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Language Learning in Geography Education: Secondary Analysis of a Systematic Literature Review to Identify Further Blind Spots

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Abstract

Language is essential for success in geography education. The use of academic and subject-specific language contributes to learning barriers, especially for students with heterogeneous linguistic proficiency and for second language learners. Thus, knowledge of the extent and variety of research on the role of language in geography education is of significance. To date, no systematic overview has been published of respective research fields in geography education as these relate to language at primary (ISCED I), lower secondary (ISCED II), and upper secondary (ISCED III) levels. In order to reveal and address potential blind spots in the research, this study provides a systematic review following the PRISMA scheme to indicate research foci, desiderata, and resulting potentials for future research in the field. The results of a secondary analysis of 38 peer-reviewed publications show diverse countries of origin. Studies in upper secondary schools and with samples including native-speaker students are largely represented, while primary education is barely represented. Research designs were evenly distributed with an emphasis on pre-post-design methods with quasi-experimental designs. Longitudinal studies were not reported.

Keywords: Systematic Review, PRISMA, Research Fields, Blind Spots, Language, Geography Education, Equitable Education Practice

1. Introduction

The following study is a secondary analysis of data gathered within the systematic literature review by Heidari et al. (2022) to identify further blind spots regarding language in geography education. It further evaluates and systematizes empirical studies on the role of language in primary (ISCED I), lower secondary (ISCED II), and upper secondary (ISCED III) geography education based on their research contexts, designs, and methods and provides valuable additional insights on the role of language in teaching and learning geography in school.

Linguistic, socioeconomic, ethnic, and cultural heterogeneity now characterize many classrooms around the globe. In a democratic schooling context, one aim is to sustain access to content and participation in class for all students regardless of their background, particularly to counteract stigmatization and exclusion (Batini et al., 2023; Ladson-Billings, 2006; Paris, 2012). The bases of educational achievements include students' linguistic proficiency in the language expected in school and in content areas (Brown, 2006; Schleppegrell, 2004). The expected academic and subject-specific language in content-area education, such as geography education, is used to describe concepts. Understanding it is necessary for students, particularly for the acquisition of knowledge and in meaning creation (Gersmehl, 2014; Halliday, 1999; Seah and Chan, 2021). Subject-specific language has a high level of abstraction, as it describes disciplinary concepts (Snow and Uccelli, 2009).This indicates the importance of researching academic and subject-specific language-related enablers and barriers in content areas as geography education.

To the best of our knowledge, a comprehensive and systematic overview of research focusing on study contexts, research designs, and methods related to language in primary, lower secondary, and upper secondary geography education is currently lacking. Investigating the extent and variation of empirical research on language in geography education is of relevance. Thus, the overarching aim of the present study[1] was a description and characterization of empirical research on language in primary, lower secondary and upper secondary geography education. The research was categorized and systematized based on a theoretically derived conceptual framework, which is detailed in Section 3. Systematizing existing publications based on this framework is crucial in order to identify blind spots and indicate potential for future studies on language in geography classrooms and, thus, enable more equitable education practices.

2. Language of Schooling and in Geography Education

An awareness of the role of the language of schooling, especially in subjects such as geography, evolved following research conducted in the twentieth century (Cummins, 1981; Halliday, 1999; Schleppegrell, 2004). The distinction between basic interpersonal communicative skills (BICS) and language used in the context of schooling (cognitive academic language proficiency: CALP) was introduced by Cummins (1981) and emphasized that students face different language-related obstacles in schools – especially second language learners.[2] Whereas BICS refers to spoken language use characterized by fluency, less lexical diversity, fewer abstractions, as well as interjections and repetitions, CALP constitutes skills involving (spoken and written) academic registers with higher lexical conciseness, greater density, and a higher level of abstraction (Akinnaso, 1982; Chafe and Danielewicz, 1987; Cummins, 1981). Here, the greater complexity and language demands regarding academic language and the language specific to content areas are explicitly mentioned. Subject-specific language is the means through which students learn a subject (Halliday, 1999; Schleppegrell, 2004; Snow and Uccelli, 2009). Academic and subject-specific

[1] Early stages of the present study were presented at the AERA 2023 conference, and a respective abstract with a DOI identifier can be found in the AREA paper repository (see Heidari et al., 2023).

[2] We use the term "second language learners" to address students whose home language differs from the majority language expected in school (Rieder-Bünemann, 2012).

language entail higher language demands and require a higher level of abstraction than everyday language. This can significantly impact students' access to subject-specific knowledge and their ability to fully immerse themselves in geographical content (Brown et al., 2019; Halliday, 1999).

