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# **The Resonance – Dissonance Framework of Environmental Perception**

A thesis submitted in partial fulfilments of the requirements  
for the degree  
of Master of Arts  
in Psychology at  
Massey University

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2000

# Abstract

Theorising and research in the field of environmental psychology has been dominated by two different schools of thought. The cognitive approach emphasises the primacy of cognitive processes on preference judgements between various types of environments and on the restorative effect of nature on humans. The competing psycho-evolutionary approach emphasises the primacy of affect. This theoretical fragmentation has contributed to environmental psychology's conceptual isolation in respect to its potential significance for other psychological sub-disciplines. This thesis proposes a new theoretical account, the "Resonance-Dissonance" (RD) framework of environmental perception, which provides a unifying framework for hitherto competing approaches in environmental psychology. It also seeks to contribute towards building and strengthening the tenuous or missing conceptual links between environmental psychology and other psychological sub-fields. A series of interlocking concepts, which bind together aspects of the relationship between perceivers and their immediate physical surroundings, is proposed to achieve this theoretical integration. Innate and culturally shaped needs and wants, in the form of mental structures providing reference patterns, are conceptualised as a fundamental aspect of the relationship between individual and environment. If the environment is appraised as having the agency to meet these needs, a state of resonance in the form of positive affect and cognitions ensues. Conversely, if the environment is appraised as not having this agency, a state of dissonance in the form of negative affect and cognitions emerges. These perceptually based cognitive-affective states are conceptualised to influence cognitions, emotions, behaviour, and physiology of the individual. Preference judgements and psycho-physiological restorative effects, as the main areas of theorising and research in environmental psychology, will be addressed. Possible theoretical implications, as well as practical applications, of the proposed RD framework on other psychological sub-fields are outlined and a tentative research programme is suggested.

# Acknowledgements

My thanks go to the people who have helped and supported me during the time of writing this thesis.

My wife Susanne for her love, tremendous support, help with the intricacies of word processing, and being my main source of resonance!

My children Tiffany and Danyon for their love and understanding whenever I was not as available as they might have wished.

My supervisor Kerry Chamberlain for his invaluable guidance and support without which this thesis would not have come to be a part of anyone's environmental sensory field.

My fellow student Frances James for her interest and support in finalising this thesis.

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## What are we looking at? — Introduction

Surgery patients recover more quickly if they have the opportunity to look through a window at trees and lawns. Participants of an anger control programme imagine being at a favourite place in order to relax and test participants consistently choose photographs of natural landscapes over urban scenes.

These are all fascinating facets of the intimate relationship between human beings and their physical environment. Over the past 30 years, environmental psychology has been the main psychological sub-discipline in pursuit of exploration and explanation of this special relationship. Theorising and research mainly has revolved around the themes of preference judgements on natural versus urban landscapes as well as that of uncovering environmental stimulus variables, which can be used to predict responses to variations *within* the nature category.

Secondly — and more recently — the direct beneficial and restorative effect of various natural environments on human psychological and physical health has been investigated. Two main schools of thought, putting the emphasis on cognitive (Kaplan, 1975, 1987; Kaplan & Talbot, 1983; Kaplan & Kaplan, 1989) and affective processes respectively (Ulrich, 1977; 1979; 1983; 1986; Zajonc, 1980), have emerged in this area and dominated the debate.

Unfortunately, theorising and research in the field of environmental psychology has been fragmented as documented in the number of incongruent concepts and the wide spread and variety of journals in which this field is being debated. At the same time this fragmentation has contributed to a certain degree of conceptual isolation in respect to environmental psychology's potential significance to other psychological sub-disciplines. While theory and research into all areas of interest to psychology at large have utilised "ecological variables" the conceptual links

between environmental psychology's findings and those of other psychological sub-disciplines such as clinical psychology and social psychology have remained tenuous or non-existent.

The "Resonance-Dissonance" (RD) framework of environmental perception, which will be proposed in this thesis is an attempt to contribute towards building and strengthening these tenuous or missing conceptual links. Its main aims are:

- to provide a conceptual framework contributing towards integrating a diverse array of approaches, theories and empirical findings within environmental psychology.
- to provide a conceptual link between a number of psychological sub-fields, such as environmental psychology, clinical psychology, social psychology, and industrial/organisational psychology.
- to generate an impetus for further research into the intimate relationship between human beings and their physical surroundings.

The RD framework of perception is intended to contribute towards a better understanding of how the perceiver meshes with the physical environment. If this relationship between individuals and their physical surroundings as inextricably linked components and not as completely separated entities can be better understood, applications in areas as diverse as clinical psychology, social psychology, architecture, and landscape design are possible.

