

1 Editorial Introduction

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Play remains a topic of continuing interest and fascination, for parents, teachers, researchers, and anyone interested in human nature. Play takes up much of the time budget of young children and many animals. Yet its nature and function remain contested. This book brings together a comprehensive collection of disciplinary and developmental perspectives on the topic. Different sections cover the evolution of play in animals, especially mammals including monkeys and apes; the development of play from infancy through childhood and into the lifespan; historical and anthropological perspectives on play; theories of play and methods of studying its different dimensions; the role of play in children's learning and development; play in special groups such as children with impairments; and play spaces and the rights of children.

There are of course classical theories of play (see Chapter 20), and for children's play the work of Lev Vygotsky from the 1930s remains influential, as is apparent in many chapters in Part V on play and learning. However, the modern study of play, in both animals and humans, became active again in the 1970s and 1980s. After a quieter period in the 1990s and early 2000s, recent years have seen a resurgence of interest in theorizing and research on play. With international contributors from thirteen countries and a range of disciplinary perspectives from evolutionary biology, neuroscience, developmental psychology, early childhood education, special education, anthropology, sociology, cultural and media studies, and history, we have aimed to provide a comprehensive collection of chapters on play, so that readers will get a clear picture of state-of-the-art thinking on the topic.

Part I of this Handbook focuses on the evolution of play. Gordon Burghardt and Sergio Pellis (Chapter 2) discuss five criteria for recognising and defining play, and consider the evolution of play in animal species, distinguishing primary, secondary, and tertiary process play in terms of function. This chapter emphasises the heterogeneity of play and indicates the use of computer simulations for modelling the costs and benefits of play. Neuroscience and particularly neurochemistry has also taken great strides in the study of play, as reviewed by Viviana Trezza, Marijke Achterberg, and Louk Vanderschuren (Chapter 3). Focusing on the proverbial laboratory rat, they make clear how sophisticated experimental techniques have given much insight into the neural underpinnings of social play in this species. Drawing

on more naturalistic observations and experimental studies in a range of mammalian species, Lynda Sharpe (Chapter 4) takes a critical look at a range of hypotheses advanced to explain the functions of play, and the evidence for costs and benefits in various domains. It is clear that the evidence for benefits is mixed at best, and this chapter concludes with a plea for more focused hypothesis-testing experiments. Akie Yanagi and Carol Berman (Chapter 5) consider social play in non-human primates (monkeys and apes) and document the costs of such play (mostly play fighting, which can be risky); they argue that there are likely social skills benefits to balance such costs. They discuss how such costs can be reduced by use of play signals and appropriate choice of play partners. In considering human play, Peter Gray (Chapter 6) also opens with considerations of definition. He mentions five characteristics of human play (these may be compared with the five criteria in Chapter 2; there is some overlap but also some differences). Reviewing the pioneering work of Groos, as well as more recent work on animal play, Gray moves on to consider play in hunter-gatherer groups (as best representing the kind of societal structure that humans evolved in). He considers hypotheses such as the role of play in learning and innovation and in promoting cooperation and egalitarianism. Humans also play with animals; indeed, the domestication of dogs from wolf-like ancestors, as well as later partial domestication of many other species, probably played a crucial role in human evolution. In Chapter 7, Gail Melson describes human-animal play, particularly focusing on the contemporary phenomenon of play with pets, raising interesting issues around the role of play in attachment, and the scaffolding of play (also picked up in discussions in the next section on parent-infant/child play).

Part II examines various types of human play from a developmental perspective. Building on the work of Piaget, Bruner, Gibson, and Thelen, as well as what we know from more recent work on brain development, Doris Bergen (Chapter 8) discusses infant sensorimotor play. She describes this as a dynamic systems process, ending by considering how such sensorimotor play is affected by recent technological developments (see also Chapter 14). In Chapter 9, Jaipaul Roopnarine, Elif Dede Yildirim, and Kimberly Davidson summarize a considerable amount of research on mother-child and father-child play in the early years. They pay particular attention to cultural and gender differences, and what may explain these. Possible links to developmental outcomes are considered. Much parent-child play is social, but Anthony Pellegrini (Chapter 10) discusses the development of play with objects. He carefully considers how play with objects can be distinguished from exploration, construction, and tool use and tool making. Much object play can be solitary, but Pellegrini also considers the role of object play in social learning and innovation. In Chapter 11, Ageliki Nicolopoulou examines pretend and social pretend play – the most distinctive kind of childhood play. She considers its development and possible cultural universality and discusses how Lillard and colleagues have critiqued the evidence on the functional

