Danuta Wiśniewska

Uniwersytet im. Adama Mickiewicza w Poznaniu

https://orcid.org/0000-0002-1168-0967

wis@amu.edu.pl

Mixed-type literature review of research on L2 learning in and through the linguistic landscape

The aim of this paper is to provide a review of articles reporting on research related to the linguistic landscape as applied to foreign language education, with a focus on the conceptualisation of the linguistic landscape, main themes, and research methods and distribution across years, languages taught and countries of research. The search for relevant articles published between 2003–2023 was conducted in databases: Web of Science, ERIC, MLA, and Scopus. The search yielded a total sample of 20 articles. The presentation of the main results of the review is followed by suggestions of topics for further research and reviews of a broader scope.

Keywords: linguistic landscape, language learning, systematic review, semi-systematic review

Słowa kluczowe: krajobraz językowy, uczenie się języka, przegląd systematyczny, przegląd pół-systematyczny

1. Introduction

The study of linguistic landscape (LL) is a rapidly growing field of research concerned with multiple languages, often accompanied by images, displayed

in the environment (Shohamy, Gorter, 2009: 1) for informational and symbolic purposes (Landry, Bourhis, 1997). The presence of written language in the public space is hardly ever arbitrary; instead, it is motivated by practical purposes (as, for example, in the case of place names or traffic signs) or ideological goals, such as activist billboards and wall inscriptions. Therefore, the language visible in the environment and the messages conveyed are interesting not only from a purely linguistic point of view, but, to the contrary, provide a wealth of material to be explored from a wide range of perspectives, including economics, history, geography, politics, sociology, applied linguistics, human rights, education (Pűtz, Mundt, 2019).

Within the educational strand of studies into linguistic landscape it is of interest for researchers and teachers of foreign/second/additional languages to investigate potential benefits of using the linguistic landscape in and out of the L2 classroom. It has been observed that the environment may provide teachers and learners with abundant sources of situated verbal and visual tokens, creating opportunities for transferring language teaching beyond the classroom walls, making classroom learning more related to the outer world, allowing learners to be engaged with real life, and authentic texts (Cenoz, Gorter, 2008). In fact, already before the spread of research into pedagogical benefits of LL, in the 1980s and 1990s, there were studies conducted within L1 literacy on the potential of environmental print, that is "the print found in the natural immediate environment of children, which includes logos, labels, road signs, billboards, clothing labels, coupons, newspaper advertisements, and fast food paraphernalia" for a successful development of children's reading skills (Kuby, Altridge, 2004: 106; for a review of relevant research see Kuby et al., 1999). The seminal papers by Cenoz and Gorter (2008) and Dagenais et al. (2009), which discussed the potential uses of LL for L2 teaching, have attracted the attention of L2 researchers, resulting in studies that attempt to explore the value of LL based classroom activities. These pedagogical attempts and research related exclusively to English Language Teaching, have been recently reviewed by da Silva (2023). She reviewed fourteen journal papers and book chapters in terms of research participants and tools, pedagogical benefits and teachers' criticism. The author's main interest was in the effects of using LL for EFL education. It seems, however, that after more than two decades of linguistic landscape research and several years of research on LL in the context of L2 pedagogy, it is worth exploring which were the major topics investigated in relation to this context and the types of research methodologies that guided the studies. With this aim, a mixed-type systematic review of LL articles was undertaken, the results of which should indicate directions for further studies in this field.

2. Language learning in the linguistic landscape

Linguistic landscapes, abundant in verbal and visual resources, create opportunities for language learning, either *in* the environment outside the classroom, where learners explore languages "through public immersion" or in the classroom, where selected elements of LL have been transferred to help learners study languages (or about languages) *through* the linguistic landscape (Brinkman et al., 2022: 93). Language pedagogy in study of linguistic landscapes is founded on several premises, such as the value of learning beyond the classroom, the linguistic landscape as an input and resource for language learning and learning about the language, or the adequacy of the linguistic landscape for the development of language awareness and multi-literacies (Cenoz, Gorter, 2008).

