



Linguistic Landscapes of the Digital and Urban City

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Abstract

Linguistic landscape (LL) study began as an inquiry into how public multilingual signage indexes ethnolinguistic vitality, institutional power, and the symbolic ordering of urban space. Over three decades it has absorbed a semiotic and multimodal turn that reframed the sign as emplaced material action rather than denotational text, and it has begun to migrate into digital environments variously called the virtual landscape, the linguistic netscape, or the geotagged feed. This article reviews that trajectory and advances a critical argument about what happens to the category of "landscape" once it is detached from physical co-presence. Drawing on the foundational research into ethnolinguistic vitality, the geosemiotics of situated meaning, and recent studies of geotagged social media, it contends that the digital does not simply expand the scenery but dissolves the two assumptions on which LL analysis rested: emplacement, the claim that a sign means partly through where it physically is, and publicness, the claim that a sign addresses a co-present, undifferentiated viewership sharing one visual field. Digital signage is mobile, algorithmically curated, and individuated, so no two observers occupy the same landscape. The article proposes that scholars retain the urban LL as a bounded material object while treating its digital counterpart as a regime of circulation, and it identifies the methodological consequences of that distinction.

Keywords:- Linguistic Landscape, Geosemiotics, Multilingualism, Digital Landscape, Virtual Linguistic Landscape, Multimodality, Urban Space, Ethnolinguistic Vitality

Introduction

The signs that crowd a city street have long been treated as more than wayfinding. A shopfront in two scripts, a municipal notice in the dominant language alone, a hand-lettered protest banner, a backlit corporate logo: each inscribes a claim about who belongs in a place, whose language counts as official, and whose presence is merely tolerated. The study of linguistic landscape (LL) was founded on the recognition that this visible language constitutes a legible record of social relations, and that the relative salience of competing codes on public display can be read as an index of power, prestige, and group vitality. From an initial concern with the quantitative balance of languages on signage, the field has grown into a richly interdisciplinary enterprise that draws on semiotics, geography, anthropology, and discourse

analysis to interpret how meaning is made in and through the material organization of public space.

This article pursues two aims. The first is synthetic: to trace the conceptual development of LL study from its origins in ethnolinguistic vitality research, through the semiotic and multimodal turn, into its contemporary engagement with urban multilingualism, commodification, and globalization. The second aim is critical and original. As LL research extends into digital environments, social media streams, geotagged photographs, app interfaces, and QR-mediated signage, it has tended to assume that the move online is a matter of expanding an existing scenery onto new surfaces. This article argues instead that digitization places the founding metaphor under genuine strain. A landscape, in the sense the field inherited, is a stable visual field surveyed by co-present observers; the digital sign is mobile, personalized, and algorithmically sorted, so the very conditions that made "landscape" analytically coherent no longer obtain. What is required is not an enlargement of the category but a reckoning with its limits.

From Vitality to Place: The Foundations of Linguistic Landscape Study

The term entered sociolinguistics through Landry and Bourhis, who defined the linguistic landscape as "the language of public road signs, advertising billboards, street names, place names, commercial shop signs, and public signs on government buildings" and argued that the aggregate of these items "serves to inform" and to "symbolize" the relative status of language communities within a given territory (Landry and Bourhis 25). Their central move was to distinguish an informational function, the simple conveyance of which language one needs to operate in a space, from a symbolic function, the affective and identitarian message that the presence or absence of one's language on public display communicates to its speakers. On this account the landscape is a constituent of ethnolinguistic vitality rather than a mere reflection of it: seeing one's language in the public sphere reinforces its perceived value and, reciprocally, its erasure signals marginalization. This founding insight tethered the study of signage to questions of language policy, minority rights, and intergroup relations from the outset.

Early empirical work consolidated the field around the survey of bounded urban areas. Backhaus, analyzing some 2,444 signs across twenty-eight survey areas in Tokyo, developed an analytic apparatus distinguishing official from non-official signage and demonstrated that the languages chosen by the state and those chosen by private actors followed divergent logics, with foreign codes increasingly visible on commercial signs over time (Backhaus). Ben-Rafael and colleagues, comparing Hebrew, Arabic, and English across Israeli and East Jerusalem locales, showed that the linguistic landscape operates as a "symbolic construction of the public space" in which different actors, public institutions, private entrepreneurs, and minority communities, inscribe competing structuration principles onto the same urban surface (Ben-Rafael et al. 10). Cenoz and Gorter, surveying minority-language streets in Friesland and the Basque Country, made the comparative method explicit and documented the gap between official bilingual policy and the multilingual reality of commercial display (Cenoz and Gorter). Across these studies the unit of analysis, the determination of what counts as a single sign, and the demarcation of the survey area remained live methodological problems, but the underlying object was stable: a finite set of fixed inscriptions occupying measurable positions in a walkable terrain.

