



Single-Access Neighbourhoods and Neighbourhood Cohesion

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Abstract: *This paper compares the level of neighbourhood cohesion of two single-access neighbourhoods in Calgary, Alberta. The two neighbourhoods had a high sense of neighbourhood cohesion. It is argued that the single access to the neighbourhood has contributed to a high sense of neighbourhood cohesion. One neighbourhood outperformed the other on all three subscales of cohesion due to a stronger sense of seclusion of the neighbourhood. Establishing a sense of identity, a focus, and a clear boundary for a neighbourhood is paramount. At the same time, visionary planning for the future of neighbourhood design with a view to an easy and flexible redevelopment of the open-grid model seems to dominate the mindset of municipal planners operating under the banner of sustainability.*

Keywords: gating; neighbourhood cohesion; social sustainability; seclusion.



Introduction

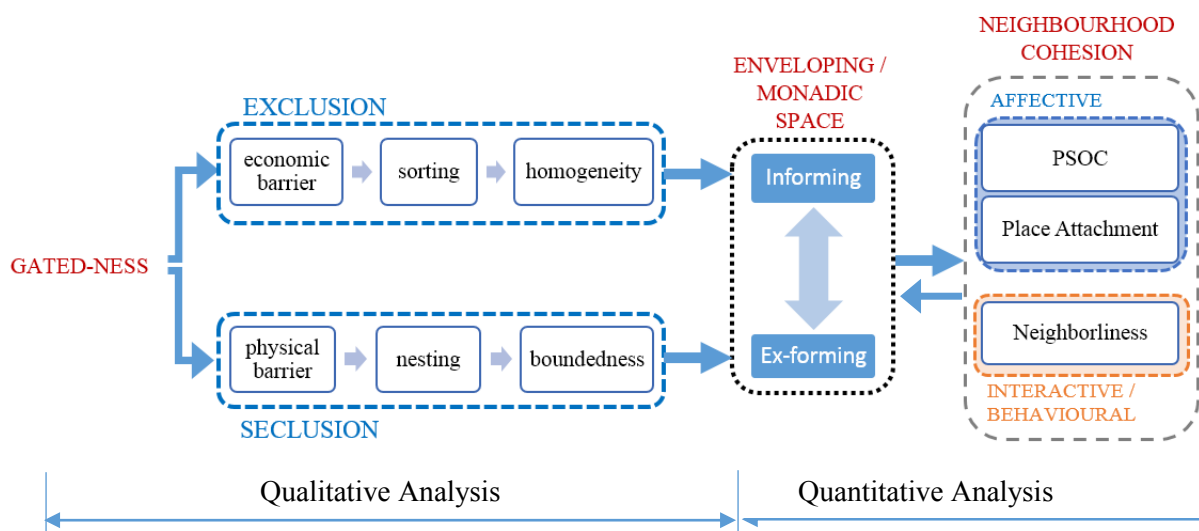
Buckner's (1988) instrument for measuring neighbourhood cohesion has proven to be robust in bringing out differences between neighbourhoods and assessing their overall level of neighbourhood cohesion. One of the differences between neighbourhoods is their structural configuration, especially in regard to the number of access points for vehicles to enter a neighbourhood, the internal street pattern, and the nature and locational pattern of focal points within a neighbourhood. This research suggests that single-access neighbourhoods (with only one access point to the neighbourhood) have high levels of neighbourhood cohesion, which is also influenced by the presence of a focal feature for the neighbourhood, be it a natural forest, an artificial lake, or an artificial golf course, and by the presence of an internal street infrastructure that is non-permeable, such as cul-de-sacs and loops. A non-permeable street structure differs from an open-grid street structure, which allows for multiple access points to a neighbourhood. Multiple access points in an open-grid structure are usually considered by contemporary urban planners operating under the banner of sustainability to be an important physical feature for enhancing the degree of internal connectivity of a neighbourhood and the degree of a neighbourhood's connectedness to surrounding neighbourhoods. The open grid is also used as a strategy for promoting the New Urbanism approach to planning for increasing the walkability of neighbourhoods.