Language learning beyond the classroom is directly related to the interdisciplinary "spatial turn", which reflects globalisation and the development of cyberspace, as well as the politics, economy and culture of the contemporary world (Warf, Arias, 2009). What is very relevant about spatiality to the study of L2 learning in/through LL is the view of space as an active participant in a social event (learning/teaching in this case) and the statement that "where events unfold is integrated to how they take shape" (Warf, Arias, 2009: 10). One of the most prominent contributors to the development of the idea of spatiality was a French philosopher and sociologist, Henri Lefebvre (1991), whose concept of three interrelated spaces, perceived, conceived and lived, is reflected in the literature on LL and L2 learning. Perceived space is realistic, associated with daily routines; conceived space (representation of space) refers to planned spaces, and lived space is an experienced space whether in reality or the imagination. The concept of the triadic relationship of spaces in the context of LL L2 learning has been developed by Malinowski (2015, 2016) and is given special prominence in a new volume co-edited by Dubreil, Malinowski and Maxim (2023), confirming a significant role of space in language learning. The introduction to the volume provides an excellent overview of the concept of space in L2 learning and teaching and presents the editors' own three-layer framework composed of *spacing*, which suggests various configurations of participants of a learning process and places where learning happens, *placing,* referring to teachers' decisions about the choice of geographic, historic, cultural, real, or virtual places for pedagogical purposes, and a *dislocating* layer which aims at supporting learners in negotiating new meanings (Dubreil, Malinowski, Maxim, 2023: 8–9). Language education positioned in such a space-based framework allows teachers to efficiently combine classroom work with the outer world

so that the streets and other spaces can serve as an extension of educational formal frames (Niedt, Seals, 2021: 2).

Linguistic landscapes, whether within the school or beyond, are a rich source of *verbal and visual input* for second/foreign language learning. Cenoz and Gorter (2008: 274) characterize this type of input as authentic and contextualized, in the sense that the linguistic landscape is not pre-fabricated especially for educational purposes but serves a wide range of other aims situated in social, economic, political and cultural contexts. Signs in the linguistic landscape represent a variety of authentic genres, ranging from simple directions or naming, through announcements to poetry, from formal institutional to individual, private, spontaneous inscriptions, from contemporary texts to old faded lettering. Furthermore, the input is diversified with respect to its emplacement (e.g. permanent vs temporary, mobile, city vs rural), and languages which occur in different combinations (complementary, fragmentary, duplicating, overlapping, Reh 2004) or singly. As Cenoz and Gorter (2008: 274) rightly observe, while the linguistic landscape may include a range of vocabulary, the syntax is rather simple and hence less adequate for work on language. Instead, the authors see the value of LL as input mainly for the development of learners' (*critical) language awareness* and *pragmatic competence.* While language awareness is understood as "a person's sensitivity to and conscious awareness of the nature of language and its role in human life" (Donmall, 1985: 7, after Svalberg, 2007: 288), from the critical viewpoint, "[L]anguage awareness can be defined as an understanding of the human faculty of language and its role in thinking, learning and social life. It includes awareness of power and control through language, and the intricate relationships between language and culture" (van Lier 1995: iv). For learners, unveiling and understanding the relationships between language and other spheres of life is indispensable for the comprehension and production of written texts and for understanding the effects of texts on their recipients (Crystal, 1997). The exposure to input from the LL gives learners a chance to observe and "intake" pragmatic features, and incidentally develop pragmatic competence, which may subsequently be discussed in the classroom (Taguchi, 2011: 11).

Despite the fact that the linguistic landscape has been widely appreciated as a promising and interesting environment, the use of linguistic landscape items as input for learning is related to learners' attention, which depends on their interests, or on the qualities of an item (Dakowska, 2001), and to noticing of these items, that is recognizing them amidst other items (Schmidt, 1994: 179) which, in turn, is contingent on the learners' prior knowledge, experience, and learning (Wiśniewska, 2018: 117).

