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Mapping People's Feelings in a Neighborhood: technique, analysis and applications

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by *Planum. The Journal of Urbanism*,
no. 9, vol. 2/2004 (II Semester 2004)

Mapping the sense of well being in a neighborhood: survey technique, and analysis of agreement and variation

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This paper introduces a new method of urban research for use in neighborhood planning and urban design. This method is based on surveying and mapping people's emotional response to their environment as they walk through the streets of a particular urban area.

The feeling that is surveyed and mapped is people's sense of well-being. A sense that changes constantly as they move about or are engaged in different activities. This sense is ever-present but usually remains in the background. It can be brought to the foreground by asking oneself: "how do I feel now?" Under normal circumstances one may become aware of this feeling when it changes suddenly for the better, or for the worse (Damasio, 1994,143).

This background sense of well-being qualifies for one places, situations and relationships with other people. At a personal level, it reflects the usefulness of different environments for an individual. In some locations, one may be at ease, it is easy to concentrate, time passes quickly, and one can accomplish one's goals with ease and comfort. In others, the opposite is true. Some streets are sensed as inviting and friendly, seeming to urge one to walk through them, or to linger at a shop. Other streets are less attractive, boring or even frightening places to pass through as quickly as possible. However, when it comes to assessing the general quality of places, it is usually assumed that this sense of well-being is personal and idiosyncratic, and that there is no general pattern in the way that people respond to different environments. This pattern, that if it exists, can provide useful information about the way that the spatial and social aspects of different environments affect people's feelings and actions.

The task of developing and validating a method of surveying and mapping people's sense of well-being in a neighborhood area was carried out in two stages: the first stage, described in this paper, is the development of the survey and mapping method, and the validation of the resultant "feeling map"; the second stage, to be described in a forthcoming publication, is the interpretation of the feeling map in the light of other data about the area in question, as an example for its use in planning practice.

The decision to do the research at the neighborhood scale is not arbitrary. The vast economic, functional and social processes of the metropolis manifest themselves as sensible, physical realities at this scale. If a city's economy does well, that may be translated into a demand for homes in neighborhoods and the construction of new housing and businesses, as well as the improvement of existing ones. The functioning of the city's services and their equity of distribution is visibly apparent in the way streets and parks are maintained. The living culture of the inhabitants, their pride in their homes, and the resources that are available to them, can be seen in the way that houses and properties are kept. Problems of traffic and crime, are visible via congested streets, or abandoned streets where people dare not walk. Even abstract relationships such as a change in family structure is manifested by the number of children on the streets, and the change from large homes to smaller units. In summary, for a physical planner, the neighborhood is a good place to study the relationships between spatial form and socio-economic dynamics, and their effect on experience and feeling (Jacobs, 1985).

Overview of the paper

Following a review of the literature, which places the research in the context of neighborhood quality and environmental assessment research, and describes its roots in phenomenological study of the environment; the technique of conducting a feeling survey in a neighborhood is described. The feeling maps from three case study neighborhoods in the San Francisco Bay Area are described, and one –in the Golden Gate Neighborhood of Oakland, California– is analyzed in detail.

To validate the maps as a representation of general patterns of feeling in the neighborhood, the map is analyzed for the consistency of the feelings reported in different places, and the reliability of the observations. The discussion continues to examine three possible sources for the variations visible in the map. First, the relative contribution of the social characteristics of the observers and the locations frequented in determining the responses is examined. Secondly, the maps produced by residents of the neighborhood and a professionally trained group are compared for similarities and differences . The third source of variation that is examined is the effect of very local variations within places on the subjects' responses. The paper concludes with a summary of the results, a discussion of their significance, and suggestions for further research.

Literature review

Quality of life as an aim of city planning.

One of the major purposes of planning is to insure that development occurs in such a way that it contributes to the overall community welfare (Kent, 1990: 25-26). In practice, the major criterion for quality of life has been economic development, and while health, safety and nuisance considerations have been used to resolve planning controversies, the perceptual, behavioral and cognitive impact of planning decisions has rarely been considered (Banerjee and Baer, 1984: 125-126).

In the literature, there are two major types of techniques used to investigate how people perceive and evaluate places: neighborhood (or housing) quality and satisfaction studies, and environmental experience studies.

Studies of neighborhood satisfaction

There are many studies of neighborhood satisfaction (see Connerly and Marans, 1988 for a review; and Brower, 1996 for a summary of findings). They tend to concentrate more on the neighborhood as a whole, and to inquire about people's overall satisfaction or attachment to the neighborhood. The major drawback of these studies is that when making their evaluation, the

respondents must make two kinds of generalizations. Firstly, they have to summarize their total experience of the neighborhood over a period of time, and secondly their experience of different areas within the neighborhood has to be melded into one perception of the neighborhood as a whole. In the process of carrying out this task much of the resident's detailed knowledge of their neighborhood may be lost.[1] The investigation of overall neighborhood quality or attachment also submerges the differences within a neighborhood, that are often very significant, and evades the issue of multiple definition, and the lack of agreement as to neighborhood boundaries (Suttles, 1972).

