

Place Identification, Social Cohesion and Environmental Sustainability¹

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Abstract

In the study reported in this paper the role of social cohesion, residential satisfaction and place identification are examined for their effect on place-related social identity and its consequential impact on attitudes to environmental sustainability. Two neighbourhoods in Guildford, Surrey, England were selected on the basis of their social histories, housing types and socio-economic composition. Ninety residents in each neighbourhood were sampled. Research methods included cognitive mapping and a questionnaire survey. A structural equation model was used to analyse the co-variances between the different factors. The results show clear differences between both neighbourhoods in terms of residential satisfaction, with only some differences in terms of identification and social cohesion and sustainability. Conclusions drawn which suggest an important relationship between identity and sustainability behaviour which is suggestive for future research.

Introduction

The Rio de Janeiro Earth Summit of 1992 sought to change global attitudes to global environmental problems. The task since then has not only been to sustain this concern, but also so impress upon the public that global problems are local problems. The generation and implementation of Local Agenda 21 policies and actions has been the principal spearhead to translate global environmental issues into issues of local immediacy, relevance and concern. It has also been realised in recent years that we will only achieve a sustainable environment if we lead sustainable lives. All aspects of our lives - health, consumerism, housing, safety and security and the quality of life generally have to be re-thought in the light of sustainability (Moreno and Pol, 1999); environmental sustainability has to go hand in hand with social and economic sustainability. One of the challenges for environmental psychology is to theoretically and empirically construct the concept of sustainability from an environment-behaviour perspective that provides scientific and empirically-based support for policy-makers (Pol, 1998b).

A sustainable environment involves the protection of natural wealth, the controlled consumption of non renewable resources, the controlled emission of contaminant agents, the maintenance of biological diversity, the health of its inhabitants, and the preservation of flora and fauna. Sustainability is neither a vision nor an unalterable state, but a creative and local process of searching for balance which spreads into all areas of urban management and decision-making. As every city is different, each city must find its own way towards sustainability.

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Most attempts at public education and action at the neighbourhood and household level have often been individualistic in orientation. The increasing complexity of urban life and systems has resulted in the predominance of individual strategies of survival over the principles of intra and intergroup identity and cohesion (Pol, 1998a). This has led to the adoption of social behaviours which give little consideration to long-term environmental sustainability. There have been some programmes which sought to promote group or community initiatives. For example, the Global Action Plan for the Earth (GAP) project is an international environmental education and action programme involving 150,000 people in 17 countries world-wide. Its Household EcoTeam Programme attempts to encourage and facilitate households to adopt resource-efficient lifestyle practices through an easy-to-use workbook and neighbourhood support group. (Harland, Langzaal *et al*, 1993; Staats and Harland, 1997). Another shortcoming which has perhaps limited the effectiveness of local environmental initiatives has been that they have typically sought to create new institutional structures rather than build on pre-existing and accepted community, social and political mechanisms, traditions and practices which might be more effective in bringing about change (Uzzell, 1998). Central to this process is an understanding of the role and meaning of place in environmental attitudes and action.

Places with a strong identity help to enhance community awareness and bonding. In this sense, social cohesion contributes to place identity. At the same time, places with a strong identity make social cohesion easier. From this it is hypothesised that socially cohesive communities which have a strong sense of social and place identity will be more supportive of environmentally sustainable attitudes and behaviours compared with those communities where cohesiveness and social and place identities are weaker. There is thus an important link between sustainability and social life, as stated in the initial hypothesis of the *Cities, Identity and Sustainability Network*. The sustainability of an urban system can be understood as the compatibility between social, economic and cultural dynamics and environmental resources in the present as well as the future. The interrelation of the environment and social/urban development should take into account the objective environment (physical environment, natural resources) as well as the psychological and phenomenological environment (perception and evaluation of resources, group reference, expectancies, lifestyles).

The research reported in this paper sought to analyse the relative importance that place identification, social cohesion and residential satisfaction play in the process of encouraging sustainable environmental attitudes and behaviours. Although it is hypothesised that the greater the sense of place-related social identity the greater the probability of sustainable behaviour, there may be different paths towards sustainable behaviour depending on the different characteristics of the places and the people who reside there.

Place Identification and Place Identity

Place is clearly an important concept in environmental psychology, but its theoretical formulation has been varied and problematic. One of the earliest theories of place was proposed by Canter (1977) who defined place as 'a unit of environmental experience' and the result of the relationships between actions, conceptions and physical attributes. Stokols and Shumaker (1981) defined place as the 'entity between aspects of meaning, physical properties and relative activity', and emphasised the collective perceptions of place and propose that a place has a 'social imageability'. This imageability is the collectively held social meanings that the place has amongst its occupants or users.

Over the last twenty years the concept of place identity has taken centre stage, along with concepts such as place identification and place attachment. It is important, however, to distinguish between place identity and place identification. Identification refers to the attributes of the place which give it a distinctive identity in the minds of residents (Schneider, 1986). A person may thus express identification with a place, e.g. a person from London may refer to themselves as a Londoner. In this sense place can be considered to be a place-related social category. Place identification would reflect membership of a group who are defined by location. It might be investigated by reference to those features that enhance the identification of the place. In this paper, place identification is measured by ascertaining from the residents the distinctive features of their neighbourhoods.

Whereas the weight of emphasis in place identification is on the place, the weight of emphasis in place identity is on the psychological construct of identity and its relationship with social identity. Proshansky, Fabian and Kaminoff (1983) proposed that place identity is another aspect of identity, comparable to social identity, that describes a person's socialisation with the physical world. This understanding locates place identity alongside and independent of self identity rather than subsumed within it, although Proshansky *et al* do not make clear what the relationship is between these two aspects of identity. To have two forms of identity would focus discussion on whether or not identity was more 'social' or more 'place'. It has been suggested elsewhere (Twigger-Ross and Uzzell, 1996) that rather than there being a separate part of identity concerned with place, all aspects of identity will, to a greater or lesser extent, have place-related implications. Place identity is regarded here as an aspect of social identity – it might be referred to as place-related social identity – and is derived from processes of identification, cohesion and satisfaction.

In this paper we try to overcome, at least in part, three shortcomings in Proshansky's model of place identity (Proshansky, Fabian and Kaminoff, 1983). We try to suggest how and why places become salient for the self concept. Second, we attempt to operationalise the concept of 'place-related social identity' such that its component parts might be empirically investigated and verified. Third, we endeavour to demonstrate how identification processes guide action in relation to identity and, in turn, sustainability.