Taking into consideration the proliferation of pedagogical and research projects regarding the use of linguistic landscape for L2 education, it is important to review the studies carried out and published thus far, with the aim of identifying the scope of the research, including the researchers' conceptualisations of linguistic landscape in the context of L2 pedagogy, main research themes and methodological approaches. The aim of such a review is to get acquainted with current research trends, and to indicate potential new areas of research. Consequently, the present review attempts to answer the following questions:

RQ1. What is the distribution of research articles on L2 learning in the LL in terms of years, countries where the research was conducted and languages taught?

RQ2. How is the linguistic landscape conceptualised in the articles being reviewed?

RQ3. What are the main topics in the studies on L2 learning in the linguistic landscape?

RQ4. What are methodological features of the studies reviewed (including participants, data collection tools, context)?

3. Methodology

In order to carry out this review, a combination of systematic and semi-systematic review was applied. According to Moher et al. (2009: 1), "A systematic review is a review of a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant research, and to collect and analyse data from the studies that are included in the review." A relatively newer approach to research is a semi-systematic review which is not aimed at evaluating effect size but helps "to illuminate and clarify a complex topic area and highlight the strengths and limitations of different research approaches to that topic" (Wong et al. 2013: 2). Snyder (2019: 34) provides a detailed description and comparison of systematic and semi-systematic reviews (see Table 1). For the purposes of the present review, which aims mainly, though not exclusively, to explore themes investigated in selected studies, the approaches to formulating questions and research strategies have been adapted from the systematic review to assure a rigorous search process. However, other elements taken are characteristic of the semi-systematic review, namely: the articles included in the review mainly represent the qualitative tradition and are analysed quantitatively as regards distributional characteristics, and thematic analysis is ap-

plied to answer the remaining questions. This mixed (semi-)systematic approach is summarized in Table 1.

Table 1. Mixed-type literature review (The categories and descriptions based on Snyder, 2019: 34)

	Mixed-type literature review	
	systematic	*semi-systematic*
Purpose	synthesize and compare evidence	*overview research area*
Research questions	*specific*	broad
Search strategy	*systematic*	may or may not be systematic
Sample characteristics	quantitative articles	*research articles*
Analysis and evaluation	quantitative	*qualitative/quantitative*
Examples of contribution	evidence of effect Inform policy and practice	*state of knowledge themes in the literature research agenda*

4. Data collection and analysis

The electronic databases selected for the review were ERIC, Scopus, Web of Science, and MLA. Only one string of keywords was applied, namely "linguistic landscape" AND "language learning". The substitution of "language learning" with "language teaching" yielded articles that were duplicates of those already identified with the first keyword string. The total number of articles retrieved from the databases was 133 and an additional 3 were hand searched. The articles were selected for the review if they fulfilled the inclusion criteria presented in Table 2.

Table 2. Inclusion and exclusion criteria

Criteria	Inclusion	Exclusion
Source	academic, peer reviewed journals published between 2002 and 2023.	books, book chapters, dissertations and conference papers.
Language	published in English	published in languages other than English
Article type	research article	pedagogical project report, theoretical articles
Minimal methodology description	research questions or hypotheses included; research procedure described	no questions or hypotheses; research methodology not described

The procedures leading to the final identification of studies to be included in the review followed the PRISMA model (Moher et al. 2015), displayed in Figure 1.
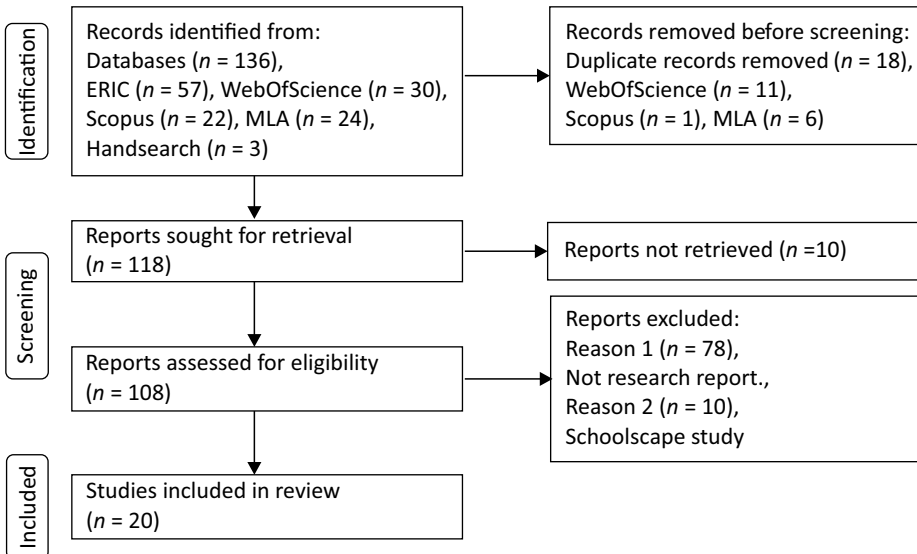