A new conceptualisation of space is needed to account for the link between a single access and greater neighbourhood cohesion. Single-access neighbourhoods are a type of implicitly gated neighbourhood albeit without formal entry protocols. Coupled with the presence of a homeowner association (HOA), single-access neighbourhoods very much resemble gated neighbourhoods and may be classed as a type of semi-gatedness. A conceptual link needs to be theorised between gatedness and neighbourhood cohesion in order to account for the readily accepted connection between 'gatedness' and 'community'. The literature on gated communities has left this gap open based on the assumption that the term is self-explanatory and scholarly research has mainly focused on social consequences of gating without a clear conceptualisation of the quality of space produced in such residential developments.

The concept of an enveloping space / monadic space is suggested as one such possible link. A monad as conceptualised by the Enlightenment-era philosopher Leibniz is a unique socio-cultural spatial unit by virtue of its internal individuation and life history or trajectory. The term monad is borrowed from Leibniz without strict adherence to his metaphysics of Monadology. Whereas, on one hand, the perception of immediate perceptual qualities of a space leads to a sense of enclosure for that space which is of importance to urban designers, the sense of enveloping space, which is of importance to urban planners, is on the other hand contingent upon a cognitive understanding of the structural configuration of a space, albeit on a larger scale than that of immediate perception, i.e. the scale of a neighbourhood. It is argued that the sense of enveloping space engendered by the single access and relative seclusion of each neighbourhood contributed to a sense of familiarity with others in the neighbourhood. The following figure represents the conceptual framework that guided the research in the form of a diagram.



Figure 1: Conceptual Framework (by researcher)



As shown in the diagram, the degree of gatedness simultaneously affects two parameters of space: the degree of exclusion (through ‘exclusive’ gating) and the degree of seclusion (through physical / ‘reclusive’ gating). ‘Exclusive’ gating tends to produce neighbourhoods that are relatively homogeneous through a process of sorting residents according to their income level. This economic sorting is achieved by controlling minimum lot sizes and subdivision regulations, by controlling housing types and minimum house size, as well as by location, which factors into the selling price of properties. The end result of such ‘exclusive’ gating is spatial exclusion. Physical gating tends to produce neighbourhoods that are relatively bounded (in the meaning of the term used by Bickford, 2000) through a process of nesting residents spatially according to ease of access to their dwellings. This nesting is achieved by preferring peripheral locations and by convoluting space in order to reach a particular neighbourhood and residential dwellings within the neighbourhood. The end result of such physical gating is spatial seclusion.

The initial explanation that this research hypothesised is that a particular type of space is formed as a result of neighbourhood gatedness. This type of space was called an ‘enveloping space’ or a ‘monadic space’, adopting the terminology of Leibniz in his paradigmatic view of space as being comprised of concatenated ‘monads’. This new conception of space may contribute to the literature on neighbourhood gating and add a further layer in explaining why semi-gated neighbourhoods differ in terms of neighbourhood cohesion. It is argued that a semi-gated neighbourhood provides its residents with a sense of enveloping space in such a way that the space is more informing, and ex-forming (an analogous term to embodied space), for its residents than a non-gated or open-grid neighbourhood.

The concept of neighbourhood cohesion was operationalised by measuring it through three dimensions (after Buckner, 1988): the psychological sense of community (PSOC); place attachment; and neighbourliness or social interaction. PSOC is defined after Sarason as the



perception of similarity to others (Colombo, Mossi, & De Piccoli, 2001). Place attachment is defined as an emotional bond with a place that is manifested through affective, cognitive, and behavioural psychological processes (Scannell & Gifford, 2010). Social interaction is defined as social networking within neighbourhoods that include activities such as asking for help and informal visiting (Talen, 2000). A neighbourhood cohesion index (NCI) was calculated that accounts for these three dimensions. A questionnaire, as developed by Buckner and that uses a 5-point Likert scale, was the instrument for measuring neighbourhood cohesion.

The questionnaire was extended with a few more questions than are in the version developed by Buckner in order to probe for residents' sense of an enveloping space and if the space is informing and ex-forming. Additional questions inquired into residents' observations and perceptions of their neighbourhood in terms of whether their neighbourhood has a different pace of activities or events, different social practices, a code of dress, and chance social interactions, as well as whether they perceive the landscape as an informing element of their neighbourhood. The questionnaire was complemented with interviews with 12 residents from each neighbourhood in order to get a more in-depth understanding of their responses.

Overall, the field survey and interviews took a period of three months. For the first case study, Valley Ridge, data collection was performed during the months of January and February 2014 while data collection for the second case study, Discovery Ridge, was done during the month of April 2014. Care was taken to include residents from different parts of each neighbourhood, i.e. residents along main boulevards as well as residents further within the neighbourhood and along cul-de-sacs.

