language proficiency," "education economics," "students' performance," "primary school learners," "second language learning," "classroom climate," and "home language" emerged as key topics in the influence of LoI on learners' academic achievements research. "English language proficiency" experienced an initial growth rate of about 2 percent, but it did not make it into the top fifteen most frequently occurring keywords. This also happened to "education economics," "students' performance," "primary school learners," "second language learning," "classroom climate," and "home language," which grew at 1.5, 1.5, 1.0, 1.0, 0.8, and 0.8, respectively, but didn't make it in the overall fifteen high performers (Table 1). These topics, being discussed for the first time, remain relatively underrecognized by many stakeholders (readers, instructors, researchers, policymakers, sponsors, etc.).

Not showing up for some keywords in the third sub-period means that, as the days go by, apart from losing interest from the researchers' point of view, maybe they have lost the influence on the learners' performance. These are "content and language integrated learning," "language policy," "mother-tongue education," "self-concept," "primary school education," "internal and external frame of reference model," "language," "education," "policy implementation," "reading comprehension," "African language," and "gender difference." This does not mean that they are not important, but researchers lose concentration on them as the days go by. There is a need to study why this diminishes (Table 1).

To determine where scholarly interest in the influence of LoI on learners' academic achievements research is focused, the environmental positions of the authors were analyzed. This body of work spans eighty-three different countries, indicating a wide but relatively concentrated interest in the topic (Figure 3).

However, as shown in Table 2, the majority of research has come from developed nations. Authors from the following fifteen countries contributed about 75 percent of the knowledge base on the influence of LoI on learners' academic achievements for this review: the United States, the United Kingdom, South Africa, Germany, Spain, Australia, Canada, Netherlands, Hong Kong, Saudi Arabia, China, Belgium, Sweden, Turkey, and Tanzania. The United States, the United Kingdom, South Africa, Germany, and Spain lead with 114, 54, 45, 39, and 31 published articles, respectively, collectively accounting for more than 45 percent of all research on the influence of LoI on learners' academic achievements. Given the growing role of developing countries in the global economy, it is evident that more research is needed in these regions.

Table 1: Keywords growth in impact of LoI on learners' academic performance literature

Id	Label	1994-2024		Label	1994-2015		Label	2016-2021		Label	2022-2024	
		OCC	%age		OCC	%age		OCC	%age		OCC	%age
1	Bilingual education	95	5.4	Bilingual education	36	6.9	Bilingual education	42	4.9	EMI	23	4.8
2	Academic performance	92	5.2	Academic performance	29	5.6	Academic performance	41	4.8	Academic performance	21	4.4
3	EMI	65	3.7	Language of instruction	15	2.9	EMI	24	2.8	Higher education	19	4.0
4	Language of instruction	62	3.5	Language policy	15	2.9	English language learners	17	2.0	Bilingual education	17	3.6
5	Multilingual education	44	2.5	Multilingual education	14	2.7	Higher education	17	2.0	Multilingual education	14	2.9
6	Language policy	42	2.4	Self-concept	12	2.3	Language policy	16	1.9	Language of instruction	11	2.3
7	Higher education	39	2.2	Education	10	1.9	Multilingual education	16	1.9	Medium of instruction	10	2.1
8	English language learners	32	1.8	English language learners	9	1.7	Medium of instruction	14	1.6	English language proficiency	9	1.9
9	Mother-tongue education	24	1.4	Mother-tongue education	9	1.7	Mother-tongue education	14	1.6	Education economics	7	1.5
10	Self-concept	24	1.4	Language	8	1.5	CLIL	12	1.4	English language learners	7	1.5
11	Education	23	1.3	Policy implementation	6	1.1	Language of instruction	11	1.3	Student performance	7	1.5
12	Literacy skills	23	1.3	Reading comprehension	6	1.1	Self-concept	11	1.3	Primary school learners	5	1.0
13	Primary school education	20	1.1	African languages	5	1.0	Primary school education	10	1.2	Second language learning	5	1.0
14	Languages	19	1.1	Educational policy	5	1.0	I/E reference model	9	1.0	Classroom climate	4	0.8
15	Learning environment	17	1	Gender difference	5	1.0	Languages	9	1.0	Home language	4	0.8

