

**Measuring the atmospheric impact on customers  
(Working paper)**

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**Abstract**

Examining the impact retail environments have upon customers is a complex task and substantial literature and research have been produced in this regard. There are however, relatively few studies that attempt to empirically link the impact of an overall environment to the resulting perceptions, feelings and behaviour of its users. The environment response model provides a conceptual framework for examining the impact of retail and service delivery settings. Its structure and components are derived from an extensive qualitative research phase and builds upon others studies from the fields of environmental psychology, architecture, as well as marketing. The applicability of the model is tested using financial service retail environments. Approximately 100 customers were interviewed from each of 18 bank branches. In addition, an audit of specific design features was conducted at each outlet. Analyses of the data reveal that in general modern branch styles do have a more favourable impact upon customers. Also certain branch characteristics, such as age of layout, windows with a view into the branch and the reduced use of bandit screens are statistically more likely to induce desirable customer responses. However, the environment behaviour relationship is highly complex and design attributes can frequently achieve a positive impact in one regard, whilst resulting in a negative in another. The complexity of the relationship highlights the difficulties and unpredictability facing retail designers.

**Keywords**

Atmospherics store environment response behaviour retail design

## **Introduction**

Since the 1980's UK financial service distribution channels have undergone significant changes. Despite branch numbers showing continued decline and the growth in alternative distribution/transaction methods (Keynote 2001), the majority of consumers still regularly use this channel. A recent Mintel report sees the branch of the future as 'the hub of a wide range of distribution mechanisms, working in harmony rather than competing against each other' (Mintel 2000).

'Banks and building societies have made efforts to change the style and ambience of their branches, with many branches going through several metamorphoses in the last ten years. However, as yet no layout has proved totally successful.' (Mintel 2000)

Standardised retail branch formats evolved and have been implemented across much of the branch networks. Many networks now comprise a mix of the modern and more traditional outlet styles. The modern branch designs include high profile frontages, greater proportion of space allocated to the customer, open plan layouts, limited use of bandit screens, as well as the adoption of retail merchandising principles. Traditional styles tend to have a smaller customer areas, high use of bandit screens and smaller windows. Whilst the cost of branch refurbishment is massive, this money is frequently spent without fully appreciating the impact of new designs and the effects that specific design attributes have on the branch users.

Some thirty years ago Kotler, considering the role of 'environment' or place in the marketing mix, developed the term atmospherics to describe:

"...the conscious designing of space to create certain effects in buyers. More specifically, atmospherics is the effort to design buying environments to produce specific emotional effects in the buyer that enhance his purchase probability." (Kotler 1973)

Since then the role of atmospherics has become more fully appreciated and the design objectives for retail and service delivery settings more sophisticated.

The role of the designed environment and atmospherics are particularly important in service sectors, where environment is one of the few key tangible elements. How staff react to outlet design environment is also crucial, since staff satisfaction with the work place directly affects the quality of service they deliver to customers.

Atmospherics continues to be an important area of marketing research with:

- High street retailers aiming to impart ever more pleasurable shopping experiences, particularly in the light of growing on-line competition.
- The growing importance of experiential marketing and providing customers with desirable experiences (Schmitt 1999).
- The concept of atmospherics being applied to applied to virtual stores (Ergolu et al 2001).

There is therefore a growing need to more fully appreciate how designed environments affect their users (Turley and Milliman 2000).

## **Literature evaluating designed environments**

There is a considerable amount of literature, from a wide variety of disciplines, reporting the impact of designed environments upon their users. Figure 1 overleaf, summarises the wide ranging affects

reported for various environmental cues. Since the environment is perceived through the five sensory receptors the figure is arranged in keeping with these. As Gross (1995) indicates '80% of external information reaches us through our eyes' accordingly more attention has been given to the visual aspects. Many of the environment affects detailed in figure 1 were identified through observation and experimentation. This research approach generally involves examining a particular design features impact upon the user, in isolation from the rest of the other environmental cues. Whilst observation has proven extremely valuable in providing a detailed insight into the affects of specific design features it does not however attempt to evaluate its overall impact. As Botschen & Crowther (1999) indicate:

'Effects of atmospherics come from the complete atmosphere ..... therefore look to the whole design in developing our understanding.'

When examining the research literature which attempts to evaluate environments as a whole, rather than just focusing on individual aspects, it is possible to divide most of the work into four general categories:

### ***1. Environment descriptors/classifications***

It is important to be able to describe a designed environment, in order to assess its impact upon users. As Baker (1986) states:

"Classification schemes are important in the development of a field, because phenomenon that are organised into classes or groups become more amenable to systematic study and theory development."

Kasmar (1970) for example provides an early 'lexicon' of architectural descriptors, which can be used for the purpose of environment description.

### ***2. Rating key physical and/or functional dimensions***

Cass and Herschberger (1973), Acking and Kulling (1973), Grossbart (1975), Friedman et al (1978), Gifford (1987), Andrus (1986), and others use sets of bipolar adjectives by which designs can be rated. Several of these studies, such as Grossbart (1975), use factor analysis to identify the key dimensions of the designed environment.

Other studies have attempted to establish the design preferences of the environment user by collecting importance ratings for specific design attributes. Baker et al (1988), for example, had bank users rate the importance of features such as windows, spaciousness, colours, signs, etc. This approach, however, does not recognise the fact that the impact of the designed environment is frequently subliminal.