Case Studies

Location and context

The two case studies are located within the affluent west sector of the city of Calgary about 17 km from downtown. Both have their western boundaries defined by the city of Calgary's corporate limits bordering the Municipal District of Rocky View and have other borders along a major highway and river. In the case of Valley Ridge, it is bordered from the north by the Bow River and accessed from the south via TransCanada Highway. In the case of Discovery Ridge, it is bordered from the south by the Elbow River and accessed from the north via Glenmore Trail.

Valley Ridge is a residential community accommodating a population of 5,042 in 1,731 dwelling units (2011 Census) at a density of 1,542 persons / km² and a net residential density of 12.3 to 14.8 units per hectare (5 to 6 units per acre). Discovery Ridge is a residential community accommodating a population of 4,398 in 1,653 dwelling units (2011 Census) at a density of 1,200 persons / km² and a net residential density ranging from 9.9 to 14.8 units per hectare (4 to 6 units per acre) on the plateau to 25 units per hectare (10 units per acre) in the core area.



Natural areas, park space, and Walk Score

Valley Ridge has 108,607 m² of natural areas per 1,000 residents compared to an average of 62,641 m²/1,000 people for Calgary. However, Valley Ridge has just above average of park space for its population than the average of Calgary neighbourhoods. Specifically, Valley Ridge has 35,500 m² / 1,000 people, which is just above the average of 32,726 m² for Calgary. The Walk Score for Valley Ridge is 13.75, which is far from the average of 43.09 for Calgary neighbourhoods. Paved pathways in Valley Ridge are 0.98 km /1,000 residents, which is above the average of 0.64 for Calgary (Calgary Herald Data Centre).

Discovery Ridge has 298,228 m²/1,000 residents compared to an average of 62,641 m²/1,000 people for Calgary. However, Discovery Ridge has less park space for its population than the average of Calgary neighbourhoods. Specifically, Discovery Ridge has 19,200 m² / 1,000 people, which is less than the average of 32,726 m² for Calgary. The Walk Score for Discovery Ridge is 9.75, which is far from the average of 43.09 for Calgary neighbourhoods. Paved pathways in Discovery Ridge are 1.18 km /1,000 residents, which is above the average of 0.64 for Calgary (Calgary Herald Data Centre).

For Valley Ridge, a total of 101 completed survey responses and 12 interview responses were collected from different areas within the neighbourhood. The ratio of male to female respondents was 1.09:1. For Discovery Ridge, a total of 94 completed survey responses and 12 interview responses were collected from different areas within the neighbourhood. The ratio of male to female respondents was 1:1.2.

Valley Ridge

Single access to the neighbourhood

When explicitly asked about the effect of a single access to the neighbourhood on the residents' sense of safety, five out of twelve interviewees affirmed that their sense of safety increased, and another two interviewees affirmed their increased sense of safety due to a single access but also pointed out the drawbacks in terms of evacuating the neighbourhood in an emergency or traffic blockage due to accidents on the highway. Four interviewees explicitly negated the effect of a single access on their sense of safety and one interviewee was ambivalent using a double negative expression: 'I haven't felt unsafe because of it'.

However, when interviewees were asked if a single access affected their willingness to stop and talk with residents in the neighbourhood, only one out of twelve interviewees felt that she was more willing to stop and talk, arguing that the single access limits the presence of outsiders and increases the probability of meeting with people who are residents of the neighbourhood. Nevertheless, eleven other interviewees negated any effect of a single access on their willingness to stop and talk, arguing that the neighbourhood is inherently friendly or that it was natural for them to be confident about talking to any person in the community regardless of the single entry.



Sense of community and quality of life

When asked to elaborate on aspects of the neighbourhood that contributed to their sense of community or aspects that positively impacted the quality of their life, interviewees recalled seasonal activities such as Halloween, Christmas, winter activities like sled rides, and the presence of an ice rink, children's soccer events, an annual common garage sale, the small parks for children, and the golf course amenity. One senior interviewee referred to socialising monthly via dinner parties.