The main overarching theme of the RD framework of perception is the notion, that human beings can be "in or out of tune" with their physical environment. On a fundamental level, basic phylogenetically developed adaptational needs of the individual do or do not mesh with the environment's agency to meet those needs. In the individual, these needs and wants are represented by mental templates about particular qualities of the physical environment. Other templates – or relevances as they will be called – represent threats to those needs and wants. In other words, mental representations of certain qualities of objects or other aspects of the environment such as sounds, odours etc., which render them likely or unlikely to meet the adaptational needs and wants, are present in the individual.

These postulated templates could be defined as innate mental yardsticks to appraise one's physical environment in terms of its benignity, that is the probability that one's basic and general needs and wants are being met. The environment's agency to meet these needs renders it relevant to the individual. These templates which are probably located in sub-cortical brain structures are viewed as stable and rigid products of an evolutionary process. In a continuous process from birth to death they are automatically and subconsciously applied to one's physical surroundings as a means of environmental appraisal.

"Being in tune" with one's environment then means that the postulated "need" templates are congruent with the discernible surrounding physical environment and that no "threat" templates match with the environment. An underlying positive affective frame, which can be described as a sense of affinity with one's physical surroundings is thought to be the hallmark of environmental resonance. Conversely, "being out of tune" represents a sense of alienation from one's physical surroundings. That is, a global negative affective state ensues if the perceiver's "need" templates are not matched by the environment and/or "threat" templates are matched.

	<b>environment match</b>	<b>environment mismatch</b>
<b>need template</b>	Resonance	Dissonance
<b>threat template</b>	Dissonance	Resonance

**Figure 1: Resonance–Dissonance matrix**

Beyond the survival and procreation oriented adaptational needs, other culturally given higher order needs and wants such as being respected, popular, rich, powerful, and being able to actualise oneself, are seen as being directed at the individual's environment in a similar way. Relevances representing these socioculturally moulded wants, however are more extensive schemata encompassing any number of related ideas, images, beliefs and pertinent general knowledge. These culturally given relevances are flexible and malleable and their content is changing. That is, a mental representation of certain qualities of objects, sounds, odours etc., which are pointing to their agency to meet these culturally

given wants, is being held by the perceiver. These schemata are a means to appraise particular objects, sounds, and odours in terms of their agency to meet or thwart the individual's specific wants. They are therefore much more linked to specific aspects of one's environment and could be defined as neocortex based cognitive extensions of the phylogenetically older appraisal mechanism targeted exclusively at survival relevant environmental properties.

Resonance in terms of the culturally given relevances refers to cognitive and affective states resulting from the realisation that particular objects, sounds, and odours possess qualities, which bestow them with the agency to meet one's specific wants. As these states emerge out of the match between the perceiver's relevances and particular object's discernible qualities, they are limited to the period during which the respective object can be sensed. It is therefore probably more appropriate to speak of "object resonance" in the case of a match between a culturally given relevance as part of the pertinent relevance and this singular aspect of a person's entire environment. Dissonance, on the other hand refers to the cognitive realisation that a particular object's qualities are not matching with one's schemata and the negative affect emerging from the initial cognitive appraisal.

The state of being in environmental resonance, that is the presence of an underlying sense of affinity with one's physical surroundings is hypothesised to have a beneficial and restorative effect on the perceiver's mental and physiological health. Possible explanations for this effect are reduced stress with an associated calming influence on the individual's autonomic nervous system and endocrine system, relief from cognitive strain as no environmental threats have to be analysed and dealt with, general positive affect, and the provision of safety signals. Persisting environmental dissonance, on the other hand is thought to lead to psychological and physiological detrimental flow-on effects due to increased autonomic arousal, increased stress, cognitive strain, negative affect, and the presence of threat signals.

In order to arrive at the envisaged conceptualisation of the relationship between the individual and their environment a number of interrelated concepts such as mental templates, schemata, sensory fields, and a perceiver awareness continuum are required. Templates representing the individual's phylogenetically developed adaptational needs and those schemata referring to culturally given wants constitute one perceiver internal component of the individual-environment system and the theory of relevances describes the nature and function of these templates and extended schemata in the environmental appraisal process, respectively. Relevances, then, is the umbrella term for both types of mental structures.

On the other end of the individual-environment system it is necessary to specify content and qualities of the physical surroundings of the perceiver which are appraised by means of the aforementioned templates and schemata. The theory of the Environmental Sensory Field (ESF) as a further part of the proposed conceptual framework represents an effort to delineate the nature and characteristics of the various environmental components of perception such as objects, sounds and odours.

Finally, the encounter between relevances and environment is seen as taking place within and outside of the individual's awareness. Some objects, sounds, and odours will be consciously processed while others will not. An account of circumstances which lead to a particular environmental aspect's conscious registration by the individual, as well as an account of circumstances which do not, are constituting the theory of a perceiver internal Environmental Awareness Continuum (EAC).