An Introduction to the Classic Studies in Developmental Psychology

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In the long history of developmental psychology there have been thousands of articles, books, monographs and chapters written and a small number of these can be identified as “classics.” These are studies that have helped shape the discipline and have had a major impact on its development. As Christian Jarrett, author of The Rough Guide to Psychology, has noted, “while other sciences have their cardinal theories ... psychology’s foundations are built not of theory, but with the rock of classic experiments” (2008, p. 756).

Not surprisingly, the studies that have been selected are very well known within developmental psychology. They all continue to be cited in new articles and textbooks and their effect and influence remain undiminished. The studies have been carefully selected by the editors to represent a range of areas within developmental psychology: it is likely that some of them may not have been selected by a different editorial team, but we think that most of them would.

STRUCTURE OF THE CHAPTERS

All of the chapters begin with an account of the background to the classic study or review, in order to place them within their developmental and historical context – identifying the concerns and scientific perspectives that motivated the researchers. This is followed by a description of the classic paper, which in turn is followed by a discussion of the study’s impact, which looks at ways in which ideas and findings were taken up by other researchers and ways in which these concepts and data influenced the field of developmental psychology and helped to shape its progress. However important a classic study may be, no paper in psychology can ever be considered perfect, and in the next section critiques of the studies are presented, discussing alternative interpretations and findings. The chapters conclude with an account of how the study advanced thinking and, importantly, how the field has subsequently advanced.
PURPOSE AND STRUCTURE OF THE VOLUME

Our goal in this volume is two-fold. We want to revisit classic studies to show, first, how they helped shape the field of developmental psychology, and also how the field has moved on through engagement with the issues the studies raise. The editors selected the classic studies and we then invited world-leading authorities in each area to write the chapters, and have been gratified to receive their agreement to participate. We believed in particular the volume might be of interest to instructors of undergraduate child or developmental psychology courses, or possibly even core courses in developmental psychology for beginning graduate students. While the past has seen the publication of volumes of reprinted classic papers, the current volume is unique in terms of having current scholars in their respective fields of expertise discuss how their fields have moved beyond the classic studies in terms of the contemporary theoretical and empirical work taking place in them. In this way, then, our hope is that student readers of the volume will achieve insight not only into the foundations of the discipline, but also a sense of how work has advanced in recent years, perhaps partly as a consequence of the flow of ideas that was set into motion by the classic study.

ORDERING OF THE CHAPTERS

The ordering of the chapters reflects the topical approach that one of us (PCQ) uses when teaching an upper-level undergraduate course in Developmental Psychology. The first section of the course is focused on emotional and perceptual development. The middle section concentrates on cognitive development. The final section has more of an emphasis on individual differences and covers the topics of intelligence, moral development, atypical development, and language acquisition. However, we would acknowledge that some topics could be placed in different sections within particular courses. For example, a topic such as language acquisition (and the classic paper we have selected on its initial beginnings as manifested in the processes of speech perception) could be comfortably covered within the perceptual or cognitive development sections of a Developmental Psychology course. For this reason, the chapters need not be read in a specific order. Rather, they can be read in an order that would correspond with the organization of a given course of study or a student reader’s individual preferences.

It is customary in a book’s introduction to provide a summary of the chapters that follow, and these summaries are given next.

A BRIEF SUMMARY OF THE CHAPTERS

In Chapter 1, Roger Kobak describes the series of studies that Harlow carried out in the 1950s and 1960s on the development of affection in infant monkeys and
the effects of social deprivation (Harlow & Harlow, 1962). In the most extreme social deprivation, infant monkeys were reared alone and with two surrogates: a wire surrogate that provided food and a cloth surrogate that provided contact comfort but no food. Harlow found that the monkeys developed clear attachments to the cloth surrogate, and sought contact with it when they were afraid. These and other findings were clear evidence that the normal formation of attachments, such as that between infant and mother, was not a secondary byproduct of the reduction of primary drives, such as hunger, which the mother normally provided, and Harlow’s view was that the infant monkeys were motivated by a primary need for affection or “contact comfort.” Perhaps surprisingly, at the time, many childcare “experts” and professionals were of the view that prolonged separation of infants and young children from their mother, or other caregiver, would have little or no lasting emotional consequences. Harlow’s experiments demonstrated that this was not the case and his findings had a huge effect on attachment theory, which was developed by researchers such as John Bowlby and Mary Ainsworth. Harlow’s work gave clear evidence that early social relationships played a significant role in the survival and reproduction of many species, including monkeys and humans, and opened up decades of research into early social development and attachment formation that “has remained a major focus for subsequent developmental investigations.”

