An examination of people's preferences for buildings and streetscapes in New Zealand

The appearance of the built environment is an important matter for most people, as it can affect their physical, financial and psychological wellbeing. Many studies have been conducted to understand people's visual preferences for buildings and streetscapes and the majority have used photographic or video representations to stimulate responses. Few have asked people for their preferences as they walk along the street. This research addresses that gap in knowledge, utilising a mixed methods research methodology. People were invited to indicate their preferences while walking along three case study streets, two in Auckland and one in Wellington. The survey responses were supplemented by two focus group discussions. The research found that people prefer streetscapes where differences in height and architectural composition vary within a narrow band of difference along the length of the street. At the scale of the individual building façade, people were found to prefer traditional cladding materials such as brick and those that could be painted or refinished. Compositionally, people preferred buildings with discrete window openings, a finding that was strongly supported by a dislike for horizontally banded façade treatments. The findings invite questions around contemporary architectural design practices and how these can be directed toward creating a better liked built environment.

Keywords: streetscape design; visual preference studies; design review

Introduction

The visual qualities of the built environment continue to be of interest to local governments, design professionals and the public. Researchers have been able to link people's perceptions of, and preferences for, urban spaces with the ways they choose to use them. Perhaps unsurprisingly, people prefer to walk along the streets they find attractive more than those they find unappealing (Brown et al. 2007; Bentley, Jolley, and Kavanagh 2010; Madanipour 1996). Streetscape features such as sense of enclosure, transparency, human scale, visual complexity and imageability have all been

found to increase walking (Pikora et al. 2003; Hansen 2014). Even cyclists take account of aesthetic experiences when they decide which route to follow (Stefansdottir 2014). Not only do visual qualities affect where people walk and cycle but also the time they spend doing so. The public health and wellbeing benefits of both activities are widely understood, which leads urban designers and policymakers to look for ways to make urban areas more attractive to the public (Rundle 2016).

Mehta (2013) found that the design quality of building facades had influence on where people chose to linger and socialise. After mapping the activities people engaged in along the length of the street, Mehta then went back to rate building attractiveness and visual interest on a predetermined scale. By comparing the two datasets, he found that people spent more time, and engaged in more social activities, in the streets that were rated as more attractive. When he returned to talk to people about their motivations, he learned that people recognised some streets as being more attractive than others and that they took this into account when deciding where to walk. Another consequence for well-travelled streets is the tendency for these to be where retail business activities take place. In a virtuous cycle, as people are attracted to goods and services along a route, new business ventures also emerge (Carmona 2019). This cycle begins with people walking along a street and, as Mehta discovered, one of the factors that influences walkers is the visual quality of the setting.

At a broader scale, the built environment is increasingly used to market cities to potential investors, high-calibre workers and to tourists. Jane Jacobs (1961) reminded us that a city's visual character is largely determined by the visual character of its streets. It is the streets and buildings that line their sides that provide people with the most enduring memories of a city and when their streets are attractive then the city is

also attractive. Moreover, attractive buildings and streets are worth more, all other things being equal (Tiesdell, Oc, and Heath 1996; Nase, Berry, and Adair 2016, 2013).

Given the public health, economic and marketing values that can be attributed to attractive streets, many cities have introduced design guidance and expert design review into their development regulation processes. In New Zealand the list includes Auckland and Wellington, the two largest cities (Wellington City Council 2012; Auckland Council 2012). Visual preference studies can be undertaken to identify visual characteristics of buildings and streetscapes that people find attractive, helping ensure that design review targets appropriate outcomes. However, there is a scarcity of current empirical evidence on how streets are experienced by the pedestrians who use them, and the majority of such studies have been conducted using still or moving images to respondents (Kasraian et al. 2021; Ernawati 2021). For example, Nasar and Kang (1999) and later Heath, Smith, and Lim (2000) presented photographic images to different groups of students to gauge their preferences for architectural design styles and synthesised urban skylines respectively. In 2013, Ewing and Clemente created a library of 32 video clips that had been recorded to simulate pedestrians walking down streets in different cities across the United States. The clips were then used to elicit expert opinions on their key urban design qualities.

