Introduction

1.1. Empirical Aesthetic Research: Historical Overview

The word "aesthetics" is derived from the Greek word "aisthetikos" which means "pertaining to sense perception." The word has two main uses in scholarly work: (a) to refer to a philosophy that provides a theory of the beautiful and of the fine arts and (b) to refer to a person's sensitivity to the beautiful. The latter use is the one with which the present thesis is concerned. The tradition of empirical research on aesthetics began with Fechner (1801 - 1889) who focused on the effect of stimulus properties on preference responses (Fechner, 1876). He also developed principles of aesthetic preferences. Berlyne (1924 – 1976) continued and expanded Fechner's empirical aesthetic research by using more sophisticated conceptual and methodological approaches (e.g., Berlyne, 1971; 1974a). He adapted Fechner's principles and investigated their validity in experimental research. Berlyne's approach to aesthetic research was rather behavioristic. The "new experimental aesthetics" inspired by Berlyne has been criticized by Arnheim (Arnheim, 1985) and others who disapprove the narrowness of the theoretical framework and the methodological approach (For an overview see Cupchik, 1986). Recently, psychological research on empirical aesthetics has become more oriented towards cognitive approaches. These cognitive approaches understand aesthetic perception as a multidimensional construct, emphasizing processes of perception, organization and understanding in addition to including sophisticated methodologies for the study of these dimensions and processes. (For a detailed description, see Ritterfeld, 1996.)

1.2. Individual Differences in Aesthetic Perception

The belief that generalization across aesthetic reactions is impossible is often expressed in proverbs such as "every man to his taste" or "personal preferences are not debatable." Berlyne (1974a) describes this belief as false. He argues that even though individual and cultural variations in aesthetic taste are difficult to ignore, a "search for general principles that apply to everybody is a necessary preliminary to examining, and accounting for, the range of variation." (p. 22). Thus, one essential motivation of psychological aesthetic research is the question, which criteria are used to evaluate the aesthetic value of objects. Typically, experiments in aesthetic research focus on visual properties of aesthetic stimuli and ask participants to indicate the aesthetic values of a number of presented stimuli. The research

aim is then to identify specific or general aesthetic criteria (Bortz, 1978). Furthermore, throughout the aesthetic literature there are notions of some people having more aesthetic "taste" or "sensibility" than others (Berlyne, 1971). People might all focus on the same dimensions, but some people might be better able to perceive subtle variations in these dimensions than others, that is they might have higher aesthetic sensitivity. These two aspects of psychological aesthetics research, the search for relevant criteria that are used for evaluating the aesthetic value of visual objects and the idea of aesthetic sensitivity, are the focus of the present thesis.

1.3. Aesthetic Sensitivity

The idea that individuals are more or less sensitive to the aesthetic properties of elements in their environments seems intuitively plausible. In psychological research this intuitive idea is mostly referred to as "aesthetic sensitivity" (e.g., Child, 1964; Eysenck, Goetz, Long, Nias, & Ross, 1984; Frith & Nias, 1974; Götz, Borisy, Lynn, & Eysenck, 1979). Child (1964) defines aesthetic sensitivity as a construct that "refers to the extent to which a person gives evidence of responding to relevant stimuli in some consistent and appropriate relation to the external standard" (p. 49). Tests or measures that have been constructed to assess aesthetic sensitivity generally ask a person to make judgments about aesthetic values of a given stimulus (e.g., how beautiful is this stimulus?) or express preferences towards given stimuli (e.g., which of these stimuli would you prefer?). These studies usually concern visual stimuli and thus the visual processing system. The extent to which a person agrees with an external standard (e.g., what experts think is most aesthetic or what the average judgment in a reference group considers as most aesthetic) is then seen as indication of the amount of his or her sensitivity to the aesthetic value of the given stimuli. Individuals with high aesthetic sensitivity would be expected to consistently perceive stimuli with higher aesthetic value (e.g., more beautiful stimuli) as more aesthetically pleasing (Child, 1964). Following this or similar definitions of aesthetic sensitivity, scales measuring the construct of aesthetic sensitivity are constructed evaluating a person's judgment about stimuli that differ in their aesthetic value based on external standards of "beauty." Yet, is this external standard a valid procedure for assessing aesthetic sensitivity? The existing definition of aesthetic sensitivity focuses on consensus across judges rather than properties inherent to the objects themselves. The studies present in this dissertation will argue for a new external standard. This new

external standard is based on properties of the objects themselves, rather than on consensus among judges.