Early emotional development is the focus of Ollendick and colleagues’ account of Watson and Rayner’s (1920) conditioning of Little Albert in Chapter 2. This experiment was the first demonstration of the acquisition of fear in humans through classical conditioning. Albert (not his real name), then a 9-month-old infant, was exposed to a conditioned stimulus, a white rat, whilst presented with an unconditioned stimulus, a loud noise, which over several presentations produced a conditioned emotional response of fear when Albert saw the rat. This fear response generalized to other stimuli – a rabbit, a dog, a fur coat, cotton wool, a mask, and even Watson’s hair. Watson and Rayner suggested several ways in which this conditioned fear response could be reduced or eliminated, but they never attempted to do this since Albert left the hospital the day after the last tests were conducted. Although such an experiment would not be approved today, on ethical grounds, its impact has been such that “there is little doubt it has been instrumental in the development of behavioral and cognitive-behavioral treatments that enjoy widespread use today.”

One of the most famous pieces of apparatus in developmental psychology is the visual cliff. This was developed by Eleanor Gibson (known to her friends as Jackie) and Richard Walk, and is a transparent glass tabletop with two sides: on one side (the shallow side) a sheet of patterned material is placed under the glass, giving the appearance of solidity; on the other, deep side, the same patterned material is placed on the floor, several feet below the glass, giving the appearance of a drop-off, and hence of a visual cliff (Gibson & Walk, 1960). Karen Adolph and Kari Kretch give a fascinating account of its development and of its many uses: it was originally designed to test for depth perception and was used with many species, including albino rats, infant rats, puppies, kittens, rabbit pups, chicks, adult chickens, infant
ring doves, kids, lambs, piglets, infant rhesus monkeys and, of course, human infants. The authors give an account of its many other uses and point to the fact that “The images of infants or animals standing on a checkerboard surface peering over the edge of a cliff are among the iconography of the field.”

Jean Piaget (1962) has long been regarded as “the giant of developmental psychology” (Hunt, 1969), and it has been stated that “assessing the impact of Piaget on developmental psychology is like assessing the impact of Shakespeare on English literature, or Aristotle on Philosophy – impossible” (Beilin, 1992), and “it seems that he investigated just about everything, and discovered something interesting in every case!” He provided a legacy of hundreds of experiments, many of which meet the criteria for classic studies. In Chapter 4, David Klahr gives an account of Piaget’s research methods and of his theorizing. He develops his account with a description of Piaget’s investigation of children’s attempts to solve the well-known Tower of Hanoi problem. This consists of three vertical rods, with different-sized disks in ascending order of size placed on one of the rods. The object is to move the disks to another rod, but with the constraint that a larger disk cannot be placed on a smaller one. Klahr describes subsequent research with this problem in order to illustrate challenges to Piaget’s conclusions and interpretations and concludes that “There is no doubt that he created the path for thousands of subsequent researchers in cognitive development to follow.”

Meltzoff and Moore (1977) provided the first clear evidence, from two extremely well designed and controlled experiments, that very young infants are able to imitate facial gestures they see an adult modeling, despite not being able to see their own faces. These findings marked the beginning of a dramatic reconceptualization of infant development, and were also the beginning of a long and continuing research endeavour into the nature and characteristics of infant imitation. In Chapter 5, one of us (AMS), gives an account of these findings and their impact on developmental psychology and their influence on our understanding of infant social and cognitive development.

In 1985, Baillargeon, Spelke, and Wasserman published what turned out to be a seminal paper in infant cognitive development. In their experiment, infants were placed in front of a “drawbridge” that could rotate from flat on the floor through 180 degrees. The infants were then shown a solid block which was placed beyond the drawbridge that could then rotate either through 120 degrees, stopping at the point where the block, which could no longer be seen since it was occluded by the raised drawbridge, would have halted the drawbridge’s rotation. In another condition the drawbridge rotated through the complete 180 degrees, apparently passing through the solid block. The infants looked longer at the latter “impossible” condition than at the “possible” 120 degree rotation which the authors interpreted as evidence that the infants understood that the drawbridge could not pass through the place occupied by the solid block, and concluded that object permanence – an understanding that an unseen object continues to exist and maintains its physical properties – is present in early infancy, much earlier than Piaget had claimed. In Chapter 6, Denis Mareschal and Jordy Kaufman
describe the “drawbridge study” and alternative interpretations of the findings, and suggest that data from behavioral methods alone are not going to produce a scientific consensus. In order to resolve the controversy, they describe neural processes involved in drawbridge-type tasks, and computational models exploring the emergence of object permanence.