"CLIL =Content and language integrated learning: EMI =English as a medium of instruction: I/E Reference model =Internal / external frame of reference model: OCC = occurrence"
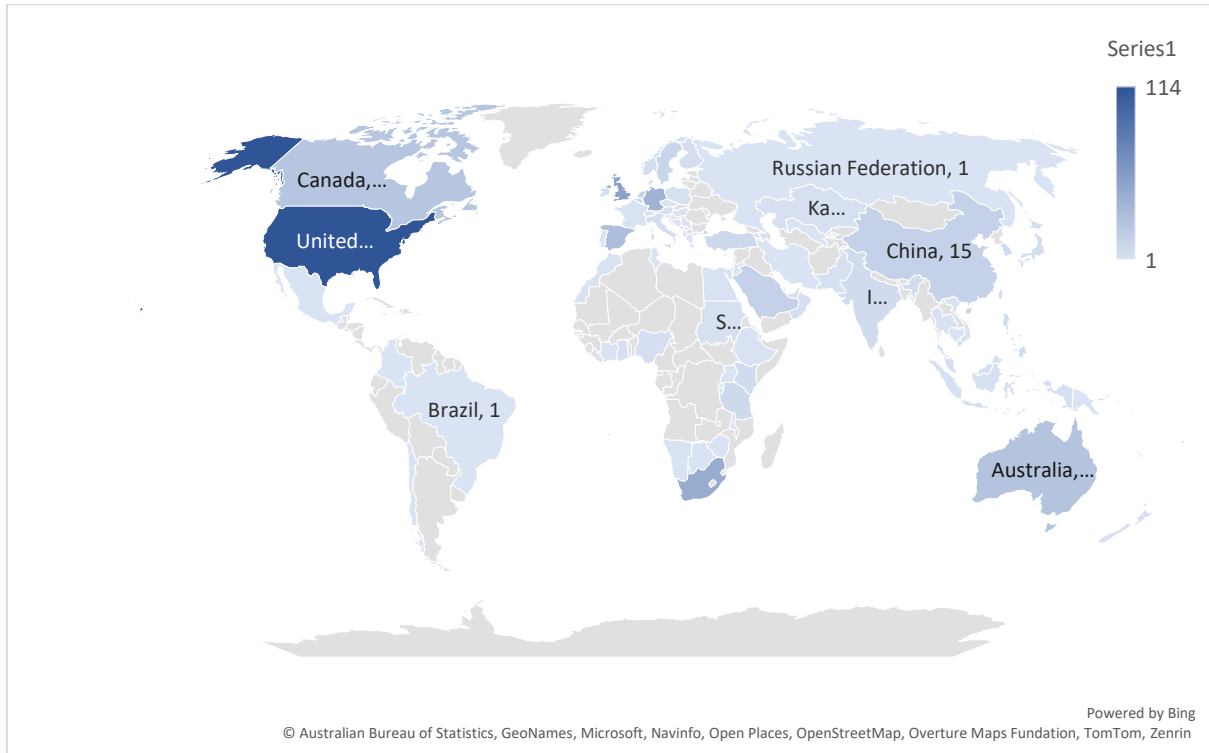
Figure 3: Geographical Location of Research in Impact of LoI on Learners' Academic Performance

Therefore, the fifteen most prolific nations percentage-wise in the influence of LoI on learners' academic achievements research are as seen in Table 2.

Table 2: Most productive countries in impact of LoI on learners' academic performance literature

Id	Label	Documents	Citations
1	United States	114	4010
2	United Kingdom	54	2028
3	South Africa	45	577
4	Germany	39	1188
5	Spain	31	762
6	Australia	26	1308
7	Canada	24	1498
8	Netherlands	17	473
9	Hong Kong	17	466
10	Saudi Arabia	15	527
11	China	15	252
12	Belgium	13	613
13	Sweden	12	100
14	Turkey	10	271
15	Tanzania	9	121

4.3 The Scope of the Greatest Contributors in the Influence of LoI on Learners' Academic Achievements Knowledge Base

Gaining insight into the key scholars and foundational works in this theme can provide a clearer picture of the current state of knowledge and highlight potential avenues for future research. It also helps scholars identify the most influential nations, journals, authors, and papers that should be explored for more in-depth information.

4.3.1 Analysis of the Most Fruitful Publication Sources

This report provides a comprehensive review of the leading journals in the influence of LoI on learners' academic achievements, helping researchers and practitioners stay informed about recent developments and identify the journals most likely to publish their work. The 482 publications were spread across 240 different journals. Despite the diversity of sources, the top fifteen journals (listed in Table 3) accounted for over thirty percent of the total publications. Notably, only 31 percent of sources had multiple publications. The international journal of bilingual education and bilingualism led with the most articles (25), contributing to a total of 852 citations across all 240 sources. Additionally, 18 sources did not receive any citations (the list is not provided), while the top fifteen journals garnered more than fifty-five percent of the total citations (Table 4). "The journal of research in science teaching" emerged as the leading source, with 943 citations across 6 research articles. Table 4 offers further details on the other top sources.

Table 3: Most productive sources in impact of LoI on learners' academic performance literature

Id	Label	Documents	Citations
1	International journal of bilingual education and bilingualism	25	852
2	Journal of educational psychology	13	634
3	Learning and individual differences	12	725
4	International journal of educational development	12	474
5	International review of education	12	223
6	Contemporary educational psychology	11	596
7	Comparative education	10	308
8	Language and education	9	454
9	System	7	314
10	Sustainability (Switzerland)	7	62
11	Journal of research in science teaching	6	943
12	Learning and instruction	6	204
13	Economics of education review	6	87
14	Journal of multilingual and multicultural development	6	80
15	Asian EFL journal	6	39

Table 4: Most cited sources in impact of LoI on learners' academic performance literature

