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USER PERCEPTION AND EVALUATION OF HISTORIC CITY CENTRES: SEARCHING FOR COMMERCIAL SIGNAGE GUIDELINES TO IMPROVE URBAN VISUAL QUALITY

Adriana Portella

Profa. Dra. - Departamento de Arquitetura e Urbanismo – Faculdade de Arquitetura e Urbanismo
Universidade Federal de Pelotas, Brasil – e-mail: adrianaportella@yahoo.com.br

RESUMO

This study discusses the influence of commercial signage in the appearance of commercial and historical streetscapes taking into account the perception and evaluation of users from different countries – Brazil and England. As part of the historic context of many countries, historic city centres have been through a process of physical transformation, which involves the satisfaction of new social and commercial needs. This transformation usually involves updating of historic buildings to accommodate commercial activities, and the insertion of contemporary architecture in existing streetscapes. This is a common process and there is nothing wrong with that; problems begin when historic buildings and places are harmed by this global change. The objective of this research was to inform those factors that need to be taken into account in the development of commercial signage controls with regard to the preservation of historic heritage and visual quality of urban sites. The empirical investigation adopted the Environment Behavioural approach, which involves theories, concepts, and methodologies related to environmental psychology, architecture, planning, and urban design. Questionnaires, interviews and focus group discussion were selected to gather the data, and nonparametric statistic tests and a content analysis were carried out to analyse the information. The results identified physical characteristics of commercial signs and buildings that should be taken into account in the development of commercial signage controls in historic places. The outcomes provided evidences for further theoretical discussions in the Environment Behavioural research field. The findings demonstrated that some visual preferences related to commercial and historical streetscapes were based on the process of user perception more than on the process of user cognition. In addition, the choice of developing the empirical investigation in different countries allowed for a better understanding of the application of techniques to get people involved in surveys.

Key-words: visual pollution; perception; evaluation; historic city centres.

1. INTRODUCTION

In recent years, there has been considerable interest in the problems that public spaces face because of the design of commercial signs. Studies emanating from disciplines such as architecture and planning, behaviour research, and environmental psychology have explored the negative consequences that disordered commercial signs have on the visual quality of urban areas. At the same time, studies have been extended to how commercial signs affect people's quality of life since these media can influence user's perception of the physical environment. Polemic books as "No Logo" by Naomi Klein (2001) and "Non-places" by Auge (1995) put on the table questions that need to be answered before the contemporary city becomes a chaotic theme park, without identity and historic character.

It is often said that historic city centres are being harmed by the uncontrolled display of commercial signs. This phenomenon is evident in contemporary urban settings of different countries, and has been explored by many researchers, as the literature demonstrates (Cullen, 2000; Passini, 1992; Nasar, 1988; Ashihara, 1983). Their studies refer to this problem as visual pollution, which is an established expression commonly used to describe the degradation of the visual quality of places by signage. Initiatives applied to reduce visual pollution or maintain the historic character of city centres still not affected by visual overload have shown that the application of guidelines to control commercial signs is essential to preserve and improve the visual quality of historic places. It is argued that, in order to achieve an attractive and pleasant built environment, it is essential that commercial signs are well designed, reflecting the characteristics of buildings and areas concerned (Pickard, 2001; Scenic America, 1993).

Despite the fact that the problem of visual pollution caused by commercial signage is well described and familiar to many, there is a lack in the literature of any evidence which might relate the aspects of the operation of commercial signage controls to the perception and evaluation of users from different urban contexts; such evidence could allow clear conclusions to be drawn about the universality of this relationship. The literature shows that there are many theoretical concepts which suggest what people from different backgrounds prefer in terms of the aesthetic composition of buildings. The best known theory related to these concepts is the Gestalt. However, there are no theories which inform universal preferences between users from different cities and countries in terms of the aesthetic composition of commercial signs. Several different commercial signage approaches are currently applied in distinct historic cities, but these initiatives are not based on principles derived from the perception and evaluation of users.

It is recognized that different factors can influence user cognition, such as social and cultural values, life style and professional interests, etc. Moreover, cross-cultural studies have shown that mental representations of public spaces may differ for people from different cultural backgrounds (Oreg & Katz-Gerro, 2006, pp.462-483; Isaacs, 2000, p.149). However, what this paper seeks to test is: there are visual preferences common to the majority of people, independent of their urban context, and these common views can be useful to the development a general theory to control commercial signage in historic city centres of different countries. This idea is supported by Reekie (1975) who said three decades ago: "What is needed is an objective approach based upon design principles that meet with common agreements, and that will lead to an environment visually acceptable to the great majority". Moreover, according to Bentley and et al (1985), the built environment should be appropriated to a wide range of people and their needs. The idea of a general commercial signage approach for different places does not ignore the fact that each city has its own particularities. The outcomes of this study suggest that the role of this approach is to recommend general guidelines related to the operation of commercial signage controls to create commercial streetscapes evaluated positively by different users.