While some studies have found that responses to photographic and video representations align with people's in-situ experience, the evidence is certainly not conclusive (Thompson 2018; Mirza and Byrd 2020). In light of this and citing the complexity of the people-environment interaction, Cold (2008) and Mirza and Byrd (2020) have each expressed a need for studies of real life experiences. The current research addresses this concern by inviting people to give their preferences for individual buildings and overall streetscapes as they walked along three streets in New

Zealand. While local culture and environmental conditions have undoubtedly influenced the shape and content of New Zealand streets, the findings identify design characteristics and streetscape relationships that are also relevant to other urban contexts.

Environmental aesthetics

Before engaging people in research to understand how they evaluate urban streetscapes, it can be useful to consider how visual perceptions are formed. The scientific field of environmental aesthetics brings together experimental psychology and behavioural science to rationalise how people perceive and process environmental stimuli in the course of making judgements about the world around them (Cuthbert 2006). Evaluative responses are complex in nature, they are often multi-sensory and are gained from moving through a place (Taylor 1994). The emphasis in this research is on the visual evaluations the participants made as they moved along the street, immersed in its three-dimensional space.

Visual perception and judgement develops through several mental stages. Cognition registers visual stimuli in relation to schema, or mental images, that a person has learned or developed through experience. This enables a door to be recognised as an opening one can pass through. The stimuli are then further processed through lenses of associational meanings and personal value structures; a stage that is referred to as affective appraisal. While visual perception and aesthetic response draws on an individual's sociocultural makeup and value systems, many meanings and values are also held more widely across social groupings. Accordingly, affective responses to a building or streetscape will almost certainly be influenced, at least in part, by shared meanings and values (Appleyard 1979; Rapoport 1977). This provides the platform on which aesthetic preferences can be studied.

Lang (1988, 2003) discussed cognitive and affective appraisal processes in relation to formal and symbolic aesthetic factors. Formal factors can be observed in the structural patterns of built environments. Of these, the two most important in terms of affecting aesthetic preference are *visual interest* and *order.* The former can be piqued through higher levels of ambiguity and complexity (Rapoport and Kantor 1967). As stimuli increase in variety, the sense of pleasure that can be derived from this experience also increases, but only up to a point. Once a saturation level is reached, higher levels of stimulation only decrease pleasure and can even lead to negative responses (Berlyne 1974; Nasar 1994). As an example, an unpleasant visual cacophony, such as an overabundance of competing, uncontrolled advertising signage, would be experienced as sensory overload.

Variety can also be described as visual richness, complexity and diversity (Nasar 1994). Complexity arises where a scene has many independent elements with large differences between them. These differences make it difficult to recognise patterns or rhythms, something the human mind is programmed to seek (Smith 2003; Rapoport and Kantor 1967). Along a street, complexity can arise through the uncoordinated development of individual sites, particularly where this has happened over a long time. This can create complexity in street facades that stems from differences in architectural style, building heights / frontage widths or fenestration patterns. Whether the study focus is an entire streetscape or the façade design of an individual building, visual preference studies have confirmed that people prefer moderate levels of complexity (Reference omitted; Stamps 1999; Cooper and Oskrochi 2008).

It also seems that people respond positively to environments in which they can see patterns, rhythms, and harmonic relationships. In this respect, aesthetic experience appears to rise above any differences between people that might relate to social or

cultural background (Smith 1980). Redundancy, or duplication of discrete elements within a scene, has an important influence on how people perceive order, as there is a tendency for the brain to group elements with common properties. Groupings based on physical similarities become more apparent the longer the scene is viewed. Ching (2007) notes that almost all building types incorporate elements that are by nature repetitive and therefore have the potential to generate rhythmic patterns. Such elements include the shape and arrangement of openings, structural members, spatial modules, and even small units such as bricks. Along streets, ordering patterns can become apparent across contiguous building facades. In formal terms, it seems that scenes with moderate levels of complexity based on atypicality or difference, and formed of elements that lend themselves to grouping, will evoke strong visual preferences (Nasar 1994). Smith (2003) compared these three dimensional characteristics to poetry, suggesting that the rhythms of architectural features in a façade or across the facades of several buildings, can be experienced in similar ways to rhymes and couplets in a poem.