The research focussed on four key domains: place identification, social cohesion, residential satisfaction and environmental sustainability

Turner (1987) differentiates between two approaches to the construction of social identity. The identification model (Turner, 1987) suggests that cohesiveness is the result of identification with a social group which in turn leads to co-operative intra-group behaviour. Social identity comes from categorical identification of the self with the more 'salient' social categories of the group. It implies valued and emotional meanings associated with these categories. Identification serves to stress the perception of similarities in the in-group and differences from out-groups. It favours the adoption of group behaviour patterns by the person who identifies with the group. Turner does not take in account characteristics of place as a salient social category, but from an environmental perspective we can consider it. If place-related environmental behaviour serves to become a positive value for the group, then pro-environmental behaviours such as related to sustainability can be added to the model. Both approaches inform our analysis and provide alternative paths to explaining sustainable behaviour (Pol, 1998b). Place identification was measured by ascertaining from residents the name of their neighbourhood, its territorial extent, their functional use of the neighbourhood and its psycho-social properties. Two aspects of the latter in particular were important: the perceived distinctiveness of the neighbourhood compared with other places, and its

environmental past and place in the collective memory. Distinctiveness and continuity are essential elements in the conceptualisations of the principal formulations of place identity (Korpela, 1989; Lalli, 1992), and play a central role in Breakwell's Identity Process theory (1986).

The alternative route to social identity sees social identity emerging through the forces of social cohesion which serves to bring group members together. This is the 'traditional model'. A collective of people come together, spontaneously or deliberately, to form a group because they have shared needs which may be satisfied through collective action. Additional factors such as physical proximity (Festinger *et al*, 1950) serve to support this cohesion. A socially coherent group brought together through physical proximity, a shared lifestyle and shared needs which can be collectively satisfied ought to generate a shared social identity. According to this argument, strong cohesion is necessary in order to achieve collective identity. Consequently such a model would seem to have relevance in an urban neighbourhood situation. Furthermore, it is presumed that the presence of strong social cohesion and consequently a strong sense of identity will lead to environmentally altruistic behaviour. Therefore the route to sustainability is one of social cohesion leading to place-related social identity which in turn leads to pro-environmental behaviour. Such a model requires social cohesion processes: place identification in itself is insufficient to encourage environmental sustainable behaviours. For example, Pol (1998b) has argued that in a poor quality environment there is likely to be an increase in social cohesion as a collective device to pressure for environmental and welfare betterment. On the other hand, in a good quality environment identity may be achieved through place identification as residents strongly identify with and work to maintain their good quality residential environment. The link between social cohesion and place identity has been recognised by several authors (Gerson, Stueve and Fischer, 1977) who have concluded that social relationships in residential areas are important in the development of a sense of belonging to place.

The final aspect of urban life and affiliation which we wanted to include in our model was residential satisfaction. Lalli (1992) proposes that the greater the residential satisfaction the stronger the place identity. Lord and Rent (1987) argue that one could expect a satisfied resident to exhibit responsible behaviours with respect to the physical environment.

As a consequence of this critique, two theoretical models were put forward to account pro-environmental behaviour in the neighbourhood. The purpose of this research was to test empirically which of the two models most accurately explains the data. The 'identification model' proposes that 'identity' is created through group identification, with cohesion and satisfaction as subsidiary processes. In turn, identification facilitates the adoption of values and behaviours such as those that support environmental sustainability if these are functional to the group. It was hypothesised in the *CIS Network* that the physical characteristics of the city play a fundamental role facilitating the emergence of identity through identification. If this model is confirmed, strategies for promoting environmental sustainability should necessitate intervention in the urban environment as a potential facilitator of identity and sustainability.

The cohesion or 'traditional model', assumes that identity results from processes that generate social cohesion. Satisfaction and identification in this case are subsidiary to social cohesion and it is social cohesion that allows the development of values and behaviours such as those that support environmental sustainability. If this model is confirmed, strategies for promoting environmental sustainability should necessitate encouraging processes of social cohesion.

Methodology

This study was part of a programme of research carried out in different parts of the world in order to test which of the competing models best reflect the process by which individuals and communities engage in environmentally sustainable behaviours. In order to enhance comparability between studies a questionnaire was designed that was similar as culturally possible in both structure and content to those being used in the other *CIS Network* countries. It was, of course, necessary to make some contextually relevant changes, but these were kept to a minimum. The original questionnaire was designed and tested by the *Cities, Identity and Sustainability Network* research group leaders in Barcelona (Pol, Guardia, Valera *et al.*, 1996).

The questionnaire sought to operationalise the four areas of place identification, social cohesion, residential satisfaction and attitudes/behaviour in respect of environmental sustainability.

Place identification was measured by asking respondents to name their neighbourhood; draw on a map the boundaries of what they considered to be their neighbourhood; to identify the distinctive features of their neighbourhood, both in terms of environmental distinctiveness and a shared common history; to name places they frequent; to specify their sense of attachment and belonging to the neighbourhood; and to assess how they think outsiders perceive their neighbourhood. Finally, a behavioural measure recorded the places in the neighbourhood that residents use and visit. Place identification was measured by nine questions ranging from a sketching exercise to open-ended and rating scale questions.

Social cohesion was assessed through eight questions which sought to measure social participation in civic associations and in action to promote social and urban improvement (pre-coded items), perceived homogeneity of the neighbourhood population (scale), assessments of the extent and quality of their social relationships in the neighbourhood (pre-coded), and finally measures of leisure time spent in the neighbourhood over the week (scale).

Residents' level of satisfaction with their neighbourhood was measured by asking them a series of open ended and rating scale questions about the environmental problems of the area including air pollution, crime and safety and environmental quality as well as a general measure of overall residential satisfaction.

Attitudes and behaviours in respect of environmental sustainability were explored through a set of indicators (previously selected in a specific pre-test) among which the most discriminatory were the evaluation of water as a resource (e.g., exhaustible/inexhaustible, abundant/scarce, an individual/collective asset, recyclable/non-recyclable), knowledge of the life cycle of waste, ecological considerations in the purchase of products (e.g., brand name, design, energy consumption, reusable or not, packaging) and their sense of responsibility and involvement for the state and care of the common environment (e.g., is the cleaning and management of the neighbourhood your responsibility or the responsibility of the local authority?).

Two Neighbourhoods

A total of 180 residents in two neighbourhoods in Guildford - Onslow Village and Stoughton - were interviewed. These neighbourhoods were selected because they are geographically quite close to each other, but in many other respects they have different

qualities in terms of the population that live there, the quality of the environment, their residential history and the individual identity of each in the eyes of Guildford residents.

