ABSTRACT
The purpose of this paper is to reflect upon analysis of community mapping data as part of an inquiry into the meaning of community. The rich images produced by GIS technology suggest that community mapping can be a valuable tool. However, in order to sort through a complex ‘landscape’ of possible interpretations of the images, use of these tools must be set within a substantial research context. Otherwise, community mapping is only as good as one’s definition of community. In search of an epistemological foundation for interpreting community mapping data, I ground both the act of drawing community maps and the interpretation of these maps in an operative constructivism. This foundation addresses some of the inherent methodological limitations of using community mapping methods and GIS analysis for an inquiry into the meaning of community.

Under a veil of ambiguity, the semantics of community has proliferated to describe almost any group of people at any scale, from ‘virtual communities’ to a ‘world community.’ Community is ‘lost’ in the pursuit of globalisation, ‘found’ in the virtual world of the Internet, and ‘saved’ in concepts of social capital, civil society, community economic development, community capacity building, healthy communities, and sustainable communities, to name only a few. Today, in an age of an increasingly complex society, of globalisation, of multiple constructions of environmental crises, and of heightened self-interests, the semantics of community attains even greater meaning. Community not only mediates between individuals and society, but also between local and global, between self-interests and common interests, between place and
placelessness, and between inclusion and exclusion. Always there is an embedded, unquestionable goodness: local is good; common is good; place is good; inclusion is good.

Simply invoking the ‘goodness’ of community as the way forward (or backward) is not sufficient. It is not sufficient because the concept of community is ambiguous. It can be argued that the conceptual ambiguity of community is a primary reason for its appealing generalisability (so long as one does not ask for a definition). Such a tenuous position might be acceptable if community were not used to promote such values as health, well-being, and sustainability. The good name of community is invoked as the \textit{raison d’etre} for participation (Community Development Society 2003; Ontario Healthy Communities Coalition 2003), as the source of values that support sustainability (Rees 2001), and as the empowering counter to global hegemony (Bellah 1996; Sirianni and Friedland 2002). Yet, throughout, the meaning of community does not arise because it is not asked.

To pursue an inquiry into the meaning of community is to accept the burden of argumentation of what is or is not community and why. Moreover, to question community is to question all of its forms of goodness. When one does take up the challenge of argumentation one encounters self-reference. “The way each group of sociologists views the community is reflected in the way they define it” (Dasgupta 1996:7). This form of self-reference, as Dasgupta argues, is a major reason for the diversity among sociologists in how they both define and study community.

Community mapping research is not immune to the above concerns. Most problematically, as Mills (1959) argued several years ago, there is a profound tendency to confuse whatever is studied with the methods of study. That is, the danger is to think that a map represents community (as per one’s preferred definition). This indicates a general concern about the closed nature of community studies: how one studies community is constrained by how one understands the study of community. (The more ambiguous, the better, apparently.) Thus, while the rich images produced from community mapping data indicate a complex ‘landscape’ of possible interpretations, we can ask: if a picture is worth a thousand words, what are we observing?

The purpose of this paper is to reflect upon the analysis of community mapping data. The data were collected as part of the New Rural Economy project that examined social cohesion in sites across rural Canada\textsuperscript{1}. The sites were selected as Statistics Canada census subdivisions. This was a five-year project that concluded in December 2002. I was part of this project for three years working in three sites in southern Ontario. In this paper, community mapping data from only two of the southern Ontario sites are used. The analysis of maps is complemented by data from one-on-one interviews. The research indicates that community mapping and GIS analysis are valuable tools for an inquiry into the meaning of community but, as will be argued, data must be interpreted within a substantially grounded research context in order to deal with community’s conceptual ambiguity.

\textbf{Data and analysis}

The following discussion draws from three sources of data. First, during an exploratory stage, key informant interviews took place with residents of rural sites in southern

\textsuperscript{1} For more information, visit the NRE project web site at: http://nre.concordia.ca
Ontario. The purpose of the interviews was to collect information about views of change, services, practices, strengths, weaknesses, and other local factors. As part of these general discussions, rural residents in each of the sites expressed concerns about their “community.” They stated: “Rural communities are dying”; “In twenty years there won’t be any communities left”; and, “So many things are closing that made the community a community”. Although these examples are neither exhaustive nor intended to represent the sites, they do constitute uses of ‘community’ that provoke questions about the meaning of community. Particularly, these concerns are sharp indictments about the perceived state of ‘community.’ Furthermore, these statements suggest that people were not always referring to community as a collection of buildings or to geopolitical boundaries of the site. To what were they referring?