Id	Label	Documents	Citations
1	Journal of research in science teaching	6	943
2	International journal of bilingual education and bilingualism	25	852
3	Learning and individual differences	12	725
4	Journal of educational psychology	13	634
5	Contemporary educational psychology	11	596
6	International journal of educational development	12	474
7	Language and education	9	454
8	Journal of engineering education	1	428
9	Review of educational research	5	356
10	Journal of school psychology	2	323
11	System	7	314
12	Comparative education	10	308
13	British journal of educational psychology	4	263
14	American educational research journal	4	253
15	International review of education	12	223

4.3.2 The Most Influential Authors in the Influence of LoI on Learners' Academic Achievements

This investigation helps clarify the role of scholars and their contributions to this field. Table 5 highlights the most influential scholars in the literature, along with their notable citation impacts. However, the Scopus h-index, which reflects an author's entire body of intellectual work across disciplines (Nyabakora & Mohabir, 2024; Valérie & Pierre, 2010), is not considered here. Therefore, Table 5 only includes citations related to each author's work specifically focused on the influence of LoI on learners' academic achievements. Therefore, with 9 articles, Moller, Jens led the group of the fifteen most productive writers. However, in terms of the number of citations, Hazari, Zahra was the most prolific writer, accumulating 1186 citations from her two papers. She was not listed in the more productive authors because her two papers were not enough to make her appear in the list. In this case Marsh, Herbert W. with 858 citations from his 8 papers, was the second most cited author. Other productive authors with their performance rates are shown in Table 5.

Table 5: Most productive authors in impact of LoI on learners' academic performance literature

Id	Author	Documents	Citations
1	Möller, Jens	9	374
2	Marsh, Herbert W.	8	858
3	Tong, Fuhui	8	322
4	Agirdag, Orhan	7	219
5	Lara-Alecio, Rafael	6	223
6	Arens, A. Katrin	6	87
7	Irby, Beverly J.	5	165
8	Curle, Samantha	5	47
9	Rose, Heath	4	145
10	Parker, Philip D.	3	319
11	Morin, Alexandre J.S.	3	313
12	Yeung, Alexander Seeshing	3	305
13	Seaton, Marjorie	3	252
14	De Fraine, Bieke	3	250
15	Pinxten, Maarten	3	250

4.3.3 The Most Prolific Documents in the Influence of LoI on Learners' Academic Achievements Literature

Examining the most prolific documents in a bibliometric review is crucial as it identifies the most impactful and frequently cited research within a field. These works play a fundamental role in shaping academic discussions, influencing research trajectories, and advancing knowledge. Analyzing them offers valuable insights into dominant themes, methodologies, and significant findings contributing to the discipline. Moreover, recognizing these key documents helps researchers track scholarly trends, pinpoint research gaps, and explore emerging areas, enabling more strategic and informed future studies. Therefore, this section explains five documents among the fifteen most cited documents as shown in Table 6. Huang's (2011) paper "Self-concept and academic achievement: A meta-analysis of longitudinal relations" significantly advanced understanding by systematically examining the link between students' self-concept and academic achievement over time. Synthesizing data from several longitudinal studies, it provided strong evidence that a positive self-concept is closely linked to better academic outcomes. This meta-analysis clarified both the direction and strength of the relationship, offering valuable insights for educators and policymakers on the importance of nurturing positive self-concepts in students to boost their academic performance. Its rigorous methodology and

impactful findings have contributed to its high citation rate in the field.

Bialystok's (2016) paper "Bilingual Education for Young Children: Review of the Effects and Consequences" gained significant attention for its thorough examination of the cognitive, social, and academic benefits of bilingual education. By synthesizing a broad range of studies, it provided strong evidence that early bilingual education improves cognitive flexibility, problem-solving abilities, and academic achievement. The paper also discussed potential challenges and offered practical recommendations for educators, making it an essential resource for policymakers, researchers, and practitioners in the field of education. Steele et al.'s (2017) paper "Effects of Dual-Language Immersion Programs on Student Achievement: Evidence from Lottery Data" made a notable contribution by providing strong evidence of the positive effects of dual-language immersion programs on student performance. Utilizing lottery data to conduct a randomized control trial, the study showed that students in dual-language programs outperformed their peers in traditional monolingual programs. The study's rigorous methodology and compelling findings played a key role in advocating for the effectiveness of dual language immersion programs, making it a widely cited work in education research.

Table 6: Prolific Documents in the impact of language of instruction on learners' academic performance