The distinction between top-down and bottom-up signage, between the inscriptions authored by the state and its institutions and those authored by private commercial and individual actors, became the organizing axis of this early work, and it carried a theoretical assumption worth making explicit. To classify a sign by its source is to assume that authorship is recoverable from the artifact itself, that a municipal nameplate and a shopkeeper's notice

declare their provenance through their form and emplacement. This assumption held reasonably well on the street, where the materiality of a sign, its fixity, its sanctioned or unsanctioned position, its durability, indexed the authority behind it. The salience hierarchies that researchers computed, counting which language occupied the largest type, the topmost position, or the greatest number of tokens, were legible precisely because every observer confronted the same arrangement of marks in the same place. The validity of the entire enterprise rested, in other words, on the quiet premise that the sign is a stable public object whose authorship and prominence are inscribed in its physical form. Each of these premises, as later sections will show, becomes problematic the moment signage is mediated by a screen, and it is worth registering that the foundational methodology was tailored with great precision to a material world it took for granted.

The Semiotic and Multimodal Turn

The quantitative survey model, productive as it was, treated signs largely as carriers of denotational language, counting codes rather than interpreting how they signify in situ. A second generation of scholarship reframed the sign as situated social action. The most consequential contribution was the geosemiotics of Scollon and Scollon, who argued that the meaning of any public text depends constitutively on its emplacement, its position in the material world (Scollon and Scollon). A stop sign means "stop" only at the intersection; relocated to a gallery wall it becomes an art object; printed in a textbook it becomes an example. Meaning, on this view, is not transported intact by the sign but is produced in the indexical relation between the sign and the physical, social, and historical site it occupies. Geosemiotics thereby made place not a backdrop to language but a component of its meaning, a claim that would prove decisive for everything that followed, and, as will be argued below, the precise claim that digitization most directly unsettles.

The force of the geosemiotic claim is easiest to grasp through the threefold distinction Scollon and Scollon draw among the systems that organize discourse in place. The interaction order governs the arrangement of bodies and conduct around a sign; visual semiotics governs the internal composition of the sign itself, its layout, modality, and color; and place semiotics governs the indexical relation between the sign and its physical site (Scollon and Scollon). A "No Entry" notice signifies through the convergence of all three: the way pedestrians comport themselves before it, the iconography of its design, and the doorway it is bolted to. Strip away the doorway and the comportment, and the design alone underdetermines the meaning. This is a strong thesis about the insufficiency of the linguistic and even the visual sign considered apart from emplacement, and it reoriented the field away from cataloguing what signs say toward analyzing how their situated material presence acts upon those who move among them.

The edited volumes that defined the field's maturity extended this reorientation. Gorter's collection reframed LL as "a new approach to multilingualism," foregrounding the visual dimension of multilingual contact (Gorter). Shohamy and Gorter's subsequent volume explicitly set out to "expand the scenery," widening the object from written language to the full multimodal repertoire of public space, including images, layout, color, and material form (Shohamy and Gorter). Within that collection Pennycook's analysis of graffiti reconceived signage as a "transgressive" semiotic practice, attending to the unauthorized, the mobile, and the contested rather than to fixed official text, and asking why some signs are granted legitimacy while others are criminalized (Pennycook 302). Jaworski and Thurlow's notion of the semiotic landscape generalized the field's ambit still further, theorizing "the interplay between language, visual discourse, and the spatial practices and dimensions of culture" under conditions of intensified globalization and mediatization (Jaworski and Thurlow). The cumulative effect was to dissolve any clean boundary between linguistic and visual signification and to position the landscape as a multimodal accomplishment.