Follow-up research completed in each of the sites was used to help answer the question about what people referred to when they spoke about ‘community.’ This second stage of data collection focussed on household surveys. During structured interviews, respondents were asked to define their community. Specifically, respondents were asked to indicate their community by drawing on the map provided. No definition or understanding of community was presented to them. Ninety-four (94) responses were collected in Site A. One hundred and twenty-six (126) responses were collected in Site B.

Analysis of the community mapping data illustrates significant diversity among respondents. Figure 1-A (a) shows what the data look like in a ‘raw’ form for Site A. Some convergence of boundaries appears to correspond with the area’s closest retail centre located on the western boundary of the site. (The site is shaded on Figure 1-A (b).) The data also reveal explicit efforts to include particular settlement areas (shown as circles on Figure 1-A (b)). Generally, the data suggest that there is not a single shared expression of community among residents of site A.

The lines represent the ‘community’ boundaries drawn by respondents (n=94). The circles in Figure (b) indicate the relative size of settlement areas. The grey polygon represents the site boundaries, a former township in southwestern Ontario.

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2 The household survey was conducted in an interview format. Households were selected randomly from a list of all households in the site. About 20% of households were surveyed, depending upon the site.
Additional insights can be gained from further analysis of the data. A contoured image is created from the data by analysing the cumulative effect of overlapping shapes while retaining the information from the flat two-dimensional analysis. Figures 2-A and 2-B show the aggregated responses in two sites (site A and site B). This additional analysis shows another level of diversity. As with the flat two-dimensional analysis, there does not appear to be a single shared perception of community in either site. The appearance of ‘peaks’ (which appear as lighter shaded centres in figures) shows some convergence.

The figures above, created using GIS software, show the cumulative effect of overlapping shapes drawn by respondents (Site A, n=94; Site B, n=126). The effect is a contoured view of respondents’ depictions of community. To produce these figures, each shape was treated as a solid area. Areas of overlap were ‘added’ together. The gradation of shading, similar to a topographical map, shows the relative scores, or height. The light-shaded areas represent ‘peaks.’ The black lines represent major roads and shorelines.

The appearance of peaks raises new questions. For instance, does convergence represent consensus of the meaning of community among residents? It is difficult to know from the aggregation of data if the peaks are directly associated with distinct interpretations of community. Upon further reflection, this does not appear to be the case. Most likely, the peaks are a function of multiple factors. For instance, the peak in Site A corresponds to the location of the local retail centre. Also, the peaks are relative outcomes dependent upon the number of responses, as opposed to a strict analysis of the content. As a result, the peak in Site B is influenced by and may simply correspond to a higher number of respondents living in that area.

Based on my experience in the sites, I expected peaks associated with each the smaller settlement areas because residents seemed to identify strongly with hamlets within the site. The absence of multiple peaks in the contoured analysis did not agree with my expectations.

If the data were analysed based on where people live, would peaks associated with hamlets appear? Figures 3-A to 7-A and 3-B to 6-B show the results of sorting and analysing the data by postal code, wherein postal code was used as a proxy for where people live. While diversity remains within each segment, a comparison of peaks reveals

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3 The data were analysed using ArcView, geographic information systems (GIS) software.
perhaps the most striking outcomes of this analysis. The relative locations of the peaks differ from the analysis of the aggregate data. Most often, each peak aligns with smaller settlement areas. An exception to the association appears in Figures 5-A and 6-A. Visually, what appear are double peaks. In Figure 5-A, the peak on the left is associated with the retail centre for the area. The peak on the right is not associated with any physically distinct settlement area but is associated with a ‘community’ that is well known in the area. Based on discussions with survey respondents, I learned that this area is known by a particular name and the people who live in the area have a shared history. The community is comprised of farm residents that face onto the same road (‘line’). During the interviews, two respondents talked about the group’s continued practice of sitting together at social events and buying gifts for showers. If someone on the line is having a baby, the line (and only residents on the line) gets together for the shower. If someone on a neighbouring line is having a baby, the group gets together to buy a single gift. The data analysis, in conjunction with the stories, reveals an unexpected ‘community.’