Stoughton is one of the inner suburbs of north Guildford, lying approximately 3 kilometres (2 miles) from the town centre. Although Stoughton has a long history, the present settlement and urban form date from the 1920's. It covers 172 ha and has the highest population density in the town of 48 persons/ha. The neighbourhood has a total population 8256 residents. It comprises mixed housing that has been built in a piecemeal fashion over the last 100 years. There is no obvious core to the community as a place, although there are one or two landmarks to which people both inside and outside the area to refer. Neither would there seem to be a social core in that there is no Residents' Association or community group which would provide a focus for identity and cohesiveness other than specific organisation such as the Parish Church. This looseness in terms of history, piecemeal development and what would seem, *a priori*, weak social cohesion and identification means that one would expect the area to have a weak identity with weak boundaries.

***** TABLE 1 HERE *****

Onslow Village lies approximately 1.5 kilometres (1 mile) to the west of centre of Guildford. It dates from the same period as Stoughton but its history and development have been very different. In 1921, a limited company was formed to build and manage the village and remained in operation until the 1980s when it sold the leases on the houses to the inhabitants. Onslow Village covers 348 ha at a density of 16/ha. It thus has only a third of the density of Stoughton. It currently has a population of about 5670 inhabitants. The planning of Onslow Village has its origin in the Garden City movement at the turn of the century and was originally developed under the name of Garden Village. When it was established it was stated that the village should have a 'residential character only' and developed to a maximum of 5 houses/acre. To this day there are only a few shops, one pub, two schools and a church. The social composition is in many ways similar to that of Stoughton with similar education levels and social class but the average income is considerably higher (Table 1). There is a strong Residents' Association which attempts to exact an influence on the character and development of the area and aims to be the voice of the neighbourhood.

Place Identification

The geographical limits defined by the residents who identify with a specific area are an important element when differentiating themselves from others who do not live there. The clearer the physical limits of the neighbourhood the stronger the identification. Typically some geographical phenomena such as motorways or railway lines often serve to set such limits. There are clear differences between both neighbourhoods in terms of the perceived geographical limits.

There was complete consensus amongst the residents of Onslow Village as to the name of the neighbourhood. There was also a much higher degree of consensus with residents having fairly clear ideas concerning the boundaries and the size of the Onslow Village neighbourhood as illustrated by their cognitive maps (Figure 1). Both the physical terrain (there is a very steep hill to the south which has limited residential development) and the social, political and planning history of the area has served to differentiate the area and its inhabitants from surrounding neighbourhoods. In the case of Onslow Village the limits drawn by the people are very similar to the local municipality's political boundaries. Both the inhabitants and outsiders having a clear idea of where Onslow Village begins and ends and the nature of its defining physical characteristics. Guildford Cathedral, which is situated in the north-east corner of the

neighbourhood, is regarded as the most environmentally distinctive feature, but residents also commented on the 'green areas', the 'Village hall', the architecture of the houses, and the hedges which dominate the residential roads. It is a characteristic urban design feature of Onslow Village that many of the houses are surrounded by high beech hedges (2 - 3 metres) with a grass border between the road and the pavement. In some cases the pavement is on a grass bank a metre above the road level.

***** FIGURE 1 HERE *****

In Stoughton, there was less unanimity with two-thirds naming the area Stoughton, while another third clearly identified with a smaller areas such as Rydes Hill or 'the Barracks'. The lower degree of consensus with respect to place name was evident in the sketch maps that the residents of Stoughton were asked to draw delimiting the boundary of their neighbourhood. In Stoughton clear cut physical, social, planning or political boundaries as exist in Onslow Village do not exist. It can be seen from the reproduced section of the aggregate maps that while there is some overlap between residents' in terms of the perceived extent and boundaries (Figure 2), there is also considerable variation. Stoughton residents were less able to define fewer distinctive environmental properties of their neighbourhood; Stoughton Emmanuel Church was the principal feature occupying a crossroad location on the main roads passing through the neighbourhood. The old military barracks was the other landmark.

***** FIGURE 2 HERE *****

There was a significant difference between the residents of the two communities in their estimation of outsiders' image of their neighbourhood; 70% of Onslow Village residents thought outsiders had a good image of the area, compared with only 50% in Stoughton ($Z=-3.28$, $p<.0001$). This analysis supports the claim that the socio-physical elements of the environment can reinforce the relationship between people and their physical space and enhance place identification. The categorical identification with a neighbourhood is also based on the distinctive characteristics of the place in terms of architecture and its urban design qualities; this too can distinguish it from other neighbourhoods (Lalli. 1987; Valera. 1993) and also support and reinforce the distinctiveness in the categorisation of self (Turner, 1987). The combination of landscape features - not necessarily all co-existing in the same place - has served to give the area a distinctive 'signature' and acts to differentiate the neighbourhood from others. At the same time, these features support identification with the neighbourhood.

In addition to distinctiveness, it was suggested that temporal continuity in the form of its environmental past and place in the collective memory is also important in place identification. Onslow Village was created for the veterans of the First World War in the 1920's. This origin is known and referred to by a significant number of residents in the area. Another salient historical event in the residents' consciousness is the closing down of Onslow Village Ltd in the 1980's. This was the private company which legally owned the leases on the property and had a strong controlling influence on the way the neighbourhood looked and developed during its previous eighty year history. The closing down of the company represented on the one hand an end to an historical association and continuity, and on the other an opportunity for residents to purchase the leases of their property at a low price, and claim ownership and control. This created some ill-feeling among some house owners who had previously managed to buy their houses previously at an expensive price. Therefore Onslow Village Ltd., through its creation and cessation, represents an important feature on both the historical landscape and in the collective memory of residents which supports the process of identification.

There is no such clear origin of Stoughton. This is corroborated through the lack of answers by interviewees to this question, although some Stoughton respondents did mention the creation of the Barracks and to a lesser extent to its closure as an important historical event in the life of the neighbourhood. The construction of the Barracks for the 2nd Queen's Regiment in 1875-76 brought development to the neighbourhood with the arrival of people, shops and services. The closure of the Barracks in 1983 led to its conversion into a residential area and the arrival of new influx of inhabitants. Although these events contribute a certain degree of identification and represent an awareness of at least some kind of socio-historical continuity, the majority of residents failed to identify with this as a significant historical event.

Both neighbourhoods have symbolic places which enhance residents' identification with the neighbourhood. In some cases such places are not only symbolic landmarks but also have shared social value. Such places provide a common point of reference for the inhabitants, a reference that despite other inequalities may enable them to share a place-related identification by virtue of their in-group membership and which serves to distinguish them from out-groups.