In Chapter 7, Gail Goodman and her colleagues give an account of Ceci and Bruck’s (1993) review of research on children as eyewitnesses with a focus on how reliable children’s testimony is and how suggestible they are. Goodman et al. also raise the issue of what are the appropriate ways of questioning children in order to obtain the most reliable and accurate reports, and give examples of the possible consequences of improper interviewing of children. Their chapter is illustrated with examples of child abuse, a topic that is of interest to psychologists and also those in other professions, including the legal profession and child protection systems. Ceci and Bruck’s paper won the Robert Chin Award from the Society for the Psychological Study of Social Issues, a division of the American Psychological Association, for “best paper of the year” on child sexual abuse. Goodman and colleagues describe research carried out subsequent to the review paper and conclude that “Although researchers have learned a great deal about children’s suggestibility since 1993, when it comes to the complexities of actual legal cases, we are reminded that we still have much to learn.”

Arthur Jensen (1969) published an article in the *Harvard Educational Review*, with the title “How much can we boost IQ and scholastic achievement?” A description of Jensen’s research and findings is given in Chapter 8 by Wendy Johnson. In the original article Jensen suggested that racial and social class differences in intelligence may have genetically determined origins “and proposed that African-American and children of lower socioeconomic status (SES) of all races might be better served by educational programs that recognize their presumed genetic limitations in learning capacity.” The article unleashed a storm of controversy that continues to the present day. Jensen was accused of racism and he “received death threats and students and faculty at the University of California at Berkeley staged protests outside his office.” The issues he raised are clearly of great importance but, perhaps because of their political and social implications, Johnson concludes that “There is little question that Jensen’s conclusion was premature at best, but the vitriolic rejection the article received generated more heat than light and has if anything served to stymie objective efforts to understand how intelligence, and performance on cognitive ability tests, actually does develop and to what extent that development can be fostered.”

In Chapter 9, Usha Goswami describes Bradley and Bryant’s (1983) paper which gave evidence of a causal link between categorizing sounds and learning to read. They presented preschool children with tests of “phonological awareness” (the ability to detect and manipulate the component sounds of words), for example: which is the “odd one out” in terms of rhyme (e.g., cot, pot, hat) or alliteration (e.g., hill, pin, pig)? Bradley and Bryant found a clear relationship between success on such tasks and subsequently learning to read and write, and reported that phonological training significantly improved reading and spelling. The impact of their work has
been immense, and has clear implications for classroom practice and home and school literacy environments. In preschool nursery programs, the importance of enhancing children’s oral awareness with nursery rhymes and other language play is now standard. In her concluding comments, Goswami notes “Across languages, reading interventions that combine both oral language and letter knowledge have been developed, and have helped thousands of children to become better readers.”

Baron-Cohen, Leslie, and Frith (1985) reported on what is now the well-known Sally-Anne task. Sally puts her marble in a basket and then leaves the room. While she is out of the room Anne takes the marble out of the basket and places it in a box, so Sally has not seen the change in location. Sally then returns and the question asked of participants is “Where will Sally look for her marble?” This is a test of false belief since Sally should think that the marble is still in the basket, which is widely regarded as a test of Theory of Mind (the ability to attribute mental states to others). Baron-Cohen et al. gave this task to three groups of children: one group diagnosed with autism, a second group with Down’s syndrome, and a third group of typically developing children. Their findings were clear: the majority of autistic children failed the task (they said that Sally would look in the box rather than where she had left it, in the basket), and the other two groups said she would look for it in the basket. The authors’ conclusion was that autistic individuals do not have a “theory of mind” and that this accounts for many of their problems in communicating with others. In Chapter 10, Coralie Chevallier describes the study and discusses how current thinking has advanced beyond this classic paper. She points to one alternative view which is “that autism is characterised by a primary disturbance in the motivational and executive processes that prioritize orienting to social stimuli. In this framework, decreased expertise in social cognition and ToM would be the result of reduced time spent attending to the social world.”