Site A

![Figure 3-A](image1.png)  ![Figure 4-A](image2.png)

![Figure 5-A](image3.png)  ![Figure 6-A](image4.png)

![Figure 7-A](image5.png)
Each figure above represents a sub-set of the community mapping data segmented by postal code.

The analysis of the community mapping data hints at possible interpretations of community, but offers little insight to rural residents’ meaning of community. On the one hand, the diversity of images affirms that community is amorphous. On the other hand, the distinctions and convergences revealed by the analysis offer potential points of reference for understanding community. It should be noted, however, that the community mapping data are constrained at the outset. Respondents were asked to
indicate their community by drawing on a map that depicted major roads and settlement names. The approach privileges a spatial representation of community, which limits how the community can be expressed and subsequently interpreted. Above all, the lack of clarity gives reason for further examination of the possible interpretations of the meaning of community.

What does community mean?

Community is at once enigmatic and ubiquitous. It is argued that community is a part of human nature (Cooley 1963:52), a deep longing (Bernard 1973:107), and a compelling urge for sociality (Freie 1998:21). It is also argued that community is the “most fundamental and far-reaching” social variable (Nisbet 1966:47; also Crow and Allan 1994:xiii) because it is the most direct, tangible experience of association (Konig 1968:4). And, “Community is an arena for immediate expression of the fundamental human disposition toward association” (Wilkinson 1979:8) and “the smallest form of society and the most comprehensive social unit one can experience firsthand” (Wilkinson 1986:3). These statements, which represent only a sample from the community theory literature, indicate the appeal of community as an important subject of social inquiry.

At the same time, it is also argued that the concept of community is ambiguous. This is well documented in the community studies literature. “The concept of community has been the concern of sociologists for more than 200 years, yet a satisfactory definition of it in sociological terms appears as remote as ever” (Bell and Newby 1972:21). “The idea of the … community is deceptively simple, so long as one does not ask for a rigid definition” (Warren 1963:1). “The very term itself is used in many different meanings, and is often anything but clear and definite” (Konig 1968:1). “In spite of constant usage, community remains an untidy, confusing, and difficult term” (Scherer 1972:1). “Community’ is crucial to our social and political understanding but, at the same time, it is an elusive concept defying attempts at clear cut analysis” (Plant 1974:1). “The concept of community has been one of the most compelling and attractive themes in modern social science, and at the same time one of the most elusive to define” (Hamilton 1985:7). “The community is elusive as a scientific concept, and it is elusive as a social phenomenon” (Wilkinson 1986:1). Hillery (1955), Effrat (1974), Willis (1977), Flora et al (1992), Dasgupta (1996), Freie (1998), and Bauman (2001), among others, make similar statements. These quotations indicate not only a lack of agreement about the meaning of community; they indicate a prevailing acquiescence that the meaning of community is ambiguous.

Therefore, it is important not to interpret the maps prima facie. I gained additional insights to possible interpretations of the community mapping results by engaging respondents in open discussions about the meaning of community. The first question asked of respondents was why they drew the boundary as they did. Not surprisingly, people responded that the boundary included the geographic scope of their general routines, e.g., where they shopped, where their children went to school, where their friends and family lived. Invariably, people stated that their “community” was based on people. When asked if it was only based on people (as opposed to also

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4 Not all respondents were asked to participate in this portion of the interview. Twenty-five (25) people participated in total. This was a sample of convenience, mitigated by such factors as time available and the willingness of interviewees to engage in further discussions.
including the physical features of the area), respondents affirmed that community was based on where friends and family lived. However, after further inquiry, most respondents also included physical features. One example illustrates this point. The interviewee was an elderly gentleman. The interview took place in the man’s home, the place where he was born and raised. Like many other respondents, his first impression of community was based on family and friends. He was then asked: “If you and all your family and friends, all those who make up your community, were moved to another, similar area, would that be your community?” Without pause, the man replied, “No, it has to be here.”

Respondents were asked additional questions about the meaning of community. For example, I asked the respondents if the community they drew on the map was the same community they had in mind when responding to the survey questions about ‘sense of community’ that were asked earlier during the interview. Almost always, respondents said they were thinking about two different things, that is, ‘community’ was not the same thing as ‘sense of community.’ Further, when asked how they would draw the community associated with ‘sense of community,’ the map was usually smaller, suggesting a more intimate, familiar relationship to people and physical features.