Donovan and Rossiter (1982) identify further drawbacks in this type of approach, highlighting three key difficulties in measuring effects of store atmosphere:

- such effects are basically emotional states and thus difficult to verbalise
- they are transient and thus difficult to recall
- they influence behaviour within the store, rather than external behaviour, such as store choice

Figure 1 Design features and their impact upon the environment user

<b>Receptor*</b>	<b>Environment feature</b>	<b>Impact upon environment users</b>	<b>For example see</b>
Visual	Colour	Moods and emotional states	Ornstein (1990)
	“	Health / physiology	Bellizzi et al (1983)
	“	Taste perception	Tom et al (1987)
	“	Temperature perception	Hayne (1981)
	“	Spatial demarcation & direction of in-store movement	Razzanno (1986)
	Lighting / brightness	User satisfaction	Lewis (1994)
	“	Attraction to / handling of goods	Areni & Kim (1994)
	“	Task performance	Butler and Biner (1987)
	“	Image perception	Smith (1989)
	“	Metamerism – colour perception	Green (1986)
	“	Direction of in-store movement	Cobb (1988)
	“	Visual privacy	Gifford (1987)
	Natural light / windows	Psychology and mood	Heerwagen (1990)
	Pattern	Direction of in-store movement	Proctor (1990)
	Shapes	Symbolic association / psychological connotations	Proctor (1990)
	Spatial arrangement	Interaction with others & reaction to space limitations	Martin & Pratner (1989)
	“	Ergonomics and productivity	Barron (1991)
	“	Efficient flow of in store movement	Newman (2002)
	“	Mood / emotional response, i.e., pleasure	Spies et al (1997)
	Spatial density / space availability	Avoidance behaviour / stress	Mehrabian & Russell (1974)
	Clearly demarcated zones	Identity reinforcement / dominance of territory holder	Russell & Ward (1982)
	Personal space	Visual and aural privacy – stress & performance	Wineman (1982)
Aural	Music	Speed of movement	Milliman (1986)
	“	Emotional response	Gordon (1990)
	Sound / noise	Perceived duration of shopping trip	Yalch & Spangenberg (1988)
	“	Arousal, task performance	Wineman (1982)
	Background noise	Acoustic privacy	Wineman (1982)
Tactile	Temperature	Performance, interaction with others	Gifford (1987)
	Comfort - hard & soft furnishings	Speed of movement / time spent in area	McGoldrick & Greenland (1994)
	Contrasting fabrics	Tactile quality associations / evaluation	Solomon (2002)
Olfactory	Pollutants / air quality	Aggression / irritation / fatigue	Evans et al (1982)
	Negative ions	Performance	Baron (1987)
	Scents and odours	Mood / behaviour	Russell & Ward (1982)
	“	Perceived service quality	McDonnell (1998)

	“	Stimulating purchase	Bainbridge (1998)
	“	Learning and memory recall	Smith et al (1992)
Taste	Food / drink samples	Arousal	Mehrabian & Russell (1974)

\* cues may impact upon several senses at the same time, some elements could therefore be included under other sensory receptors

### 3. Emotional response to the environment

Mehrabian and Russell (1974) present one of the earlier works examining a place's impact upon emotion. Their PAD approach uses primarily semantic differential measures along three emotional dimensions (pleasure-displeasure, arousal-non arousal and dominance-submissiveness) to describe an environment's affective quality. The emotional response or mood state is viewed as the key mediator influencing environment-behaviour relationships, specifically approach and avoidance behaviour.

In an environment considered comparatively more pleasing and arousing an individual is likely to exhibit approach behaviour both toward and within that setting. Whereas in an environment considered more arousing and displeasing an individual is likely to exhibit avoidance behaviour. Approach or avoidance behaviour is determined by aspects such as an individual's desire to visit and remain in a setting and willingness to communicate to others in that setting. Dominance involves factors such as freedom of choice, privacy, territoriality and crowding. Privacy and territoriality permit greater freedom of choice in terms of behaviour whereas crowding is likely to restrict it.

Response to an environment is also seen as being affected by the setting's information rate and considered a direct correlate of arousal representing:

"the various components of stimulation in a given setting: complexity diversity, unity, congruity, artificiality, crowding, symmetry, meaningfulness, harmony and novelty." (Mehrabian and Russell 1974)

Whilst the link between pleasure and arousal and approach/avoidance behaviour has been established, the relationship of dominance has proven weaker.