The size of Valley Ridge was mentioned by two interviewees as a factor for community feel. One interviewee, comparing Valley Ridge to Tuscany, commented that she wouldn't want to live in Tuscany due to its sheer size. Another interviewee, comparing Valley Ridge to Discovery Ridge, observed that Discovery Ridge has a more community feel because of its smaller size relative to Valley Ridge. The interviewee also remarked that the site topography of Valley Ridge also had an effect on sense of divisiveness within Valley Ridge ('those down the hill' versus 'those up the hill') but also remarked that Discovery Ridge's site topography is also divisive because of the hill.

Other interviewees highlighted the neighbourliness aspect: 'good neighbours', the community newsletter, planned events, and communal interest to make neighbourhood families feel welcome when moving into the community. This observation was complemented by an interviewee who finds that the number of families with children in her immediate neighbourhood that share the small children's park to be an important aspect of socializing with other neighbours.

The psychological sense of community was expressed by one of the interviewees as an aspect that affected her quality of life. She argued that the expensive house prices for an average person excluded low income households while aggregating higher income households through establishing commonalities. She was implicitly referring to the 'housing ladder' when commenting that the commonalities did not solely emanate from the expensive house prices but more importantly from: 'what people went through to get here'.

Valley Ridge does not have a Homeowner Association (HOA) or restrictive covenants. Membership is voluntary for the community association (\$35/year). Dealing with the community association is informal via emails. People are informed of events through the community newsletter. One senior interviewee who had resided in the community for more than 10 years commented that the community association has a weak/'amateur' administration evidenced by the landscaping of the neighbourhood which is not well managed.

Discovery Ridge

Single access to the neighbourhood

When explicitly asked about the effect of a single access to the neighbourhood with respect to their sense of safety, eight out of twelve interviewees affirmed that their sense of safety increased; expressed by one interviewee as: 'one entry point has a big impact'. The single entry was perceived as decreasing opportunistic crime. Interestingly, two interviewees looked at the



single entry from another perspective. They saw it in terms of the difficulty of evacuating the neighbourhood in an emergency or traffic blockage due to accidents on the highway. Their worry was appeased either by the presence of nearby services such as a fire station and a good bus service or by choosing to live as close as possible to the single entry to facilitate egress. Two other interviewees explicitly negated an effect of a single access on their sense of safety.

However, when interviewees were asked if a single access affected their willingness to stop and talk with residents in the neighbourhood, only three out of twelve interviewees felt that they were more willing to stop and talk, arguing that the single access limits the presence of outsiders and increases the probability of meeting with people who are residents of the neighbourhood. Nevertheless, nine other interviewees negated any effect of a single access on their willingness to stop and talk, arguing that the neighbourhood is inherently friendly or that it was natural for them to be confident to talk to any person in the community regardless of the single entry or their knowing most of their neighbours.

Sense of community and quality of life

When asked to elaborate on aspects of the neighbourhood that contributed to their sense of community or aspects that positively impacted their quality of life, interviewees recalled seasonal activities such as the polar bear dip in winter, the spring clean-up and garage sale, pancake Stampede breakfast, and the yearly barbecue. Two interviewees pointed out socialising via the neighbourhood coffee shop / pub. Some projects such as starting a community garden are also bringing residents of similar interests together.

The good bus service was mentioned by three interviewees as improving the quality of their life by improving access to the rest of the city. The bus service was especially important for their children to learn how to use it and who could also go to a recreational facility nearby. Other interviewees highlighted the cleanliness and quality of landscaping in public spaces as well as the relatively secluded aspect of the neighbourhood; as one interviewee expressed this: ‘slightly away from the “hustle and bustle”’. The forest park as a natural amenity and the wildlife that is commonly seen in the neighbourhood were also mentioned.

Other interviewees highlighted the neighbourliness aspect: strong community and a good community association board that established a good relationship with the alderman’s office. One interviewee referred to the recent flood of June 2013 as a contributing factor to more people caring for the neighbourhood and thinking about other neighbours who are not just personal friends. The non-transience of residents was a contributing factor to a feeling of cohesiveness when one interviewee compared Discovery Ridge to her previous neighbourhood of residence where they were original owners and couldn’t develop a feeling of cohesiveness because of the high turnover of residents moving in and out.

Contrary to Valley Ridge, Discovery Ridge does have a Homeowner Association (HOA) and restrictive covenants. Membership in the Homeowner Association is mandatory with an annual membership fee of \$300 where a large part goes towards landscaping, snow removal, and garbage collection in order to complement the services offered by the city.



