A Psychology of Picture Perception

Images and Information
John M Kennedy

A PSYCHOLOGY OF PICTURE PERCEPTION

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Some fields of research in psychology burst into prominence with a single study. Others congregate in the wings for some time before it becomes clear that something quite sizeable has been taking place. A psychology of pictures and perception has been gathering in that latter fashion. The study of pictures is one of those disciplines that brought puzzles to aesthetics and philosophy long before it was realized that research psychology had much to contribute, and it is only very recently that psychologists have confidently set about applying their ideas and methods to pictures. Over the last few years child psychology, cross-cultural psychology, perception psychology, and animal psychology have all added their theories and findings. It is time to bring the pieces together, to display the wealth of procedure and result, the implications for the development of perceptual skills, and the conclusions to be drawn about the perceptual abilities of adults in different cultures.

The plan of my discussion is as follows. The first or introductory chapter describes the kinds of puzzles I will investigate, the kinds of everyday pictures and recognition skills that are universal and obvious, and yet mysterious too. I will suggest that a clear, simple, readily understandable picture may tell us as much about perception as an apple falling tells us about physics.
Chapter Two will describe the laws of optics that govern light, make it possible for a person to see, and make it possible for a picture to depict. Chapter Three compares different definitions of a picture, and makes predictions from the definitions that are tested, in Chapters Four and Five, against cross-cultural and cross-species evidence, studies from child psychology, and lessons drawn from pictures that deceive the eye into an impression that something represented is actually real. Chapter Six explains how classic ideas about perception, founded on a "figure-ground" phenomenon, can be reinterpreted to fit theories of picture perception. Chapter Seven shows how the figure-ground phenomenon is one case from a systematic set involving outline depiction. The rules of outline depiction are shown, in Chapter Eight, to apply to pictures showing impossible and ambiguous objects and to skills innately present in untutored blind people.

This is a work on perception, and, as is true of a great deal of recent work in perception, much of the strength of the theoretical sections is owed to James and Eleanor Gibson, who gave me a sound education (as well as much encouragement) when I was their graduate student at Cornell. James Gibson's analysis of optics and the visible environment underlies the systematic research on outline depiction reported in Chapter Seven. The themes that both the Gibsons have contributed to my work are quite obvious in the early chapters-in the first chapter where I contrast their theory of perception with a constructionist viewpoint, and in the second chapter where James Gibson's ideas about "ecological optics" are presented.

Perception and optics both need to be seasoned with philosophy if the puzzles of seeing are to become clear. It is very important to make plain that the terms in a theory are well-defined. Accordingly, there is a chapter on definitions of pictures. My debt to Nelson Goodman is not properly repaid in this chapter, for it treats a tiny and unrepresentative part of his work, and without due respect. As a member of his research group, Project Zero, at Harvard, and as a guest in his course on languages of art, I was more impressed by his work than Chapter Three indicates.

There are many demonstrations in this book which the reader can try for himself, using the illustrations. Many of the claims made and many of the explanations presented rest on the kinds of observations which the illustrations permit. I hope students will take the time to check the claims against the illustrations; understanding the claims will be easier and following the argument will be more interesting. My use of illustrations is strongly influenced by Rudolf Arnheim, whose respectful trust in his own sense of sight is a legacy to science in each of his books, and an object lesson to students in his courses. We were guests in each other's seminars at Harvard, and I must say the exchange rate worked in my favor.

Encouragement by colleagues and students has followed the growth of this book. My mentors at Cornell included the Gibsons, Moshe Anisfeld, Herbert Ginsburg, Fred Stollnitz, Erik Lenneberg, and Ulric Neisser. I learned a lot about experimental method and statistics from Thomas Ryan, at Cornell, but I have tried to hide the skeleton of statistics and experimental method that supports each conclusion in this book, for fear of deterring some students. Sara and Irving Faust, Hubert Dolezal, and David Lee were both warm and helpful during my years at Cornell.

At Harvard there was a trio of graduate students who made my seminars come alive. Morton Mendelson, Kathy Silva, and Eliot Smith, some of your spirit and acumen may have found its way into these pages. There were others too, with whom I had a fine working relationship and their names crop up in my discussions, which I think provides the best kind of acknowledgement.

Carol and Ned Mueller at both Cornell and Boston have been fine friends and helpful colleagues. At Toronto, friends and colleagues who have given me helpful comments include Paul Kolers, David Olson, Daniel Berlyne, Abe Ross, Gaynor Jones, and Gerta and Neville Moray. At the Queen's University, Belfast, I benefited more than I can say from Peter McEwan and Dick Gilbert, Robert Armstrong, Brian Scott, Raymond Brown, and Deirdre Brennan.

My wife Elizabeth translated Edgar Rubin's original Danish thesis, and searched the Royal Danish Archives for Rubin's papers. Without her aid, Chapter Six would have been impossible, and indeed without her warm support perhaps none of this work would have been possible. My son Robert's cheerful busyness has been an
example to me, and if some of this book--whose writing began as e was born--is as charming as Robert it will be all worth while on that count alone.

Thanks are due to Pat Everingham for typing the manuscript, and to The Graphics Department, Scarborough College, Toronto--especially Ken Fong--for patient and thoughtful assistance with the illustrations.

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