This paper draws on three empirical case studies to examine questions of commercial signage control, preservation of historic heritage and user preference and satisfaction with historic city centres on an international stage. The objective is to inform those factors that need to be taken into account in the development of commercial signage controls with regard to the preservation of historic heritage and visual quality of urban sites.

2. THE EXPERIMENT

2.1 Case Studies - Selection of Countries and Cities

The main criteria used to select countries to allow a comparison between responses of users from different urban contexts were: (i) a country where a national approach to help local authorities to guide and control commercial signage in historic city centres is applied in practice, and (ii) a country where there is no national approach to control commercial signage leaving local authorities with the responsibility to develop commercial signage controls, and to decide whether these controls are necessary in historic city centres.

The choice for the countries was also based on the researcher's previous knowledge of commercial signage approaches applied in South America. In addition, the researcher had already carried out several investigations related to the visual pollution caused by commercial signs in historic cities in Brazil. The choice for the sample was also based on the fact that England, where this study was based, is an example where a national commercial signage approach is applied to help local authorities to control commercial signage in historic cities. These facts contributed to the selection of England and Brazil. With regard to Brazil, this investigation concentrated the analysis in the southern most Federal State, Rio Grande do Sul. The territorial dimension of this country (8,514,876.599 km²) was taken into account in the selection of only one State; this avoided data collection becoming exhausting and impractical in terms of financial resources and time spent travelling.

Three historic cities were examined: Oxford, in England, where a national commercial signage approach is applied to preserve historic heritage, and Gramado and Pelotas, in Brazil. In the first Brazilian city, commercial signage controls are applied by the local authority to create a theme-park promoted as the "Brazilian Switzerland", where as in the second city commercial signage controls have never been implemented. To the empirical investigation, two commercial streets in each case study were selected to this analysis as this number was considered to be representative of the historic core of each city.

2.2. Methods of Data Collection and Analysis

(i) Questionnaire: an anonymous questionnaire was designed to analyse user's satisfaction with the appearance of a set of commercial street facades. Questionnaires were delivered in person, and usually were collected on the following day. Clear instructions were presented in an introductory statement to avoid possible misinterpretation, as the respondents completed the questionnaire on their own. Direct contact between the researcher and the participants was an important factor in committing them to complete the whole task. The data was analysed through non-parametric statistical tests.

(ii) Visual stimuli added to questionnaire: ideally, to ensure maximum realism, users from England and Brazil should observe the commercial streets of each case study on-site. Because of the impracticality of bringing users from England to Brazil and vice versa, the experiment was based on colour photomontages attached to the questionnaire. The media representations were based on the method developed by Stamps (1993). Each commercial street facade was represented by two kinds of photomontage: for the first one, the entire row of buildings was photographed from one station point generating a two-point perceptive image, while for the second one, each building was photographed separately and the photographs pasted together to form an elevation montage. Another study by Stamp (1997) suggests that users tend to dislike photomontages of streetscapes with cars, poles, and wires, while photomontages of streets with pedestrians and trees tend to be preferred. As this study focused on user perception and evaluation of the relationship between commercial signs and building form, other variables which could interfere with users' answers, such as trees, cars, poles, wires, pedestrians, scaffolding, and street furniture, were deleted from the photomontage. These deletions were done to avoid misinterpretation of the findings. In addition, parallax distortion was corrected in both procedures (Figs 1 and 2). Figure 3 shows the poster attached to the questionnaire: streets 1 and 2 are located in Oxford (England), streets 3 and 4 are located in Gramado (Brazil), and streets 5 and 6 are located in Pelotas (Brazil).



Figure 1 - The entire row of buildings was photographed from one station point generating a two-point perspective image (Source: author).



Figure 2 - Each building was photographed separately and the photographs pasted together to form an elevation montage (Source: author).



Figure 3 - Poster attached to the questionnaire showing the commercial street facades (Source: author).

(iii) **Interviews:** a purposive sample was selected. The interviews were designed to investigate how the operation of commercial signage controls is carried out in each case study. The data were analysed qualitatively.

(iv) **Focus Group:** the focus group was applied to explore what a pre-determined group of people think and feel about the relationship between commercial signage and building facade in a specific case study. This method offered the opportunity for: (i) people to probe each other's reasons for having a certain view, (ii) participants to be able to bring to the fore any issues related to the topic that they deemed to be important and significant, (iii) individuals to be able to argue with each other and challenge each other's views, and (iv) the researcher to be able to analyse the ways in which

individuals collectively make sense of the phenomenon and construct meanings around it (Bryman, 2004; Sommer & Sommer, 2002).