ID	Label	Description	Sources	Citations	Country
1	Hazari (2010)	Connecting high school physics experiences, outcome expectations, physics identity, and physics career choice: a gender study	Journal of research in science teaching	758	US
2	Godwin (2016)	Identity, critical agency, and engineering: an affective model for predicting engineering as a career choice	Journal of engineering education	428	US
3	Lee (2009b)	Universals and specifics of math self-concept, math self-efficacy, and math anxiety across 41 PISA 2003 participating countries	Learning and individual differences	337	US
4	Huang (2011)	Self-concept and academic achievement: a meta-analysis of longitudinal relations	Journal of school psychology	308	Taiwan
5	Tikly (2011)	Social justice, capabilities and the quality of education in low-income countries	International journal of educational development	274	UK
6	Bruton (2013)	CLIL: some of the reasons why... And why not	System	187	Spain
7	Pinxten (2014)	Enjoying mathematics or feeling competent in mathematics? Reciprocal effects on mathematics achievement and perceived math effort expenditure	British journal of educational psychology	184	Belgium
8	Bialystok (2018)	Bilingual education for young children: review of the effects and consequences	International journal of bilingual education and bilingualism	182	Canada
9	Steele (2017)	Effects of dual-language immersion programs on student achievement: evidence from lottery data	American educational research journal	172	US
10	Ahn (2020)	Four domains of students' sense of belonging to university	Studies in higher education	161	UK
11	Guo (2015)	Expectancy-value in mathematics, gender and socioeconomic background as predictors of achievement and aspirations: a multi-cohort study	Learning and individual differences	159	Saudi Arabia
12	Dafouz (2014)	Surely, they can't do as well': a comparison of business students' academic performance in English-medium and Spanish-as-first-language-medium programmes	Language and education	129	Spain
13	Möller (2020)	A meta-analysis of relations between achievement and self-concept	Review of educational research	128	Germany
14	Dafouz (2016)	Exploring the impact of English-medium instruction on university student academic achievement: the case of accounting	English for specific purposes	120	Spain
15	Seaton (2014)	The reciprocal relations between self-concept, motivation and achievement: juxtaposing academic self-concept and achievement goal orientations for mathematics success	Educational psychology	119	Australia

Ahn and Davis's (2020) paper "Four Domains of Students' Sense of Belonging to University" made a significant impact by identifying and categorizing the key factors that shape students' sense of belonging in higher education. By focusing on academic, social, personal, and institutional domains, it offered a comprehensive framework that has been widely referenced and adopted in later studies. This holistic perspective enabled educators and policymakers to gain a deeper understanding of the various dimensions of the student experience, leading to more effective strategies for enhancing student retention and success.

Dafouz et al. (2014) paper "Surely they can't do as well: A comparison of business students' academic performance in English medium and Spanish-as-first-language medium programs" made a significant contribution by examining how the language of instruction affects academic performance. It provided empirical evidence showing that students in Spanish-medium programs, their native language, outperformed those in English-medium programs. This finding challenged the widespread belief that English-medium education is inherently superior, prompting a reconsideration of language policies in multilingual educational contexts. With its rigorous methodology and far-reaching implications for language policy, the paper has become a highly cited work in the field.

4.4 Topical Concentrations and Intellectual Structure of the Influence of LoI on Learners' Performance Knowledge Base

4.4.1 Topical Concentrations of the Influence of LoI on Learners' Performance Knowledge Base

Identifying relevant research gaps for future studies involves understanding the key themes in the influence of LoI on learners' performance literature. To explore these themes, a keyword analysis was conducted. Using the Scopus analytic tool, we identified the most frequently used terms, as shown in Figure 4.

A "chronological keyword map" was generated in VOSviewer with a minimum threshold of 5 co-occurrences (Figure 4). This chronological co-word analysis examines the distribution of keywords over time, reflecting their appearance based on the publication dates of the associated content.

To identify the main focus of the influence of LoI on learners' performance research, the keyword study was conducted. Using VOSviewer software version 1.6.20.0, the keyword network was created by extracting keywords from the database of 482 relevant articles. The minimum threshold of five co-occurrences was set to collect analytical data. The network clearly illustrated the co-occurrence of keywords that appeared together more than five times across the 482 papers. Out of 789 total keywords, 94 met this criterion. The term "bilingual education" emerged as the most frequent keyword, appearing 95 times.

Figure 4: Concentration of the Influence of LoI on Learners' Academic Performance Knowledge Base

4.4.2 Intellectual Structure of the Influence of LoI on Learners' Performance Knowledge Base

By analyzing the intellectual structure, researchers can pinpoint the areas of "the influence of LoI on learners' performance" research that have been extensively studied and those that remain underexplored. Scientific mapping review methods have been used to examine the "intellectual structure" of various academic fields (Nerur et al., 2008). This structure refers to the key theoretical and empirical research lines, or "schools of thought," that shape a field of study. To explore the intellectual structure of the influence of LoI on learners' performance research, the author co-citation analysis was employed, generating a network map in VOSviewer to illustrate how the knowledge base is conceptually organized.

Researchers using co-citation analysis (Hallinger & Kovačević, 2019; Priyan et al., 2023a) suggest that authors frequently co-cited by others tend to share similar scholarly perspectives. Furthermore, VOSviewer software can generate a network map that visualizes the "commonalities" among authors cited in "the influence of LoI on learners' performance" field, by analyzing the frequency of "author co-citations" (Eck & Waltman, 2017; Fachada et al., 2022).