The feeling survey, by contrast, employs a technique of asking people their feelings while they are in the area. Thus it reflects the momentary changes in people's sense of well-being, and is not dependent on recall or summation of feelings. By allowing people to choose their routes, and the locations where they make their observations, the feeling survey avoids altogether the problems of having to delineate the neighborhood's boundaries.[2]

Studies of environmental experience

Studies of environmental experience include studies of image mapping, environmental cognition, environmental affect and environmental assessment studies. The present study shares some aspects with all of the above mentioned fields, and could be viewed as their extension.

The most direct source for this attempt to map feelings is the work on image maps which originates from Lynch's work (1960), and its extensions to evaluative images at the city scale (Nasar, 1990, 1998) and at the scale of country or state (Gould, 1973). These studies have shown that there are patterns of agreement between different people with regard to their image of places, and the way that they evaluate this image.

This research differs from these studies, however, in three important respects. The first difference is that the scale of the observation is much smaller. It is interesting to see whether the kind of consensus found at a larger scale prevails in a smaller area. The second difference is the insistence on mapping experience on site, rather than using recall, or images. Images are always influenced as much by ignorance as by knowledge, and

the evaluative image is therefore always colored by fear, awe and prejudice towards the unknown. Using evaluation of direct experience on site, one hopes to avoid these biases as much as possible. There is a third, subtle, difference between the questions of preference or visual quality researched by Gould and Nasar, and the question asked in this research. Residential preference is a very complex question to answer, subject to the difficulties previously discussed with regard to housing and neighborhood quality studies. Nasar's question of visual quality, on the other hand, reflects a professional preoccupation with separating the physical aspects of places from their social meaning, that is not likely to be shared by the subjects of the research (this is another one of the problems discussed by Brandstätter, see endnote 1). In contrast, the question asked in this research is akin to the kind of questions asked in experience sampling studies (Brandstätter, 1991, Csikszentmihalyi, 1975). It requires only that one assess one's feeling of well-being at present, nothing more.

In the literature, mood or affect are described principally on two orthogonal dimensions. Either in terms of the unpleasant-pleasant and sleepy-arousing dimensions (Russell et. al. 1981, Russell and Snodgrass, 1987 Nasar, 1989), or the Positive and Negative Affect Scale (PANAS; Watson et. al. 1988). These studies tell us that expectations are a prime factor in establishing mood, and that unexpected events are usually arousing (Russell and Snodgrass, 1987). People clearly differ in the degree of arousal they seek, depending on age, personality, and even time of day. However, it is more likely that people seek to be in pleasant surroundings, whatever level of arousal they are seeking. Therefore, if a measure of agreement on feelings is sought, it is more likely to be along the pleasantness-unpleasantness scale, than the arousing-sleepy scale.

The use of feeling as a measure of the quality of a place, relates this research to environmental assessment studies (see Craik and Feimer, 1987 for an overview of the field). Within this field, studies of urban preference (Carp and Carp, 1982; Nasar, 1994) and visual quality assessment studies are the most relevant to this study. The latter are more common in the context of park and landscape management studies (Angileri and Toccolini, 1993, Daniel, 1990

and Zube, 1976). In these studies, a large degree of consensus between subjects has been found regarding preference for building types and landscape features. However, in some studies, major differences have been noted between professionals and the lay public. It is therefore of interest to see whether such a difference also exists in the assessment of feelings, hence the comparison between the feeling map produced by the residents, and the one produced by a professionally trained group.

The phenomenological approach as the basis for this study

Studies of urban affect, and environmental assessment studies differ from this research in that they attempt to define clearly between the cognitive, affective and evaluative aspects of environmental perception. This separation has been criticized from a phenomenological perspective (Seamon, 1979; 1982) on the grounds that it alters the very essence of the experience that is studied.

This study shares Seamon's (1982) emphasis on studying the direct experience of places, in the hope of creating a "fresh" encounter between the person and the place that is as free as possible from preconceptions. However, it does not accept Seamon's belief in the singularity and idiosyncrasy of the experience, and attempts to structure the findings in such a way as to open them to quantitative as well as qualitative analysis.