Respondents were also asked about ‘community’ versus ‘place,’ and about ‘insiders/outsiders’ and ‘newcomers.’ Based on an informal review of the content of these discussions, comfort and familiarity appear to be important concepts associated with community. These two concepts may lend additional insight to the meaning of community. As used by the respondents, both concepts related to people and to the physical area. Generally, the information collected from these discussions lend depth to the meaning of community, but still leave interpretations of the community mapping results open to further reflection.

Deepening the research context
Relph (1976) provides a pragmatic explanation for the kind of results garnered from mapping studies. He states that how we know, differentiate, and respond to the various places where we work, relax, and sleep, are “quite superficial” and “based mainly on the explicit functions that places have for us” (Relph 1976:1). On the other hand, the varied perceptions of one’s community, the distinction between community and ‘sense of community,’ as well as the people and physical dimensions of community, suggest a richness concealed by a superficial construction of place. In addition, given the ambiguity surrounding the concept of community, it is necessary to interpret mapping data within a research context that does not take community a priori. The remainder of the paper explores ideas about how this is possible by focusing not upon the results of mapping research, but upon how we know and differentiate ‘community.’

Puddifoot (1996), for example, identified fourteen dimensions of community identity, each of which contributes to an understanding of how community is differentiated from elsewhere. Puddifoot’s dimensions include perceptions of boundaries, perceptions of key social/cultural characteristics, perceptions of physical distinctiveness, perceptions of members’ own emotional connectedness to location and social groups, as well as members’ perception of others’ emotional connectedness to location and social groups. Dimensions of community identity also include a person’s
degree of personal involvement, perceptions of quality of life, and the evaluation of services and other amenities.

While Puddifoot helps to broaden the scope of interpretation of community mapping analysis, Rapley and Pretty (1999) delve a little deeper into the meaning of community; they challenge the basis of interpretation. While Rapley and Pretty are concerned primarily with studying the psychological sense of community, their concerns apply generally to the study of community. Rapley and Pretty are concerned about the underlying epistemological assumptions of “mainstream” theorising. Namely, in such studies, language is accepted as a “fundamentally problem-free vehicle for the transmission of data between minds” (Rapley and Pretty 1999:696). In contrast, Rapley and Pretty emphasise the fundamental difference between the perception of community and the expression of community.

Rapley and Pretty found that ‘community’ and ‘sense of community’ must be viewed as jointly produced between the interviewer and the interviewee. Based on their analysis of interview data using discourse analysis, they found these concepts are not “transparently and cleanly elicited, by an impartial interviewer, from a willing and knowledgeable informant” (Rapley and Pretty 1999:701-02). They argue that (1) the meaning of community is highly particular and localised; and, (2) the meaning of community is essentially a negotiated product.

Hence, caution is warranted with regard to the generalisability of a respondent’s construction of community, by mapping or otherwise. This view of how community is constructed lends new understanding to the idea that a picture is worth a thousand words. We must ask: whose words? Are these the ‘words’ of the respondent, of the interviewer, or a negotiated outcome of both parties? Thinking about the construction of community as a negotiation of similarities and differences is significant. A constructivist view avoids a strictly ontological interpretation of community mapping. Such ontological predilections may help to describe community, but fall short of theoretical explanation that may help to resolve its conceptual ambiguity. Most critically, strictly ontological interpretations of mapping data are constrained by how one defines community.

Like Rapley and Pretty, Fuks is concerned with the relation between the researcher (as observer) and the research participants. As Fuks (1998) argues, the presumption of “objective observation” of community fails to appreciate the role of the observer in interactions. “Normative designs use prefixed parameters to evaluate what is acceptable, permitted, or forbidden” (Fuks 1998:247-48). Language, therefore, is not a neutral instrument. “It imposes its dynamics upon ‘reality’ and provides a framework for cognition which, in turn, applies that framework to the interpretation of reality” (Fuks 1998:245). What Fuks is describing is a shift from first-order observations of community to second-order observations. In first-order observations, in “objective observation” to use Fuks’ terms, the observer and the object are treated as distinct entities. In second-order observation the observer is implied in the observation; observer and observed are inseparable. First-order observations normatively and empirically describe community. Second-order observations of community recognise that a describer (i.e., the observer) is implied in the observation. That is, when the community researcher is recognised as part of the observation of community, one can inquire as to how both the respondent and the researcher distinguish community as an object of study. Second-order observations
substantiate how community mapping data are negotiated outcomes. Consequently, the line between observer and observed is blurred.