Social Cohesion

The social environment is no less a significant factor in conferring a sense of uniqueness to the neighbourhood. There is a strong feeling in Onslow Village, despite being part of suburban Guildford, of living in a 'community' or 'village' atmosphere. This is supported by the perception of the quietness and the peacefulness of the surroundings. The social environment is perceived also as friendly in Stoughton, but not really quiet and peaceful. As a consequence, it is not surprising to find that people from Onslow Village think that outsiders have a better image of the neighbourhood than people from Stoughton. This results in higher levels of satisfaction and identification with the neighbourhood. Responses about the opinion of others, implicitly reveals residents' own opinion of the neighbourhood.

The daily activities and social practices that people develop in the neighbourhood acquire importance through the concept of self-efficacy (Twigger and Uzzell, 1996). Both neighbourhoods include places such as shops, schools and green areas which confer a sense of manageability. Manageability refers to the extent to which the environment facilitates people's daily life. Winkel argues that the central issue in neighbourhood change is the control of change, which is environmental manageability: "A manageable environment is one in which the residents of an area are able to organise information from their immediate socio-physical environment in such a way that they can develop a predictive system that allows them to judge whether a setting supports their goals and purposes." (Winkel, 1981, p.493). Believing that they can successfully carry out their daily activities in the neighbourhood confers a sense of self-efficacy upon residents and as a consequence can facilitate or does not hinder them to achieve a positive identification with the neighbourhood. Places acquire psychological qualities as a result of their use through the action-transformation of the process of appropriation (Pol, 1994/1996). People from Onslow and Stoughton appropriate places through daily use and transform the space on specific occasions (especially events such as school parties or street parties on the occasion of national celebrations). This serves to enhance residents' feelings of 'owning' the neighbourhood. Whereas physical appearance and historical continuity are critical contributory factors to a sense of place identification in Onslow Village, it is the quality of manageability that assumes more significance in Stoughton.

Social cohesion in Onslow Village and Stoughton does not differ in a significant way. It was measured through involvement in actions, the perception of similarities-

differences between neighbours, social relations, and time spent in the neighbourhood. There is no difference in the proportion of residents in each neighbourhood who are involved in actions to improve their neighbourhood (Onslow, 23%; Stoughton, 19%). There are differences though in the kind of activities which people undertake. Residents in Onslow Village are more typically involved in social issues such as the local 'Neighbourhood Watch' scheme (crime prevention) or helping at school parties. The residents' association in this neighbourhood organises some of these activities. These results are not surprising since the existence of a high quality environment in Onslow Village may encourage residents to give their time more to social activities rather than fighting for local environmental improvements. Equally, this is not an area that has typically come under environmental threat. In contradistinction, the problems reported with traffic (speed, noise, parking and traffic jams) in Stoughton are more likely to lead residents to focus their energies on environmental issues. There is a significant difference between the residents of both neighbourhoods in terms of how they would deal with the problems: 27% of Stoughton residents say they would go to the local authority for assistance, compared with 13.5% of residents in Stoughton. On the other hand, Onslow Village residents are much more likely to use their residents' association (30.6%) compared with only 6.3% of Stoughton residents who would use any kind of community organisation ($\chi^2 = 17.32, P < .001$). Stoughton residents were also more likely to try and solve problems through individual strategies (9.5%) than Onslow Village residents (4.5%).

The perception of similarities and differences between neighbours plays an important role in the formation of cohesion. In this sense people from Onslow Village and Stoughton have the same perception that they share certain similarities with their neighbours. Moreover, the socio-demographic profiles in both neighbourhoods are similar. There is a tendency to acknowledge the existence of certain closeness with residents. From these results we can claim that there is some homogeneity among the neighbours of Onslow Village and Stoughton. It would be exaggerated, however, to say that a strong social network exists among the residents of either neighbourhood.

Social relations largely revolve around the family and friends in both neighbourhoods. Nevertheless it is difficult to find out information about these relationships within the neighbourhood because it was not specified whether these family and friends are also living in the neighbourhood. Despite this there are some social bonds which are slightly stronger in Stoughton. Emmanuel Church, the Church of England Parish Church in Stoughton, plays an important role as an element of identification with the neighbourhood and a source of cohesion for residents. It is cited as one of the places in the neighbourhood that people like most and one of the most visited places. In an area of typically suburban housing development, it does stand out as a significant architectural feature, accentuated by its location at a crossroads on top of a hill; as a consequence some respondents said that they would like a poster of a view of the church. The church also serves community functions as a home for a kindergarten and various neighbourhood social activities.

If it seems that relationships with local people are important as an element of cohesion in Onslow Village and Stoughton, this is not reflected in the time spent in the neighbourhood. There is no difference between the two communities in terms of the time they spend in the neighbourhoods either during the week or weekend. The fact that respondents work (typically outside the neighbourhood) during the week and go out at weekends means that cohesiveness is not as strong as it could be if they spent more time in the neighbourhood. In spite of this, there are some activities that involve either informal daily contacts among residents in local shops, schools (when delivering and collecting children) or in green areas, or more formal social relationships in All Saints

Church or the Village Hall in Onslow Village, or Emmanuel Church in Stoughton which serve as elements of cohesiveness with other local people.

There are levels of cohesiveness as a consequence of living in both neighbourhoods. These are supported by socio-demographic similarities, proximity and the variety of services and social provision. There are, however, no 'natural bonds' as one might find in a mining community where the whole life of the community directly and indirectly focuses on the one major source of employment, economic and social support. Although some of the population were born in Guildford, the majority come from other areas of Surrey or of the UK (Table 1). Stoughton, however, has a significantly greater proportion of the population who were born in Guildford (Table 1) compared with Onslow Village ($\chi^2 = 4.33$, $p < .05$, although this does not necessarily mean that they were born in this neighbourhood. Residents may have chosen to live in the neighbourhood partly because they liked it but also because it is cheaper (in Stoughton), for convenience (in Onslow Village) or close to where they work.

Residential Satisfaction

The clearest differences between Onslow Village and Stoughton are in terms of residential satisfaction. Residents of Onslow Village are more satisfied with their neighbourhood. This is supported by the perception of the environment as being visually environmentally attractive, less polluted and quiet, by the secure, quiet, restful and clean streets and by the minor presence of environmental problems. For example, there is a significant difference between the residents of Onslow Village and Stoughton in their perception of local environmental problems, with those in Onslow Village being significantly less concerned with traffic, parking problems and the maintenance of public spaces ($\chi^2 = 32.4$, $p < .001$). This results in the residents of Onslow Village being more reluctant to leave the neighbourhood if they were presented with the opportunity. The perception of living in a 'Village' but with all the facilities of a large town (close to Guildford) makes Onslow Village a highly desirable place to live. Although there is some degree of satisfaction in Stoughton, there are significant environmental problems with 46% of residents complaining about traffic and 36% complaining about scarce parking facilities, compared with 18% and 5% respectively in Onslow Village. This could be one of the reasons why some residents of Stoughton would move out to the countryside if they had the opportunity.