Finally, personal feeling of well-being is central to the theory and practice of Christopher Alexander and his collaborators (Alexander et. al. 1977, Alexander, 1979). The major criterion for the appropriateness of a pattern or a design according to Alexander, is its ability to evoke a deep and personal feeling of well being. Inter-subjective agreement about feelings is a sign that the result is deeper and more profound (Grabow, 1983: 63-70). Moreover, in his recent work Alexander claims (Alexander, 2003) that a well-ordered environment, can be distinguished by its ability to make us feel whole. But the order he is describing is not the simple order that is the opposite of complexity as is usually understood in studies of environmental experience (Nasar, 1989). Rather it is a notion of complex order, as it is understood in biological and ecological studies, where a system's order is said to increase

as it becomes simultaneously more differentiated and unified. Since such order is difficult to ascertain analytically, a mapping of feeling, can therefore provide us with an indication of which parts of the environment are wholesome, and which parts are not.

The notion of feeling as defined in this study

The notion of feeling used in this research was purposefully left to the intuition of the respondents. The subjects could interpret feeling as they saw fit. As they walked around an area, the respondents were asked to rate their sense of well being using a four level scale:

1 - Feeling very good

2 - Feeling good

3 - Feeling bad

4 - Feeling very bad

The middle neutral value was omitted intentionally to force the respondents to decide between a positive and a negative assessment of feeling. The assessment of one's own feeling is not always an easy task, and it was feared that if a neutral value was allowed it would leave the door open for indecision and evasion from judgment.

The survey method

Three case study neighborhood areas were included in the research. One was a neighborhood immediately south of the Berkeley campus of the University of California surveyed by students participating in an undergraduate planning studio. The second area – a mixed use, office services area, south of Market Street in San Francisco – was surveyed by graduate students participating in an introductory planning studio. The most complete case study was carried out in the Golden Gate Neighborhood of Oakland, California. In this neighborhood, residents of the neighborhood were surveyed, as well as a group of professionals and graduate students in planning. As this was the most complete case study most of the discussion will center on its results.

A neighborhood is usually too large an area for one person to survey fully within a reasonable time frame. Also, different people define their neighborhoods differently. Some people relate only to minimal "home grounds" while others relate to larger areas (Rapoport, 1997).

In the neighborhoods surveyed by students the size of the area did not constitute a problem, since the feeling survey was given as a course assignment. However, in the case of the Golden Gate Neighborhood, the neighborhood had to be divided into areas small enough for individuals to survey in a reasonable amount of time. Therefore, the neighborhood was divided into 12 overlapping zones, each about 1,600 by 1,600 feet (500 by 500 meters), designed is such a way as to coincide with commonly held views on sub-neighborhood boundaries.[3]

The survey form included a map of the area, a short questionnaire regarding some basic social information, and some space for respondents to write three positive and three negative aspects of the neighborhood.

The survey form was distributed to all households in the neighborhood, together with the local neighborhood organization's newsletter. Fifty three survey forms were returned. Twelve of the forms were not filled out correctly, and could not be used for the aggregation of the feeling map, or for the analysis. The high rate of faulty returns suggests that an alternative method where the surveyor walks with the subjects and fills out the map for them may produce better results.

The returned sample, although small, was concentrated in the southern part of the neighborhood south of Stanford Avenue, where the responses were sufficient in number to enable statistical analysis. In terms of the diversity of the sample, relative to the 1990 census figures for the neighborhood, homeowners and women are over-represented in the sample, and by contrast people aged over 65 are underrepresented.[4]

In all three case studies, the individual maps were aggregated into one composite map of the whole neighborhood, by transferring the observations from each of individual map to one map.

Figure 1: Berkeley's Southside aggregated feeling map

Figure 2: San Francisco Trans-bay Terminal area feeling map

Figure 3: The Golden Gate Neighborhood aggregated feeling map (south part only)

Analysis of the feeling maps

The three feeling maps differ from each other. We can see that the map of Berkeley's Southside is much more uniform. The feelings expressed are more moderate, and seldom reach extremes of very good or very bad. The maps of the Golden Gate Neighborhood and the San Francisco Trans-bay Terminal area show strong differences between places, particularly in areas where there is almost complete consensus on very bad feelings. In all three maps however, one can distinguish three kinds of areas: areas where most of the responses are either positive or negative, areas where there are conflicting feelings reported (very good and very bad), and areas where the whole range of feelings is present.

In order to establish the validity of the feeling map, four kinds of analysis are necessary:

1. An analysis of whether the differences of responses that are visible on the map are statistically significant.
2. An examination of the reliability of the feeling map as an inter-subjective evaluation of the neighborhood, that is relatively independent from the individual observers.
3. An analysis of the variation in the feeling map. What are the relative contributions of location and the social characteristics of the observers in determining the responses? And what are the possible effects of very local variations in the environment on feeling?
4. A comparison between the residents' feeling map, and the feeling map of a professionally trained group of observers (architects, planners and graduate students).