VOSviewer's co-citation map identified 56 academics, as the threshold was set at 50 co-citations from a total of 27,877 authors (Figure 5). The larger bubbles in Figure 5 indicate prominent researchers, based on the frequency of their co-citations. The map organizes researchers into different study fields, represented by colorful clusters. Notably, three main clusters—green, red, and blue—are visible in Figure 5. The most co-cited authors are Marsh H. W. from cluster 3 (1,099 co-citations), Moller, J. from cluster 2 (342), and Cummins, J. belongs to cluster 1 (305), among others.
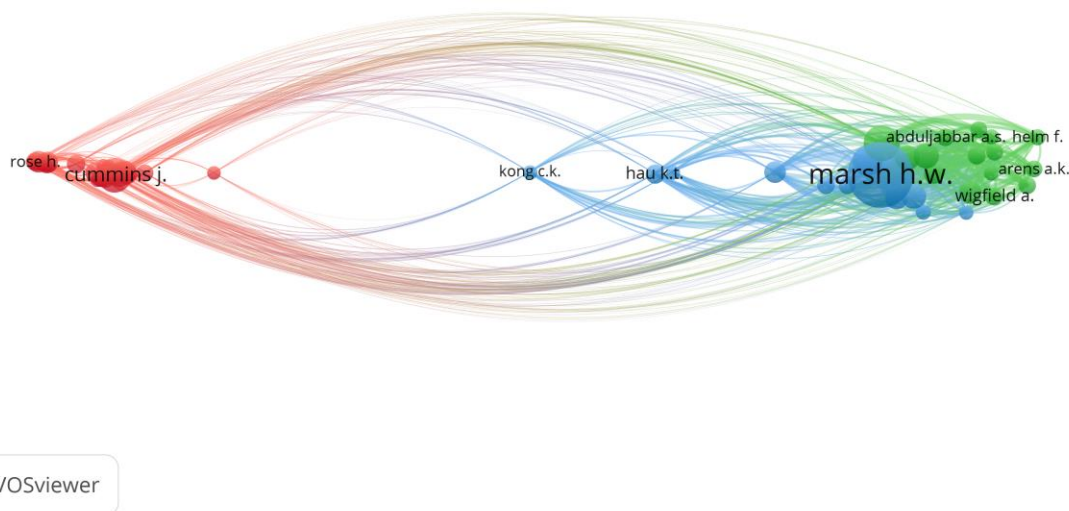

Figure 5: Intellectual Structure of the Influence of LoI on Learners' Performance Knowledge Base

4.5 Discussion of Findings

This study aimed to assess the literature on the influence of LoI on learners' performance, serving as a foundation for future research. We analyzed the temporal evolution of the theme by focusing on keywords and the volume of publications. Additionally, we examined the most prolific authors and publications, the global distribution of research, and the trends in growth over time.

A sample of 482 papers published between 1994 and 2024 was gathered from the Scopus database. While the first article on this topic appeared in 1994, significant scientific research on the subject only started gaining momentum in 2010. Less than 10 percent of the total publications were from the 1994–2009 period, underscoring the notable increase in interest and growth in this field after that time.

The main focus of the research is on the influence of LoI on learners' performance, with key areas ("academic performance," English as a medium of instruction," "language of instruction," "multilingual education, and "language policy," among others in Table 1. These broad

topics naturally frame the influence of LoI on learners' performance research. Not only have they appeared across most sub-periods, but they have also experienced significant growth, which has captured the attention of researchers.

The most influential author in the field is Hazari, Zahra who has accumulated 1,186 citations from her two papers *"Connecting high school physics experiences, outcome expectations, physics identity, and physics career choice: A gender study"* and *"Identity, Critical Agency, and Engineering: An Affective Model for Predicting Engineering as a Career Choice."* She is affiliated with *"Department of Engineering and Science Education, Clemson University, Clemson, SC, United States."* Followed by Marsh, Herbert W. who has accumulated 858 citations. he is affiliated with *"the Institute for Positive Psychology and Education, Australian Catholic University, Strathfield, NSW, Australia."* Following him is Moller, Jens with 374 citations (Table 3). The most impactful documents, listed in Table 4, are predominantly from the USA, which accounts for about 25% of the total documents. The United States, the United Kingdom, South Africa, Germany, and Spain are the five most productive nations, in that order.

The 482 publications on the influence of LoI on learners' performance was spread across 240 journals. The top fifteen sources (shown in Table 3) accounted for more than thirty percent of the total corpus, although only 31% of sources had multiple publications. "The International journal of bilingual education and bilingualism" had the highest number of articles, with 25, out of a total of 240 sources, which collectively received 12,328 citations. Eighteen sources had no citations (the list is not included), while the top fifteen sources garnered 58% of all citations (Tables 3 and 4). *"The journal of research in science teaching"* was the leading source, receiving 943 citations from six research articles.

This study advances the influence of LoI on learners' performance research by visualizing the current state of scientific production and, crucially, identifying potential future research directions through keyword evolution. This analysis highlights the five key topics in recent literature: "English as a medium of instruction," "academic performance," "higher education." Bilingual education," and "multilingual education."

However, Table 1 helped to identify four emerging themes introduced in the last sub-period: "home language," classroom climate," "second language learning," "primary school learners," "students' performance," "education economics," and English language proficiency." For a detailed keyword analysis, the time frame was divided into three sub-periods. The term "bilingual education" had the highest average co-occurrence across all sub-periods.