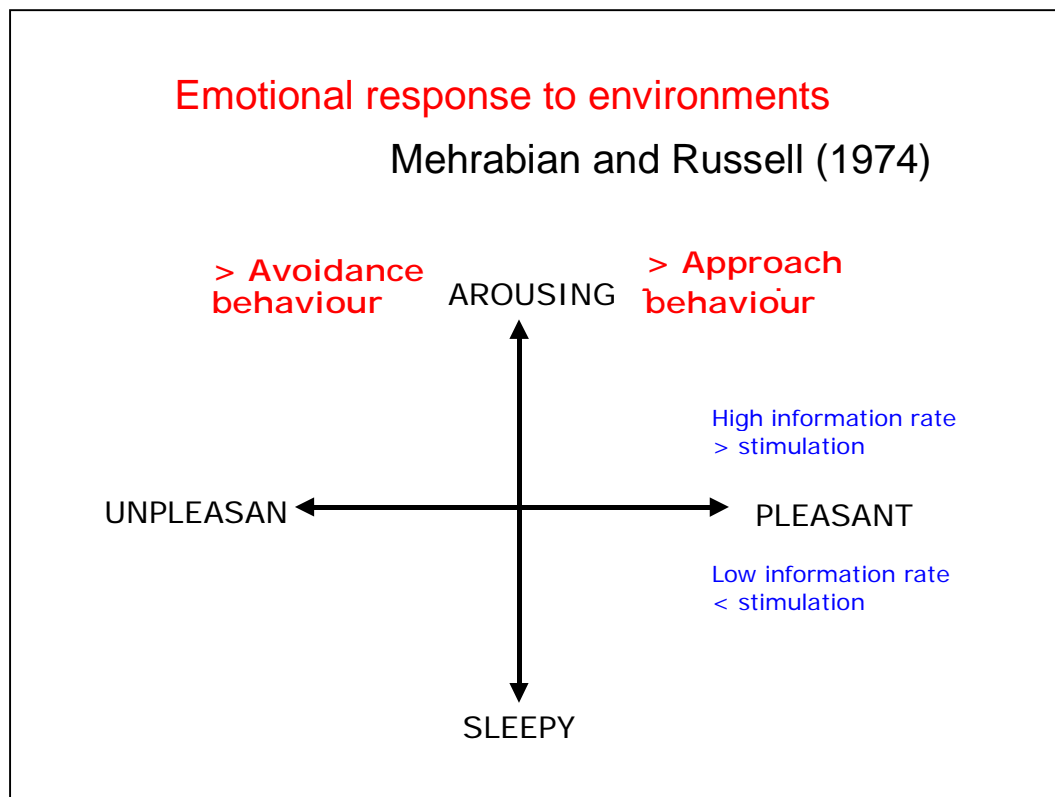


Figure 2 The key dimensions of emotion, the information rate and their impact upon behaviour (Mehrabian and Russell 1974)

The PAD approach has been refined and adapted in several later studies examining the impact of retail settings, e.g., Russell and Pratt (1980), Donovan and Rossiter (1982), Pieros and McGoldrick (1993), Donovan et al (1994).

#### ***4. Frameworks for evaluating environments***

Classifications of the designed setting, ratings of functional aspects and evaluations of emotional response each have their own particular focus and do not necessarily consider all aspects of the environment-behaviour relationship. In order to understand both the physical attributes, as well as the psychological processes, operating in designed environments it is important to have a comprehensive framework that allows the core elements of the environment behaviour relationship to be identified.

Numerous authors have developed conceptual frameworks for understanding physical environments, e.g., Ornstein (1990), Bitner (1992), adopting more holistic approaches for describing the physical environment. Ornstein (1990), for example describes three key environment composites:

- **Ambient conditions** (physical qualities of the environment such as lighting, colour, air quality, temperature, noise)
- **Psychogeographic concepts** (psychological interpretations of the spatial features of the environment including privacy, territoriality, crowding)
- **Architectural features** (interior spatial features of the environment such as layout, interior design, windows, etc.)

She also highlights the importance of technology as an important issue to be considered in the evaluation of many modern settings.

Baker et al (2002) not only develop a conceptual framework relating the store environment, store choice criteria and patronage intentions, but also provide one of the few examples of this type of research actually empirically linking environment cues and customer behaviour.

#### **Research objectives and methodology**

The research has two main objectives:

1. Develop a conceptual framework or model for assessing and evaluating the impact of retail environments upon users
2. Test the practicability of the framework in bank branches by:
  - Evaluating the impact of the branch environment and attributes upon customer attitudes and behaviour
  - Identifying the dynamics between the components of the model
  - Assessing any differences in response between different user groups

#### ***Preliminary research***

Following a review of relevant environment behaviour literature, preliminary exploratory research was performed. Initially, to provide insight into branch design attributes, depth interviews were conducted with senior personnel involved with branch networks from 14 financial service institutions and 6 marketing consultancies. Several of these also provided access to unpublished reports concerning premises design. In branch exploratory research was

also conducted with branch users to help establish the branches influence both functionally and psychologically. This aspect comprised two components:

1. Open ended survey of branch visitors

Over 100 undergraduate Marketing students were recruited to visit bank branches and identify 10 positive and 10 negative features of the physical environment. From these data an extensive list of the main components of the branch environment influencing perception was produced.

2. In branch focus groups

Two focus groups were conducted in a branch during office hours so that the environment discussed was that of a working bank.

Each discussion involved seven individuals in the age range 25-50 and from ABC1 socio-economic groups. One group was held with customers from the branch and therefore familiar with its environment, the other comprised customers from other banks who had not visited the branch before. Earlier research suggested that familiarity with an environment might affect a person's perception of it (Baker 1990).

The first twenty-five minutes of the discussion were spent moving around the banking hall area and outside along its frontage. Each group was split between two researchers who encouraged them to give their impressions of the branch. The remaining time was spent in a large, comfortable office where the two smaller groups merged and were asked to provide further details on the comments they had made downstairs and probed on the less tangible aspects of emotional response to environment.

