The advantages and disadvantages of quantitative methods in schoolscape research

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ABSTRACT

This article focuses on the application of quantitative methods in schoolscape research, including a discussion of its advantages and disadvantages. This article seeks to rehabilitate the quantitative by re-theorizing the landscape in linguistic landscape (LL), moving from an area based study of visible forms to a poststructuralist and postempiricist interpretative study of landscapes. The article discusses previous quantitative LL research and introduces a quantitative approach developed by the author during a data gathering and annotation of 6016 items. Quantitative methods can provide valuable insight to the ordering of reality and the materialized discourses. Furthermore, they can mitigate personal bias. They cannot provide in-depth understanding of the analyzed items due to the inherently reductive nature of classification. However, considering that the objects of inquiry are discourses, not the artifacts themselves, the issue is not paramount. Nevertheless, large scale data gathering and annotation is time consuming, which sets practical limitations to research.

1. Introduction

This article focuses on quantitative schoolscape research and the applied methodology. It examines the few existing studies on the linguistic landscapes (LL) of educational spaces and the applied methods. Furthermore, it re-theorizes landscape and introduces a data annotation scheme developed specifically for schoolscapes. The scheme is based on and inspired by an LL data annotation model presented by Barni and Bagna (2009).

The first part of this article discusses moving from a tradition of area based studies of visible forms (cf. Backhaus, 2007; Blackwood & Tufi, 2015; Huebner, 2006; Soukup, 2016) to a poststructuralist and postempiricist interpretative study of landscapes inspired principally by Schein (1997). The second part of the article discusses previous schoolscape research and provides an overview of previous quantitative LL research in the absence of quantitative schoolscape studies. The third part examines conducting quantitative LL research. The fourth part introduces the multidimensional data annotation scheme followed a brief discussion of quantitative data analysis. The fifth and final part addresses its advantages and disadvantages.

2. What is schoolscape?

Brown (2005, p. 79) defines schoolscape as the physical and social setting of teaching and learning, the context in which the curriculum is implemented and where certain ideas and messages are socially supported and officially sanctioned. Brown (2012) further specifies schoolscape as "the school-based environment where place and text, both written (graphic) and oral, constitute, reproduce, and transform language ideologies" (p. 282). To align it with LL research, Brown (2012, pp. 281–282) refers to it as the linguistic landscape of educational spaces.

My understanding of schoolscape as an LL differs from Brown's definitions (Brown, 2005, 2012). I have no issues with its linguistic component as pertaining to languages, albeit I see great prospect in defining schoolscape as more than linguistic, i.e. semiotic, as done by Laihonen and Tódor (2017) and Szabó (2015). It is the landscape component as understood as an environment marked by artifacts that is arguably problematic, echoing the commonly cited definition of landscape as a delimited area, a territory or a region by Landry and Bourhis (1997, p. 23). There are exceptions, such as Jaworski and Thurlow (2010) and Leeman and Modan (2009), but I agree with Nash (2016) that there is not enough attention paid to the relevance of landscape in LL research.

There is no single definition of landscape that most (geographic) landscape researchers agree on, except, perhaps, that it is more complex than mere forms or phenomena as given on a delimited

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piece of land. This is attributable to the rejection of early landscape research (cf. Granö 1929/1997; Sauer 1925/1929) as unscientific by Hartshorne (1939) and to a subsequent reintroduction and reconceptualization of landscape by humanistic geographers in the 1970s (cf. Meinig 1979a). More contemporarily, landscape is approached via representation (cf. Cosgrove & Daniels, 1988) and non-representation (cf. Thrift 2008), with discord among landscape researchers on the word itself (cf. Lorimer, 2005; Wylie, 2007).

In a very abstract sense, following Deleuze (1986/1988), Deleuze and Guattari (1980/1987), Foucault (1975/1995) and Massumi (1992), landscape could be described as an abstract machine or a diagram, a discursive and a non-discursive formation, that entails interpretation. In less abstract terms, Cosgrove (1985) elaborates that landscape as we know it, primarily as a pictorial representation or a view, has its origins in landscape painting and, following Berger (1972), presents it as a way of seeing. Similarly, Ronai (1976, pp. 125, 146) states that there is no landscape in itself, only gaze. More specifically, Cosgrove (1985, p. 55) indicates that landscape is composed and structured by a detached observer. That does not, however, entail that landscape is unique to each observer, rather, following Foucault (1977/1980b, p. 98; 1983, p. 212), it is arguable that one is shaped into an individual, or, rather, as Deleuze (1990/1992, p. 5) puts it, a dividual. With less emphasis, Ronai (1976, p. 146) states that perception of landscape depends on language and culture. Nevertheless, Meinig (1979b) argues that based one's prior knowledge it is possible to perceive landscape as different versions of the same. Meinig (1979b, p. 47) acknowledges that his list of ten alternatives is not exhaustive. One could easily envision LL as another version of the same, but for reasons unknown it seems that language has rarely been addressed in landscape research (but see Drucker, 1984; Weightman, 1988). While de-emphasizing Meinig's (1979b) claims on the autonomy of the observer, Schein (1997, pp. 663, 677) takes this insight to entail that landscapes can capture thematic knowledge networks or discourses, which Foucault (1969/1972) defines as "practices that systematically form the object of which they speak" (p. 49). In other words, Schein (1997, pp. 662–663) envisions landscape as a node of intersecting discourses that stretch across space.