The City as Text: Multilingualism, Commodification, and Gentrification

If the semiotic turn established how signs mean, a parallel body of work established what urban signage records about the political economy of the contemporary city. Blommaert's ethnography of a single superdiverse neighborhood in Antwerp treated its signs as "chronicles of complexity," historical layerings in which successive waves of migration, commerce, and regulation remain legible as a stratigraphy of the street (Blommaert). The landscape, in this reading, is diachronic as much as synchronic: a faded sign in one language beneath a fresh one in another narrates demographic succession more reliably than census categories. Pennycook and Otsuji's account of metrolingualism complemented this by showing how the everyday multilingualism of markets, kitchens, and worksites exceeds the tidy categories of named languages, emerging instead from the practical activities and spatial repertoires of urban workers (Pennycook and Otsuji). The city, on these accounts, is not a container in which languages happen to coexist but a generative space in which linguistic resources are continually recombined.

Globalization inscribes itself in the urban landscape most visibly through the asymmetric spread of English, whose presence on commercial signage frequently exceeds any local population of English speakers and functions instead as an index of modernity, cosmopolitanism, and aspirational consumption. Backhaus observed this in Tokyo, where English clustered on slogans, brand names, and titles while the substantive informational load remained Japanese (Backhaus); Cenoz and Gorter documented the parallel encroachment of English onto minority-language streets in Europe, where it competes with both the state language and the regional one (Cenoz and Gorter). What such patterns record is not bilingual communication in any ordinary sense but the circulation of a global semiotic resource that carries connotational value irrespective of comprehension. Jaworski and Thurlow's framing of the semiotic landscape under conditions of mediatization captures this well: the globalized sign increasingly addresses a generalized consumer rather than a located interlocutor, and its multilingualism is calibrated to the symbolic economy of the brand rather than to the linguistic competence of any neighborhood (Jaworski and Thurlow). The urban landscape thus already contained, before any digital mediation, signs whose addressees were imagined and translocal rather than co-present and local, a tension the digital will only amplify.

The commodification of language sharpened this picture by foregrounding the market logic that increasingly governs urban display. Leeman and Modan, in a contextualized study of Washington's Chinatown, demonstrated that Chinese script on the area's signage had become detached from any Chinese-speaking community and functioned instead as a marketable aesthetic, a "decorative" ethnic ornament affixed by national chains to satisfy a development-board commodification of place (Leeman and Modan 332). Their argument is consequential because it severs the assumed link between the visibility of a code and the vitality of its speakers: a language can be highly salient in the landscape precisely because it has been emptied of communicative function and recast as branding. Gentrification and tourism intensify this dynamic, converting heritage scripts into instruments of real-estate value and urban spectacle. The mechanism is legible in the stratigraphy Blommaert reads from Antwerp's signage, where the arrival of new commercial actors overwrites older inscriptions and the neighborhood's textual surface is continually rewritten to address a changing, and frequently wealthier, imagined clientele (Blommaert). Tourism adds a further audience whose linguistic competence the signage need not actually serve: heritage scripts and curated multilingualism are deployed to authenticate a district as picturesque, legible to the visitor as atmosphere rather than as information. In such settings the landscape performs locality for non-locals, and the languages on display index a marketable identity rather than a living speech community. The implication for LL theory is that the symbolic function identified by Landry and Bourhis (25)

cannot be read off frequency alone; it requires the contextualized, ethnographically informed interpretation that the field's later methodology came to demand, attending to who commissioned a sign, for whom, and within what regime of value.

The Digital Turn: From Netscape to Geotagged Feed

The migration of LL study into digital space proceeded along several distinct paths, and conflating them has obscured what is genuinely new. The earliest move simply relocated the object: Ivkovic and Lotherington proposed the "virtual linguistic landscape," analyzing multilingual practice across websites and Web 2.0 platforms and arguing that cyberspace constitutes a "linguistic cyberecology" amenable to the same questions of code presence and language hierarchy that animated street-level research (Ivkovic and Lotherington 17). Troyer's study of Thai online newspapers coined the complementary "linguistic netscape," extending the spatial metaphor to the architecture of the web page and tracking how English colonizes particular zones of multilingual sites (Troyer). In these accounts the digital is treated as a new surface onto which the established analytic of code distribution can be projected more or less intact.