Geography is a characteristic subject to show this more complex language, including its subject-specific terminology, its sentence structure, and its subject-specific conceptual meaning (Hinde et al., 2007; Shanahan and Shanahan, 2012; Spires et al., 2018). The subject-specific language in geography education includes language skills connected to receiving, describing, interpreting, and discussing continuous as well as non-continuous texts such as tables, maps, and diagrams. Beyond that, subject-specific translations of geographical concepts into terms used in geography classes can have meanings different from those in students' everyday language (Morawski and Budke, 2017), for instance, the words "arm" and "bank" with respect to rivers. Therefore, learning geography-specific terminology can be regarded as similar to learning new vocabulary in a foreign language, and acquiring subject-specific language in geography education is highly interrelated with content learning (Brown et al., 2019; Gallagher and Leahy, 2019). Depending on the individual student's language proficiency in general and with regard to the subject of geography, this may then enable or hamper geographical learning processes (Brown et al., 2019; Gallagher and Leahy, 2019). This subject-specific linguistic proficiency is not only important for successfully completing written assessments, but also to enable students to actively participate in classroom discourse, knowledge production, and communication (Gay, 2002). A noticeable discrepancy between the expectations of students' subject-specific language skills and the lack of language-aware geography education is present (Brown and Ryoo, 2008; Gogolin, 2021; Seah and Chan, 2021).

In the prior systematic review, we analyzed publications concerning empirically investigated language in geography education research as well as respective subject-specific themes, working methods, and concepts of space (see Heidari et al., 2022). Our analysis revealed that the publications predominantly researched language use at the written level, e.g., geography-specific texts. We identified a dominant research desideratum in research on spoken language production. Additionally, most of the subject-specific themes were connected to physical geography, e.g., earthquakes. Another key finding was that language-aware geography education was regarded as an approach to combining content teaching with language teaching and learning. Additionally, the expertise of foreign language teachers can contribute to developing and implementing pedagogical strategies in teaching the language of geography as well as students' ability to acquire it (Heidari et al., 2022). The present literature review identified further insights into relevant areas of research.

3. Aim of the Present Study

The resulting overarching aim of describing and characterizing respective research fields, including revealing potential blind spots in empirical publications on language in primary, lower secondary, and upper secondary geography education, was at the center of the literature review; in particular, as to what extent study contexts vary, and secondly, in how research designs, as well as methods, differ within the publications referenced. This is important, as it emphasizes blind spots' beneficial to or limiting research trends and desiderata, especially regarding common research practices. Thus, the present study was guided by the following research questions:

RQ1: What study contexts can be identified in empirical research on language in geography education?

RQ2: What research designs and methods have been applied in empirical research on language in geography education?

4. Conceptual Framework

To additionally describe and characterize the research on language in geography education, including its blind spots, a conceptual framework is needed. This is of utmost importance, as research fields represent how researchers produce results and, in a broader sense, knowledge, as well as disseminate common research practices. Moreover, educational research has to adapt to the dynamics and heterogeneity evident in geography education classrooms, as this is crucial to proactively indicate causes of achievement gaps and contribute to equitable educational practices (Gay, 2002; Ladson-Billings, 2006). In this regard, common orientations and practices in this research area can support narratives contributing to or preventing bias (Gogolin, 2021; Schostak and Schostak, 2007).

Research can only be reflected and evaluated if it is transparently described and characterized as well as accessible in a systematized overview (Firth and Morgan, 2010; Spires et al., 2018). The conceptual framework for describing and characterizing research on language in geography education we applied in the present study comprises three dimensions: the studies' contexts, their research designs, and their research methods.

4.1 Conceptualizing Studies' Country of Origin

The countries in which the research was conducted were conceptualized to reveal locational dominance or, by contrast, heterogeneity. The respective country of origin is important to code, as research trends may comply with common research practice characteristics for the research community in a location. However, this may differ from the country of origin of the corresponding authors of the publications.