With reference to biophysical processes in which the eyes and brain progressively process information to fill in the detail of a setting, Stamps (2000) identified three scales of built form that designers can manipulate. The first is the outline of a building or its silhouette. Stamps noted that the perimeter of an isolated building, or collection of buildings, is the first scale at which form is perceived. Through analysis of several visual preference studies he found that the higher the number of vertices, the more complex the shape and the more interest it would generate for his respondents, up to a point of saturation. While the outline of an individual building may be under the control of a single designer, a sequence of buildings along the street is most often the outcome of uncoordinated, incremental development over an

extended period of time. This could lead to unintended complexity of the street silhouette.

A second perceptual level corresponds with the manner in which a building may be articulated in three dimensions. Ching (2007) noted how modelling of a form can influence the ways its visual bulk and scale may be perceived. Design guidance typically aims to modify perceptions of mass or bulk through articulation of a façade or by breaking up otherwise large volumes to increase increases complexity and visual interest (Berlyne 1974). The third level concerns the surfaces of building facades. The treatment of surfaces can generate interest through introduced detail, but the effectiveness of this also depends on the size of details in relation to viewing distance (Bentley et al. 1985). The primary method of articulating the external surfaces of a built form comes from manipulation of door and window openings, which also provide a useful indication of scale and a clue to the building use, which in turn convey associational meaning.

While aesthetic response is linked to appearance, the meanings associated with a building can lead to a deeper sense of pleasure (Lang 2003). The highest level meanings are *abstract*, and these invite people to assign value to the meanings they derive from a scene (Rapoport 1990). Abstract meanings are formed in the context of personal, cultural and social values (Nasar 1998). Rapoport (1982) also referred to *affordance*, a term borrowed from psychology, which he described as the potential uses of buildings or spaces and the activities they can afford as judged by an onlooker. In addition to use, architectural style and building age, particularly where age is associated with social and cultural heritage, can also influence aesthetic perceptions because of the meanings they convey.

In summary then, we understand that visual perception incorporates biophysical and other mental processing, ultimately calling on a person to register perceptions in relation to their own value structures. There is evidence that scenes with moderate levels of variety, and in which the distinct elements can be grouped or ordered, will be well liked by people, irrespective of their sociodemographic differences. At higher mental levels, objects that can be understood to afford positive activities or that can be associated with socially or historically important activities will also generally be well liked. With that background, a research effort was designed to understand which are the building and streetscape characteristics that people prefer, and those that are not well liked.

Research method

The investigation of streetscape preferences was carried out in New Zealand's two largest cities—Auckland and Wellington. Both cities owe something to the British model for colonial planning of cities, such as a gridiron layout with wide streets, town squares and, in the case of Wellington, a green belt. This model was used for British colonist settlement in Ireland, the New World and the Antipodes (Home 2013). This common origin allows for comparison between the results of this study and others carried out in similar urban contexts, particularly those of the New World. Obviously, it would not be possible to scale the findings to a global context but this disadvantage would remain even if the study were to be carried out in the USA or the UK.

In an earlier New Zealand study, people indicated their preferences for buildings and streetscapes based on photographic images (omitted for review). As others have called for research to consider people's actual, in-person experience and evaluations of urban settings (see Introduction), it was decided to invite people to rate buildings and

streetscapes as they walked along selected streets. Several methods were considered, including those developed by Lynch (1960) and Nasar (1998). While they engaged directly with people to understand their experience of places, in both projects the mental mapping activities and interviews took place in spaces that were separated from the urban areas that were being considered. The current study was developed around the techniques also used by (Burns 1997), who asked people to use coloured pencils to record their feelings about the streetscape as they walked along several British streets and (Mehta 2013), who surveyed people about their perceptions of the physical and activity characteristics of streets in three suburban centres in Massachusetts.