These first-path studies are valuable, but their governing analogy quietly does a great deal of work. To speak of a "netscape" or a "virtual landscape" is to assume that the page or the platform is a terrain one traverses much as one walks a street, and that the distribution of codes across its zones can be mapped as one maps signage across a district. The analogy holds for the relatively static, editorially controlled web that Ivkovic and Lotherington and Troyer examined, where a newspaper's masthead, navigation bar, and advertising slots occupy stable positions analogous to the official and commercial registers of the street (Ivkovic and Lotherington; Troyer). It holds far less well for the dynamically composed, personalized environments that have since become dominant, where no two retrievals of the same address yield the same arrangement of language. The spatial metaphor that made the netscape tractable was borrowed from precisely the emplaced, public terrain whose properties later platforms abandon, and the term's intuitive appeal has tended to conceal rather than expose that abandonment.

A second path is more consequential because it links the digital and the urban rather than substituting one for the other. Hiippala and colleagues analyzed roughly 120,000 geotagged Instagram posts from a single square in Helsinki, reconstructing what they term the linguistic landscape of social media content tethered to a physical site (Hiippala et al. 290). Here the digital does not replace the street; it becomes a parallel inscription of the same location, authored not by municipalities or shopkeepers but by tourists and residents whose captions, hashtags, and language choices accrete around a coordinate. QR-mediated signage and app interfaces compress the two regimes still further: a physical placard now frequently functions as a portal, its material text minimal, its meaning completed only when a personal device retrieves content that is dynamic, language-selectable, and invisible to any passer-by who does not scan it. The sign on the wall has become, in part, an index pointing offsite. This is no longer the netscape as a separate web-bound terrain, nor the street as a self-sufficient visual field, but a hybrid in which the material and the digital co-constitute a single, unevenly accessible semiotic environment.

What "Landscape" Cannot Hold: A Critical Reconceptualization

The argument of this article is that these developments expose the limits of the founding metaphor. "Landscape" is not a neutral term; it imports a specific phenomenology drawn from painting and geography in which a viewer surveys, from a position, a bounded and stable visual field that is, in principle, the same for any other viewer who occupies the same standpoint. The urban LL satisfied this phenomenology almost perfectly: signs are fixed, public, and co-

present, and two people standing on the same corner see the same array. Geosemiotics formalized the corollary that emplacement is constitutive of meaning (Scollon and Scollon). The digital sign violates both conditions at once. It is mobile rather than emplaced, traveling with the device and the feed rather than residing at a coordinate; and it is individuated rather than public, since algorithmic curation ensures that the stream of signage delivered to one observer differs systematically from that delivered to another. There is, strictly, no shared field to survey. The geotagged feed studied by Hiippala and colleagues is not a landscape that anyone beholds in common but an aggregate that only the analyst, working retrospectively across thousands of private screens, can assemble (Hiippala et al.).

It is worth being precise about why this is more than a quantitative increase in the number of surfaces a researcher must survey. The history sketched above shows that LL theory progressively loosened several of its founding commitments without ever abandoning the two that the digital now severs. The semiotic turn relaxed the assumption that the relevant material was strictly linguistic, admitting image, layout, and material form; the commodification literature relaxed the assumption that a code's salience tracked its speakers' vitality, admitting language emptied of communicative function; the work on globalization relaxed the assumption that signs address a local interlocutor, admitting the translocal consumer. Through all of these revisions, emplacement and publicness survived intact, because each successive object, however multimodal, commodified, or globally oriented, remained a fixed mark in a place seen by all who passed. The digital is the first development to touch these last two commitments directly, and that is what distinguishes it from a mere expansion of scope. To treat the geotagged feed as one more surface to be added to the survey is to miss that it withdraws the ground on which surveying itself was intelligible.

Two consequences follow. First, the symbolic function theorized by Landry and Bourhis is transformed rather than preserved. On the street, the visibility of a language is a public fact: its presence or absence is witnessed by the whole passing community and carries its symbolic charge precisely because it is seen by all (Landry and Bourhis 25). In a personalized feed, visibility is conditional and segmented; a language may be highly present for users whose profiles attract it and wholly absent for others, so the very publicness that made signage a measure of vitality is fractured. Second, the commodification dynamic that Leeman and Modan identified is radicalized, because the digital sign can be targeted, A/B tested, and varied in real time, displaying one code to a tourist and another to a resident from the same physical placard (Leeman and Modan). The landscape ceases to be a record and becomes a transaction. This article therefore proposes that scholars stop treating the digital as an extension of the landscape and instead recognize a categorical split: the urban LL remains a landscape, a bounded, co-present, material field, while its digital counterpart is better theorized as a regime of circulation, in which signs move, mutate, and address differentiated publics. Vandenbroucke's attention to the multiple "TimeSpace scales" at which urban signage operates already gestures toward this mobility (Vandenbroucke); the digital simply makes scale-jumping the normal condition rather than the exception. The point is not to abandon the term but to mark precisely where its phenomenological warranty expires.