4.2 Conceptualizing Linguistic Backgrounds of Participants

We conceptualize second language learners as students whose first language differs from the majority language expected in school (Rieder-Bünemann, 2012). They have varying levels of language proficiency in their first and second languages, including in academic and subject-specific language skills (Oxley and de Cat, 2021). Due to the increasing international migration influx in North America and especially Europe, increasing numbers of students with heterogeneous linguistic and ethnic backgrounds shape learning environments in classrooms (McAuliffe and Triandafyllidou, 2021). Students grow up being exposed to a first language, which differs from the language expected in school and society as the majority language (Kohl et al., 2019; Oxley and de Cat, 2021). This linguistic diversity is present in societies and in classrooms (Gogolin, 2021). Students who are second language learners may have fewer opportunities to hear, use, and practice the majority language expected in educational contexts as opposed to native speakers and are thus at a disadvantage, especially regarding content area teaching and assessments (Kohl et al., 2019; Linberg and Wenz, 2017). The representation of second language learners in the samples is categorized and provides insights into the comprehensive notion of empirical foci in the systematic overview.

4.3 ISCED Level

The International Standard Classification of Education (ISCED) was used in this review as a framework to systematize education levels internationally irrespective of the education levels of the studies' country of origin (UNESCO Institute for Statistics, 2012). The framework includes nine standardized education levels ranging from ISCED level 0 (kindergarten and early childhood education) to ISCED level 8 (tertiary education or doctoral level) (UNESCO Institute for Statistics, 2012). The education levels key to primary, lower secondary, and upper secondary education were included in our study as follows:

- ISCED 1: Primary education
- ISCED 2: Lower secondary education
- ISCED 3: Upper secondary education

4.4 Conceptualizing Research Designs and Methods

To investigate tendencies in empirical research on language in primary, lower secondary, and upper secondary geography education, three research designs were conceptualized: quantitative, qualitative, and mixed methods. However, quantitative and qualitative designs are not regarded as opposing approaches; they are regarded as constituting a continuum (Creswell and Creswell, 2018). A combination of quantitative and qualitative designs forms a mixed methods approach (Creswell, 2019; Patton, 2014). Research methods in obtaining data within the context of the research designs were also included.

5. Method

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) scheme was applied to conduct the review. A detailed description of the methodological approach is published in Heidari et al. (2022). After creating a comprehensive search syntax, we applied it in Web of Science, Scopus, and ProQuest. The syntax was constructed based on preliminary literature searches (Brown and Ryoo, 2008; Schleppegrell, 2004; Snow and Uccelli, 2009; Spires et al., 2018). With regard to educational levels, we added synonyms that evolved in the course of the preliminary searches. For instance, these included "secondary school*" and "high school*" or "elementary education" and "primary school*". The respective search terms were developed and connected with geography and earth science. Truncations (*) were applied for the search syntax in Web of Science as well as Scopus to ensure that various word endings of the terms were included.

We applied the search syntax (see Figure 1) to articles published between January 1, 2000, and November 17, 2021.

AB=("geography" OR "earth science") AND AB=("secondary school*" OR "high school*" OR "elementary education" OR "primary school*") AND AB=("academic language" OR "reading" OR "writing" OR "communication" OR "argument*" OR "reasoning" OR "vocabulary" OR "scientific litera*" OR "language us*")

Figure 1. Search Syntax.
Source: Heidari et al. (2022).

Web of Science and Scopus were chosen due to having the largest number of peer-reviewed publications. The search syntax was also applied in ProQuest to include dissertations. In all, 422 publications (deducting duplicates) were found (see PRISMA flow diagram in Figure 2). Following the screening of titles, keywords, and abstracts according to the inclusion and exclusion criteria, 302 publications were excluded (for more details, see Heidari et al., 2022).

Only peer-reviewed publications in the English language were included. Publications were required to include a stated aim and descriptions of the study sample and design. The language researched in the studies needed to be connected to an understanding of language use based on the Common European Framework of References for Languages (Council of Europe, 2020). Furthermore, studies were included with reference to primary, lower secondary, and upper secondary geography education (ISCED I-III). Publications regarding early childhood education (ISCED level 0) were not included, as geography is not explicitly taught as a subject and education approaches at this very young age greatly differ from those in other levels. Publications on bilingual geography education were excluded.

Full-text screening of 120 publications resulted in the inclusion of 38 papers. Interrater reliability assessed by an independent assistant resulted in an almost perfect agreement of $\varkappa$ = 0.92 (Brennan and Prediger, 1981; see also Heidari et al., 2022, 2023). Differences in screening were resolved through discussion. The final coding of the data was carried out by one researcher, systematized based on the conceptualized categories, and implemented into the predefined scheme. First, the studies'

country of origin, the inclusion of second language learners, and ISCED level were coded. Second, the methodology of each study regarding research designs and methods was identified.