Case selection here was informed by the results of the earlier research. Streets that comprised buildings of varying architectural styles, height relationships and land use activities were considered. However, streets with recognised architectural character and heritage buildings were avoided, as people are known to like these (Carmona et al. 2010). The focus of this research was ordinary buildings along urban streets. Streets were only considered if their traffic volumes were low and where there were no vacant or open sites along them. Finally, the selected streets had to have the same east-west orientation to minimize any differences in shading across a day. College Street in Wellington was found to conform with these selection criteria and in Auckland, Tyler Street did as well. While the data collected for each case study street were analysed independently, having a third case study would enable more robust consideration of the findings across the individual cases (Yin 1989; Zeisel 2006). It was difficult to find a single street of the same length and orientation so the third case was developed around two adjacent streets, Kingston and Wyndham in Auckland (referred to here as simply Kingston Street). The three cases had approximately the same number of buildings and a mix of buildings that had been constructed at different times, including a number built

more recently. While College and Kingston Streets had been transformed through market led initiatives, Tyler Street had been substantially redeveloped over the past ten years in connection with development of a new transport hub. This redevelopment introduced several large buildings and many new consumer-based businesses into what had predominantly been an area of warehouses and commercial offices.

In an effort to recruit a broad cross section of respondent ages, genders, education levels and other demographic markers, invitations to participate were placed with community groups, council organisations, children's playgroups and education providers in a wide area around each case. They were also asked to provide their preferences for specific aspects of individual building facades using the same process and were then invited to give their opinion on the overall relationships of height, building alignment and façade styles in separate questions for each side of the street. Participants were given the questionnaire in the form of a small booklet that also included a map of the street and a visual reference for each building. Responses were recorded on a 5-point Likert scale from 1 (strongly dislike) to 5 (strongly like). They were also asked to select the two design characteristics that were most important in their preference rating from a list of nine. The surveys were run for three weeks each during the late spring – October-November – and late summer – February-March. While the surveys were available in each case study street, the respondents were able to take the survey at any time of day and in all weathers. These details were recorded on the survey forms.

After preliminary analysis of the data, two focus groups were convened to provide further detail about the issues people had considered when arriving at their preferences (Portella 2014). The two meetings were held in Wellington of volunteers who had participated in the street survey, with six lay people (those without formal

design training) meeting in one and five built environment professionals in the other. The rationale for separate meetings was to help ensure robust and fulsome discussion around the issues within each focus group. This was on the basis that subject experts can sway group dynamics, which could have limited opportunities to hear from non-experts in the meeting (Wilson 2016). The transcripts from both focus groups were coded for analysis and compared with the quantitative data for the College Street survey. While focus groups in the Auckland case studies could have provided additional qualitative data, the researchers were encouraged with the clarity and comprehensiveness of the two Wellington focus groups. In the context of the quantitative data collected for College Street the focus group data provided insight to many of the nuanced factors that people consider when evaluating urban buildings and streetscapes.

Respondent numbers were limited by practical considerations, as it took between 30 and 45 minutes to walk along the streets and complete the survey. This is a limitation on most academic research where participants are giving up their free time to participate. The surveys reached wide spectrum of the different demographic classifications that were of interest to the researchers, with the breakdown of each case study shown in Table 1.

Table 1: Distribution by percentage of respondents by demographic classification for each of the three case study streets.

Each street was treated as an independent case study (College Street n=75, Tyler Street n=40 and Kingston Street n=41). Survey responses were analysed using SPSS statistics software, so the strength of feeling for the different architectural qualities and streetscape features could be compared. The responses to each street were analysed

independently, with a list of all the individual findings compiled. The findings in this list were then grouped and distilled, taking into account the relative strength of evidence for each, which led to the overall project findings. Those that are most relevant to the themes of this article are discussed below.