The results of the analysis show that there is substantial agreement between people with regard to feeling. One can distinguish clear areas where people

tend to report better feelings than other areas in the neighborhood. It can also be shown that the feeling map is reliable (in the sense that it is not affected by the personality of individual observers), and that a fairly small sample (approximately 1-2 persons per block on average) is required to achieve reliable results. The analysis of variation shows that even though the observers' social characteristics affect the overall pattern of their responses, the location of observations is a stronger predictor of people's feelings. Further examination of several locations shows that there is reason to believe that some of the variation in feeling responses reflects very local variation in the nature of the neighborhood.

Furthermore, in contrast to some results on environmental preference (Nasar, 1994; Stamps, 1991), the overall correlation between the maps produced by local people and professionals is fairly high, despite some significant local differences.

Agreement between people with regard to places

The following three examples taken from the Golden Gate Neighborhood case study, show how feelings differ systematically from place to place.

The first example shows a comparison on a district scale: the distribution of responses west of San Pablo Avenue, the major commercial street that crosses the neighborhood in a North-South direction, compared to the distribution of responses in the area that lies to its east. There is a clear difference in the distribution of responses (74% positive feeling responses west of San Pablo, as opposed to only 50% to its east; statistical significance of the difference is less than 0.0001).

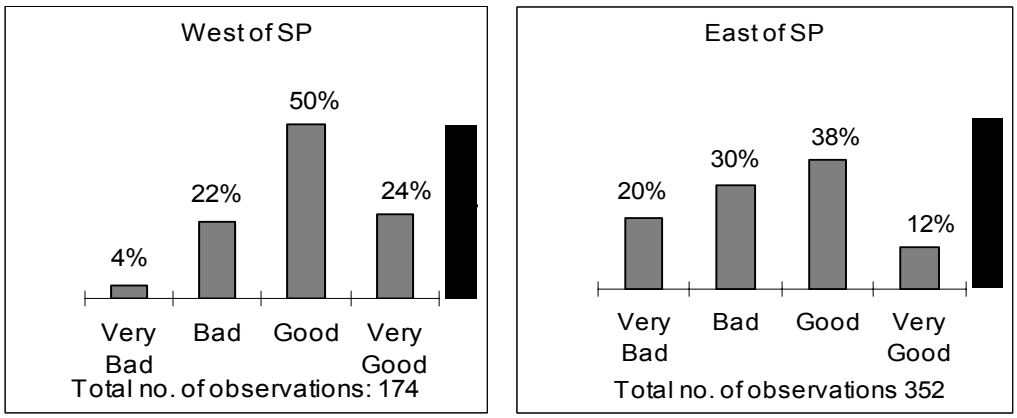

Figure 4: People feel better on the west side than on the east side of San Pablo

The second comparison is on a street scale. It shows the differences in responses between San Pablo Avenue and Stanford Avenue (the East-West major street). These are the two major streets of the neighborhood. A major difference is seen in the feelings reported by people (25% good and very good responses on San Pablo, as opposed to 76% on Stanford Avenue; the probability of error is less than 0.0001).

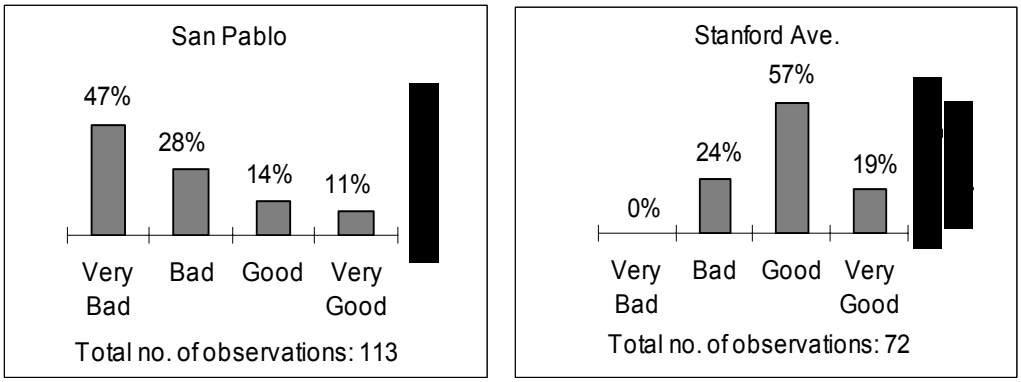

Figure 5: People feel better on Stanford Ave. than on San Pablo

The third example is a comparison on a block scale between two parts of one street. The comparison is between the block of 57th street that lies between San Pablo Ave. and Gaskill Street, and the two blocks east of Gaskill Street. There is a clear difference in the overall feeling distribution, with 57% positive responses between San Pablo and Gaskill, as opposed to only 23% positive responses east of Gaskill (however, due to the smaller number of

observations, the statistical significance is not less than 0.05 but is still less than 0.10).