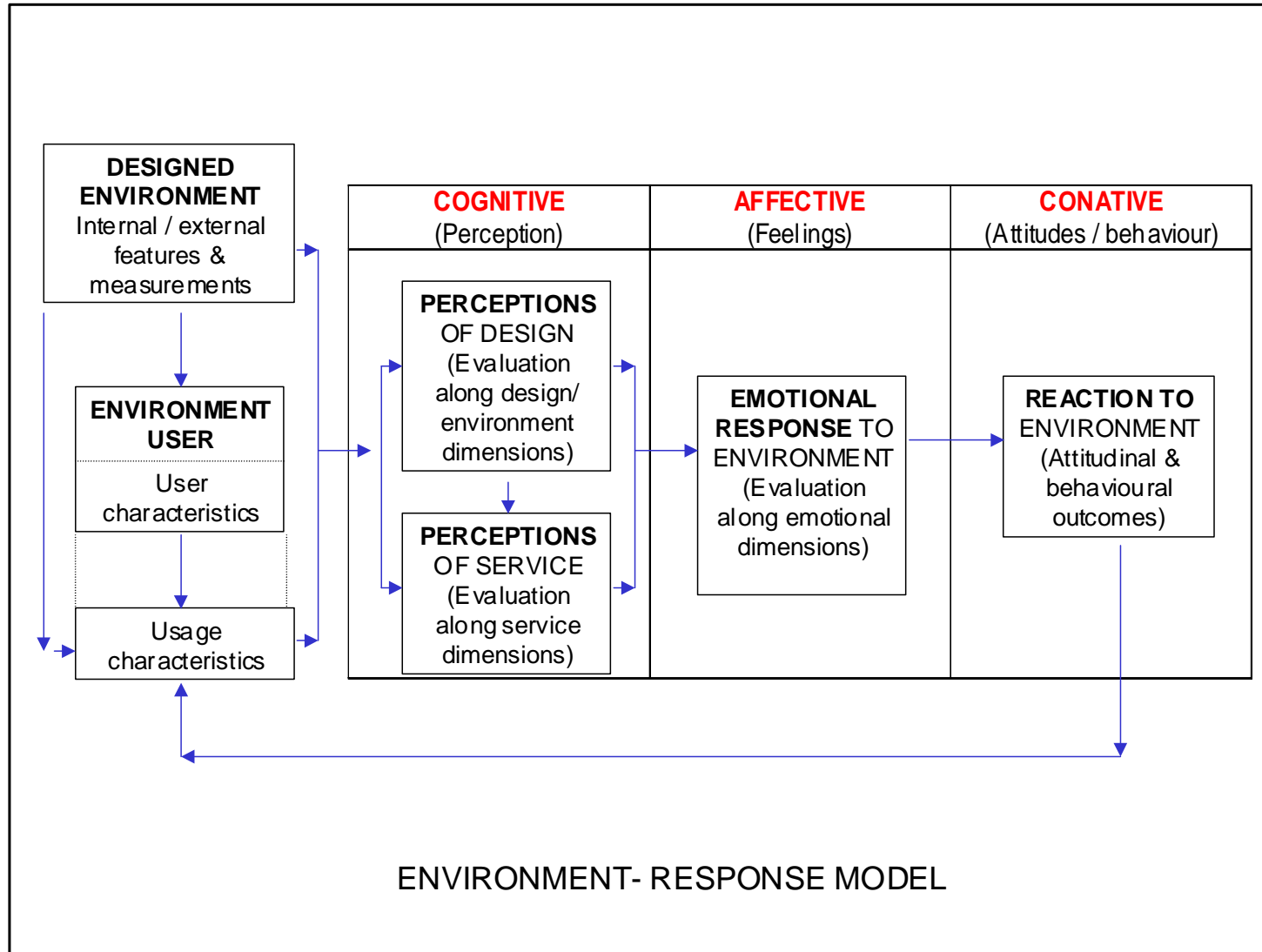
### **The Environment-Response Model**

On the basis of the preliminary research activities the Environment-Response Model was constructed (See figure 3). This provides a framework for assessing a designed environment's impact on its users. The model describes the sequence involved in environment-behaviour interaction, from perception through to emotional response and reaction, in a retail/service delivery setting. The impact of the environment and user characteristics is divided into three distinct stages:

1. Cognitive - the action or faculty of knowing, perceiving, conceiving as opposed to emotion and volition
  2. Affective - feeling, emotion, desire, especially that leading to action
  3. Conative - desire to perform action, volition, voluntary action
- (Definitions after Sykes, 1984)

Whilst there are numerous models which adopt a different sequence (e.g., Lee et al 1999 and Aylesworth et al 1998) the Environment response model follows the standard learning hierarchy (Solomon 2002). In this the consumer initially forms beliefs about the product/service by accumulating knowledge regarding various attributes. Once these beliefs are established then feelings are formed. Finally on the basis of these responses resulting behaviour and attitudes occur. This sequence of stages is common in Marketing 'response hierarchy' models (Betts 1994, Engel et al 1995).

Figure 3 Environment response model





## Main survey

The practicability of the framework was tested out in an audit of branch design features as well as survey of their customers. A total of 18 branches, consisting of a mix of modern and traditional styles were included in the survey. To allow statistical comparisons between outlets and enable the impact of specific design features upon user attitudes and behaviour to be evaluated it was necessary to attempt to translate the branch environment into an essentially quantitative description. Although over 100 design features influencing perception were identified in the preliminary research phase, in the actual branch audit 12 audit variables were collected. These items were chosen on the basis that they are generally a characteristic, which varies between the modern and traditional branch styles. The design audits were conducted immediately prior to the questionnaire survey.