Discussion of the findings

Individual building characteristics

While survey respondents across the board liked more buildings than they disliked, it seems that those in Wellington were generally more critical than their Auckland counterparts. Table 2 summarises the average preference score for individual buildings in each study area. These results suggest that the recent redevelopment initiatives in Tyler Street were well received and support the design leadership taken by the Council.

Table 2: Preference score summary for individual buildings in the three cases studies

The street facades with the highest preference ratings in each of the three cases had traditional design features, the two most prevalent of which were discrete window openings and monolithic materials, such as brick and painted plaster. Of the 33 buildings that were liked across the three study areas, 24 (73%) featured facades with these characteristics. The relative importance of these features in people's preference ratings was confirmed by the reasons they gave for their choices. Correlation analyses were also done to understand how people's overall opinions might relate to the preferences held for the façade design above ground, the materials used in the façade and the design at ground level. Table 3 sets these out for the top-rated building in each of the study areas.

Table 3: Mean preference score and correlations between preference and facade design features for the top- rated building in each study area.

The most liked façade design features can be better understood by looking more closely at the characteristics of COLLEGE_Q. This building is on the north side of College Street, comprising a clothing shop at ground level and three floors of residential accommodation above. While 11 people did not like it, 45 of the 75 respondents liked or strongly liked it. The façade at and above ground level received the highest scores in each of the three detailed façade design categories. Despite this, the individual responses to façade design above ground level had relatively low correlation to the overall response of the same participant while the response to the ground floor (street level) design was most closely linked to whether or not the participant liked the building (table 3).

The street façade of COLLEGE_Q is modulated both vertically and across its width. The rhythms vary slightly in both directions and the columns and spandrels that help this modulation have considerable depth, giving the façade a three-dimensional quality. Highlighting the façade details through colour also enhances the sense of modelling. The surface finishes are modest and in certain light conditions reveal the hand applied nature of the plaster render. The three balconies, added when the building was converted to residential use, create additional visual interest and clues as to the primary use of these upper levels. Although one of the bays at ground level is covered by a security door at night, the façade is extensively glazed and contains a fashion shop. This helps generate visual interest and engagement with passers-by. The west facing side wall is blank but only two storeys can be seen above the adjoining building, while the boundary wall on the other side has two generous window openings. Overall the

building is of a modest scale and its construction has acquired a patina that comes with age. Its functional uses can be easily read by people in the street.

Discrete window openings can be read as *figure* on the *ground* created by the façade cladding. Where claddings appeared natural and variegated, they were highly rated. In Tyler Street, the three highest preference scores were given to buildings that had brick facades, one of these being a three-storey former warehouse identified in the survey as TYLER_G. The south elevation onto Tyler Street is made of yellow-fawn brick masonry and the setout of windows conveys its generous floor to floor height. Like several other buildings in this former industrial area, it has been adaptively reused and now houses a café/bar on the ground floor with commercial offices above. People's opinions of the façade materials above ground correlated most strongly with their overall preferences for the building (table 3).

People's preferences for discrete window openings in a monolithic façade were corroborated by their dislike for buildings based on a horizontal, layered design approach. Examples of this approach are shown in table 4. Building COLLEGE_J is a multi-storey commercial office building with a convenience shop at ground level. The façade is typical of its period of construction, employing horizontal strip glazing between solid spandrel panels of equal depth. Poor façade details and the overall shape of the building were cited most frequently as reasons why people disliked COLLEGE_J, and this was further confirmed by a strong correlation between overall preference and how people felt about the design and surface finishes above ground level. The façade is very flat, with the glazing and spandrel sections in virtually the same plane. Although the façade has a clear sense of order established by the alternating pattern of the strip glazing, it appears that with nothing to modulate the façade in its width along with the

generally flat surface treatment, there is insufficient visual interest for it to be perceived positively.