There was also a significant difference between the residents' in respect of their perception of environmental quality, with the streets in Stoughton being seen as noisier ($t = -10.4$, $p < 0.000$), more dangerous ($t = 3.61$, $p < 0.000$), oppressive ($t = 6.68$, $p < 0.000$), dirtier ($t = -4.76$, $p < 0.000$) than in Onslow Village. When residents in both communities were asked 'To what degree are you satisfied with the neighbourhood?', the residents in Onslow Village expressed significantly higher levels of satisfaction ($t = 5.1$, $P < 0.000$).

It would seem that an environment which fits the aspirations of its inhabitants produces high levels of satisfaction but not necessarily higher levels of cohesion with neighbours. There are no clear links between the differences in residential satisfaction and the degree of identification. There are some indicators of identification which could be linked to satisfaction. For example, in saying that others have a positive image of their neighbourhood, they are also expressing their own identification. As a consequence people of Onslow Village, with higher levels of satisfaction, will think that others have a good image of the neighbourhood.

Attitudes and Behaviours Towards Environmental Sustainability

The values and attitudes of residents in both areas express some concern for the environment and sustainability. There were no differences in terms of sustainable attitudes, values and behaviours between the residents of Onslow Village and Stoughton. Water is considered an exhaustible, collective and recycled resource. Residents overestimate the degree to which waste is separated and recycled. Indeed, 27% of residents believe that their waste is separated and recycled. A further 35% believe that it is buried in landfill sites. The latter is the more accurate. In fact only about 12% of waste is currently recycled. When asked about green consumerism, price was the most critical factor governing their purchases ($\bar{x} = 4.7$ (Onslow Village), $\bar{x} = 4.8$ (Stoughton) on a 6 point scale), Low energy consumption, the use of recycled materials and being reusable were seen as less important (means between 3 and 4). There is a general tendency to believe that the problems have to be solved working by groups. Although there is evidence that residents hold pro-environmental attitudes, their behaviour does not seem to be so sustainable. The price of consumer products is considered the most important element when shopping, and the decision to purchase a product is then as likely to be determined by the design or brand as much as whether it is low energy consumption or comprises recycled materials in its manufacture.

It is sometimes claimed that people show pro-environmental intentions only as far as these do not entail personal sacrifice. This seems to be the case here. Nevertheless, there appears to be the potential for anchoring sustainable values and behaviours if the necessary infrastructures are provided to reduce personal efforts and adequate environmental education programmes implemented.

Testing the Structural Equation Models

In order to test the two alternative models we used a structural equation model (Lee, Poon and Bentler, 1992; Bentler, 1995). This is a set of statistical procedures that permits the researcher to test a theoretically derived model of the relationship between observed variables (e.g., questionnaire data) and unobserved latent variables (e.g., psychological constructs such as identity, anxiety, intelligence, personality). Structural equation models are different from other forms of statistical analyses in that the researchers have to make explicit the theory or model of the relationship between the observed and the latent variables, and the relationships expected between the latent variables themselves. In other words, this is a procedure for confronting the theoretical model with hard data to see how well the model stands up to reality.

On the basis of the co-variances between the observed and latent variables a diagram is drawn expressing the strength of the relationships between the observed and latent variables. Estimates of internal consistency as well as an overall chi-square value denote how well the data fits the model.

Our theoretical model has five latent variables - of these, four are first order - identification, social cohesion, residential satisfaction and sustainability. The second order latent variable is place-related social identity which represents the correlations between the first order latent variables. One should stress, of course, that these are not the only constructs which make up the identity concept. Both the addition of further indicator variables and an improved specification of the indicator variables already in the model could result in higher correlations and a better fit. In structural equation modelling one is seeking chi-squared values which are not significant as this the first step on the way to confirming the hypothetical relationships between the latent variables. A non-significant chi-square implies that the hypothetical model of the relationships between the latent variables is not significantly different from the estimation in the program. The

chi-square in itself, however, is insufficient as a guide to the model's adequacy as chi-square is sensitive to sample size (Klem, 2000), and one should also use fit indices. These are also provided. The indicator variables used to construct the four first-order latent variables are listed in Table 2.

***** TABLE 2 HERE *****

Model for Onslow Village

The chi-square value for the model in Onslow village is 72.81 (Figure 3) giving a significance level of $p=.065$ ($df=56$). Along with the internal consistency measures (BBNFI=0.779, BBNNFI=0.907, CFI= 0.933) this indicates a relatively good fit demonstrating that the hypothetical model does not show a significant difference with the estimate of the program. As can be seen the strongest direct effect is from identification (0.85). This indicates that place identification is an important contributor to the place-related social identity model as measured here. Residential satisfaction (0.41) also influences identity. What is surprising though is that the relationship between place-related social identity and social cohesion is not just weak but negative (-0.33). One explanation of this is that the values tapped into were highly individualistic in Onslow Village resulting in an inward-looking individualism rather than outward community perspective. This conclusion is reinforced by the findings from the questionnaire survey, but also by evidence from the physical environment itself. The relationship between identity and environmental sustainability is in a negative, albeit weakly, direction.

***** FIGURE 3 HERE *****

Model for Stoughton

The chi-square value for the model in Stoughton is 69.94 (Figure 4) giving a significance level of $p=.099$ (BBNFI=0.742, BBNNFI=0.899, CFI= 0.928). This is a better fit than Onslow Village. In Stoughton the relationships between the second order factors are weaker but they are all in a positive direction. Social cohesion (0.30) and place identification (0.23) contribute to place-related social identity equally. Residential satisfaction also contributes to place-related social identity although the relationship is weaker (0.16). There is also a strong positive relationship between place-related social identity and environmental sustainability (0.81). Therefore, within Stoughton social cohesion and place identification both make a significant contribution to place-related social identity, which would seem in turn to effect environmental sustainability attitudes and behaviour.

***** FIGURE 4 HERE *****

Discussion

Research on environmental attitudes and behaviour has tended to focus on comparing one group's perspective or priorities with another, or trying to ascertain the mechanisms by which such attitudes and behaviour might be influenced or changed in a particular direction. Groups may be classified and differentiated according to the particular roles they occupy in relation to an environmental issue such as architecture (Groat, 1994; Hubbard, 1994), risk perception (Groat, 1994; Hubbard, 1994; Mertz, Slovic, & Purchase, 1998; Slovic, 1987) or recreation (Nord, Lullof and Bridger, 1998). The properties of the environment are of little interest as the focus of attention is on the

effect that the social role has on attitudes and behaviour. One purpose behind this type of research is to find out how different social categories respond when faced with a particular problems. Social phenomenon are interpreted as individual traits even though, as Moscovici says “these traits may be no more than a reflection at the individual level of a phenomenon which is inherent in a network of social relations or in a specific culture.” (Moscovici. 1972, p51). Such research, while often useful, is nevertheless largely atheoretical and descriptive. Of more theoretical substance, Geller *et al* (1982) have, within a behaviourist and individualistic framework, reviewed research which attempts to identify the positive and negative reinforcements which might be employed to bring about conservation behaviour.