Neighbourhood Cohesion Index (NCI)

Following Buckner's NCI calculation represented by the mean value of 18-item questionnaire, the neighbourhood cohesion index NCI for Valley Ridge has a mean value of 3.74 ($SD = 0.54$) compared to 3.94 for Discovery Ridge ($SD = 0.58$). The neighbourhood cohesion index is considered relatively high, suggesting that Valley Ridge and Discovery Ridge are neighbourhoods whose residents have a very strong place attachment to the neighbourhood and a high sense of community at the collective level. The following table shows the mean and SD for the two neighbourhoods for each of the four components.

Table 1: Mean and SD for each component by neighbourhood

Component	Neighbourhood	Mean	Standard
Neighbourliness	Valley Ridge	3.61	0.72
	Discovery Ridge	3.88	0.69
PSOC	Valley Ridge	3.67	0.49
	Discovery Ridge	3.93	0.52
Place Attachment	Valley Ridge	4.18	0.66
	Discovery Ridge	4.39	0.50
Enveloping Space	Valley Ridge	3.21	0.58
	Discovery Ridge	3.52	0.55

Source: Author's calculations.

Residents of Discovery Ridge had a significantly higher sense of neighbourliness, a higher psychological sense of community, a higher sense of place attachment, and a higher sense of enveloping space than residents of Valley Ridge. Multivariate tests showed that the two neighbourhoods differed significantly with respect to the four components [Wilk's $\lambda = 0.898$, $F(4, 187) = 5.313$, $p < 0.001$, effect size = 0.102, and power to detect effect was 0.970]. Tests of Between-Subjects Effects showed significant results for differences between the two neighbourhoods on all four components. The following table summarises the results.

Table 2: Multivariate results for the effect of neighbourhood

Source	Dependent Variable	F	df	Sig. / Prob.	Effect Size	Observed Power
Neighbourhood	Neighbourliness	7.237	1, 190	0.008	0.037	0.763
	PSOC	12.970	1, 190	0.000	0.064	0.948
	Place Attachment	6.017	1, 190	0.015	0.031	0.685
	Enveloping	14.435	1, 190	0.000	0.071	0.966

Source: Author's calculations.



Discussion

Both affluent neighbourhoods scored highly with respect to the sense of neighbourliness as opposed to the general understanding that the more affluent the neighbourhood, the greater the affective dimension of neighbourhood cohesion on account of the interactive dimension of neighbourhood cohesion. This research has provided evidence that neighbourliness is still an important aspect of affluent neighbourhoods and that it contributes to their overall sense of neighbourhood cohesion. This is not to overlook the fact that some residents are isolated from their neighbours and do not experience an interactive dimension within their neighbourhood of residence. Such isolation has been more prominent for residents in Valley Ridge than Discovery Ridge.

The results should be interpreted within the context of key differences between the two neighbourhoods. Discovery Ridge is more secluded than Valley Ridge given its low degree of connectivity vis-à-vis other contiguous neighbourhoods. The average value of dwellings in Discovery Ridge is much higher than Valley Ridge, which also makes Discovery Ridge more exclusive. Discovery Ridge residents explicitly established a link between the single entry access and their choice of moving into the neighbourhood in contradistinction to residents of Valley Ridge who did not establish a clear link with the single access to the neighbourhood.

Discovery Ridge enjoys a natural amenity, the Griffith Woods forest, as opposed to the artificial amenity of a golf course in Valley Ridge. The natural forest lends a more distinct identity to the neighbourhood than an artificial golf course. The presence of a formal Homeowner Association (HOA) in Discovery Ridge that sees to a higher quality of neighbourhood landscape maintenance than city standards also contributes to a sense of place attachment and a sense of enveloping space for residents than in Valley Ridge, whose residents have not formed a HOA.

There were differences between the two neighbourhoods for the two variables of uniqueness and the perception of the ease with which it is possible to distinguish residents from non-residents in the neighbourhood. In terms of the perception of the uniqueness of the neighbourhood, more than three-quarters of survey responses (78.7%) in Discovery Ridge considered their neighbourhood unique compared to less than half (49.5%) in Valley Ridge. Those who strongly agreed that the neighbourhood was unique amounted to more than one-quarter of survey responses (26.6%) in Discovery Ridge compared to less than 9% in Valley Ridge.

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