Table 4: Mean preference score and correlations between preference and facade design features for the low rated building in each study area.

Irrespective of how they were composed, people made use of a building's fenestration to understand how it was being used when forming their opinions. During both focus groups it emerged that the large, north facing windows of building COLLEGE_D (figure 1) enabled people to see into many of the apartments from the street, and in doing so, to imagine how the spaces could be used. For some participants these windows were problematic, as they understood that they would lead to overheating during the day (as the site is in the southern hemisphere) and privacy would be compromised in both directions. The participants agreed that these two factors may have been reasons why so many of the windows were covered by blinds during the day. One person also noted it would be difficult for residents to place any furniture in the space and that this was evidence that designers and developers did not have the eventual residents in mind. Responses to the building KING_F (table 4), in which the entire external wall surface of each unit is glazed, were similar to those for COLLEGE_D.

Figure 1: Building COLLEGE_D is the large structure in the middle of the image. The street facade is extensively glazed while the side walls are largely blank.

The three case studies confirmed people's preferences for buildings that appeared clean and well maintained. Elements and surfaces of buildings that appeared to be well maintained and clean were more important to respondents in forming their overall opinions than material qualities. Evidence for this appear in the responses to building COLLEGE_K. This is a building with many of the characteristics of a well-

liked building; it has discrete window openings, is of a reasonably small scale and the façade surface is painted render. However, perceptions that the surfaces were not in pristine condition meant the majority of people who felt neutral or who disliked the building gave *maintenance* as the primary reason for this. While not specifically a design characteristic, the extent to which buildings will appear to be well maintained as they age can clearly be influenced through design. The surface qualities of cladding materials, their physical durability and the ways different construction components are detailed are all taken into account.

Figure 2: Line drawing of the north and south sides of College Street in Wellington.

Street perceptions

An earlier study based on photographic images found that people prefer slight variations of height along the length of a street, even when evaluated against streetscapes where all buildings were of the same height (omitted for review). The current study, with all evaluations made in situ, only served to reinforce these findings. In College Street for example, a moderately high preference rating of 3.43 on the 5-point scale was given to the height relationships on the north side of the street, which only vary by one or two storeys (figure 2). Conversely, the much more varied relationships on the southern side were disliked by respondents, with the mean score falling below the midpoint of the scale. Even so, it seems that the height of a building relative to others around it was not a negative factor when people evaluated a building in isolation. Height relationships became more significant when evaluations were made of an entire streetscape. Tall buildings along a street, particularly where they occurred in groups, attracted strongly negative responses from the survey respondents. This reflected a change in emphasis from the object (building) to the spatial, with building heights affecting a sense of enclosure and spatial comfort. Following his analysis of the best streets in the world, Jacobs (1993) concluded that the best spatial proportions are those sitting between 1:1.1 and 1:2.5 (vertical to horizontal). The buildings on the north side of College Street generate proportions of between 1:1.1 and 1:2.

The buildings on the south side of the street lead to similar spatial proportions as those on the north with the exception of two recently constructed, mixed use residential buildings. The characteristics of these buildings and the relationships they create with others emerged as influential factors on the evaluation of this side of College Street. Relationships between COLLEGE_D, a nine-storey building (Figure 2), and its single storey neighbour and between COLLEGE_F, a ten-storey building (Figure 3), and its

neighbour were respectively understood to be the strongest predictors of how people felt about building heights along the street. Both new interventions create significant height differences although the one created by COLLEGE_D was judged to be poor while that created by COLLEGE_F was seen positively. Why the difference and what does this say about inter-building relationships? COLLEGE_D was interpreted by respondents as disrespecting its neighbour, not only by towering above it but also by showing a blank side wall. The metal recycling business adjacent to COLLEGE_D is a remnant of College Street's past as a light industrial area. This led to a sense of nostalgia for some participants in the focus groups while others saw the contrast of scale and land use as manifestation of the evils of property development. Indeed, the term greed was used by several participants when giving their thoughts on the relationship. On the other hand, the relationship between COLLEGE_F and its neighbour was moderated through land use, by the relative newness of the two buildings, by architectural style and most of all by the way the side wall had been treated. The side wall had been set back sufficiently to enable small balconies and generous fenestration on this side wall. Although the developers have taken a risk – there is seemingly nothing to stop the adjoining site one day being redeveloped in ways that would block views and light to most of the levels of COLLEGE_F – they used a combination of passive and active measures to address fire regulations and create a positive relationship with its neighbour.