According to Mosler (1993) ‘environmental problems are not actually problems between people and the environment but rather problems among members of a social system’. As with other environmental problems, environmental problems are neither invariably caused nor solved by single individuals. People depend on the co-operation of others. The extent to which people believe others are willing to help solve environmental problems is an important influence on their own willingness to change. In other words, collective social processes are a key ingredient to understanding environmental attitudes and behavioural change. In recent years there has been a considerable interest in the contribution of social dilemma theory to environmental decision-making (Vlek, Hendrickx and Steg, 1992; Gifford, 1997; Van Lange, Van Vugt, Meertens and Ruiters, 1998). One of the essential characteristics of social dilemma theory is that people perceive a discrepancy between the personal benefits and the collective costs of their behaviour.

It would seem appropriate that the models we use to investigate environmental attitudes and behaviour should not only be theoretically ‘strong’ but also have a resonance with the social and political processes which we know operate in the real world. Identity and social cohesion processes have been discussed at length in this paper because they are believed to be of significance in explaining individual and group environmental attitudes and their potential contribution to environmental action.

In Stoughton, there is a strong positive relationship between place-related social identity and environmental sustainability. Therefore, within this community social cohesion and place identification both make a significant contribution to identity which in turn affects environmental sustainability attitudes and behaviour. On the other hand, in Onslow Village, the relationship between place-related social identity and sustainability is much weaker and in a negative direction. In this particular neighbourhood, although place identification contributes substantially to identity it does not in turn lead to pro-environmental sustainability attitudes. Even though the residents have a greater sense of identification with the neighbourhood they have less strong environmental attitudes and are less supportive of sustainable environmental behaviours than the residents of Stoughton. Therefore, although place identification and residential satisfaction are an important component of place-related social identity in Onslow Village, this does not necessarily generate sustainable and pro-environmental behaviours. This research therefore demonstrates that sustainability cannot be considered in isolation from either its social or its environmental/place related context.

While the investigation of social forces leading to environmentally sustainable behaviours is important, the *Cities, Identity and Sustainability Network* research project has sought to go beyond this and demonstrate that community-based social processes are extremely complicated. While place-related social identity may be important, such factors have to be considered along with other social forces such as social cohesion and residential satisfaction. It is the *combination* of these factors - how these processes

interact and work together - that leads to specific environmental attitudinal and behavioural outcomes.

The second crucial aspect about the studies undertaken in the *Network* generally and Guildford in particular is that they all take the position that one cannot examine community-based social processes divorced from their environmental context. The environment in this case is not simply a backdrop or a stage on which social action takes place (Moser and Uzzell, 2002). Rather it has to be seen as an essential component of the social process. It becomes very difficult to interpret and understand the social processes if the particularities of the environmental setting itself are ignored.

The research described in this paper is an attempt to explore the relationships between place identification, social cohesion, and residential satisfaction and their effect on attitudes and behaviour towards environmental sustainability. The results suggest that place-related social identity as expressed through both collective social relations and individual and collective relationships with place may form an important dimension of environmental attitudes. These have significance for the planning of environmentally sustainable policies. But as one would hypothesise, the role of place identification as well as social cohesion may vary depending on the nature of the population as well as the nature of the environment.

Any attempt to create a sustainable environmental system must in itself be sustainable. While one can address the problem of sustainability at an individual level, it would seem that any long-term environmental behaviour strategy has to be located in the relationships which exist between people in the community, and the relationship between those people - individually and collectively - and their environment. If we are to argue that change can only come about through social and collective action that is grounded, at least in part, in identity processes and people's identification with place, then we need to devise social and political strategies that recognise these processes.

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Table 1: Socio-Economic Composition of Stoughton and Onslow Village

	Stoughton	Onslow Village
Sex		
Male	36 (40%)	41 (46%)
Female	54 (60%)	49 (54%)
<i>Total</i>	<i>90 (100%)</i>	<i>90 (100%)</i>
Age		
<20 years	0	3 (4%)
21 -33 years	17 (18%)	16 (17%)
34 - 59 years	61 (62%)	50 (51%)
+ 60 years	7 (8%)	13 (14%)
Not known	5 (6%)	8 (9%)
<i>Total</i>	<i>90 (100%)</i>	<i>90 (100%)</i>
Place of Birth		
Guildford	32 (35%)	19 (21%)
Rest of Surrey	15 (17%)	23 (25%)
Rest of UK	38 (42%)	40 (44%)
Overseas	5 (5%)	8 (9%)
<i>Total</i>	<i>90 (100%)</i>	<i>90 (100%)</i>
Qualifications		
None	6 (6%)	11 (12%)
O levels/GCSE	19 (21%)	14 (16%)
A levels	9 (10%)	6 (7%)
Professional Qualification	26 (32%)	19 (21%)
University Degree	29 (29%)	34 (38%)
Other	1 (1%)	6 (7%)
<i>Total</i>	<i>90 (100%)</i>	<i>90 (100%)</i>
Employment		
Full-time employed	43 (48%)	37 (41%)
Part-time employed	25 (28%)	25 (28%)
Unemployed	3 (3%)	4 (4%)
Other	19 (21%)	20 (22%)
<i>Total</i>	<i>90 (100%)</i>	<i>90 (100%)</i>
Occupation		
Professional	28 (31%)	32 (35%)
Managerial	31 (34%)	32 (35%)
Skilled non-manual	14 (15%)	13 (14%)
Skilled manual	11 (12%)	5 (5%)
Semi-skilled	5 (6%)	7 (8%)
Other	1 (1%)	89 (1%)
<i>Total</i>	<i>90 (100%)</i>	<i>90 (100%)</i>
Incomes (at 1997)		
<£10,000	5 (6%)	2 (2%)
£10,001 - £20,000	23 (26%)	12 (13%)
£20,001 - £40,000	44 (49%)	31 (34%)
+ £40,001	8 (9%)	17 (19%)
Not known	10 (11%)	28 (31%)
<i>Total</i>	<i>90 (100%)</i>	<i>90 (100%)</i>