Kohlberg’s (1963) paper describes the sequence of stages that children pass through in the development of moral thought. His methodology was heavily influenced by Piaget’s earlier work on this topic. Like Piaget, he asked children to reason about situations that carry moral implications – for example, would a man be justified in breaking into a druggist’s/chemist’s shop to steal a drug that might save his wife’s life? – and he then engaged in discussions with them about their moral reasoning. Kohlberg described six stages: children begin at the lowest stage, and as development proceeds they move up the stages with the higher levels replacing the lower ones, but few reach the highest stages. In Chapter 11, Gail Heyman and Kang Lee describe the stages, and in evaluating Kohlberg’s contribution they present more recent findings, relating to when it is acceptable or not to tell lies (e.g., white lies), cultural influences on moral reasoning, and accepting or denying responsibility for prosocial acts. They point out that contextual and cultural differences in making moral judgments challenge the moral universality assumption of Kohlberg’s theory (i.e., the assumption that all individuals in all cultures pass through the same stages), and also point out that there is little evidence of a link between individuals’ responses to Kohlberg’s moral dilemmas and their actual moral behavior. They conclude that “Much of the existing extensive theoretical and empirical work about
what it means to become a moral person has been inspired by Kohlberg's highly original and creative work” and that researchers continue to try to find answers to the age-old question “how does one become a moral person?”

In Chapter 12, Jennifer Lansford describes Albert Bandura’s famous “Bobo doll” studies carried out in the 1960s (Bandura, Ross, & Ross, 1961). In these studies children were put in a room with several toys, one of which was a large inflatable “Bobo doll.” In some of the conditions an adult experimenter, who was in the room with the child, proceeded to act aggressively towards the doll by kicking and punching it and hitting it with a mallet. On subsequent tests the children who had been exposed to the aggressive adult were far more likely to behave aggressively to a Bobo doll than those who had not been exposed to aggressive acts. The impact of the Bobo doll study has been far-reaching and long-lasting. It was a clear demonstration that it is possible for children to learn aggressive behaviors through imitation without being reinforced (or punished), and although the idea that children learn through imitation is taken for granted today (see also Chapter 5 on imitation) this was not the case in the early 1960s. Lansford concludes that “Understanding that people learn from observing, imitating, and modeling other people is a long-lasting contribution of Bandura’s early Bobo doll studies.”

In Chapter 13, Richard Aslin begins with the comment “Between 12 months of age, when infants begin to utter their first word, and 36 months, when toddlers have learned up to a thousand words, they have also mastered many of the intricacies of their native language grammar” and asks how is it possible for such a complicated system to be acquired? “The answer is, in part, that infants are acquiring much of their native language before they utter their first word.” He describes the important study by Eimas, Siqueland, Jusczyk, and Vigorito (1971), who used a conditioning procedure to demonstrate that even very young, 1-month-old infants could discriminate between the two speech sounds /ba/ and /pa/ and that this discrimination was categorical, meaning that the infants discriminated between two sounds that were from two different sound categories (i.e., /ba/ vs. /pa/), whereas they did not discriminate between two sounds that were physically as distinct from one another, but were from the same sound category (i.e., two different /ba/ sounds). Eimas et al.’s study marked the beginning of a large body of research documenting the remarkable speech perception abilities of young infants, and Aslin concludes:

The article by Eimas et al. (1971) was a breakthrough in documenting how sophisticated the auditory system of very young infants is for discriminating subtle phonetic distinctions. But more importantly, it raised the possibility that infants may have acquired these perceptual skills not from postnatal learning experience, but rather from the evolutionary pressures passed down from our human ancestors who began to communicate via vocal motor mechanisms over 50,000 years ago.

How do children come to cope with adversity, and why do some children fare better at this than others? What are the factors that help protect children from the
negative effects of stress? These are two of the questions at issue in the final chapter, in which Ann Masten describes a classic and highly influential review by Michael Rutter (1987) on resilience. While a lay person might be tempted to think of resilience as a core trait, readers of Masten’s coverage of the Rutter article will learn that it is a much more complex construct. That is, as originally conceived by Rutter and subsequently portrayed by experts working in the field, resilience is much more an emergent property of a dynamic system that includes person factors (a healthy brain, good cognitive skills, self-control), relationships factors (secure attachment, quality parenting), and environmental factors (nurturing school and neighborhood context, experience with manageable challenges). As described by Masten, “Resilience is not “in” the person; it emerges from interactive processes across multiple levels of human function, from the cellular to the societal.” It is from the Masten chapter that readers will gain an understanding of the variety of different directions the resilience field has moved since the classic Rutter review, including the development of preventive intervention programs and the study of the interaction of genes with experience as investigated through the emerging field of epigenetics.

CONCLUDING COMMENTS

Most of our authors have told us that they really enjoyed writing their chapters and we have greatly enjoyed reading them. We are optimistic that you will too. More broadly, we hope that the chapters, prepared by key “thought leaders” in their respective areas of expertise, will help to advance understanding of the foundations of the discipline (as charted by some of the field’s pioneer investigators and theorists), its current directions, and the interconnections between the foundations and current directions.

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REFERENCES