Figure 1 Simplified Data Collection Flowchart according to the Prisma guidelines (https://guides.lib.unc.edu/prisma)

The articles, after having been identified with the keywords, were screened on the basis of their titles and abstracts, and retrieved for further screening on the basis of reading the full article. After the screening was completed, the majority (88) of the articles were excluded as they did not fulfil the inclusion criteria. In this way 20 articles (listed in Appendix 1) were chosen for the review and analysed in accordance with procedures for thematic analysis (Braun, Clarke, 2006).

The data from the articles eligible for the review were first coded, then grouped into categories which allowed main themes to be refined. The codes complied with the research questions and concerned:
1. Distribution across a) years, b) location of research, c) language learnt/taught.
2. Conceptualisation of linguistic landscape.
3. Main research focus.
4. Context: in classroom project, independent/out of classroom study.
5. Methodological features: a) questions or hypotheses, b) participants, c) research methods, d) data collection tools.

5. Results

The aim of the present review was to explore research articles regarding the use of LL in L2 learning with a focus on distributional characteristics of the studies (RQ1), conceptualisation of linguistic landscape in this context (RQ2), major trends in research (RQ3), the context of the study (RQ4) and methodological characteristics of the selected studies (RQ5). The search strategy adopted resulted in the selection of 20 articles which have been systematically reviewed following the methodology described in the preceding section of this article.

5.1. Distribution of research studies: year, country, language taught (RQ1)

Table 3 presents the distribution of the research articles published in peer reviewed journals between 2003–2023. The first two publications appeared in 2013 followed by another two in 2017. The year 2019 marks a more stable interest in investigating L2 learning in LL, with 5 articles published in 2019 and in 2022. In the years in between fewer publications appeared. The data for 2023 is fragmentary since the literature search was completed before the end of the year. Taking into account the countries where research was conducted there are only two European countries with three studies reported in Germany and one in the Netherlands. The other countries are the USA and Canada, and eight Asian countries.

Table 3. Distribution of research studies: years, countries, languages

Year	no	Location	no	Language focus	no
2003–2012	–	USA	3	English	13
2013	2	Canada	1	Korean	2
2014	–	Oman	3	Chinese	1
2015	–	South Korea	2	multiple languages	4
2016	–	Germany	3		
2017	2	Bhutan	1		
2018	–	China	2		
2019	5	Malaysia	1		
2020	2	Turkey	1		
2021	3	Indonesia	1		
2022	5	Japan	1		
2023	1	Netherland	1		
total	20				

As concerns the languages which were the focus of the studies, in 13 cases English was the focus, taught as a second/additional/foreign language. Besides this, there were two studies involving Korean, one on learning Chinese and four studies involving multilingual landscapes. Nevertheless, we need to be aware that focus on one language does not exclude other languages from the context.

5.2. Conceptualisation of LL in the learning context (RQ2)

The theoretical introductions in the selected articles included references to earlier, pioneering works, published in the field of linguistic landscape, with the most often quoted being the seminal paper by Landry and Bourhis (1997) and a comprehensive volume edited by Shohamy and Gorter (2008). In the discussions of the relationship between linguistic landscape and L2 learning, the authors most frequently alluded to the papers of Cenoz and Gorter (2008), Dagenais et al. (2009) and Sayer (2010), among others. On the basis of these papers the researchers identified those characteristic features of LL which best suited their own studies. For the purpose of this review those characteristics were coded and collated into categories which fall into four major themes, presented in Table 4.