6. Results

The results were descriptively structured in response to the respective research questions to create a structured overview showing the results at first glance.

6.1 Studies' Country of Origin

Results of the coding process (illustrated in Table 1) emphasize diverse countries of origin in our publications. The Unites States of America shows a most prominent locational emergence, as it has been reported on most (12; 32%). The second largest number of publications emerged in Asia (9; 24%) indicating a clear regional emergence in Indonesia (Nuryanti et al., 2019; Ruhimat et al., 2018; Sejati et al., 2017; Suwono et al., 2020; Utami et al., 2018). In European (8; 21%), African (5; 13%), Oceanian (3; 8%), and South American (1; 3%) countries, studies on language in geography education were reported less frequently.

6.2 Linguistic Backgrounds of Participants

Only a small number of publications explicitly included students who were second language learners (8; 21%). Additionally, the linguistic backgrounds and proficiencies of second language learners were not mentioned in the sample or were not specified regarding their proportion in the sample (Riffel, 2015; Ruhimat et al., 2018; Thomas, 2017; Voss, 2011). Thus, most participants in samples were referred to as linguistically homogenous.

6.3 ISCED Level

Our results show a significant emphasis on researching language in upper secondary (ISCED III) geography education settings (27; 71%). However, some studies included research at both the upper and lower secondary levels (Adams, 2009; Dal, 2008; Pallant et al., 2020; Pedretti, 2009; Thomas, 2017). Research on language in primary (ISCED I) geography education was rarely conducted (Cleary, 2019; Lloyd, 2016; See et al., 2017).

6.4 Research Designs and Methods

Table 2 reveals the distribution of research designs: quantitative, qualitative, and mixed methods. These varied greatly. Table 3 shows that researchers predominantly investigated language- and content-related skills and development through pre-post-design measurements (17; 45%). Furthermore, these were mainly conducted following a quantitative or mixed methods designs. Only three studies applied an experimental design (Chang et al., 2021; See et al., 2017; Voss, 2011). In most, participants were non-randomly assigned to intervention or control groups, as methods reported were mainly quasi-experimental designs and case studies. Longitudinal studies were not reported.

7. Discussion

The aim of this systematic review was to gain a better understanding of empirical research on language in primary, lower secondary, and upper secondary geography education. In conducting the search, screening, and coding processes, three key findings emerged. First, the 38 studies included a majority of native speakers in the samples; second language learners were included in only eight studies. Second, participants were predominantly in upper secondary education (ISCED III), indicating a crucial research desideratum in primary geography education. Third, research designs were evenly distributed with an emphasis on pre-post-design methods with quasi-experimental designs. Longitudinal studies were not reported.

First, our findings underscore a lack of focus on second language learners. However, second language learners differ regarding their social, ethnic as well as linguistic background, with varying levels of proficiency in their native and majority languages. The majority of studies

including second language learners, e.g., See et al. (2017), show results that emphasize challenges for these learners, who are said to be at risk of being excluded from learning possibilities and equal access to geographical knowledge as well as active participation in the classroom. An awareness of teaching practices that include differentiation has been highlighted as crucial, such as in the findings of See et al. (2017) and Alford and Windeyer (2014). Studies including second language learners have provided findings regarding inclusive educational measures. Davies and Meissel (2016) emphasized the importance of active participation in discourse, including fostering the ability to develop personal stances on contentious geographical issues of human–environment relations as well as the ability to communicate and defend these stances despite low levels of language skills:

> *"[…] rich and complex discussions [...] offer students the chance to engage on a deeper cognitive level […]" (p. 19).*

This quote emphasizes the significance of geographical classroom discourse in promoting profound levels of understanding. It further highlights the importance of implementing educational measures that offer linguistic support to overcome subject-specific language barriers (Brown et al., 2019; Cummins, 1981; Kohl et al., 2019; Snow and Uccelli, 2009). In addition, subject-specific language abilities play a role as a symbol of status, contributing to classroom-related inclusion and exclusion. This aligns with the notion suggested by Brown (2004) that language proficiency can lead to affiliation or exclusion within educational contexts. Particularly, subject-specific language acquisition goes beyond learning the grammar, orthography, and sentence structure of the language. It also involves understanding its social and economic context within the respective education system (Brown and Ryoo, 2008; Gogolin, 2021). This broader perspective is required to fully grasp the significance of subject-specific language abilities in educational settings. Therefore, it is troubling that second language learners are barely represented in the samples. This result highlights a significant blind spot in current research on language in primary, lower secondary, and upper secondary geography education. The predominant inclusion of monolingual students in the research samples neglects the importance of adopting an inclusive approach of obtaining linguistically heterogeneous samples, including second language learners (Firth and Morgan, 2010; Gay, 2002; Ladson-Billings, 2006). By overlooking the linguistic diversity present in many educational settings, research may fail to fully capture the complexities and challenges related to subject-specific language acquisition, as well as the potential benefits of linguistic learning support measures. To address this blind spot, future research should strive to be more inclusive and representative of the diverse language backgrounds of students in geography education.