A questionnaire was developed on the basis of the preliminary research and refined through several stages of piloting. Approximately 400 self-completion questionnaires were distributed in each branch to customers agreeing to participate. Several larger branches actually distributed up to 800 questionnaires. All questionnaires were distributed during the same 5 day period. Respondents were asked to complete the form as soon as possible after the branch visit and return using a prepaid envelop. They were offered the incentive of entry into a cash prize draw. Of the 8,800 questionnaires distributed, 2121 were returned giving a response rate of just under 25%.

Data were collected for the various components of the model and included user and usage characteristics, as well as perceptions of service quality along seven dimensions. Respondents also rated their branch along twenty design descriptors using seven point semantic scales. These scales were developed on the basis of previous work, such as Gifford (1987), as well as the exploratory research phases.

tidy - Untidy	adequate light - inadequate light
comfortable - uncomfortable	fashionable - unfashionable
well arranged - poorly arranged	adequate security - inadequate security
functional - non functional	good colours - bad colours
expensive interior - cheap interior	private - not private
comfortable temp - uncomfy temp	distinctive - ordinary
airy - stuffy	too big - too small
user friendly - user unfriendly	tasteful - tasteless
quiet - noisy	rugged - delicate
old - new	complex - simple
high technology - low technology	

To evaluate the emotional impact respondents were asked to describe the feel of the branch using bipolar and agree – disagree scales, based on those used by Mehrabian and Russell (1974) and Russell and Pratt (1980).

Bipolar adjective scales	Agree - Disagree scales	
Novel branch - Standard branch	Pleasant	Impressive
High technology - Low technology	Obliging	Nice
Unusual - Common	Inactive	Slow
Distressing - Relaxing	Humble	Unused
Unpleasant - Pleasant	Lively	Bustling
Not stimulating - Stimulating	Unappealing	Daunting
Alive - -Sleepy	Authoritative	Intimidating
Domineering - Cooperative	Attractive	Dislikable
Varied - Repetitious	Unpleasant	Sleepy
Crowded - Uncrowded	Distasteful	Appealing
	Understanding	Alert
	Approachable	Active

In addition nine attitude and behaviour indicators were measured, based on questions used by Mehrabian and Russell (1974) and Donovan and Rossiter (1982) to assess approach -avoidance behaviour.

Behaviour / attitude statement*	Scale
Extent to which refurbishment a good use of the banks money?	poor use - good use
To what degree are you a <u>satisfied</u> customer of this bank?	not at all satisfied - very satisfied
To what extent do you like the inside of this bank branch?	greatly dislike - greatly like
Regularity of time browsing at information leaflets / posters?	hardly ever - almost always
To what extent do you try to avoid going to this branch?	almost always - hardly ever
Degree to which feels friendly / talkative toward others?	not friendly - friendly
To what extent do you enjoy being a customer of this branch?	do not enjoy - enjoy
Importance of getting in & out of branch as quickly as possible?	important - not important
Degree to which would recommend bank operating the branch?	advise against - recommend

(\*Abbreviated version of that appearing in the questionnaire)

### ***Data reduction & factor analysis***

Together the design and emotional response measures include more than 50 variables. For meaningful analysis and interpretations to be made it was essential to employ data reduction procedures to summarise these data. Factor analysis was used in this regard. The literature and previous research revealed a slight overlap or blurring between design and emotional response variables. For this reason several of the variables namely Novel - Standard, Unusual - Common, Hi technology - Low technology, Varied - Repetitious, Crowded - Uncrowded, Too big - Too small can be considered as both design and emotional response measures.

Accordingly these data have been entered into both the design and emotional response factor analyses. Subsequent analyses between factors, generated by the two analyses, comprising the same components takes is avoided to avoid any auto correlation.

For the design dimensions an eight factor solution emerged from the analyses and accounts for 69.3% of the total variance. A level of 60% of variance explained is suggested as being acceptable for a factor solution (Hair et al 1998), thus it can be concluded that a factor model with eight factors adequately represents the data. The eight factors and their components, with factor loadings greater than 0.5 are displayed in Figure 4.

Figure 4 The eight design factors and dimensions with a factor loading > 0.5

Factor	Core design dimension identified	Design attributes loading on to each factor with loadings of at least 0.5*
1	Facilitative elements	Comfortable/Uncomfortable Well arranged/Poorly arranged Tidy/Untidy Functional/Non functional User friendly/User unfriendly
2	Physical conditions	Comfortable temperature/Uncomfy temp Airy/Stuffy Adequate light/Inadequate light Quiet/Noisy
3	Individuality	Unusual/Common Novel/Standard Distinctive/Ordinary
4	Innovativity	Old/New Fashionable/Unfashionable High technology/Low technology
5	Personal conditions	Private/Not private Varied/Repetitious Adequate security/Inadequate security
6	Scale/grandeur	Too big/Too small
7	Design potency	Rugged/Delicate Complex/Simple
8	Spaciousness	Crowded/Uncrowded

(\*Components of each factor are ranked according to their values, i.e., most influential/highest loading first)

The eight factors all have clear and specific constructs. Facilitative elements, physical conditions, design potency, and spaciousness have their counterparts in other research, e.g., that of Cass and Herschberger (1973) and can perhaps be considered as dimensions appropriate to most designed settings. Whilst the dimensions of individuality, modernity, personal conditions and scale/grandeur appear to be more relevant to the financial service environment.