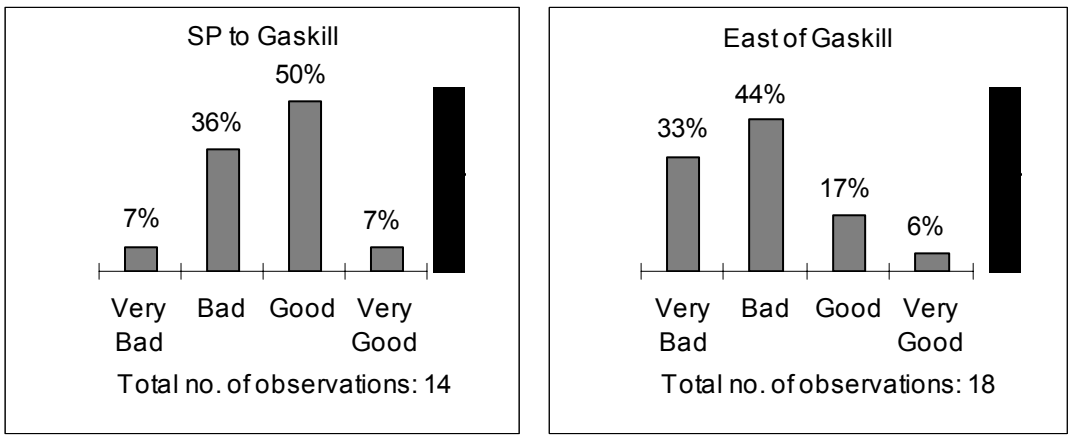

Figure 6: On 57th Street people tend to feel better between San Pablo and Gaskil than East of Gaskill

A feeling map can thus be used to compare between any two areas within a neighborhood on different levels of scale. In the case of the Golden Gate Neighborhood, judging from the number and the density of responses, the smallest area that has enough responses in it to enable statistical analysis is on the order of half a block.

The reliability of the feeling map

The significance of the reliability of the map is double-fold. One aspect is the estimation of the degree to which the results of the map are independent of the individual observers. The second aspect of this question is important for practical reasons. It is an estimation of how large a sample is needed to achieve reliable results. Obviously, the larger the sample needed, the less likely that this method would be used in planning practice.

Customarily the issue of the reliability of inter-subjective tests in personality and environmental assessment has been evaluated using Cronbach's alpha analysis (Cronbach, 1951; Craik and Feimer, 1987). To facilitate the reliability analysis, and the logistic analysis that follows, a cell structure has been superimposed on the feeling map. The cells were determined following a visual inspection of the response pattern, to capture as much as possible the spatial units perceived by the respondents, as they are reflected in the density

and distribution of the evaluations. The cells are roughly 40,000 square feet in area, dividing the long blocks into two parts, and roughly the size of a short block.

Number of Observations	Number of Cells Observed	Alpha
3	98	0.8938
5	60	0.9263
7	36	0.9456
10	10	0.9759

Table 1: The reliability of the results as a function of the number of observations per cell

The results show that with five observations per cell, a very high reliability is achieved (Cronbach's alpha of 0.9263). Since the average area surveyed by each observer was about three blocks (six cells), than a sampling of two persons per block is sufficient to achieve reliable results throughout the whole neighborhood (On each block there would be, on average, a minimum of four observations from the two respondents living on that block, and eight other observations from respondents that live on the neighboring blocks). Obviously the higher the number of observations per cell, the greater the reliability.

The sources for variations in feelings between people

Three questions were examined as sources for the variations in feelings noted in the map: first, the variation between people based on social characteristics, and its relationship to the variation that can be attributed to the location of observation; secondly, the differences in feeling responses between professionally trained observers and local residents. Thirdly, the variations within places were probed as possible sources for variations in feeling.

The responses of different respondents were compared by taking in turn: form of tenure, length of residence in the neighborhood, gender and age as the independent variables. Of the four variables examined, only gender turned out to be insignificant in the respondents overall ranking of feeling. People older than 65 tended to report worse feelings than younger adults.[5] Owners

and long-term residents tended to report better feelings overall than renters and recent arrivals to the neighborhood. However, when the responses were grouped by ownership status as well as by the length of residence in the neighborhood a more complex relationship emerged (figure 9).