A focus group discussion was carried out in Pelotas, the case study where the commercial street facades chosen as the worst streets in terms of appearance (by respondents of questionnaire) are located. The objective was to complement the results obtained from questionnaire, and clarify certain issues that could not be fully investigated through that method. The focus group attempted to identify: (i) which factors contribute to increase the visual pollution in the city centre analysed, and what can be done to reduce it, (ii) what residents think about the relationship between the commercial signs and building facades in the historic city centre, and (iii) whether they agree with the perceptions and evaluations of users from the other case studies about the commercial street facades located in their city. Another issue was also discussed: the lack of interest by shop owners in discussing the visual pollution of the city centre.

An exploratory approach was adopted to manage the focus group. Support material such as photographs and postcards of the city centre, and a summary of the objectives of the focus group were given to the participants. The discussion took around 3 hours allowing full exploration of the topic, and it was audio-recorded with the permission of the participants. A second observer was contracted to make the recording and help the researcher organize the session. The data were analysed qualitatively.

2.3 Selection of Participants – Questionnaires, Interviews and Focus Group

(i) Questionnaires: a volunteer sample, comprised of people who are willing to participate in the survey, is an opportunity sample, and the characteristics and behaviour of volunteers may be quite different from those of non-volunteers. However, as the nature of this research assumes that people cannot be forced to be part of this survey, users decide whether they would like to answer the questionnaire or not. The following techniques were used to search for volunteers: posters were displayed in universities, cafes, public places and City Council halls, and given to pedestrians in Oxford, Gramado, and Pelotas as pamphlets. These media explained the purposes of questionnaires and invited people to participate. Invitation letters were also sent by post to professionals and lay people selected randomly from phone lists. In addition, a snowball approach was adopted: volunteers were allowed to invite friends to participate. As a result of these techniques, several people contacted the researcher by e-mail or phone (contact information was included on posters, invitation letters and cover pages of questionnaires, which most volunteers kept) and asked to take part in the study. Articles in local newspapers of the Brazilian case studies were published in order to encourage people to become involved in the survey; the other techniques mentioned above (such as posters and invitation letters) were not effective in the Brazilian case studies. As a result of a self-selection process, the sample sizes in the three case studies were different: 114 respondents in Oxford (63 professionals and 51 lay people), 120 respondents in Gramado (41 professionals and 79 lay people), and 127 respondents in Pelotas (51 professionals and 76 lay people).

(ii) Interviews: the selection of interviewees was made by the researcher on the basis of those who are most representative of the issues to be investigated, and who are likely to have more expertise in these matters. The head of the City Council department responsible for the design and application of commercial signage controls in each case study was contacted by the researcher. An invitation letter was sent to them by e-mail and by post (addresses obtained from City Council websites). This letter explained the purpose of the survey inviting them to participate in an interview. The researcher received replies from the City Council Officers in all case studies; appointments were arranged and the interviews were carried out. As a consequence of this kind of selection, the sample size in each case study varied: two officers in Oxford (the principal planning officer and the tourist officer), two officers in Gramado (the principal planning officer and the environmental officer assistant), and four officers in Pelotas (the principal planning officer, the City Council lawyer, and two officers of the planning department).

(iii) Focus group: a purposive and opportunity sample was selected because the main objective of the focus group discussion was to explore what a specific set of people (City Council officers, professionals and lay people) think and feel about the impacts of commercial signs in one of the historic city centres analysed. The purposive sampling criterion was applied to select City Council

officers: the same individuals who participated in the interview in the case study analysed were invited to join the focus group. The owners of shops located in the commercial street facades chosen as the worst streets in terms of appearance were also invited; however, they did not show any interest in participating. At the same time, the opportunity sampling criterion was adopted. The techniques applied to get volunteers were: (i) posters displayed in universities, cafes, public places and in the City Council hall, and given to pedestrians as pamphlets, and (ii) an article published in a local newspaper inviting people to play a part in the discussion. As a result of this process, the sample was formed by all City Council officers invited by the researcher and eighteen more volunteers. Table 1 sums up the total numbers of individuals that participated in this research.

Table 1 - Total sample of participants in the fieldwork of this research (Source: fieldwork).

METHOD		OXFORD CASE STUDY	GRAMADO CASE STUDY	PELOTAS CASE STUDY
Questionnaires	Off-site	114	120	127
Focus group		NA	NA	22
Sub-Total		114	120	149
TOTAL		383 volunteers		
NA: Non Applicable.				

2.4 Questionnaire Analysis and Results

Taking into account the whole sample who answered the questionnaires (361 users), the results show that the majority of respondents “really like” or “like” streets 1, 2, 3 and 4, in this particular order. At the same time, they “do not like” or “really do not like” streets 6 and 5. The mean scores values show that the highest user satisfaction is related to the appearance of street 1, while the lowest user satisfaction is related to the appearance of street 6 (Table 2).