This idea is reinforced by the finding that five studies did not specify the linguistic backgrounds of participants. Scientific knowledge is needed on the linguistic backgrounds of students as well as their language proficiency, including the impact on educational processes. Thus, empirical data collection on that matter is crucial for inclusive research on language in geography education. This is especially important to identify linguistically rooted enablers and barriers in geography education.

Our second finding highlights a striking research desideratum regarding language in primary geography education research. This strongly implies a blind spot despite the importance and awareness needed regarding language use at the primary geography education level (Kohl et al., 2019; Oxley and de Cat, 2021). However, the studies conducted in primary education show important findings as well as study implications in the form of recommendations for educational practice. For instance, See et al. (2017) concluded that explicitly teaching language in content areas in primary schools is crucial for students' language development and proficiency. The research conducted by Lloyd (2016) revealed that teaching subject-specific language proficiency experienced notable improvement in language-aware primary geography education settings "academic growth within English […] development of communication skills and vocabulary" (p. 266).

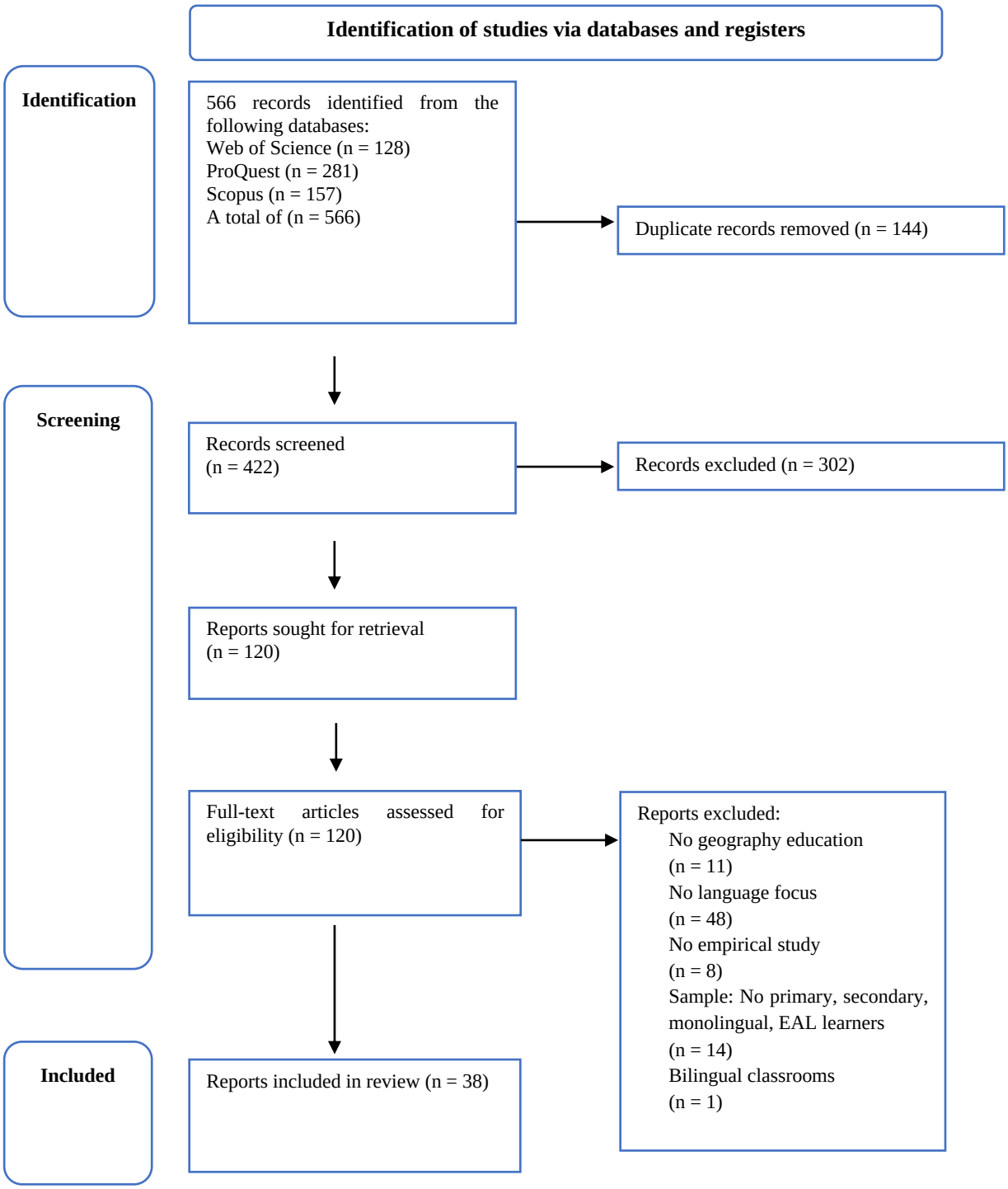

Figure 2. Search Syntax. PRISMA flow diagram: Systematic search and selection process.