significance of pretend play, in part countering this with ideas from Vygotsky and Harris. Play fighting shows much more continuity with social play in mammals, and Jennifer Hart and Michelle Tannock (Chapter 12) survey the research on what they call rough play. They distinguish parent-child and peer-peer rough play, describing it as mainly a male phenomenon and emphasizing positive aspects of such play for learning and skill development. They end with important comments on how educators may sometimes misperceive such kinds of play, and how they can best support it. These different forms of play (object, pretend, rough) overlap, but also by middle childhood tend to mutate into rule-governed, game-like activities. Ditte Winther-Lindqvist (Chapter 13) contrasts the positions of Piaget and Vygotsky in the development of games with rules, and illustrates the developmental origins of this with extensive field notes based on his own observations. Once beyond early childhood, however (and increasingly even in early childhood, Chapter 8), modern digital technologies are an increasingly salient aspect of the sociocultural environment, with important ramifications on children's play. Fiona Scott (Chapter 14) describes the developmental course of this, drawing especially on research in the cultural and media studies tradition. In Chapter 15, Jennifer Vadeboncoeur and Artin Göncü discuss playing and imagining in a lifespan perspective. They draw specially on Vygotsky and the sociocultural perspective and discuss how playing and imagining can contribute to, for example, abstract thinking and self-direction.

Most research on human play is on contemporary children in Western societies, but in Part III several chapters foreground historical and anthropological perspectives. In Chapter 16, Linda Pollock looks at the historical evidence on play in early modern Europe. She documents how play was often seen as a distraction from learning, but how attitudes to play also changed over the centuries, partly influenced by philosophical and educational writings. In Chapter 17, Adam Boyette considers play in foraging societies; although the evidence is from contemporary societies, they may provide insight into the kind of selection pressures affecting play through much of human evolution. He reviews different kinds of play and points out how play and work contexts may intermingle. Boyette also critiques Gray's view (Chapter 6) that play in forager societies promotes egalitarianism but does consider what lessons may be learnt from the characteristics of forager play. Yumi Gosso, Briseida Resende, and Ana Carvalho (Chapter 18) document studies of play in various South American indigenous communities, who also live by hunting and foraging but also small-scale agriculture. They too comment on how work activities for children (such as washing dishes or looking after younger siblings) can be used as play opportunities. Eunjoo Jung and Sophia Han (Chapter 19) examine play in societies, such as China, Japan, and Korea, influenced by Confucian values. They summarise six main aspects of Confucian values and how these may impact adult-child relationships and play, including ritual-based play and gendered play. They also consider

the impact of Western influences and culture change in these societies on engagement in play.

Three chapters in Part IV are on theories of play and on research methodology. Some contemporary theories of play are considered in many other chapters, but Thomas Henricks (Chapter 20) overviews the classic theories of play, from Schiller, Spencer, and Groos onward through the nineteenth and twentieth centuries. His chapter provides a roll-call of important theorists, many very well known but some less so. Among contemporary theorists, especially of human play, Brian Sutton-Smith has had a preeminent position. In Chapter 21, Anna Beresin, Fraser Brown, and Michael Patte provide an account of Sutton-Smith's early children's books, his critique of Piaget, and his work on children's folklore, ending with his theorising on play generally, including his posthumous book on play as emotional survival. Turning to methods of studying play, James Johnson and Pool Ip Dong (Chapter 22) start with conceptual issues, and then review a range of quantitative and qualitative methodologies. They conclude with examples of innovative methods being used in some contemporary play research.

An enduring topic of discussion and debate has been the role of play in young children's learning. Part V provides an extensive examination of this topic. Throughout, the influence of Vygotsky's thinking, even more than 80 years after his death in 1934, remains a key inspiration for many researchers in this area. Marilyn Flear (Chapter 23) considers play and learning in family contexts. She provides an in-depth discussion of this, drawing on observations of various forms of play, and how they are structured, in an Australian family. In Chapter 24, Elena Bodrova, Deborah Leong, Carrie Germeroth, and Crystal Day-Hess draw very specifically on Vygotsky's ideas, describing levels of pretend or make-believe play. They discuss how such play can be scaffolded in *Tools of the Mind*, an early childhood curriculum based on these ideas. In Chapter 25, Pentti Hakkarainen and Milda Bredikyte similarly draw on Vygotsky's levels of play, but especially emphasise his concept of the zone of proximal development (ZPD). They use this concept to consider in detail the role of the adult as a mediator of development in children's play, for example, in structuring imaginative storytelling. Such themes are developed further by Niklas Pramling, Anne Kultti and Ingrid Pramling Samuelsson (Chapter 26). In particular, they discuss what is meant by concepts such as learning, and teaching, in the early child curriculum, how play relates to these, and how skilful adults can enhance this through socially responsive actions. In Chapter 27, Maritta Hännikäinen and Hilikka Munter develop similar themes, referring not only to the ZPD but to Vygotsky's notion of the social situation of development – the changing relations between a child and his or her social reality. The ways in which teachers can enhance, but also sometimes hinder, children's play are considered in detail. In Chapter 28, Beth Ferholt, Robert Lécusay, and Monica Nilsson describe the concept of playworlds, in which creative play is developed between adults

and children, based on Vygotsky's theories. Besides picking up familiar themes around children's play and learning, these authors highlight how adults too are learning and developing, illustrating this with a case study of a discussion among three preschool teachers. Pretend play, especially in its narrative or sociodramatic forms, is often linked to literacy development, and in Chapter 29, Kathleen Roskos (echoing Donald Rumsfeld) discusses the known knowns, the known unknowns, and the unknown unknowns in what is a considerable area of research. She covers many aspects of this, including recent digital developments such as use of apps and robotic puppets. In Chapter 30, Susan Engel discusses how gathering information, inquiry, and invention contributes to play, and how play in turn contributes to developing ideas. This is illustrated by four examples of play observed in 3- to 7-year-olds.