Table 2 - User satisfaction with the appearance of the commercial street facades - the whole sample (Source: fieldwork).

Do you like the appearance of the >street< ?	Street 1	Street 2	Street 3	Street 4	Street 5	Street 6
I really like	154(42.66%)	123(34.07%)	127(35.18%)	96(26.59%)	7(1.94%)	0
I like	196(54.29%)	212(58.73%)	170(47.09%)	154(42.66%)	39(10.80%)	26(7.20%)
I don't know	7(1.94%)	20(5.54%)	32(8.86%)	42(11.63%)	42(11.63%)	45(12.47%)
I don't like	4(1.11%)	6(1.66%)	28(7.76%)	57(15.79%)	191(52.91%)	206(57.06%)
I really don't like	0	0	4(1.11%)	12(3.32%)	82(22.71%)	84(23.27%)
Mean score*	1.61	1.75	1.93	2.27	3.84	3.96

* The lower this value, the higher user satisfaction.

The physical aspects of the streetscape that may influence user satisfaction with the appearance of street 1 can be related to the commercial signage approach adopted in Oxford city centre, which is designed to protect the historic heritage of the city centre. This street has the lowest percentage of street facade covered by commercial signs (2.70%) when compared to the other streets in the sample, and only 0.31 square meters of commercial signs per linear street metre. Associated with these characteristics, the combination of ordered streetscape, high complexity, and preserved historic buildings can be increasing user satisfaction. The results related to user satisfaction with the appearance of streets 5 and 6, located in the case study of Pelotas, suggest that visual pollution caused by shopfronts and window displays decreases satisfaction of users from different urban contexts. At the same time, when comparing the mean scores values related to both these streets (Table 2), this study suggests that the following characteristics of street 5 can be increasing user satisfaction, when compared to street 6: (i) similarity in building heights, (ii) lower variation of commercial signs and buildings, and (iii) presence of a well preserved historic building in the middle of the street facade. In addition, the fact that street 6 has the highest square metres of commercial signs per linear street metre (three times more than street 1) when compared to the other streets in the sample can be decreasing user satisfaction with this street more than the combination of the physical characteristics identified in street 5.

The analysis of each case study (Table 3) shows that the majority of users from Oxford, Gramado and Pelotas “really like” or “like” the commercial street facades where commercial signage controls are

effective and the streetscape is ordered (streets 1, 2, 3 and 4). At the same time, they “do not like” or “really do not like” the street facades where these controls are ineffective and the streetscape is disordered (streets 5 and 6).

Table 3 - User satisfaction with the appearance of the commercial street facades - users from Oxford, Gramado and Pelotas (Source: fieldwork).

Do you like the appearance of the >street<?		Case studies				Case studies		
		Oxford	Gramado	Pelotas		Oxford	Gramado	Pelotas
Street 1	I really like	55(48.25%)	49(40.83%)	50(39.37%)	Street 4	24(21.05%)	44(36.67%)	28(22.05%)
	I like	57(50%)	67(55.83%)	72(56.69%)		46(40.35%)	55(45.83%)	53(41.73%)
	I don't know	2(1.75%)	4(3.33%)	1(0.78%)		19(16.67%)	4(3.33%)	19(14.96%)
	I don't like	0	0	4(3.15%)		20(17.54%)	16(13.33%)	21(16.54%)
	I really don't like	0	0	0		5(4.39%)	1(0.83%)	6(4.72%)
	Mean score*	1.54	1.63	1.68		2.44	1.96	2.4
Street 2	I really like	24(21.05%)	40(33.33%)	59(46.45%)	Street 5	6(5.26%)	0	1(0.78%)
	I like	75(65.79%)	74(61.67%)	63(49.60%)		12(10.53%)	3(2.5%)	24(18.90%)
	I don't know	13(11.40%)	5(4.17%)	2(1.57%)		23(20.18%)	10(8.33%)	9(7.08%)
	I don't like	2(1.75%)	1(0.83%)	3(2.36%)		50(43.86%)	81(67.5%)	60(47.24%)
	I really don't like	0	0	0		23(20.17%)	26(21.67%)	33(25.98%)
	Mean score*	1.94	1.73	1.6		3.63	4.08	3.79
Street 3	I really like	29(25.44%)	64(53.33%)	34(26.77%)	Street 6	0	0	0
	I like	48(42.11%)	52(43.33%)	70(55.12%)		9(7.89%)	1(0.83%)	16(12.60%)
	I don't know	19(16.67%)	1(0.83%)	12(9.45%)		26(22.81%)	9(7.5%)	10(7.87%)
	I don't like	15(11.81%)	3(2.5%)	10(7.87%)		54(47.37%)	83(69.17%)	69(54.33%)
	I really don't like	3(2.36%)	0	1(0.78%)		25(21.93%)	27(22.5%)	32(25.19%)
	Mean score*	2.25	1.53	2.01		3.83	4.13	3.92

* The lower this value, the higher user satisfaction.