**Operative constructivist interpretation**

The shift to second-order observation represents an important intellectual turn. As one can draw a distinction to indicate community as a meaningful difference from elsewhere, it is fascinating that we can take the same injunction – draw a distinction – and construct not only community, but also a general theory of society. Thus, in a very brief manner, we have arrived at a constructivist view that is predicated on an epistemological act of drawing a distinction. The act of drawing the boundary of one’s community on a map is now to be understood in a constructivist epistemology of drawing a distinction that indicates an inside and an outside. The epistemology I refer to is operative constructivism. The general theory of society I refer to is that of the German sociologist Niklas Luhmann. Luhmann’s social theory of observation will not be addressed here (see Luhmann 1995). His work draws from recent theories in mathematics (George Spencer Brown’s laws of form), biology (Maturana and Varela’s autopoiesis), and cognition (Von Foerster’s second-order cybernetics). Connell (2003) details how Luhmann’s ideas can be used to frame a theory of community.

Underpinning an operative constructivist epistemology is a belief that the social world is constructed via distinctions (e.g., as a meaningful difference between inside and outside). The social world takes the form of distinctions in order to see itself. “But in order to do so, evidently it must first cut itself up into at least one state which sees, and at least one other state which is seen” (Rasch 2002:7). In other words, the operation of constructivism is for the world to “cut” itself, then to observe itself as a unity of difference. In this sense the unity of the world is presupposed, not a unity observed. “Any reference to the world is self-reference, and any self-reference requires external reference, a not-self against which it can be distinguished” (Rasch 2002:10). The unity of the world is always a self-referential whole.

It is in a sense of the self-referential whole that Luhmann’s operative constructivist epistemology takes shape. The social world he purports to observe can only be observed partially and only from within the social world we construct. The world we are entering via operative construction, then, is one that embraces the paradox of self-reference. The operations of constructing the social world are inescapably paradoxical.

An operative constructivist epistemology is predicated on the *operations* of constructing community. Thus, we no longer have an *a priori* understanding of community. The construction of community is both an operation and the outcome of the operation. Community is constructed as a distinction of this from that, of inside from outside, of here from there. Quite simply, each map drawn by a respondent is an epistemological act of drawing a distinction. Each respondent, using the media of communication made available to them, expresses community as a boundary that distinguishes community from everything else. Everything else remains undefined. The unity of community indicated on the map and everything else constitutes the world: the presupposed unity of community and everything else.

If we interpret each respondent’s act of indicating their community as a distinction, we can extend this constructivist line of thinking to understand how a shared meaning of community can emerge. On the one hand, we must accept that there are
multiple ways to observe community, that each indication of community is an equally valid construction of reality. From this basis we must return to the proposition stated above. Namely, the construction of community is a negotiation of similarities and differences. Operative constructivism gives an epistemological basis to this proposition.

Thus, an analysis of community theory can be directed by differences, not only by identities. Questions need not be asked only to indicate community on a map, but also about what distinctions are being used. If accepted as an epistemological foundation, operative constructivism provides a substantial framework, a new paradigm if you will, by which we can understand community maps as differences of observation. As a method of choice, community mapping must take as its starting point the construction of the social world as distinctions of distinctions. “However one defines it, one should argue that talking about a community makes sense only if this can be distinguished from something else, however such a distinction is drawn” (Barbesino 1997:692). Thus, inquiry into the meaning of community must be one based on observation. This includes observation of the distinctions and of the people making the distinctions.

Conclusion
An inherent problem of community studies is that the concept of community is ambiguous. Consequently, both the respondent (observed) and the researcher (observer) must assume the burden of clarification. Community mapping, as a method of empirical inquiry, functions as a catalyst for deeper inquiry. The maps themselves become the observed, observed by respondent and researcher. A shared meaning of community emerges as a negotiated product. An operative constructivist interpretation grounds acts of drawing community maps and the ensuing discussions in an epistemology of second-order observations. This foundation addresses some of the inherent methodological limitations of using community mapping methods and GIS analysis for an inquiry into the meaning of community. In this research context, community mapping helps one to navigate the complex landscapes of community’s conceptual ambiguity.

References


Searching for Meaning in the Landscapes of Community
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