Methodological Challenges of the Online Landscape

This reconceptualization carries concrete methodological stakes, several of which the field has begun to confront. The survey method that served the street, walking a defined area and photographing every sign, presumes a finite, stable, and observer-independent population of signs. None of these conditions holds online. The relevant population is effectively unbounded and constantly refreshed; what a researcher captures is a sample of a stream rather than a census of a terrain, and the sample is shaped by the same algorithmic logics it seeks to study. Hiippala and colleagues address this by working with platform data at scale and applying

computational classification, but they are candid that geotagging is selective, that platforms grant and withdraw data access unpredictably, and that language identification at scale is error-prone (Hiippala et al.). The methodological innovations catalogued by Gorter, from improved georeferencing to large image corpora, expand what is tractable without resolving the deeper problem that the analyst's assembled dataset corresponds to no single observer's experience (Gorter; Shohamy and Gorter).

Three challenges deserve particular emphasis. The first is the unit of analysis. Offline, the sign, however contested its boundaries, is a discrete material object; online, the analogous unit, a post, a thread, an interface state, an ephemeral story, may exist for hours and be composed dynamically, so its identity as a countable item is unstable. The second is ethics and access: street signage is uncontroversially public, but social media content occupies a contested zone between public and private, and the platforms that mediate it impose terms of service and shifting data regimes that constrain reproducible research. The third is the loss of co-presence as a validity check. Geosemiotic interpretation depended on the analyst standing where the sign stands and reading its emplacement directly (Scollon and Scollon); the digital analyst cannot occupy the position of the individuated user, whose feed is unreproducible, and must instead infer the landscape from traces. A fourth, subtler challenge concerns scale and representativeness. The computational methods that make large image and text corpora tractable invite a return to the aggregate counting of codes that defined the field's first generation, but the aggregate now conceals a heterogeneity it once revealed. A frequency table of languages across a hundred thousand posts reports the analyst's synthesis, not any community's shared visual experience, and to present it as the linguistic landscape of a place risks reinstating the very equation of salience with vitality that the contextualized turn was at pains to complicate (Leeman and Modan). The corrective is not to abandon scale but to pair it with attention to who actually receives which signs, recognizing that the distribution a corpus exhibits may be experienced by no one in particular. These are not technical inconveniences to be engineered away but symptoms of the categorical shift this article has described. A research program adequate to digital signage will need to be ethnographic about reception as well as production, following users rather than surveying spaces, and honest that what it reconstructs is a circulation it can sample but never wholly behold.

Conclusion

Linguistic landscape study has traveled a considerable distance from its origins in the measurement of code distribution on public signs. It began by establishing that visible language indexes the vitality and relative power of language communities, matured through a semiotic turn that made emplacement constitutive of meaning, and deepened through ethnographic and critical work that read the urban landscape as a chronicle of migration, a market in commodified ethnicity, and a terrain of gentrification and tourism. Its extension into digital space is the natural next horizon, and the early scholarship on virtual landscapes, netscapes, and geotagged feeds has demonstrated that the field's questions about hierarchy, visibility, and value remain urgent online. This article has argued, however, that the move online is not merely additive. The digital sign is mobile where the urban sign is emplaced, and individuated where the urban sign is public, so it forfeits the two properties on which the metaphor of landscape, and the geosemiotic theory built upon it, depended. The honest conclusion is that there are now two objects, not one: the urban linguistic landscape, a bounded and co-present material field, and a digital regime of circulating, personalized, algorithmically curated signage that resembles a feed more than a scene. Holding the two apart, rather than dissolving the first into a capacious second, will let the field carry its hard-won theoretical apparatus forward while remaining precise about where that apparatus stops applying. The landscape, once digitized, is no longer a view that anyone shares; recognizing this is the condition for studying it well.

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