Table 4. Conceptualization of Linguistic Landscape in relation to L2 learning

Theme	Categories	Theme	Categories
Language displayed in the LL	input resource multimodal authentic	Language teaching/learning	pedagogical tool incidental learning peripheral learning
Aims of using LL	language awareness critical literacy pragmatic competence plurilingual competence cultural/linguistic diversity	Localization	environment beyond classroom space

It can be concluded that the researchers conceive the linguistic landscape in L2 education as an environment within and beyond the language classroom, with a display of authentic verbal and visual resources, which may be utilized consciously or incidentally as a tool for achieving pedagogical goals of L2 learning, including language forms, knowledge about the language (awareness of language, of linguistic and cultural diversity), and

means of how to use the language for communication (pragmatic competence, multi-literacy competence).

5.3. Main research trends (RQ3)

The main research trends in the selected articles were identified on the basis of the research questions and hypotheses posed by their authors (Table 5), analysed in an iterative manner to achieve general categories and themes. At the same time it is acknowledged that the categorisations are tentative in nature. For example, the category *Perception of benefits* fits the theme of *Pedagogical value*, but may also fit themes such as *The teacher* or *The learner.* While the allocation to a category and theme may be disputable in certain cases, such categorisations at least help identify general trends.

Table 5. Main research topics in the selected articles

Theme	Categories	No
Teacher	Practice	1
	Evaluation of the potential of LL tasks for language teaching	1
	Educational landscaping	1
	The impact of LL on teachers and their understanding of the role of	1
	English	1
	Perception of environmental English	
Learner	Experience of doing LL research.	1
	Attention, association and meaning making processes related to LL	2
Pedagogical value of LL	As a resource	1
	For translation teaching	1
	In study abroad	2
	Effects on learning	3
	Perception of benefits	3
Awareness	LL awareness	1
	Meta-sociolinguistic awareness	1
	(Critical) language awareness through LL.	2
	Cultural awareness	1
	Of language diversity	1
	Of English in the LL	1

The main interests of research into L2 learning in the LL fall into four general themes: the pedagogical value of LL, awareness, the teacher and the learner. Some studies investigated more than one topic; therefore the number of categories in Table 5 is larger than the selected sample of articles. The greatest attention of researchers was drawn to the pedagogical

value of LL, expressed through its benefits for students' language learning in general, or for particular skills, such as translation, for instance. Awareness was the second large area of research, including interest in different types of awareness: language, linguistic landscape, cultural, sociolinguistic and critical. Regarding teachers, the investigated topics comprised the actual practice of teaching, and teacher assessment of the potential uses and benefits of LL. In relation to learners, the studies analysed the learning processes involved while working with the LL.

5.4. The context and methodological features (RQ 4, RQ5)

The answers to question 4 presented in Table 6 show that 13 studies (65%) were carried out as a component of classroom tasks, or as a part of a course, 2 studies were conducted in connection with brief periods of study abroad that involved LL activities, and 5 studies, based on various types of surveys, were not incorporated into regular L2 classes. The majority of studies were performed at universities/colleges and involved BA students as research participants. Research in primary or high schools was reported in only 4 cases. As far as research methods are concerned, they were rarely mentioned or described, but from the data available, it can be concluded that most frequently qualitative and mixed-method studies were chosen. Concerning data collection tools, those employed most often were various types of surveys and interviews. Another important source of data were students' assignments involving work with LLs.