At the same time, there are statistical significant differences between users from Oxford, Gramado and Pelotas in terms of satisfaction with the appearance of street 2 (KW=20.63, DF=2, p=0.001), street 3 (KW=39.16, DF=2, p=0.001), street 4 (KW=15.42, DF=2, p=0.001), street 5 (KW=9.23, DF=2, p=0.001) and street 6 (KW=6.63, DF=2, p=0.036). These findings show that: (i) users from Oxford evaluate streets 5 and 6 more positively than users from Gramado, (ii) users from Gramado evaluate streets 3 and 4 more positively than users from the other case studies, and (iii) users from Pelotas evaluate street 2 more positively than users from Oxford. These results can be related to (i) user familiarity with the streetscape and symbolic meanings attributed to buildings when residents in Gramado evaluated streets 3 and 4 (both located in Gramado), and (ii) user urban context when residents in Pelotas evaluated streets 2, and residents in Oxford evaluated streets 5 and 6. In this last case, users from Oxford, where the streetscape is characterized by historic buildings, tend to evaluate streets 5 and 6 characterized by historic buildings more positively than users from Gramado, where there are few preserved historic buildings. Moreover, users from Pelotas, where the majority of streetscapes are comprised of historic and ordinary buildings, tend to evaluate street 2, composed of historic and ordinary buildings, more positively than users from the other case studies (Table 4).

Table 4 - Differences between users from Oxford, Gramado and Pelotas in terms of satisfaction with the appearance of the commercial street facades (Source: fieldwork).

Streets	Differences between responses of users	Tendencies
Street 2	Oxford and Pelotas (U=5132.5, N1=114, N2=127, two-tailed p=0.001). N1=respondents in Oxford. N2=respondents in Pelotas.	Street 2 is evaluated more positively by users from Pelotas than by users from Oxford.
Streets 3 and 4	Oxford and Gramado (street 3: U=4081, N1=114, N2=120, two-tailed p=0.001; street 4: U=5126.5, N1=114, N2=120, two-tailed p=0.001); N1=respondents in Oxford. N2=respondents in Gramado. Gramado and Pelotas (street 3: U=5149.0, N1=120, N2=127, two-tailed p=0.001; street 4: U=5867.5, N1=120, N2=127, two-tailed p=0.001). N1=respondents in Gramado. N2=respondents in Pelotas.	Streets 3 and 4 are evaluated more positively by users from Gramado than by users from Oxford and Pelotas.
Street 5	Oxford and Gramado (U=5338, N1=114, N2=120, two-tailed p=0.001). N1=respondents in Oxford. N2=respondents in Gramado.	Street 5 is evaluated more positively by users from Oxford than by users from Gramado.
Street 6	Oxford and Gramado (U=5591, N1=114, N2=120, two-tailed p=0.006). N1=respondents in Oxford. N2=respondents in Gramado.	Street 6 is evaluated more positively by users from Oxford than by users from Gramado.

U= the non parametric Mann-Whitney coefficient.

2.5 Interviews and Focus Group Analysis and Results

The location, theme, and objectives of the focus group discussion, as well as general information about the participants are presented in Table 5. All participants were very interested in the discussion, there were no dominant personalities during the debate, and all of them felt comfortable whilst interacting with each other. The involvement of City Council officers allowed a fully understanding about the current commercial signage control adopted in Pelotas (Brazil), the Code of Postures, and the new regulation that has been designed by the local authority. The support given by the School of Architecture and Urban Planning of the Federal University of Pelotas, and the local newspaper of Pelotas was very important to the organization of the event. An article introducing the researcher to the local community and persuading residents in Pelotas to participate in the focus group discussion was published.

Table 5 - Date, location, theme, objectives and participants of the focus group discussion (Source: fieldwork).

FOCUS GROUP DISCUSSION CARRIED OUT IN THE CASE STUDY OF PELOTAS			
LOCAL	THEME	OBJECTIVES OF THE DISCUSSION	PARTICIPANTS
Local: School of Architecture and Urban Planning of the Federal University of Pelotas.	The relationship between commercial signage and building form in the historic city centre of Pelotas.	a. Identify what residents think about the relationship between commercial signage and building form in the historic city centre of Pelotas. b. Identify whether residents agree with the perception and evaluation of users from the other case studies about the commercial street facades in Pelotas. c. Identify the factors that contribute to increase visual pollution in the city centre, and what can be done to reduce it. d. Discuss the lack of interest of shop owners in debating the problem of visual pollution.	City Council officers; students of law and architecture; lecturers of law, civil engineer, architecture and edification technician schools; university staff; professionals who have offices and/or offer services in the city centre (such as lawyers, architects, urban planners, philosophers, historian, dentists, agronomists, journalists and so on).