1.4. Traditional Stimulus Materials

Stimulus material used for investigating individual differences in visual aesthetic sensitivity ranges from simple visual stimuli such as polygonal figures to complex stimuli such as works of art. In the history of experimental aesthetics several researchers have used simple figures such as abstract polygonal figures (e.g., Berlyne, 1974b; Berlyne, Robbins, & Rhompson, 1974; Birkhoff, 1933; Eysenck, 1941, 1965; Eysenck & Castle, 1970; Fechner, 1876) in order to attain control over the aesthetic stimulus material. However, approaches using simple visual stimuli have also been widely criticised. The main criticism is that these stimuli are not created for aesthetic appreciation. They do not have any artistic quality and are thus too far removed from what could be seen as aesthetic objects, such as a work of art. As described earlier "aesthetics" refers to a person's sensitivity to the beautiful. The simple visual stimuli were therefore viewed as not suitable for studying real-life aesthetics (Berlyne, 1971). Consequently, research has been conducted using more complex visual stimuli such as works of art (e.g., Bamossy, Scammon, & Johnston, 1983; Götz et al., 1979). The use of works of art has the advantage that the artistic quality of the stimuli is much more advanced than is the case for simple stimuli. The argument for using works of art is that they are by definition produced for the aesthetic appreciation, and thus a person's sensitivity to these objects can be seen as a true study of aesthetics.

1.5. Everyday Objects

The focus of the present research is to assess differences in how individuals perceive the beauty of objects in their *immediate environment*. When the immediate environment is the focus, the exclusive use of art works as stimuli is inappropriate. Works of art are comparatively rare elements of people's everyday environments, unless the people are artists themselves or very interested in art. Instead, aesthetic objects that are part of an average person's environment are everyday objects (e.g., cutlery, vehicles, furniture or jewelry). Research on everyday objects has mostly been conducted in consumer research. In psychological research on aesthetics only very few attempts have been made to study the

perception of these objects. One of these attempts was Ritterfeld's (1996) investigation of psychological processes of aesthetic preference judgments in everyday life. Although everyday objects are not *primarily* designed for aesthetic appreciation, they do possess aesthetic qualities and these qualities influence preference judgments (see e.g., Ritterfeld, 2002). For instance, the main difference between a set of glass plates and a set of fine china plates is not their function; both are used for eating. Rather, people may prefer china over glass because they may consider china as more beautiful than glass. In this way, everyday objects and works of art are worthy of empirical study to uncover principles of aesthetic sensitivity.

1.6. Aims of the Present Research

As outlined above, many attempts have been made in the past to measure aesthetic sensitivity. However, these measures either show poor psychometric properties, were developed for specific experimental purposes, are rather time-consuming, or focus exclusively on art works. The research presented here describes the development of scales to measure aesthetic sensitivity for everyday objects that avoid the pitfalls of previous approaches. Additionally, the present research highlights and details methodological issues specific to scale development in aesthetics research and demonstrates how existing methods, such as multidimensional unfolding and conjoint analysis, can be used to effectively deal with these issues.

Chapter 1 describes a general approach to scale development that was used to develop a scale for measuring aesthetic sensitivity. This exercise unveiled many of the problems typical for scales in aesthetics research. The subsequent research then addresses the identified problems and proposes a number of methodological and statistical solutions. Specifically, Chapter 2 describes a series of studies that were conducted to identify common judgment criteria to evaluate the aesthetic values of objects. It also describes how these criteria were then used to create systematically varied stimuli. Chapter 3 describes how the new stimuli were used to build a scale measuring individual differences in aesthetic sensitivity. Finally, Chapter 4 describes the creation of an external standard for evaluating the aesthetic value of stimuli. This external standard is different from standards used in the past in that: (a) it is based on knowledge about the properties of stimuli gained from interviews with experts and from multidimensional unfolding studies with non-experts, (b) the relative importance of each

aesthetic dimension on the aesthetic judgment is taken into account, and (c) it is not a measure that is relative to a certain reference group (such as an average judgment) but rather based on the properties of the stimuli themselves.