Figure 3: COLLEGE_F building in the background with the prominent side wall rendered in a way that creates a positive relationship with its much lower neighbour.

Street edge conditions

A consistent alignment of ground level frontages enhanced the experience of the pedestrian participants. This ties in with not wishing to see blank side walls and is also affected by the way the space can be used. However, a change in alignment that was

well liked could be seen in Tyler Street. The way TYLER_Q is set back was seen to support public space usage, and to mediate between the contrasting architectural styles of the larger, older building and TYLER_Q. However, buildings that were set back from the principal alignment and not developed for public use, such as along both sides of College Street, were regarded poorly by respondents.

A design feature that people appreciated was the extent to which they could see inside the building, particularly views into publicly accessible ground level spaces. An example of a well-liked activity at ground level is a bar or café, and positive perceptions of these activities were linked strongly to levels of transparency into the seating area. While in many cases the two factors of well-liked activities and a visually permeable façade treatment worked well together to enhance people's perceptions, they were not mutually dependent. For example, we found that women responded positively to retail activities on the ground floor of a building even when they could not see inside. Signage or building typology – such as a retail centre – were often enough to alert people to unseen retail activities within the building. While transparency above ground level can engage people's interest and imaginations, this is a two-sided coin and residential activities that were on display contributed to such a building being poorly rated. The poor management of the shopfront of Building KING_F (table 4) was a factor in how the building was perceived. The street level of this recently completed building had extensive areas of glazing but both tenants had partially blanked these off, one with an opaque sign and the other with display shelving. These factors led to the dislike of the street level design of this building.

Implications for practice

The findings discussed in this paper support the notion that new design interventions should respond sympathetically to existing patterns in order to create more coherent and

attractive streets. Childs (2009) advocated that those who design the independent parts of a city should be mindful of how their interventions add up to become the whole. It is the whole of the street or the neighbourhood that are important and designers should remain mindful of how their contribution will affect this. Child's argument was developed around the concept of *civic concinnity*, which he described as the "skilful and harmonious adaptation of parts to craft a whole". Childs acknowledges that this is not a new concept. Earlier, Christopher Alexander and his colleagues espoused a way of adding to and redeveloping cities based on the overriding objective that each successive project should be seen as an opportunity to *heal* the setting and work toward a more complete whole (Alexander et al. 1987).

For some time how however, new development have tended to disregard, or fail to understand, the characteristics of the setting so these are not reflected in the design of the new building. More wilfully, new interventions are designed to stand apart from their neighbours, even along ordinary streets. The pages of professional design publications are full of new projects that do just that, and are rewarded for it. Owners and architects seek to add value by standing apart from the crowd, approaches that are widely encouraged though training and professional associations (Bentley 1999).

A most challenging issue through which to pursue concinnity is building height. This research found strong preferences for heights that vary within a relatively narrow band, between one and three floor levels. Nevertheless, it is not uncommon to find differences that are much greater than this. Such outcomes are enabled by planning regulations that describe development potential in coarse terms over large areas of the city, largely for reasons of administrative expedience, or to appear fair and equitable to all landowners in the area, or to promote particular urban form outcomes. Prescribed in such abstract ways, building height limits have more to do with growth and

development than they do with the effects produced at street level. It can be difficult to limit height during the design and regulation phases of projects, simply because land values are so closely tied to development potential. Nevertheless, civic concinnity provides a conceptual basis from which urban designers can advocate for more detailed consideration of how the height of new buildings fits with those already in a setting.