For the emotional response variables a six factor solution was examined, as this is the last factor before eigenvalues fall below one. The six factors and their components, with loadings greater than 0.5 are displayed in figure 5.

Figure 5 The six extracted emotional response factors, their components with loadings greater than 0.5.

Factor	Core emotional dimensions	Emotion attributes*
1	PLEASURE	Attractive Impressive Appealing Nice Unpleasant (-ve) Distasteful (-ve) Unpleasant/Pleasant Distressing/Relaxing Pleasant Not stimulating/Stimulating Unappealing(-ve)
2	APPROACHABLE/ COOPERATIVE	Approachable Understanding Alert Obliging Active Domineering/cooperative Lively Pleasant
3	NOVELTY	Novel/Standard Unusual/Common High technology/Low technology Varied/Repetitious
4	(Non) AROUSAL	Humble Inactive Sleepy
5	DOMINANCE	Intimidating Daunting Authoritative Dislikable
6	CROWDING	Crowded/Uncrowded (-ve) Bustling

(\*Components of each factor are ranked according to their values, i.e., most influential/highest loading first)

In the six factor solution the three key emotional response measures, identified by Mehrabian and Russell (1974), i.e., pleasure, arousal, and dominance, are apparent. Unlike subsequent research by Russell and Pratt (1980) and Donovan and Rossiter (1982), the dominance dimension is clearly evident. These two earlier studies suggest dominance as having only a weak importance. In the case of financial service environments, however, the dominance dimension is important. In addition it could be argued that the approachable/cooperative dimension, from the six factor solution, is also an aspect of dominance-submissiveness. The relevance of dominance in the financial service setting is perhaps to be expected, given the austere image traditionally associated with banks. The other two elements produced by the factor solution, arousal and

crowding, can be considered information rate measures and also have their counterparts in earlier studies, e.g., Donovan and Rossiter (1982).

As mentioned already several variables were entered into both the design and emotional response measure factor analyses. This was considered appropriate given the overlapping, indiscreet nature of design and emotional response evaluation. In several cases a variable measured could be considered both a design evaluation and emotional response indicator. The resulting factor solutions show that for several factors from each analyses similar components can be identified, For example, Factor 3 'Novelty' and 6 'crowding', from the emotional response factors, are comprised of four and one components, respectively, also present in the design factors, in particular factor 4, the 'Innovativity' factor. Clearly any analysis, examining relationships between the emotional response factors and the design dimension factors, must take this into account to avoid auto-correlation. Subsequent analysis between the design and emotional response factors was therefore be conducted with the omission of factors three and six, from the emotional response measures.

### **Analyses, results & findings**

Data involved in the main analyses are displayed in figure 6. Each block in the model was analysed by every other. For this purpose the branch audit data were combined with those from the questionnaire survey.

Several earlier studies such as Pieros and McGoldrick (1993) and Grossbart et al (1990) adopt a LISREL approach. However in this study structural equation modelling was not utilised, due to the exploratory nature of the study and the potential loss of detail that would be inevitable with the use of such a technique. In addition to this point several criticisms have been levelled at LISREL. For example Bagozzi and Baumgartner (1994) discussing estimation problems encountered with structural equation models state:

"for more complex models the automatic starting values provided by LISREL may prove inadequate"

A selection of results and discussion of general marketing implications, as well as those for branch design follow. Given space restrictions, when exploring the impact of the designed environment only 3 features are examined in detail; age of layout, clear view into the branch and proportion of teller desks without bandit screens. These variables are features which frequently differentiate the traditional and modern branch styles.

Customer characteristics have significant impact upon branch/product use, as well as the other components of the model. For instance, as reported in other studies, familiarity with environments affects user perception. Those visiting other branches more frequently were more critical and gave significantly lower ratings on the cognitive, affective and conative dimensions, compared to those less familiar with other branch environments.

Those in full time employment gave higher ratings for the design factors of potency and spaciousness. These relate to design simplicity and crowding, which may influence visit length and thus be more important to those with time constraints.

FIGURE 6 Summary of the key data utilised in the main analyses

USER DETAILS	ENVIRONMENT*	COGNITIVE	AFFECTIVE	CONATIVE
<p><b>6 user characteristics</b>            Gender            Age            Employment            Single/cohabiting            Social status            Income</p> <p><b>4 usage details</b>            Frequency of branch visits            Frequency of visit to other branches            Length of branch patronage            Services used in past 12 months</p>	<p><b>12 branch features</b>            Staff with direct customer contact (n)            ATM internal/external (n)            Reception desk (yes/no)            Promotional leaflet dispenser (n)            Employee tree (yes/no)            Frontage length (meters)            Soft zone (yes/no)            View into branch (yes/no)            Percentage of desks with no bandit screen (n)            Layout age (years)            Branch banking hall volume (cubic meters)            Privacy of info' desk (meters from other activities)</p>	<p><b>8 Design factors</b>            Facilitative            Physical conditions            Individuality            Modernity            Personal conditions            Scale/grandeur            Design potency            Spaciousness</p> <p><b>7 service factors</b>            Helpful efficient service            Flexible-cooperative service            Clear impartial advice            Branch is convenient            Staff pressure customers            Trustworthy reliable branch            Approachable branch manager</p>	<p><b>6 Emotional factors</b>            Pleasure            Arousal            Approachable            Novelty            Dominance            Crowding</p>	<p><b>4 Behaviour measures</b>            Time spent browsing            Importance of getting in and out ASAP            Try and avoid branch            Friendly/talkative to others</p> <p><b>5 Attitude measures</b>            Customer enjoyment            Customer satisfaction            Like branch interior            Recommend to others            Refurbishment's good use of bank's money</p>

(\* Environment variables either frequency 'n' or presence 'yes-no' recorded.)