(i) User perception and evaluation of the relationship between commercial signage and building form:

The participants of the focus group discussion indicate that the relationship between commercial signage and building form in the historic city centre of Pelotas is negative. They agree with the results obtained from questionnaire (see section 2.4), which show that users from different urban contexts evaluate the commercial street facades located in Pelotas as the worst streets in the sample in terms of appearance. The majority of them suggest that those evaluations are the result of (i) the current commercial signage control adopted in Pelotas, the Code of Postures, that is too permissive (for example, shop owners can install new commercial signs without the knowledge of the City Council), and (ii) the attitude of the local authority in dealing with shop owners who display commercial signs that harm building facades.

The City Council officers, who participated in the discussion, mentioned that asking shop owners to remove irregular signs can create “a heavy atmosphere in the local community”. The other participants in the focus group argue that it is just an excuse to not apply in practice commercial signage controls. The officers said that it is difficult to ask shop owners to remove their signs without the support of commercial signage controls, which regulate the physical characteristics of shopfronts and advertisements, such as size, colour and proportion. According to them, planning officers need the support of an effective legislation to approach shop owners; otherwise the decision of what is an “appropriate” sign becomes a subjective matter. The current commercial signage control applied in Pelotas is described through subjective expressions (such as harmonic signs; appropriated signage; etc).

The participants of the focus groups discussion recognize that the lack of an effective commercial signage approach, which controls the physical characteristics of commercial signs, is another factor that increases the visual pollution in the historic city centre of Pelotas. City Council officers explained that a new commercial signage control that attempts to regulate the physical characteristics of these media has been designed. However, the other participants in the focus group discussion did not know about this initiative because a public meeting to discuss the development of this regulation had not been organized by the City Council. According to these participants, the lack of public meetings, which would allow members of the local community to get involved in the development of

commercial signage controls, is another negative aspect of the approach adopted by Pelotas City Council to control shopfronts and window displays.

The participants also suggest that the lack of interest of shop owners in discussing the negative effects that visual pollution causes to the city centre is another factor that increases the disorder of commercial signs in Pelotas. According to them, this lack of interest is one of the main reasons that make the implementation of commercial signage controls difficult in Pelotas. In general, shop owners do not understand that an ordered city centre may attract more people, and, consequently, increase their profits. The participants of the focus group believe that it is necessary to convince this user group that ordered commercial signs will improve the appearance of the streetscape in the city centre, and consequently this improvement will increase the social and economic vitality of the whole place. City Council officers said that to persuade shop owners to get involved in the development of the new commercial signage control has been one of their aims. However, their initiatives to get these people involved have been always ignored by the majority of shop owners. According to these officers, invitation letters and telephone calls inviting shop owners to come to the City Council to discuss the new commercial signage control were not well received by them.

Results from the discussion related to the support material (photographs and postcards of Pelotas city centre) presented to the participants show that residents in Pelotas would like the appearance of the city centre to be similar to the images advertised by postcards. They mentioned that the postcards do not reflect the actual appearance of the historic city centre of Pelotas. A participant said: "these media just illustrate a few historic buildings still preserved and do not show the chaos created by commercial signs that is the main characteristic of the city centre at present moment". Participants suggest that the implementation of an effective commercial signage control is one of the main tools to improve the appearance of the city centre, and make this place similar to the image promoted by the postcards.

From the discussion relating to what can be done to reduce the visual pollution in the historic city centre of Pelotas, eight proposed actions were suggested by the participants of focus group and interviews (see below). At the end of the focus group discussion, these actions were put into a document, which was sent to the head of the Planning Department of Pelotas City Council. Later, this document was adopted by the City Council as a theoretical argument to support the new commercial signage control designed for the historic core. However, the City Councillors did not approve this new legislation and the visual pollution is still an increasing problem in the historic core of Pelotas. Political and electoral interests were involved in this decision which affected direct people's quality of life.

(ii) Eight proposed actions to decrease the visual pollution in the historic city centre according to resident perception and evaluation:

1. Persuasion of shop owners to support commercial signage controls:

One of the main conclusions of focus group discussion and interviews is that the shop owners need to get involved in discussions related to (i) the problems caused by the visual pollution in the historic city centre of Pelotas, and (ii) the importance of commercial signage controls as tools to improve the appearance of this city centre. To get the involvement of these users, two actions were suggested by the participants:

(a) Publication of articles in local newspapers, distribution of pamphlets to shop owners, and promotion of debates broadcast on local TV. The objective here is to promulgate the negative effects caused by the visual pollution, and the positive results that ordered commercial signs can bring to historic city centres in terms of tourist and economic development.