5. Conclusion and Recommendations

5.1 Conclusion

This bibliometric review offers an in-depth analysis of the influence of the language of instruction on skill development. By systematically reviewing existing literature using data from the Scopus database and VOSviewer software, the study identifies major research themes, prominent authors, and emerging trends in the field. The findings highlight instructional language's intricate and multidimensional impact on cognitive growth, academic achievement, and workforce preparedness.

This research serves as an initial effort to structure and interpret the existing body of knowledge on the impact of LoI on academic performance. Utilizing quantitative bibliometric analyses, supported by VOSviewer and computational methods, it enables users to engage in the evolving process of knowledge creation over time. Through this approach, we provide a comprehensive assessment of the current research landscape, identify potential avenues for future study, and propose an analytical framework that reflects the field's ongoing development. As a result, the analysis reveals both a knowledge map and existing gaps in the literature.

Although previous efforts have attempted to conduct comprehensive and structured reviews of academic research on the impact of LoI on academic performance, this study enhances the field by incorporating a bibliometric perspective, organizing and synthesizing the existing body of knowledge. Consequently, it provides a broad overview of the research landscape and contributes to the expanding literature on the impact of LoI on academic performance. In doing so, it supports scholars, sociologists, academics, consultants, and other stakeholders by making relevant information more accessible. Despite its limitations, this study builds upon and enriches the existing bibliographic knowledge base. However, it is important to note that the dataset was compiled exclusively from the Scopus database.

5.2 Research Gaps

Despite the substantial body of research, several gaps persist. A significant limitation is the scarcity of longitudinal studies examining the long-term impact of various languages of instruction on skill development and career trajectories. Additionally, further research is needed to explore the intersection of language with factors such as socioeconomic status, gender, and cultural background. These interactions could offer deeper insights into how multiple variables collectively shape skill acquisition and development.

In the most recent sub-period (2022–2024), seven new keywords emerged among the top fifteen: "home language," classroom climate," "second language learning," "primary school learners," "students' performance," "education economics," and English language proficiency." These terms remain highly relevant and warrant further research, as they continue to be prominent topics in the field (Table 1).

Second, "bilingual education" exhibited the fastest growth, accounting for over 5% of all instances (Table 1). Given that a significant portion of the global population remains unfamiliar with the topic, it remains a relevant and promising area for continued scholarly exploration.

Third, research on the impact of LoI on academic performance is primarily concentrated in wealthy economies, leaving developing nations under-represented (Figure, and Table 2). In many underdeveloped countries, the limited awareness and understanding of this theme makes their implementation more challenging. As a result, the influence of these topics may differ between developed and developing economies. Notably, its impact on the academic performance of developing nations remains unclear and requires further investigation.

5.3 Limitations

This review has several limitations. First, it relies exclusively on peer reviewed articles from the Scopus database, which may not encompass all relevant publications in the field. Second, one of limitations of this study is that the search query did not include an exhaustive list of synonyms, potentially omitting relevant documents that could have contributed to the research.

Another limitation that could have affected the findings of this review is that all the papers included were in English, which means that studies published in other languages, potentially containing valuable insights, may have been excluded.

While materials such as conference proceedings, national journals, and editorial content may contribute valuable insights to the impact of LoI on academic performance, they were not included in this analysis (Casado-Belmonte et al., 2021). Additionally, this study utilized co-occurrence, co-citation, and keyword analyses, following a similar approach to Tiberius et al. (2020). Incorporating other bibliometric techniques, such as bibliographic coupling, could further enhance the findings.

Although the Scopus database offers many benefits, it is likely that significant papers available exclusively in other databases (such as the Web of Science, ABI, and Inform/ProQuest) have been overlooked.

Meanwhile, Google Scholar continues to improve, making it a valuable platform for future research. However, it remains limited to publications in scientific journals, potentially excluding academic works that could significantly contribute to the field (Valérie & Pierre, 2010). These limitations highlight opportunities to refine and enhance bibliometric research moving forward. Future studies could also focus on underexplored stipulated areas, particularly within the context of "the influence of LoI on academic performance."

5.4 Areas for Further Study

Future research should prioritize longitudinal studies to assess the long-term effects of instructional language on skill development. Additionally, studies should examine its impact across diverse educational settings, particularly in low-income and multilingual environments. Researchers should also explore the role of digital technologies in facilitating language learning and skill acquisition, especially within remote and hybrid learning models. Lastly, further investigation is needed to design and evaluate language policies that foster inclusive and equitable education while addressing the linguistic diversity of students.

In conclusion, the language of instruction plays a crucial role in skill development, with important implications for education and policy. Addressing existing research gaps and limitations will enhance understanding of this complex relationship, enabling the development of more effective instructional strategies and policies that support optimal skill acquisition and cognitive growth.

References

Agirdag, O., & Vanlaar, G. (2016). Does more exposure to the language of instruction lead to higher academic achievement? A cross-national examination. *International Journal of Bilingualism*, *22*(1), 123–137. https://doi.org/10.1177/1367006916658711.