Source: Heidari et al. (2022) and adapted based on Page et al. (2021).

Reference	Country	Second Language Learners		ISCED Level
		No	Yes	
Adams (2009)	USA	x	x	2, 3
Adeyemi and Cishe (2016)	Nigeria	x		3
Aldobaikhi (2016)	Saudi Arabia	x		3
Alford and Windeyer (2014)	Australia		x	2
Chang (2010)	Taiwan	x		3
Chang et al. (2021)	Taiwan	x		3
Cleary (2019)	Ireland	x		1
Dal (2008)	France	x		2, 3, 4
Davies and Meissel (2016)	New Zealand	x	x	3
Engelen and Budke (2021)	Germany	x		3
Falode et al. (2016)	Nigeria	x		3
Holzer (2016)	USA	x		3
Karasavvidis et al. (2000)	The Netherlands	x		3
Kerlin et al. (2010)	USA	NFS[3]		2
Lee (2006)	USA	x		2
Lee (2010)	USA	x	x	2
Lloyd (2016)	Australia	x		1
Nuryanti et al. (2019)	Indonesia	x		2
Nyoni et al. (2019)	Zimbabwe		x	3
Pallant et al. (2020)	USA	x	x	2, 3
Pedretti (2009)	USA	x	x	2, 3
Polman, J. & R. Pea (2000)	USA	x		3
Rampersad et al. (2020)	Trinidad and Tobago	x		2
Reich (2009)	USA	x		3
Richter et al. (2012)	Brazil	x		3
Riffel (2015)	South Africa	NFS	NFS	2
Rudsberg and Ohman (2015)	Sweden	x		3
Ruhimat et al. (2018)	Indonesia	NFS	NFS	3
See et al. (2017)	England		x	1
Sejati et al. (2017)	Indonesia	x		3
Słomska-Przech et al. (2021)	Poland	x		3, 4
Sormunen and Lehtio (2011)	Finland	x		3
Suwono et al. (2020)	Indonesia	x		3
Thomas (2017)	USA	x	NFS	2, 3
Utami (2018)	Indonesia	x		3
Voss (2011)	USA	x	NFS	2
Ward-Washington (2001)	USA	x		3
Yoo et al. (2020)	South Korea	x		3
		∑ = 33	**∑ = 8**	

Table 1. Contexts of the studies. Source: Authors' elaboration.