(b) Design of a handbook, which introduces to the local community the main issues taken into account in the new commercial signage control that has been designed by the local authority. This handbook should be distributed to shop owners and all members of society interested in this subject. In England, there is a print guide, which explains the guidelines proposed by the Planning Policy Guidance 19: Outdoor Advertisement Control (Great Britain, 1992). Some copies of this guide were shown to the participants of the focus group, and all of them agreed that it is a good way to help shop owners to understand the issues taken into account in commercial signage controls, and what in terms of design

does not affect the historic character of places.

After the implementation of these actions, the participants suggested the application of the following initiative:

(c) Organization of workshops to (i) discuss with shop owners the physical characteristics of commercial signs that should be regulated by commercial signage controls, and (ii) showing, through examples of other cities, that ordered commercial signs improve the appearance of city centres, attract more visitors, and, consequently, increase the social and economic vitality of these places (Portella, 2003; Scenic America, 1999). These meetings might be organized by the City Council and the local universities. These entities might contact in person the head of the two main commercial societies in Pelotas, “Associação Comercial” and “Camara de Dirigentes Logistas”, in order to commit these organizations to engaging their associates to participate in these discussions. The meetings should be open to all members of the local community, and be advertised by the local media.

2. Application of a commercial signage control approach, which takes into account the character of the whole city centre:

A commercial signage control approach, which focuses just on individual buildings and does not take into account their surrounding areas, can be a contributory factor to decreasing the visual quality of historic city centres. This is seen in Pelotas where, even when historic building facades are free of signs, commercial signs on their adjacent buildings harm their appearance. The design of commercial signage controls should take into account the character of the whole historic city centre.

3. Use of computer simulations to illustrate how the appearance of the city centre will be improved with the implementation of commercial signage controls:

Simulations of street facades in the city centre showing how the appearance of this area will improve with the implementation of effective commercial signage controls can be printed out in local guides, and distributed to the local community. This kind of visual appeal can persuade shop owners to support commercial signage controls proposed by the local authority.

4. Delimitation of “street models” in order to test commercial signage controls:

The implementation of commercial signage controls on one or two street facades in the city centre can allow shop owners and the local community to evaluate the improvement of the appearance of commercial streetscapes on-site. Consequently, shop owners from other streets might want to volunteer to adopt the guidelines proposed by the City Council. This action can also help the local authority to analyse how shopfronts and window displays can be designed with regard to the preservation of the historic heritage on-site. The participants of the focus group suggested that these “street models” should be selected by the City Council with the support of the local shop owners. The City Council can give financial support to the shop owners in these streets to adapt their commercial signs to the proposed guidelines. In initiatives already implemented to control visual pollution in some Brazilian historic city centres, such as in Rio de Janeiro, the local authority gives exemption of IPUT (equivalent of the Council Tax in England) to owners who agree to restore and preserve the historic character of their properties according to the local commercial signage regulation.

5. The control of physical characteristics of commercial signs and the definition of a maximum percentage of building facade that can be covered by these media:

Commercial signage controls should be designed in order to (i) regulate physical characteristics of shopfronts and window displays (such as size, colour, shape and location on facades), and (ii) define a maximum percentage of a building facade that can be covered by these media. In this regard, simulations of 3%, 5% and 10% of a historic building facade covered by commercial signs were shown to the participants of the focus group. Looking at these simulations, the majority of them indicated that a maximum of 3% of the building facade covered by these media is the best alternative to the historic city centre of Pelotas. However, the new commercial signage regulation designed by the City Council of Pelotas defines a maximum limit of 10% of a building facade covered by commercial signs. City Council officers presented in the focus group said that a maximum of 3% is the best option; however, they believe that shop owners will not respect this limit. This fact supports what was said

earlier: the City Council does not have a strong enough position to enforce commercial signage controls to be respected by shop owners. This research recognizes that this attitude is affecting even the design of the new commercial signage control.

6. The control of the quantity of information displayed on commercial signs:

A limit on the amount of information promulgated by commercial signs should be considered in commercial signage controls. The shopfront, for example, should be designed to communicate the name of the shop. Additional information, such as “here you have the best price in the city”, “great deals” and “good value”, should not be allowed in shopfronts, and limited in window displays.

7. The fragmentation of a building facade by colour and commercial signs should be avoided:

The fragmentation of a building facade by colour and/or commercial signs due to commercial purposes should not be allowed. Usually, when more than one shop is located in one historic building, shop owners in Pelotas tend to divide the building facade into different parts using colours and commercial signs. They believe that it helps consumers identify each shop; however, according to the participants in the focus group, it just contributes to decreasing the visual quality of the building and the historic city centre. The results of the focus group discussion show that colours and commercial signs of different shops located in the same building should be designed as a group.