Agramunt, L. F., Berbel-Pineda, J. M., Capobianco-Uriarte, M. M., & Casado-Belmonte, M. P. (2020). Review on the Relationship of Absorptive Capacity with Interorganizational Networks and the Internationalization Process. *Complexity*, *2020*, 1–20. https://doi.org/10.1155/2020/7604579.

Ahn, M. Y., & Davis, H. H. (2020). Four domains of students ' sense of belonging to university. *Studies in Higher Education*, *45*(3), 622–634.

Archambault, É., Campbell, D., Gingras, Y., & Larivière,

V. (2009). Comparing bibliometric statistics obtained from the web of science and Scopus. *Journal of the American Society for Information Science and Technology*, *60*(7), 1320–1326. https://doi.org/10.1002/asi.21062.

Baker, C., & Wright, W. E. (2017). Foundations of Bilingual Education and Bilingualism (6th Edition). In D. K. Palmer & K. A. Strong (Eds.), *Foundations of Bilingual Education and Bilingualism* (6th Editio, pp. 7–9).

Ball, J. (2010). Educational equity for children from diverse language backgrounds : Mother tongue-based bilingual or multilingual education in the early years ☐ Summary. *UNESCO International Symposium, February*, 1–10.

Barac, R., & Bialystok, E. (2011). Cognitive development of bilingual children. *Language Teaching*, 36–54. https://doi.org/10.1017/S0261444810000339.

Benziane, R., Roqiya, S., & Houcine, M. (2022). Fintech Startup: a Bibliometric Analysis and Network Visualization. *International Journal of Accounting & Finance Review*, *11*(1), 8–23. https://doi.org/10.46281/ijafr.v11i1.1715.

Bialystok, E. (2016). Bilingual education for young children: review of the effects and consequences. *International Journal of Bilingual Education and Bilingualism*, *21*(6). https://doi.org/10.1080/13670050.2016.1203859.

British-Council. (2019). *Using multilingual approaches: moving from theory to practice A resource book of strategies, activities and projects for the classroom* (B. Council (ed.)). www.britishcouncil.org.

Brock-utne, B. (2010). International Journal of Educational Development Research and policy on the language of instruction issue in Africa. *International Journal of Educational Development*, *30*(6), 636–645. https://doi.org/10.1016/j.ijedudev.2010.03.004.

Choi, Y. H., & Lee, H. W. (2008). Current Trends and Issues in English Language Education in Asia. *The Journal of Asia TEFL*, *5*(2), 1–34.

Collier, V. P. (1995). Acquiring a Second Language for School. *Directions in Language & Education*, *1*(4).

Cummins, J. (1981). Age on arrival and immigrant second language learning in Canada: A reassessment. *Applied Linguistics*, *2*(2), 132–149. https://doi.org/10.1093/applin/2.2.132.

Dafouz, E., Camacho, M., & Urquia, E. (2014). Surely they can ' t do as well: a comparison of business students ' academic performance in English-medium and Spanish-as-first-language- medium programmes. *Language and Education*, *18*(3), 223–236. https://doi.org/10.1080/09500782.2013.808661.

Eck, N. J. Van, & Waltman, L. (2017). Citation-based clustering of publications using CitNetExplorer and VOSviewer. *Scientometrics*, *111*(2), 1053–1070. https://doi.org/10.1007/s11192-017-2300-7.

Fachada, J., Rebelo, T., Lourenço, P., & Dimas, I. (2022). Green Human Resource Management : A Bibliometric Analysis. *Administrative Sciences*, *12*(95), 1–22.

García, O. (2009). *Emergent Bilinguals and TESOL : What ' s in a Name ? 2008*, 322–326.

Gil-López, V., González-Víllora, S., & Hortigüela-Alcalá, D. (2021). Learning foreign languages through content and language integrated learning in physical education: A systematic review. *Porta Linguarum*, *2021*(35), 165–182. https://doi.org/10.30827/portalin.v0i35.15785.

Godwin-Jones, R. (2015). Emerging Technologies Contributing, Creating, Curating: Digital Literacies for Language Learners. *Language Learning & Technology*, *19*(3), 8–20. http://llt.msu.edu/issues/october2015/emerging.pdf%0AOctober.

González-Martín, A. M., Berd-Gómez, R., Saura-Montesinos, V., Biel-Maeso, M., & Abrahamse, E. (2024). On the Relationship Between Bilingualism and Mathematical Performance: A Systematic Review. *Education Sciences*, *14*(11). https://doi.org/10.3390/educsci14111172.

Gough, D., Oliver, S., & Thomas, J. (2012). An introduction to Systematic Reviews. In *SAGE Publications Ltd*. SAGE Publications Ltd. https://b-ok.asia/book/2718381/a08a63.

Graham, K. M., Choi, Y., Davoodi, A., Razmeh, S., & Dixon, L. Q. (2018). Language and Content Outcomes of CLIL and EMI: A Systematic Review. *Latin American Journal of Content & Language Integrated Learning*, *11*(1), 19–38. https://doi.org/10.5294/laclil.2018.11.1.2.