Table 2: Indicators for each variable

Variables	Indicators
Identification: <i>Representative sites</i>	- 1 st preference (Item A) - 2 nd preference (Item B)
Satisfaction	- Evaluation of neighbourhood streets: • Very busy - Very quiet (Item C) • Overwhelming / oppressive - restful (Item D) • Dirty - Clean (Item E) - Evaluation of neighbourhood air / environment: • Unclean - Clean (Item F) • Noisy - Quiet (Item G)
Sustainability	- <i>When you go shopping to what degree do you buy products according to the:</i> - Low energy consumption (Item H) - Whether they can be recycled (Item I) - Whether they can be reused (Item J)
Cohesion	- Kind or relationship with neighbours: minimum / avoid - very close /mutual support (Item K) - Time spent in the neighbourhood on working days (Item L) - Perceived homogeneity (Item M)

Figure 1: Cognitive Map of Onslow Village

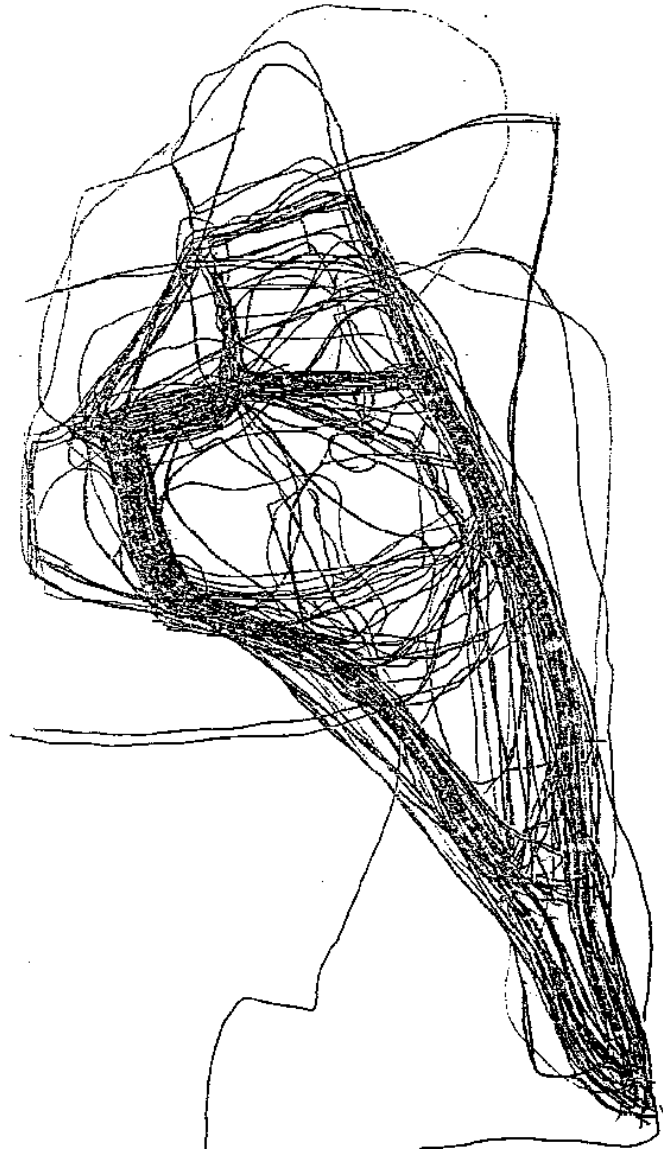


Figure 2: Cognitive Map of Stoughton

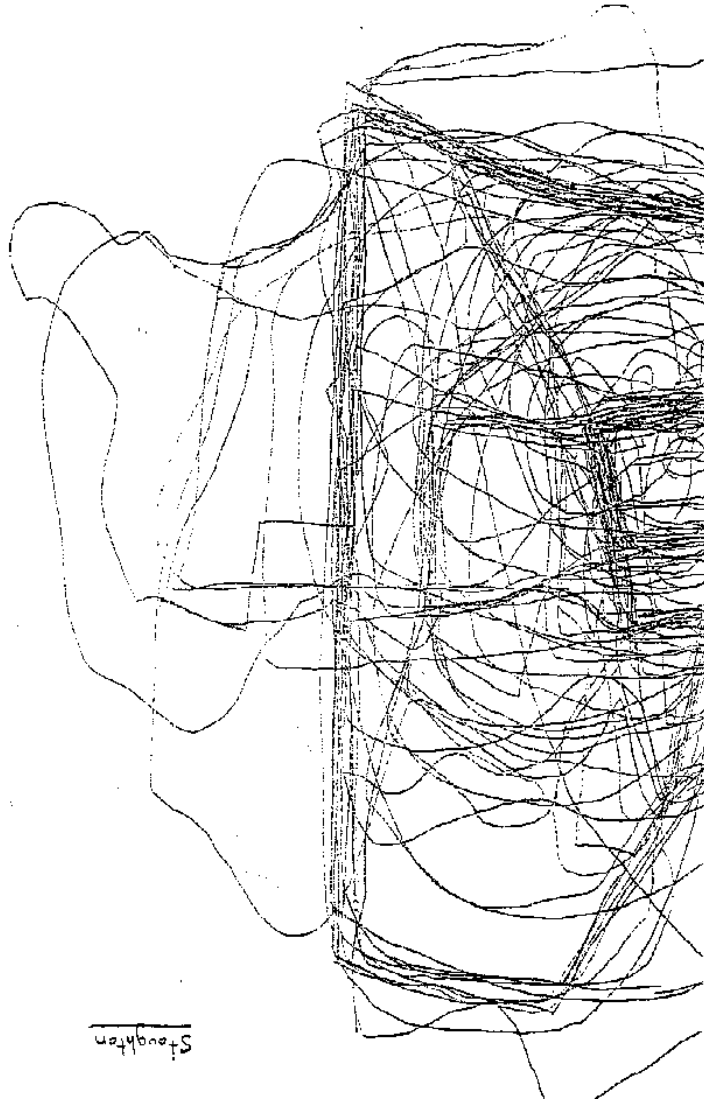


Figure 3: Structural Equation Model: Onslow Village

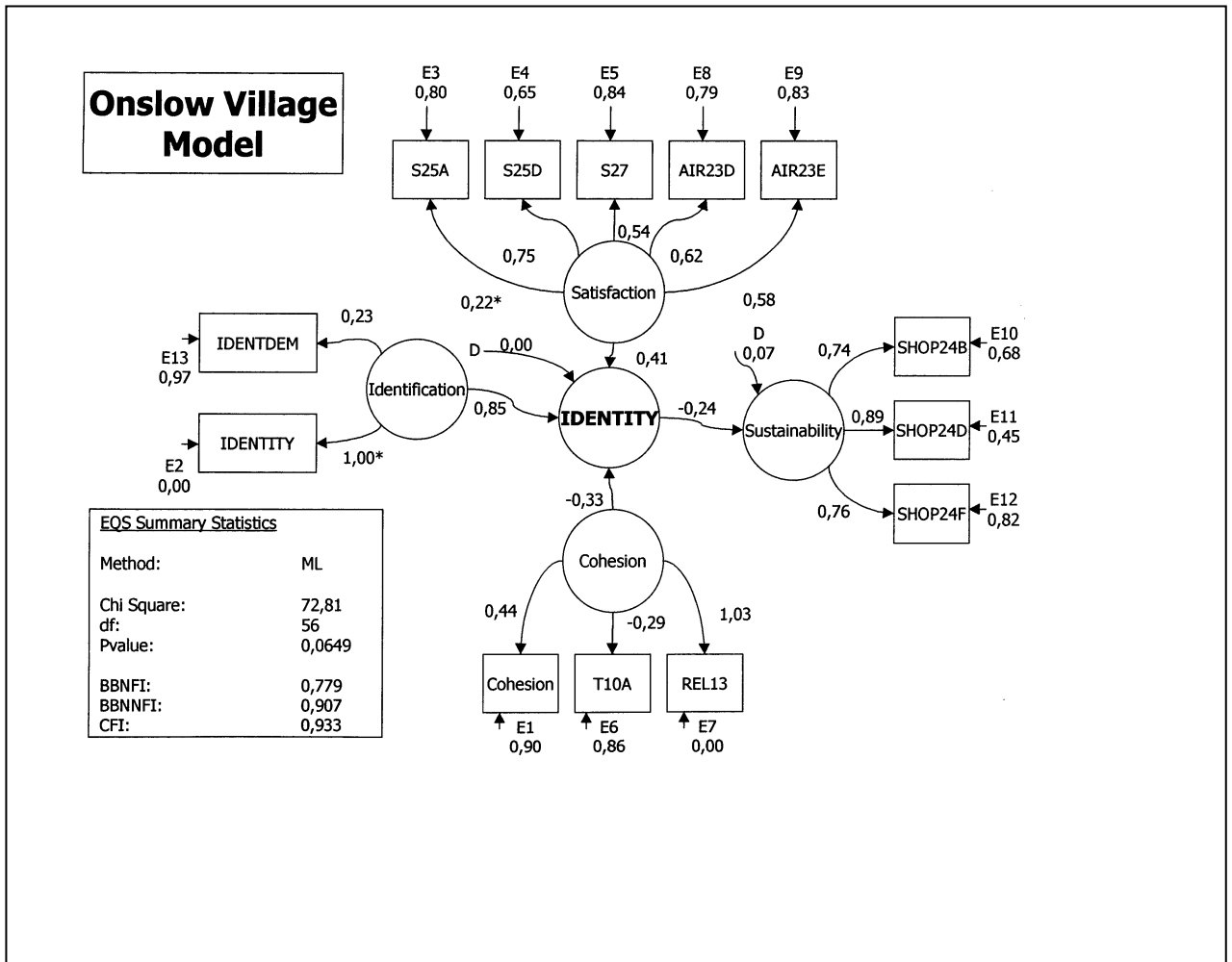


Figure 4: Structural Equation Model - Stoughton

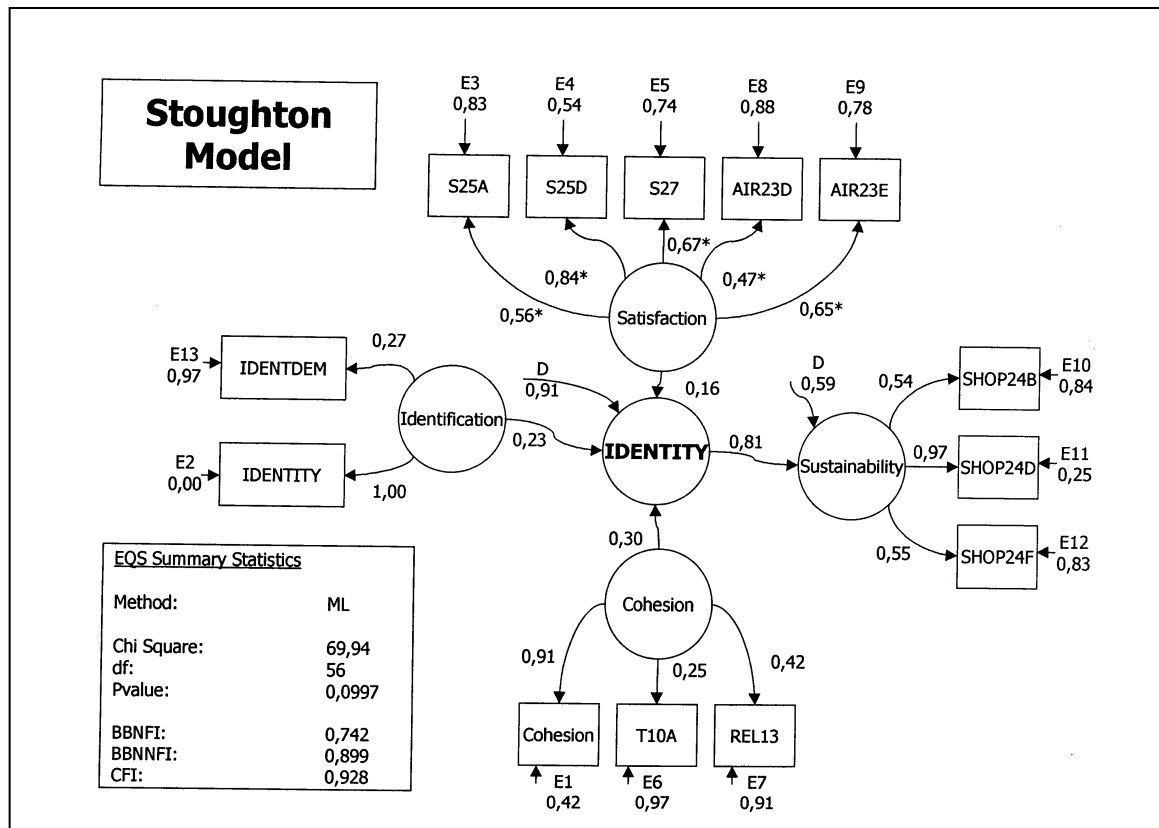




Figure 5: Stoughton (with Emanuel Church and Stoughton Barracks)



Figure 6: Stoughton (residential road)



Figure 7: Onslow Village



Figure 8: Onslow Village