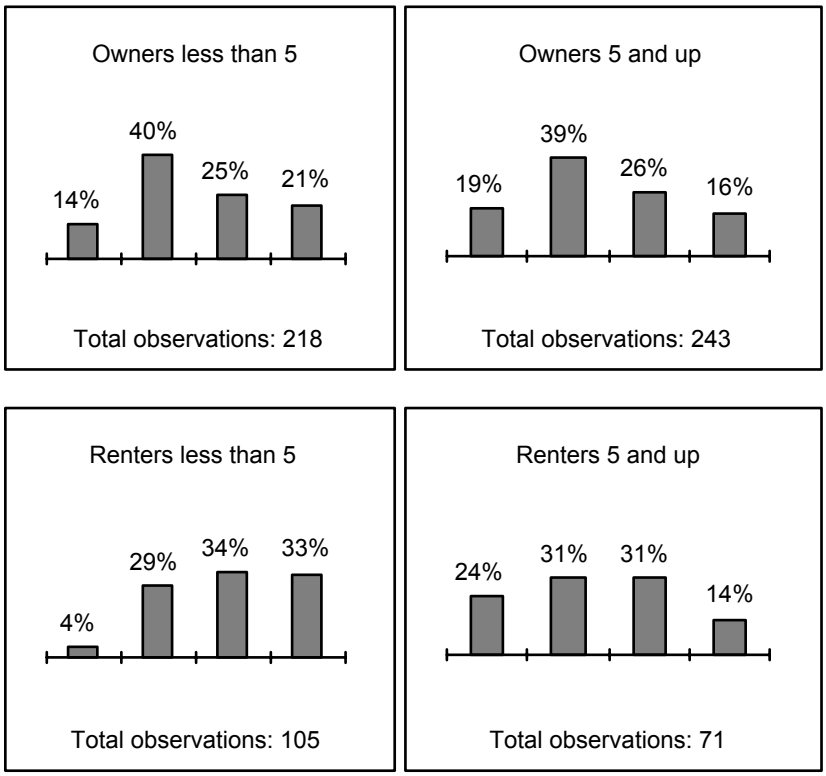

Figure 7: A comparison of feeling responses between longtime residents and newcomers for owners and renters separately

Renters who live in the neighborhood for less than five years are the group of people most likely to respond negatively. Indeed, the difference between that group and all the other groups (established and newly arrived owners, and renters who have lived in the neighborhood for more than five years), is the only one that is statistically significant (A probability of error of p=0.0001 between newly arrived renters and long-term renters, and p=0.0044 between newly arrived renters and new owners).[6]

To estimate the relative effects of social characteristics and location on feeling a logistic analysis of the responses was employed.[7] The logistic model computes the probability of choice, of each one of the feeling responses, as a function of the social characteristics of the individual (gender, age group,

length of residency and form of tenure), and the location of the response. The units of location used for the analysis are the streets. Streets were chosen as variables, because smaller units would have had too few observations for analysis in some areas of the neighborhood.

In order to estimate the relative contribution of each set of variables to the ability of the model to predict the feeling response, the model was run three times. First, it was computed with the social characteristics only as the independent variables, then with the locations only as independent variables, and on the third run with social characteristics and locations combined. The degree of prediction in each run indicates the relative contribution of each set of variables to the accuracy of the model.

Parameter	Parameter Estimate	Probability of Chi-Square
Street or social variable		
Tenure	1.0629	0.0001**
Gender	-0.3411	0.0525*
Age group	-0.7923	0.1841
Years of residence	0.3109	0.0805*
Los Angeles	-3.0015	0.0001**
San Pablo	-1.7625	0.0015**
48th Street	-2.1820	0.0110**
53rd Street	-1.4400	0.0227**
Gaskill	-1.0194	0.0878*
Doyle	1.3821	0.0948*
Marshall	1.4144	0.0402**

percent of responses correctly predicted 74.1%

** significant at the 0.05 level * significant at the 0.10 level

Table 2: Results of the logistic analysis of social variables and streets combined

The model shows that social characteristics alone predicted 50% of the responses correctly (25% is expected given a random choice). When only the streets were taken as the independent variables, the accuracy was 69%. When streets and the social characteristics were combined together, the overall accuracy of the model rose to 74%. Thus, it seems that the location of observations is a stronger predictor of the feeling responses than the social characteristics of the observers. Removing the locations from the model reduces its ability to predict the responses in a much more significant way than if the social characteristics of the observers are left out.

The relationship between social characteristics and location for determining feeling in the environment can thus be interpreted in the following way: the social variables seem to operate as filters through which the observers perceive and respond to places. They may predispose the observers to frequent slightly different areas in the neighborhood, or to perceive certain aspects of the neighborhood and ignore others. They probably also predispose the observers towards certain feelings. However, the characteristics of a location are more influential in creating the variation in feeling from place to place. A renter's view of the neighborhood may include more places that feel bad or very bad, and fewer that feel good, while the owner-occupier's view of the neighborhood may be somewhat rosier overall, but, it is likely that the more positive evaluations of both renter and owner will occur in the same places.

The second possible source of variation to be investigated was the difference between the feelings reported by the residents of the neighborhood, and a group of professionals and planning students. The comparison between professionals and lay-persons is warranted, because some studies have found very significant differences between the groups, particularly with regard to architectural style (Nasar, 1994, 1998; Stamps, 1991). The comparison between the two groups also serves as an indication of the degree to which social knowledge is used to determine feelings, as opposed to the nature of the place, and the visible events that occur in it. Presumably, the professionally trained group, as outsiders, are likely to respond more to the observable nature of the place, whereas the local residents responses may

involve social knowledge of the place and its history, that is not available to the outsider.