8. The involvement of the local universities in discussions about visual pollution:

Lectures and informal discussions organized among students and lectures in order to debate the consequences that visual pollution can bring to historic city centres is an initiative that can be promoted by the local universities; Pelotas has two Schools of Architecture and Urban Planning and one School of Publicity. This kind of discussion can contribute to making students aware about the problem of visual pollution, and pro-active in terms of avoiding this in their future professional projects. It is interesting to note that this study is the result of a preliminary academic work developed by the researcher when she was a student of architecture in the Federal University of Pelotas, Brazil.

3. CONCLUSION

This paper began to provide evidence for further theoretical discussions in the Environment Behavioural research field. The findings demonstrated that some visual preferences, related to commercial streetscapes, were based on the process of user perception (perceptual constancy) more than on the process of user cognition. This is because standard judgments related to the appearance of commercial streetscapes were found between users from different case studies and countries. Very few studies of user preference in relation to the appearance of commercial streetscapes have been conducted by researchers, with the exception of Nasar (1988) and Nasar and Hong (1999); but these works are based on individual case studies or computer simulations of created scenarios.

Results from the questionnaire analysis showed that users from Oxford and Gramado and residents in Pelotas, where commercial signage harms historic buildings and causes disorder, share the same perception and evaluation, when the appearance of the commercial streets in Pelotas were analysed. The fact that common views were found between users from these three different urban contexts suggests that the development of a general commercial signage approach, which helps national, regional and local authorities of different historic city centres design and implement commercial signage controls, is an essential initiative that should be integrated within urban design approaches.

From the interviews and focus group analysis the evidence from this paper indicates five factors that can increase visual pollution in historic city centres. These factors can be used in the operation of a general commercial signage approach as negative scenarios that should be avoided by local authorities in different urban contexts. This study also identifies eight proposed actions that, according to user perception and evaluation, can improve the appearance of historic city centres, and convince shop owners and members of local communities to support commercial signage controls (see Table 6). These proposals can be used in the operation of a general commercial signage approach as strategies to reduce visual pollution in historic city centres of different urban contexts already affected by this problem.

The limitations of a generalization of the findings are clear because of the sampling of users is not random. In this regard, the results from the empirical investigation need to be interpreted as pertaining to the sample of residents in Oxford, Gramado and Pelotas, and not of a wider population. On the other hand, the research findings remain relevant to a qualitative understanding of people's perceptions and evaluations of commercial and historic city centres. Instead of allowing a set of quantitative predictions to be made, the applicability of the research findings to other historic city centres is treated as probable hypotheses rather than something to which can be assigned precise universal laws. It is also hoped that the findings of this paper improve future actions to control commercial signs, and help the discussion of how these media can be designed to create pleasant commercial and historic city centres for users from different urban contexts.

Table 6 - Factors related to the visual pollution in a historic city centre according to user perception and evaluation of commercial streetscapes (Source: fieldwork).

FACTORS THAT CAN INCREASE VISUAL POLLUTION	INITIATIVES THAT CAN DECREASE VISUAL POLLUTION
1. Legislation is too permissive. 2. Attitude of the local authority in dealing with the removal of irregular signs. 3. Lack of effective commercial signage controls described in objective terms. 4. Lack of interest of shop owners in discussing the negative effects that the visual pollution is causing to the historic city centre. 5. Lack of public meetings to allow the local community to get involved in the development of commercial signage controls.	1. Persuasion of shop owners to support commercial signage controls. 2. Application of a commercial signage control approach, which takes into account the character of the whole city centre. 3. Use of computer simulations to illustrate how the appearance of the city centre can be improved with the implementation of commercial signage controls. 4. Delimitation of "street models" in the city centre in order to test commercial signage controls. 5. Control of physical characteristics of commercial signs and the definition of a maximum percentage of building facade that can be covered by these media. 6. Control of the quantity of information displayed on commercial signs. 7. Avoidance of the fragmentation of building facades by colours and commercial signs. 8. Involvement of local universities in discussions about visual pollution.

Further investigation into the subject of visual pollution could also be conducted in order to explore how commercial signage controls might be developed in city centres where the historic component is not a dominant issue. Application of the same methodology used in this paper in places where the visual character of commercial streetscapes is mainly carried or deliberately constructed through commercial signage, such as in Las Vegas, Times Square in New York, and Hong Kong, might produce different results from the ones verified here. In these cases, the signage itself constitutes the architecture, and therefore very different issues related to the operation of commercial signage controls might be taken into account in such places than have been the focus of this research.

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