Data presented in figure 7 examine the relationship between the three environment variables and the cognitive, affective and conative model components. T-tests were used for (yes/no) environment variables and correlation for the numeric variables. Only significant results are presented, with the sign indicating the direction of the relationship, positive/negative for correlation and presence/lack of feature for t-test.

#### *Environment & design perception cognitive components*

When considering design dimension ratings it should be remembered that a higher score does not necessarily represent a desirable thing. For example, if a branch receives a higher scale/grandeur rating this is not necessarily something a customer prefers.

Figure 7 examines the relationship between three design features and the design factor scores. The data reveal that branches with older layouts are rated as significantly less facilitative, modern and spacious. Devoting a greater proportion of the branch to customers and providing a more functional environment are both core objectives for modern designs and in this regard banks therefore appear to be achieving their objectives. However, branches with the older layouts receive significantly higher ratings along the scale/grandeur and design potency ratings. Within the sample several of the more traditional outlets occupied fairly impressive, listed buildings, which helps to explain this result. The impressive, austere branch setting is typical of the 'traditional bank' image and is a perception banks have been trying to change. Again this is something that more modern style outlets appear to be achieving more effectively.

A view into the branch is a feature more commonly associated with more modern styled outlets. The roles of larger windows and a view into the branch are to promote products / services, the image of the bank, as well as giving a higher profile to the modern branch interior. In terms of design, branches with a view inside are perceived as being comparatively more modern, but common (less individual) and not as grand as more traditional styles. Windows with a view into the branch are also considered a more potent design feature. These results might be anticipated given the standardised designs that have been implemented across networks. However, outlets with views inside the branch receive lower ratings for personal conditions. Again this might be expected given that privacy and security were important dimensions loading on to this factor. This last point highlights the complexity of the environment behaviour relationship and problems designers face. A feature may have a positive impact along one design dimensions but a negative impact along another.

Designs with a higher proportion of teller stations and desks without bandit screens are rated as being less individual and less potent, but comparatively more facilitative, modern, grander and spacious. Whilst most of these are fairly predictable findings, the higher rating for scale/grandeur is harder to interpret and inconsistent with the results for layout age and view into branch.

#### *Environment & service perception cognitive components*

When examining the relationship between environment & service perception cognitive components significantly better service ratings are more frequently evident for the branch features commonly associated with modern styles. Only the association of older branch layouts and convenience is the exception. The clearest example of a modern style feature having a positive impact on perceived service

**Figure 7 Relationship of environment & the cognitive, affective and conative components**

<b>Design dimensions (cognitive)</b>	<b>LAYOUT AGE (YRS)</b>	<b>VIEW INTO BRANCH</b>	<b>DESK % NO SCREEN</b>
Facilitative elements	.003-		.007+
Physical conditions			
Individuality		.000-	.000-
Modernity	.000-	.000+	.000+
Personal conditions		.000-	
Scale/ grandeur	.083+	.000-	.000+
Design potency	.066+	.000+	.048-
Spaciousness	.000-		.000+
<b>Service dimensions (cognitive)</b>	<b>LAYOUT AGE (YRS)</b>	<b>VIEW INTO BRANCH</b>	<b>DESK % NO SCREEN</b>
Helpful-efficient service	.000-		.000+
Flexible-cooperative service	.003-		.000+
Clear & impartial advisor	.012-		.007+
Branch is convenient	.001+	.085+	.077-
Staff pressure customers			.097-
Trustworthy reliable branch	.000-		.005+
Approachable branch manager		.050+	.082+
<b>Emotional dimensions (affective)</b>	<b>LAYOUT AGE (YRS)</b>	<b>VIEW INTO BRANCH</b>	<b>DESK % NO SCREEN</b>
Pleasure		.025+	.026-
Approachable /cooperative	.001-		.000+
Novelty	.000-	.000+	
Arousal	.005-	.009+	
Dominance	.008+		.000-
Crowding	.000+		.000-
<b>Outcome variables (conative)</b>	<b>LAYOUT AGE (YRS)</b>	<b>VIEW INTO BRANCH</b>	<b>DESK % NO SCREEN</b>
Refurb' good use of money	.005-	.000+	
Satisfied customer	.010-		.034+
Likes branch interior	.028-	.000+	.055-
Browse at branch information	.019-		.021+
Tries to avoid branch visits	.036-		
Feels friendly / talkative to others	.001-		.024+
Enjoys being a customer of branch	.001-		.025+
Important to get in and out quickly	.003-	.066+	.013+
Would recommend branch to others	.012-		

quality is the removal of bandit screens. Reduced use of bandit screens appears to be associated with more desirable scores on all service factors except convenience which has a location aspect to it and so is not entirely dependent upon design. A view into the branch corresponds to better convenience and approachability ratings. This is an interesting result given that an objective of modern designs is to appear more approachable and try to attract people into the branch.

