



# Perception without awareness: perspectives from cognitive psychology

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## Abstract

Four basic approaches that have been used to demonstrate perception without awareness are described. Each approach reflects one of two types of experimental logic and one of two possible methods for controlling awareness. The experimental logic has been either to demonstrate a dissociation between a measure of perception with awareness and a measure that is sensitive to perception without awareness or to demonstrate a qualitative difference between the consequences of perception with and without awareness. Awareness has been controlled either by manipulating the stimulus conditions or by instructing observers on how to distribute their attention. The experimental findings based on all four approaches lead to the same conclusion; namely, stimuli are perceived even when observers are unaware of the stimuli. This conclusion is supported by results of studies in which awareness has been assessed with either objective measures of forced-choice discriminations or measures based on verbalizations of subjective conscious experiences. Given this solid empirical support for the concept of perception without awareness, a direction for future research studies is to assess the functions of information perceived without awareness in determining what is perceived with awareness. The available evidence suggests that information perceived without awareness both biases *what* stimuli are perceived with awareness and influences *how* stimuli perceived with awareness are consciously experienced. © 2001 Elsevier Science B.V. All rights reserved.

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## 1. Introduction

Questions regarding whether stimulus information is perceived even when there is no awareness of perceiving have been the focus of considerable research and discus-

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sion for many years. One reason for this continual interest in perception without awareness is that the very idea that perception occurs when there is no awareness of perceiving is inconsistent with the conventional belief that the perception of stimulus information capable of influencing feelings, thoughts or actions is always accompanied by an awareness of perceiving. Given this belief, any evidence that perception is not necessarily accompanied by an awareness of perceiving attracts attention because it challenges the idea that perception implies consciousness.

In the first part of this paper, we describe a conceptual framework for classifying studies of visual perception which, contrary to the conventional belief that perception implies consciousness, show that stimulus information can be perceived even when there is no awareness of perceiving. Although many different methods have been used to investigate perception without awareness, the vast majority of studies represent one of the four basic experimental approaches illustrated in Fig. 1. What the figure shows is that the studies can be classified in terms of (a) the experimental logic used to demonstrate perception without awareness and (b) the method used to control or vary awareness. By far the most frequently followed experimental logic has been to demonstrate a dissociation between two different measures of perception. One measure is assumed to assess perception *with* awareness, whereas the second measure is assumed to be sensitive to perception *without* awareness. An alternative but less frequently used experimental logic has been to contrast perception with and without awareness. The goal of these studies has been to establish qualitative differences in the consequences of perceiving with and without awareness. In studies based on either experimental logic, awareness of the critical stimuli has been controlled in one of two ways. In some studies, awareness has been controlled by manipulating the stimulus conditions, whereas in other studies, awareness has been controlled by instructing observers on how to distribute their attention. In general, the results of studies in which any of the four approaches have been

		Experimental Logic	
		Dissociations	Qualitative Differences
Control of Awareness	Stimulus Conditions		
	Distribution of Attention		

Fig. 1. Classification of studies investigating perception without awareness.

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