[3] Not further specified

An early language-aware geography education educates students in their ability to acquire academic and subject-specific language at the beginning of their education so that they are better equipped with the language demands expected in lower and upper secondary geography education (Kalinowski et al., 2019; Kohl et al., 2019). Furthermore, it is interesting that social interaction, as well as playfulness, were found to contribute to primary students' subject-specific vocabulary acquisition (Lloyd, 2016). Beyond that, implications of the three studies conducted in primary geography education provide suggestions for teachers. For instance, the studies refer to the importance of pedagogical skills, an open-mindedness toward teaching approaches as alternatives to common practices, as well as an explicit understanding of teaching language in geography education (Cleary, 2019; Lloyd, 2016; See et al., 2017). This notion of teacher preparedness to educate in a language-aware primary geography education classroom becomes particularly important especially with heterogeneous learners (Gogolin, 2021; Kalinowski et al., 2019; Kohl et al., 2019). Moreover, this finding highlights that research in this field is crucial and generates knowledge on inclusive schooling for all students, especially in overcoming educational achievement gaps—in particular, for those students who struggle with academic and subject-specific language proficiency and are therefore at risk of being disadvantaged, marginalized, or even excluded from common educational practices and participation at an early stage of education (Gay, 2002; Ladson-Billings, 2006; Oxley and de Cat, 2021; Paris, 2012). The third result of our study strongly highlights that studies conducted on language in geography education are mainly carried out as quasi-experiments including pre-post-research interventions in the context of mainly quantitative and mixed methods designs. Highly standardized tests with randomized samples, characteristic of experimental designs, are not prominently featured in the publications. However, we observed exceptions (Chang et al., 2021; See et al., 2017; Voss, 2011). This strongly implies that the emphasis of research on language in geography education lies more on the researcher's non-randomly assigned participants in a sample. This finding is of significance in conjunction with the research desideratum regarding describing participants' linguistic background and the limited inclusion of second language learners in research samples. In addition, a crucial blind spot is the lack of longitudinal studies, as none were reported. Studies mainly collected data over rather short periods. This constraint is supported by the findings reported by See et al. (2017) and Chang et al. (2021), which highlight the need for more time for intervention effects to evolve. Thus, our findings underline the importance of diverse research designs and methods inclusive of heterogenous students. Beyond that, as mentioned, there is a blind spot concerning longitudinal studies, particularly exemplary studies indicating the importance of time regarding evolving academic as well as subject-specific language learning effects.

7.1 Limitations

Although the results of our study describe and characterize research fields regarding language in primary and lower and upper secondary geography education, it is appropriate to recognize several potential limitations (see also Heidari et al., 2022). First, only empirical publications written in English have been included; thus, any research published in other languages has been overlooked. Second, we implemented our search syntax with just three databases, namely Scopus, ProQuest, and Web of Science, as we aimed at including only peer-reviewed publications. Conference presentations, books, and book chapters were not included. The third potential limitation is connected to the search syntax. Prior literature searches contributed to including explicit language skills and actions, e.g., reasoning, communication and terminology referring to the language of schooling. Studies empirically investigating language in geography education using terms different than our search terms could have been missed. Finally, due to our exclusion criteria, studies on language in geography learning by the youngest students (especially ISCED level 0) were not represented in our review.

Reference	Research Design		
	Qualitative	**Quantitative**	**Mixed Methods**
Adams (2009)			x
Adeyemi and Cishe (2016)		x	
Aldobaikhi (2016)		x	
Alford and Windeyer (2014)	x		
Chang (2010)			x
Chang et al. (2021)		x	
Cleary (2019)			x
Dal (2008)		x	
Davies and Meissel (2016)	x		
Engelen and Budke (2021)	x		
Falode et al. (2016)		x	
Holzer (2016)			x
Karasavvidis et al. (2000)			x
Kerlin et al. (2010)	x		
Lee (2006)	x		
Lee (2010)			x
Lloyd (2016)			x
Nuryanti et al. (2019)		x	
Nyoni et al. (2019)	x		
Pallant et al. (2020)		x	
Pedretti (2009)			x
Polman and Pea (2000)	x		
Rampersad et al. (2020)			x
Reich (2009)	x		
Richter et al. (2012)	x		
Riffel (2015)			x
Rudsberg and Ohman (2015)	x		
Ruhimat, M. et al. (2018)		x	
See et al. (2017)			x
Sejati et al. (2017)		x	
Słomska-Przech et al. (2021)		x	
Sormunen and Lehtio (2011)	x		
Suwono et al. (2020)			x
Thomas (2017)		x	
Utami (2018)		x	
Voss (2011)			x
Ward-Washington (2001)		x	
Yoo et al. (2020)	x		
	$\sum$ = 12	**$\sum$ = 13**	**$\sum$ = 13**

Table 2. Summary of the research designs observed in the literature. Source: Authors' elaboration.