The feeling map produced by the professionally educated group is similar in its broad outlines to the feeling map produced by the residents (a correlation value of 0.43 which is significant at the 0.05). Like the residents, the professionally trained reported better feelings in the area west of San Pablo, than in the area to its east. The responses on Stanford Avenue were significantly better that on San Pablo Avenue, and the responses in the residential areas were generally better than along the commercial strip of San Pablo Avenue. There were, however, some significant differences: the professionally trained observers covered a larger area, made more observations per person, and were more detail oriented in their responses. The two groups also differed in their response to the industrial area at the eastern end of the neighborhood. The residents' responses to that area were mostly positive, in contrast to the professionally trained group whose responses were mostly negative. While this may reflect a bias against industrial land uses in the vicinity of a residential area among the professionals; it is also possible that the residents were responding to recent improvements in the area made by the city, as well as the recent conversions of abandoned industrial buildings into artists' studios. The professionals, ignorant of the previous state of the area, were probably responding to its still abandoned and rather run-down appearance.

Variation within places and the partiality of view

The last source of variation to be discussed here are the local differences within the neighborhood environment. While some streets are uniform in their character, others may change abruptly from house to house. A significant public building or a park may change the character of the street in their vicinity. There may also be a conflict between the use of a building as a public institution which is beneficial to the neighborhood, and its physical presence which may be detrimental to its surroundings. In such cases, where the environment itself is contradictory, different people may respond to

different aspects of the place. Some may indicate positive feelings, while others may respond negatively.

The following examples show instances of such variation in the environment - all of which exhibit also a contrast in the feeling pattern. The first example shows that even on a street where most people feel good, there may be particular places that evoke bad feelings. The second example shows how an important local institution housed in a nice structure can evoke good feelings even in an area where most people feel badly. The third example shows four possible views from the same intersection, and the difference in feelings evoked depending on which direction one is looking towards.

Figure 8: Comparison between two buildings on Marshall Street

The two houses in figure 10 are situated opposite each other. The feeling map pattern at that location includes two responses of “very good feeling” and one response of “bad feeling”. The house on the left is set amidst a garden with trees, and a path flanked by flower beds leads to a small stoop that is set a few steps above the level of the street. It is a modest house, but it is brightly painted and well cared for. The second house has a mostly paved yard, with a few bushes and a meager patch of grass. A chain link fence separates the yard from the street. It is also well maintained and painted, but in a more “institutional” manner. The color is colder and somewhat less personal. Even the kind of shades used in each house, contribute to the difference in feelings they generate. The house on the right has only roller curtains, while the left house has lace curtains which soften its appearance.

Figure 9: Two views of the Golden Gate Library on San Pablo Ave.

At the corner of 56th and San Pablo, the Golden Gate Branch of the Oakland Public Library is located in a small neo-classical building. The library houses a museum of African-American History, hosts many local social functions and is used as a meeting place for many neighborhood groups. This is the only location on San Pablo Avenue where some people reported very good feeling, although the negative responses in this area still outnumber the positive ones. The library creates a significant place along the otherwise nondescript avenue. If one responds to it alone than the feelings are likely to

be better; but if one is focusing on the area as a whole, than the effect of the library may not be significant enough to improve the overall feeling in this area.

Figure 10: Four views from the corner of 56th and Gaskill Streets

The four views are very different in their character, and in the feelings that they evoke. The view to the south on Gaskill (fig. 10, top left) is centered on a church spire, and is framed by two relatively large houses at the corner and several large trees in private yards. By contrast, the view to the north (fig. 10, top right) seems bare and stark, and dominated by the presence of cars and the electrical poles and wires. Between the two bottom views, the view on the left, towards the west, is one of the best examples of street trees in the whole neighborhood. They create a pleasant canopy that filters the light on the street. Although the trees are not as substantial in the view towards the east, a couple of larger houses frame the street, which evokes a moderately pleasant feeling. The feeling responses reported on this corner were mixed, but tended to be more positive. They reflect, it seems, the overall character of the environment.

A summary of the results and the significance of the research

The method of surveying and mapping people's feelings in their most immediate environment, described in the paper, was developed as a tool intended for use in neighborhood planning and urban design projects. The central concern of this research was to find a way to survey people's immediate feeling of well-being, as they experience it directly in their neighborhood area, and to record it in such a way that makes it possible for the observations to be aggregated into one map, analyzed, and become a part of the knowledge available to the planner and the designer.