The findings also suggest that use of contemporary, shiny, flat materials can be problematic, not just because of their homogenous surface qualities but also due to the thin and unarticulated construction techniques they engender. Contemporary materials are often assembled to form a single surface over the whole building façade, an example being the glazed curtainwall, with or without solid spandrel panels. These systems actively disregard fenestration and the potential visual interest that this artform can bring to façades and streets, simply because the whole wall is a window. In contrast, the traditional cladding materials preferred by people in this study, such as brick, painted concrete and plaster, have visually interesting variegated surface textures. Nevertheless, it would be pointless to advocate not using curtain walls, given the global nature of the demand for these, although serious legislation for much more energy efficient buildings could see the all glass façade outlawed, at least in some climates. It is also important that cities continue to evolve as a reflection of contemporary social, cultural and economic condition, of which building materials are a part. The question then is, how can today's materials be used in ways that people will find attractive? Two buildings in Tyler Street show how contemporary materials can be made attractive when they are assembled in ways that generate three dimensional patterns. Many curtain wall systems do invite pattern making. However, patterns are only likely to be successful where the materials are used to create depth that is appropriate to the distance from which they will be viewed (Bentley et al. 1985).

Finally, it seems that more could and should be done to encourage ongoing maintenance of building facades. No matter how good the design in terms of its fit with the setting, buildings that are well maintained will be viewed more favourably. However, clues as to how a building might age are not always evident in the information provided to planners. Design review tends to be focussed on how the building will perform on day one instead of in 20 years, or even 50 years, which is the time the structure has to last in New Zealand. Indeed, New Zealand's regulatory planning system is not set up to monitor projects once they have been completed and maintenance seems to be a matter that falls in the cracks between the Resource Management Act and the Building Act, the two principal pieces of legislation covering the development and use of the built environment. Moreover, the design and construction industries are both set up to deliver projects, implying a finite timeframe that reflects the ways future architects are taught, the terms of contracts for services and construction, and the shape of awards programmes. From time to time discussions arise in the architectural profession about the appropriateness of awarding a project that has not proven itself over time, even for as little as a year. To date the requirements have not changed, reinforcing the notion that many in the profession are uninterested in how buildings will age. Whether due to poor material choices, or through poor detailing and construction or simply because building owners overlook the need, it seems poorly maintained buildings diminish streetscape quality.

Conclusions

This research was undertaken to understand people's preferences for urban building design characteristics and streetscapes through experiencing these. While more than 50 years' worth of visual preference studies have identified building design characteristics that are known to stimulate people's preferences, few of these have been carried out in

real life, along ordinary streets. This project invited responses from people as they walked along two streets in Auckland and one in Wellington, New Zealand. The findings suggest that people prefer buildings with discrete window openings in a façade of monolithic construction materials such as concrete, plaster and brick. Correspondingly, people disliked facades that express the set-out of structural floor systems and similar horizontal layered compositions. Flat and homogenous materials and façade compositions that lacked sufficient visual interest were both poorly rated in this study, even where there were patterns that could be readily ordered. Along streets, respondents preferred building heights to vary, but only within a narrow band of two to three floor levels.

As planning regulations are described very coarsely in most district plans, significant variations in height between buildings can emerge as individual sites are redeveloped. Similarly, design review, where it is pursued in regulatory planning processes, tends to emphasise the coherence of the building but gives little consideration as to how the intervention might fit with the streetscape. In order to foster well liked streets, and in recognition of the findings of this research, designers and regulators could use the principle of concinnity. Civic concinnity invites consideration of how a project might contribute to a more complete whole, while still asserting its own individuality. This concept has variously been referred to by others as wholeness (Alexander et al. 1987), responsiveness (Bentley et al. 1985) and responsive cohesion (Radford 2010). For all, the first step is for designers to research and understand the context of a project, and then to contribute to that context in a way that will inspire others to add to it.

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