Reference	Research Method
Adams (2009)	quasi-experimental design, pre-post-design
Adeyemi and Cishe (2016)	quasi-experimental design, pre-post-design
Aldobaikhi (2016)	case study
Alford and Windeyer (2014)	action research
Chang (2010)	explanatory study
Chang et al. (2021)	experimental design, pre-post-design
Cleary (2019)	action research, pre-post-design
Dal (2008)	NFS
Davies and Meissel (2016)	quasi-experimental design, pre-post-design
Engelen and Budke (2021)	explorative study
Falode et al. (2016)	quasi-experimental design, pre-post-design
Holzer (2016)	I: NFS: pre-post-design, II: quasi-experimental design: pre-post-design
Karasavvidis et al. (2000)	NFS, pre-post-design
Kerlin et al. (2010)	case study
Lee (2006)	case study
Lee (2010)	NFS, pre-post-follow-up-design
Lloyd (2016)	case study
Nuryanti et al. (2019)	NFS
Nyoni et al. (2019)	case study
Pallant et al. (2020)	NFS, pre-post-design
Pedretti (2009)	quasi-experimental design, pre-post-design
Polman and Pea (2000)	case study
Rampersad et al. (2020)	action research, pre-post-design
Reich (2009)	NFS, pre-post-design
Richter et al. (2012)	case study
Riffel (2015)	quasi-experimental design, pre-post-design
Rudsberg and Ohman (2015)	NFS
Ruhimat, M. et al. (2018)	quasi-experimental design
See et al. (2017)	experimental, pre-post-design
Sejati et al. (2017)	quasi-experimental design
Słomska-Przech et al. (2021)	NFS
Sormunen and Lehtio (2011)	pilot study, pre-post-design
Suwono et al. (2020)	descriptive study
Thomas (2017)	quasi-experimental design, pre-post-follow-up-design
Utami (2018)	NFS
Voss (2011)	experimental design
Ward-Washington (2001)	quasi-experimental, pre-post-design
Yoo et al. (2020)	NFS, pre-post-design

Table 3. Research methods observed in the literature. Source: Authors' elaboration.

7.2 Implications

Despite these limitations, our findings have potential implications. In terms of future research, it is both useful and necessary to extend the findings by gathering further evidence on the educational assets of language-aware geography education. This will contribute to emphasizing the importance of acquiring academic and subject-specific language skills in geography education and counteracting monolingual implicitness in the early stages of education. Moreover, a sense of language empowerment would provide the basis for the development of students' access to knowledge, their intellect, and their possibility of developing personal stances on contentious geographical issues. Future research on language-aware geography education in socially, ethnically, as well as linguistically heterogeneous classrooms are of crucial importance to provide empirical evidence on respective learning and achievement effects, which would contribute to equitable education practices and beyond in society. In particular, investigating assets of the respective backgrounds of students as a resource for geography education classrooms and counteracting marginalization is advised. For instance, literacy in the native language contributes to the extent of subject-specific language proficiency (Gogolin, 2021). Educational support to gain proficiency in the native language contributes to this development, although this is a void in common education practices (Gogolin, 2021; Kohl et al., 2019). Research on the long-term effects of interventions in language-aware geography education classrooms could add to narrowing the achievement gap. In addition, in geography education, it would contribute to equitable education practices, which form the basis for democratic schooling. Inclusive teaching practices based on evidence-based results from geography education research could additionally contribute to forming a respective basis (Firth and Morgan, 2010; Gay, 2002).

8. Conclusion

This systematic review of 38 publications generates further knowledge of research on language in primary, lower secondary, and upper secondary geography education. Our results show that researchers from various locations worldwide have contributed to the body of knowledge in this area of investigation. With respect to ISCED level, studies on primary geography education are lacking, as lower and (mostly) upper secondary students are the focus. Furthermore, our results highlight that most studies have included linguistically homogenous participants. Detailed description of the linguistic backgrounds of learners, their proficiencies, as well as the proportion of linguistically heterogenous participants is lacking. This is an important finding for the research community, as second language learners are more prone to language-related comprehension problems with content learning in geography education: it reveals a blind spot regarding representing the linguistic heterogeneity of geography classrooms in empirical studies. However, linguistically heterogenous samples in language-aware geography education research settings would provide further insights into inclusive notions of empowering all students to access geographical content knowledge irrespective of prior linguistic proficiency and knowledge. Acquiring subject-specific language skills in addition to content knowledge contributes to an equitable education opportunity for all students. Promoting research on the opportunities of language-aware geography education is thus a necessity. It could contribute to ensuring that all students can access content knowledge especially regarding the contentious geographical issues of the twenty-first century. Through an aware correspondence with subject-specific language skills in geography education, students can actively participate in educational as well as societal discourse. Furthermore, subject-specific language skills help students gain detailed understanding of and communicate geographical content. The linguistic backgrounds of students in a language-aware geography classroom can be acknowledged and regarded as a resource for learning. Linguistic heterogeneity forms the basis of most classrooms and societies in the twenty-first century.

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