Summarizing Schein (1997, p. 663), human actions that alter the landscape by creating tangible elements result in materializing discourses and once materialized in the landscape discourses can discipline, i.e. limit human action and thinking. In other words, landscape involves what Scollon (2008) refers to as a discourse itinerary, a process of transforming discourse into discourse materialized, which reifies or modifies the underlying discourses. The zebra crossing discussed by Blommaert (2013, pp. 34–36) is a good example of discourse materialized in landscape. As Mitchell (2002a, pp. 1–2) puts it, landscape therefore not only is, but also does. Nevertheless, as noted by Lewis (1979, p. 11), for many landscape just is. In Foucault's (1969/1972, p. 25) terms landscape can be understood as an unquestioned continuity of incorporeal discourses, the never-said. Schein (2003, pp. 202–203) argues that landscapes can become seemingly unproblematic to an extent that the materialized discourses become naturalized and normative, making landscape central to the (re)production of everyday life. Cresswell (2003, p. 277) characterizes such landscapes as *doxic*, in reference to Bourdieu's (1972/1977, p. 164) *doxa*, a system of classification that produces an arbitrary but seemingly natural order of things that can limit human action and thinking in order to reproduce the established order of things, the status quo. Similarly, Duncan (1990) characterizes landscape as "an objectifier *par excellence*" (p. 19).

The analysis of landscape in this article is grounded on Tuan's (1979, pp. 89–90) understanding of landscape as an integrated image, an ordering of reality, consisting of smaller units, which function as subsidiary clues to a larger construct. On their own

the units are merely objects, but together they provide information about the discourses materialized in the landscape. Schein (1997, p. 676) argues that landscape is not a mere collection material objects in an area or a sum of history. On the contrary, Schein (1997, pp. 661–662) accentuates that landscape is dynamic, not static; it is a palimpsest, not a sedimentary accumulation of matter. As Bender (2002) and Massey (2006) argue, landscape is not an unchanging totality, despite the stable appearance. Therefore, rather than attempting to reconstruct landscapes piece by piece into particular synthetic scenes (cf. Granö 1929/1997, Sauer 1925/1929), landscapes must be constantly (re)interpreted due to their changing nature, as argued by Schein (1997, p. 676).

Ben-Rafael, Shohamy and Barni (2010) echo Tuan's (1979) definition of landscape. To Ben-Rafael et al. (2010, pp. xv-xvi) LL is both disorder and order, chaos and gestalt. Ben-Rafael et al. (2010, p. xvi) argue that as individual units, the signs, appear chaotic, but together, as an *ensemble*, the signs function as one whole, as *un ensemble*, which is more than a mere collection of units, a *gestalt*. Reflecting on Ben-Rafael et al. (2010), Schein (1997) and Tuan (1979), it is arguable that one should not focus solely on the landscape items as such, otherwise one risks not seeing the overall pattern. In other words, one should see the trees, but not risk seeing the forest for the trees.

3. Previous schoolscape and linguistic landscape research

Interest in research of schoolscapes is relatively recent, albeit similar research has been conducted in the past prior the use of the term by Brown (2005, 2012). As a result, the existing published literature on schoolscapes is not particularly extensive and best described as qualitative. Firstly, certain studies focus on either demonstrating the educational function of LL in language acquisition (Malinowski, 2015; Rowland, 2013) or examining the utility of LL in promoting awareness and teaching cultural and linguistic diversity (Dagenais, Moore, Sabatier, Lamarre, & Armand, 2009; Clemente, Andrade, & Martins, 2012, Hancock, 2012; Sayer, 2010). Secondly, Brown (2005, 2012) approaches schoolscapes from an anthropological and ethnographic perspective, combining interviews and observation. Thirdly, Dressler (2015), Hanauer (2009, 2010), Laihonen and Tódor (2017), Linkola (2014) and Szabó (2015) combine digital photography, field notes, interviews, questionnaires and group discussions. Fourthly, only Garvin and Eisenhower (2016) and Gorter and Cenoz (2015a) represent the fairly established approach utilizing photography. None of the studies, however, utilize large sets of data and therefore one must discuss quantitative LL studies in lieu of quantitative schoolscape studies.

LL research predates the widely cited definition of linguistic landscape by Landry and Bourhis (1997). This *avant la lettre* research is primarily quantitative (cf. Conseildela langue française, 2000; Monnier, 1989; Rosenbaum, Nadel, Cooper, & Fishman, 1977; Spolsky & Cooper, 1991; Tulp 1978; Wenzel 1998). Similarly, as noted by Barni and Bagna (2015, p. 7), a good deal of the early LL research is quantitative (cf. Backhaus 2007; Bagna & Barni 2005, 2006; Ben-Rafael, Shohamy, Amara, & Trumper-Hecht, 2004, Ben-Rafael, Shohamy, Amara, & Trumper-Hecht, 2006; Huebner 2006). What is common in quantitative LL research is that it focuses on the distribution of languages in landscapes. Amos (2016, p. 132) summarizes that quantitative LL studies tend to utilize only a small set of variables in data annotation. Gorter (2013, p. 199) refers to this type of research as the quantitative-distributive approach. The data may well be extensive (cf. Backhaus 2007), but the data annotation is often limited to examination of frequencies of different languages and their spatial distribution, and to a broad interpretive examination of agency as either top-down or bottom-up. Amos (2016, p.