Hallinger, P., & Kovačević, J. (2019). A Bibliometric Review of Research on Educational Administration: Science Mapping the Literature, 1960 to 2018. *Review of Educational Research*, *89*(3), 335–369. https://doi.org/10.3102/0034654319830380.

Hallinger, P., & Nguyen, V. T. (2020). Mapping the landscape and structure of research on education for sustainable development: A bibliometric review. *Sustainability (Switzerland)*, *12*(5), 1–16. https://doi.org/10.3390/su12051947.

Huang, C. (2011). Self-concept and academic achievement : A meta-analysis of longitudinal relations. *Journal of School Psychology*, *49*(5), 505–528. https://doi.org/10.1016/j.jsp.2011.07.001.

Macaro, E., Curle, S., Pun, J., An, J., & Dearden, J. (2018). A Systematic Review of English Medium Instruction in Higher Education. *Sustainability (Switzerland)*, *11*(1), 1–14. http://scioteca.caf.com/bitstream/handle/1234567 89/1091/RED2017-Eng-8ene.pdf?sequence=12&isAllowed=y%0Ahttp://d x.doi.org/10.1016/j.regsciurbeco.2008.06.005%0 Ahttps://www.researchgate.net/publication/30532 0484_SISTEM_PEMBETUNGAN_TERPUSAT_ STRATEGI_MELESTARI.

Macaro, E., & Macaro, E. (2019). International Journal of Bilingual Education and Exploring the role of language in English medium instruction Exploring the role of language in English medium instruction. *International Journal of Bilingual Education and Bilingualism*, *0*(0), 1–14. https://doi.org/10.1080/13670050.2019.1620678.

May, S. (2014). Contesting Public Monolingualism and Diglossia : Rethinking Political Theory and Language Policy for a Multilingual World. *Language Policy*, *13*(June), 371–393. https://doi.org/10.1007/s10993-014-9327-x.

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Academia and Clinic Annals of Internal Medicine Preferred Reporting Items for Systematic Reviews and Meta-Analyses : *Annals of Internal Medicine*, *151*(4), 264–269.

Mongeon, P., & Paul-Hus, A. (2016). The journal coverage of Web of Science, and Scopus: A comparative analysis. *Scientometrics*, *126*(6), 5113–5142. https://doi.org/10.1007/s11192-021-03948-5.

Nerur, S. P., Rasheed, A. A., & Natarajan, V. (2008). The intellectual structure of the strategic management field: An author co-citation analysis. *Strategic Management Journal*, *29*(3), 319–336. https://doi.org/10.1002/smj.659.

Nyabakora, W. I., & Mohabir, S. E. (2024). Corporate social responsibility knowledge base : A bibliometric analysis. *Modern Finance*, *2*(1), 101–120. https://doi.org/https://doi.org/10.61351/mf.v2i1.1 23.

Priyan, P. K., Nyabakora, W. I., & Rwezimula, G. (2023a). A Bibliometric Review of the Knowledge Base on Capital Structure Decisions. *Vision*, 1–13. https://doi.org/10.1177/09722629221140190.

Priyan, P. K., Nyabakora, W. I., & Rwezimula, G. (2023b). A Bibliometric Review of the Knowledge Base on Financial Inclusion. *SN Business and Economics*, *3*(58), 1–21. https://doi.org/10.1177/09722629221140190.

Shohamy, E. (2009). *Language policy as experiences*. *2*, 185–189. https://doi.org/10.1075/lplp.33.2.06sho.

Skattum, I., & Brock-utne, B. (2006). *Chapter 1 Languages and Education in Africa : A Transdisciplinary Discussion*. 1–39.

Skutnabb-kangas, T. (2009). *The stakes : Linguistic diversity , linguistic human rights and mother - tongue - based multilingual education - or linguistic genocide , crimes against humanity and an even faster destruction of biodiversity and our planet 1 . Introduction : are endanger*.

Steele, J. L., Slater, R. O., Zamarro, G., Miller, T., & Li, J. (2017). Effects of Dual-Language Immersion Programs on Student Achievement : Evidence from Lottery Data. *American Educational Research Journal*, *54*(1), 1–39. https://doi.org/http://journals.sagepub.com/doi/abs /10.3102/0002831216634463.

Thomas, W. P., & Collier, V. P. (1997). *School Effectiveness for*.

Tollefson, J. W., & Tsui, A. B. M. (2014). Language Diversity and Language Policy in Educational Access and Equity. *Review of Research in Education*, *38*(March 2014), 189–214. https://doi.org/10.3102/0091732X13506846.

UNESCO. (2003). *Language Vitality and Endangerment*.

Vagner, L., Valaskova, K., Durana, P., & Lazaroiu, G. (2021). Earnings management: A bibliometric analysis. *Economics and Sociology*, *14*(1), 249–262. https://doi.org/10.14254/2071-789X.2021/14-1/16.

Valérie, D., & Pierre, A. G. (2010). Bibliometric idicators: Quality masurements of sientific publication. *Radiology*, *255*(2), 342–351. https://doi.org/10.1148/radiol.09090626.