Table 6. Methodological features of selected studies

Theme	Data collection
Methods	Small-scale case-study, quantitative research, exploratory, qualitative study, mixed-method study, exploratory case study, empirical study, narrative study, multi-method
Data collection tools	Online discussion 1, online focus group 2, Questionnaires 3, Survey 5 , online survey 1 observations 2, interview 7, focus group interviews 1, conversations 1 assignments 7, reports 3 reflection 2, reflective journals 1, worksheets 1, comments 1
In-course	13
Out of course	5
Study abroad	2

Theme	Data collection			
Participants	University/college	High school	Primary school	Pre/in -service
Teachers		3		5, 90, 295
Learners	58, 40, 3, 50, 48, 18, 27, 200, 33, 105, 41, 90	60, 100	198, 5	
No data	(Algryani, 2022)			(Scarvaglieri, 2017)

6. Discussion and concluding remarks

The aim of this article was to review research on L2 learning in and through the linguistic landscape with a view to exploring researchers' conceptualisation of the linguistic landscape in the context of language learning, to identify the main trends in research topics and research methods, and to provide information about the distribution of the publications.

First of all, it was observed that the interest in researching L2 learning in and through the linguistic landscape is a relatively new trend. The research projects reported in the sample were mainly carried out in countries where the display of languages in public space is diversified and so constitutes a rich source of linguistic input. Countries with less varied language display have established a different linguistic environment both for pedagogical practice and for research on L2 learning in LL. Taking into account the location of research, it is interesting to note that, apart from Germany and the Netherlands, there were no other European countries represented, although such research has been conducted, as evidenced in book collections (e.g. Badstűbner-Kizik, Janíková, 2018; Malinowski et al., 2020; Melo-Pfeifer, 2023).

As for the conceptualisation of the linguistic landscape in the context of L2 learning, the findings show that these conceptualisations are influenced by theoretical works on language teaching, linguistic landscape and earlier reports of research into LL. Apart from scarce papers on teacher training as regards the use of LL *in* or *as* the classroom (e.g. Kim, 2017; Karafylli, Maligkoudi, 2021; Araújo e Sá et al., 2023), we have no insight into the extent to which teacher training and practice influences conceptualisations of LL.

The main research themes identified in the review were closely related to the conceptualisations of LL, and focused on investigating the role of LL in fostering (critical) language awareness, the effectiveness of LL as a pedagogical tool and language resource, teacher and learner experiences with LL,

among other topics. I would like to point to some missing research themes, such as, for example: To what extent LL is suitable for learning/teaching language forms?; How could it be used to obtain insights into incidental learning?; How could LL be used effectively in (quasi) monolingual countries?; How could global and local approaches to LL in education be combined? What is the relationship between engagement in the LL and L2 competence? How can learners be instructed so as to benefit from LL?

The final focus of the present review was on methodological features of the studies. In most cases the studies were carried out by teachers in the context of the courses they taught; therefore the participants were university or college students. Only four out of twenty studies were carried out in schools. In general, there is a trend towards conducting research in the context of a university. For example, in a review of qualitative research published in *Neofilolog* in the years 2012–2021, 77 participants were university students and only 11 were secondary and primary school learners (Smuk, 2023). Broadening the context of research to include schools, other that universities, could prepare learners at an earlier stage of education to relate to the linguistic environment and empower teachers with an alternative means of instruction.

The research on L2 learning in and through LL is a developing field which, in the context of multilingualism, mobility and multiplicity of communication channels, has strong potential for L2 education. The aim of this review was to identify the characteristics of research published in academic peer reviewed journals between 2003–2023 with respect to the distribution of the research, conceptualisation of the LL in the context of L2 learning/teaching, the major research themes, the context and research methods. The study has some limitations which should be addressed in future reviews. One of the main constraints was limiting the language of publication to English, which might have excluded a substantial number of studies reported in the first languages of the researchers. Further reviews, conducted, most preferably, by a group of reviewers, should seek to work on more linguistically varied samples. Another limitation was the choice of articles published only in journals. The inclusion of other papers, book chapters, conference papers, would provide a wider range of topics and approaches to research. Finally, the review addressed researched themes. Future reviews should broaden their scope and focus on the results of research and the evaluation of its quality. Research on schoolscapes, excluded from this review, deserves a separate study. Despite the limitations, however, this review shows that L2 learning and teaching in/through the linguistic landscape requires further studies which would improve and enrich educational practice, and at the same time, constitutes an interesting area for research.

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