The analysis of the feeling maps, particularly the Golden Gate Neighborhood case study, shows that indeed it is possible to map feelings, and that the mapping is reliable in the sense that it does not change with each set of particular individual observers. It is shown that with regard to some places at least, people seem to feel the same way.

The study of the variation of feelings indicates that people's feelings are influenced more by the location of observation, than by the social characteristics of the observers. This is so, despite the fact that ownership status, years of residence, and possibly age, are significant in influencing the subjects' overall patterns of response. The comparison of the feeling map produced by the residents with a map produced by a group of professionally trained people has shown similarities in the larger structure of the map, but significant differences in the details. These differences underscore the importance of surveying residents' feelings, and not relying only on professional observations. Similar to the intentions of Lynch's (1960) image maps and Nasar's (1998) evaluative image maps, the feeling map is intended, above all, to enrich the planner's palette of tools for effective community participation.

The examples of local variation in the environment, suggest that some of the differences visible in the map are a result of local variations in the nature of the site, and the fact that different people pay attention to and respond to different aspects of the environment. If this is the case, than the feeling map can enrich a planner's understanding of the neighborhood, by providing him with many view points on the local environment.

The feeling survey and mapping method have been developed within the context of research on planning and urban design methods. The analysis of the map for validity and reliability, has been done to establish it as a reliable representation of the feelings in the community which can be used as data for planning purposes. There are, however, many aspects of the feeling map as a survey technique, and as a tool for researching environmental experience that remain unexplored. Some of these may be: the effect of the scale of the map on the density of people's responses; the exact effect of local variation in the environment, and the direction of walking on feelings; and the further inquiry into the interaction between socio-economic variables and place in determining feelings. Another kind of research, more difficult to organize, is research geared towards understanding how people's feelings about place change with time, either time of day, change in seasons, or as a result of new development.

In sum, this research seems to have established the survey and mapping method of feelings as a reliable way of mapping people's feelings in an urban area. The analysis indicates that the map, although built from people's subjective evaluations, is an objective property of the neighborhood, and the population surveyed. Thus it is possible for the planner to integrate the feeling map as another layer of information about an area to be planned. This makes it possible to interpret the feeling map, in the light of the functional and spatial aspects of the area. An interpretation that seeks to identify those areas which are useful and healthy in the eyes of the respondents, and those which are not, and to understand the underlying values and reasons for the expressed feelings. This part of the research, which is concerned with the usefulness of the feeling map in planning practice, will be the subject of a future publication.

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Endnotes

[1] Similar shortcomings are pointed out by Brandstätter (1991), in his discussion of the shortcomings of research on quality of life, which inquires about overall life satisfaction, as opposed to using an experience sampling method (Hormuth, 1966). While his discussion relates to research into quality of life and psychological well-being which are not necessarily related to the environment, his points apply equally well to research on overall neighborhood quality. He argues that summing up one's life is an overwhelming task which may introduce the following distortions: there is a strong possibility that subjects will use artificial cues, or substitute what they consider to be objective measures of quality of life (such as economic success) for their own feelings; secondly people may be tempted to follow social norms rather than reveal their intimate feelings with regard to such a weighty issue. Thirdly, the categories used by the researcher may be different than the ones that are meaningful to the individual. Fourth the global measures of well-being do not reveal the interplay between life circumstances and events and personal characteristics. Lastly, retrospective reports rely too much on recall and reviving emotions, which may distort what was originally felt.

[2] In this respect the method introduced in this research is akin to the Experience Sampling Method used by Csikszentmihalyi and others in their studies of human well-being (Csikszentmihalyi 1975, 1990; Csikszentmihalyi and Mei-Ha Wong 1991; for a detailed description of the method see: Hormuth, 1966)

[3] Pre-tests of the survey have shown that an area this size can be surveyed on foot in about half an hour to an hour.

[4] The whole question of sampling is difficult in this context. The researcher had to rely on the goodwill of people willing to participate, which may introduce a bias in the population sampled. One hopes that using the method in practice, in a real planning situation will make it easier to recruit people to participate, since their own self interest is involved. Moreover, it seems that the mapping exercise involved more people than normally come to neighborhood meetings, and in that sense it is more inclusive.

[5] This result is qualified by the fact that only two respondents were older than 65, and therefore may reflect more their particular personality.

[6] These results confirm the model of environmental adaptation over time that is presented by Appleyard (1981), at least with regard to the more footloose tenants. Those tenants that are relatively new to the area are more likely to be dissatisfied with it since they are still at the adaptation stage. If they fail to adapt to the area, they will leave. Therefore, those that stayed longer have probably adapted to the area and are more likely to feel positively about it.

[7] Logistic analysis has been developed primarily within the field of transportation engineering to model the decisions of commuters with regard to modes of travel. It is useful where there is a discrete choice to be made between several alternatives. The model is therefore applicable to the feeling response situation, where the subjects have to make a decision between four discrete responses.