#### *Environment & branch feel affective components*

As with the cognitive components of the model, the features more common in modern style branches are associated with more desirable ratings for emotional response. Older branch layouts are rated as less approachable, less novel/lower technology, less arousing, but more domineering and more crowded compared to branches with more recent layouts. Windows with a view into the branch are also associated with significantly higher scores for the factors pleasure, novelty and arousal. This result supports findings of other researchers who have investigated the impact of windows and found a positive impact upon user satisfaction.

Branches with fewer bandit screens appear to be perceived as more approachable, less dominant and less crowded. However, they are also associated with lower ratings on the pleasure factor. This possibly relates to the concept of territoriality and the fact that territories and the divide between staff and customer space is less clearly defined in branches with reduced use of bandit screens.

#### *Environment & behaviour / attitude outcome, conative components*

As detailed in the methodology section, the outcome variable 7 point scales were designed so that a higher score indicates a more favourable rating along that dimension. For example, a score of 7 on 'Important to get out as quickly as possible' indicates that this is not at all important to that customer.

The conative components of the model provide the strongest evidence that modern branch features are significantly more likely to be associated with positive outcome behaviour. Customers from branches with more recent layouts are significantly more likely to exhibit desirable outcome behaviour and attitudes compared to customers of branches with older ones.

Further indicators of the impact of design can be found by examining the relationship between the branch environment and levels of branch use. For example, frequency of entry into the branch is significantly higher in branches with:

- more staff with direct customer contact
- a reception desk
- more promotional leaflet dispensers.

This indicates that information providing features of the branch do actually encourage branch use. However, four of twelve environment variables commonly associated with modern styles are also associated with lower frequency of branch entry:

- more ATMs
- a soft zone
- a clear view into the branch
- greater distance between the information desk and other points

These features appear to actually deter consumers from entering the outlet and are all features more common in modern outlets. This finding highlights a key difficulty for banks in trying to

decide upon and implement their design strategies. Clearly some design objectives conflict with others. For instance, maximising cross selling opportunities is likely to conflict with providing a service environment that fulfils consumer needs: Increasing ATM numbers will fulfil one objective by giving out-of-hours self service but will not actually encourage consumers to enter the branch and thereby avoid the cross-selling and merchandising efforts.

### ***Interrelationships between the model components***

Interrelationships between model components were investigated using multiple regression and reveals that higher ratings along the service delivery dimensions are most strongly related to better scores for two design factors:

- Personal conditions
- Facilitative elements

Significant relationships between the cognitive and affective components were also evident. For example, branches considered more approachable/cooperative are also associated with better scores in terms of personal conditions, (e.g., more privacy). Similarly higher ratings for dominance are associated with higher scores for scale/grandeur.

When examining the relationship between cognitive and conative components, again facilitative and/or personal conditions were the design factors most strongly related to the outcome measures. If branches are rated more favourably along these two factors they are also comparatively more likely to exhibit favourable ratings along certain attitudinal and behavioural responses to the environment. Helpful efficient service was the service measure most strongly associated with higher scores on the outcome variables.

For the multiple regression analyses involving the affective dimensions and outcome measures, approachable/cooperative and pleasure were most strongly associated with more favourable attitude/behaviour ratings.

### **Conclusions**

The environment response model provides a framework for investigating a retail environment's impact upon customers. Taking a selection of modern and more traditional bank branches the value of the model has been tested empirically. Modern bank designs are characterised by larger windows with views into and out of the branch, more recent layouts, as well as reduced use of bandit screens. The results show that in general modern outlets have a more positive impact upon customer ratings of the cognitive, affective and especially the conative responses. However, the environment behaviour relationship is complex; The research also reveals that whilst branch features common to modern designs may have a positive impact in one regard they can also be negative in another. For example, windows providing a view inside the branch enhance feelings of pleasure and arousal, but reduce perceived privacy and security, are associated with a comparatively lower frequency of branch entry and more importance is attached to getting in and out of the branch as quickly as possible. Similarly branches with reduced bandit screen use are perceived as offering better service, providing greater customer satisfaction and desirable responses, but are also associated with feelings of dominance and crowding.

Factor analyses revealed 8 core design dimensions in financial service environments. Whilst some of these have their counterparts in other research, the dimensions of individuality, modernity, personal conditions and scale/grandeur also emerged as pertinent to these settings. 6 core emotional response dimensions emerged and correspond to previous studies. However, this research reveals the significance of dominance in the case of financial service environments, a dimension previously suggested as having only a weak importance.

As suggested in earlier studies, an environment users characteristics and familiarity with similar service settings impact upon perceptions. Those more familiar with bank branch environments are more critical and give lower ratings, whilst those with time constraints such as full time workers give higher rating to aspects of design simplicity and crowding, which may influence visit length.

When interrelationships between the model components are investigated care must be taken as there is some overlap or blurring between design and emotional response variables. Also a higher rating along particular design factors is not necessarily desirable from the customers perspective. Nevertheless, the design factors personal conditions and facilitative elements are most commonly related to more positive ratings along the other cognitive, affective and conative measures.

When considering the environment behaviour relationship it is clear that the impact of a retail design is so complex that it is unlikely that any one study or approach will explain it fully. Different approaches, whether they focus on individual environment features using observation and experimentation, or assess overall emotional affects, all have their merits. The research testing out the applicability of the environment response model does indeed have limitations and the branch sample size is relatively small. Nevertheless, it has proven reasonably successful and enabled us to consider the impact of modern and more traditional branch styles, as well as individual features on users. Future research activities might involve exploring the interrelationship between the model components in greater detail, as well as applying this approach to other retail settings.

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