While much research on children's play has described its educational implications in mainstream settings, there has also been interest in how play may be relevant for special groups of children and/or have more therapeutic implications. The chapters in Part VI consider such issues. One such special group comprises children with autism or autism spectrum disorders (ASD). It is known that these children have some delay or lack of interest in the full range of pretend play behaviours. Despina Papoudi and Lila Kosyvaki (Chapter 31) discuss the research on this and the educational implications, including how such play can be scaffolded by various kinds of social interaction and technological support. In Chapter 32, Margaret Brown and Anna Bortoli consider play in children with sensory impairments, in particular visual and hearing impairments. Depending on context, there can be delays in social pretend play with peers, for example, and the authors discuss the role of adults and the risks and benefits of inclusive education in this respect. Another category of disability, physical impairments, covers primary conditions such as cerebral palsy and traumatic brain injury, and secondary outcomes of conditions such as Down syndrome or premature birth. In Chapter 33, Cynthia Cress describes how such conditions can affect object play and coordination, and interactions with parents and peers. She discusses how accurate assessment of difficulties, direct treatment, and specific skill training or coaching for parents can be helpful interventions. Play can also have diagnostic and therapeutic benefits for those with a range of medical conditions. Colleen Baish Cameron and Michael Patte (Chapter 34) review the provision of play facilities and opportunities for children in hospital, and how in the United States, for example, this can be facilitated by trained child life specialists. They end with a range of practical suggestions for improving play practices in health care settings. The psychoanalytic tradition has contributed to the development of play therapy for emotionally disturbed children, and in Chapter 35 Elise Cuschieri describes how ideas of play therapy have developed. She discusses the space, materials, therapeutic relationship, and the research evidence for effectiveness, drawing on a detailed case study of therapy with one child to illustrate the processes involved. Political violence

and terrorism can be sources of trauma for any child unfortunate enough to witness these, and in Chapter 36, Esther Cohen describes the impact of this on children's development and mental health. She enumerates four ways in which play can function to help children cope with these situations. She considers the phenomenon of post-traumatic play, often serious and morbid, and draws practical implications for ways of helping children in these circumstances.

Part VII concludes this Handbook by bringing together four chapters on play spaces and the rights of children. In Chapter 37, John Sutterby gives a comprehensive overview of play spaces, both indoors and outdoors. He first considers space and materials in indoor classrooms, and then the design of outdoor play spaces. These raise considerations of accessibility and safety. He considers community and adventure playgrounds, and the concepts of democratic, commercial, and virtual play spaces. For school-aged children, recess provides an opportunity for play, and this is the topic of Chapter 38 by Lauren McNamara. She provides a historical account of how attitudes and practice regarding recess breaks have changed, and the arguments for and against it in an educational context. She discusses the available research and gives a thorough account of the various aspects to be considered in optimising the social and play potential of recess. For older children, outdoor and adventure playgrounds provide opportunities for play, and the discipline of playwork has evolved in connection with the supervision of playgrounds and the facilitation of such play opportunities. This is described in Chapter 39, by Fraser Brown, Alexandra Long, and Mike Wragg, as a unique way of working with children. They enunciate the principles of playwork, and it is clear that while adult supervision and facilitation is important, the playwork movement generally places great emphasis on children's freedom and the right to play as they wish (within broad constraints of safety and respect for others). In this context they cite the UN Convention on the Rights of the Child (CRC). This theme of children's rights and the implications of the CRC are elaborated in Chapter 40 by Lacey Peters and Beth Swadener. They discuss how theories of play and attitudes to play can impact on the kinds of play opportunities provided for children. Giving examples from several countries, they strongly emphasise the rights of children, not only to be consulted but to be active participants in research and decision making.

As researchers in the field for more than several decades, we have enjoyed bringing together a wide range of scholars to contribute to this Handbook. Some have been in the field a long time; others are earlier in their careers and bringing fresh perspectives on the topic. However, on a sadder note, while this Handbook was in preparation, several notable play scholars died. These include Brian Sutton-Smith, whose seminal work starting in folklore and moving into diverse areas of play is reviewed in Chapter 21. Another loss in the folklore area was Iona Opie, who with her husband Peter pioneered publications on observations of children's games. Jaak Panksepp pioneered work in the neuroscience of emotions and was originally scheduled to write

Chapter 3; the present authors of this chapter dedicate it to him. Panksepp is also a dedicatee of Chapter 2, as is Stan Kuczaj, one of the first psychologists to write on language play. Another sad loss is Jim Christie, who wrote extensively on play and literacy. The work in this Handbook is in part a tribute to these recent scholars, and to those of earlier generations, who have helped take forward our understanding of an activity that is both enjoyable and valuable, that of play behaviour.