Social Processes in Children's Learning

This book is about children's learning and problem-solving behaviour. It reflects the increasingly close integration seen in recent years between social and cognitive approaches to researching the learning process. In particular, Paul Light and Karen Littleton examine the ways in which interactions between children influence learning outcomes. They begin by placing this topic in a broad theoretical and empirical context and go on to present a substantial series of their own experimental studies, which focus on children of late primary and early secondary school age. These investigations address peer facilitation of problem solving, social comparison effects on learning and social context effects upon the interpretation of tasks. Many of the studies involve computer-based learning but the findings have implications both for classroom practice and the understanding of the learning process.

This book will be a valuable tool for researchers, teachers and practitioners interested in the social processes of children's learning.

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The aim of this series is to provide a scholarly forum for current theoretical and empirical issues in cognitive and perceptual development. As the twentieth century draws to a close, the field is no longer dominated by monolithic theories. Contemporary explanations build on the combined influences of biological, cultural, contextual and ecological factors in well-defined research domains. In the field of cognitive devlopment, cultural and situational factors are widely recognised as influencing the emergence and forms of reasoning in children. In perceptual development, the field has moved beyond the oposition of 'innate' and 'acquired' to suggest a continuous role for perception in the acquistion of knowledge. These approaches and issues will all be reflected in the series which will also address such important research themes as the indissociable link betweeen perception and action in the developing motor system, the relationship between preceptual and cognitive development to modern ideas on the development of the brain, the significance of developmental processes themselves, dynamic systems theory and contemporary work in the psychodynamic tradition, especially as it relates to the foundations of self-knowledge.

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Social Processes in Children's Learning

Paul Light and Karen Littleton

Bournemouth University and *The Open University*

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To Vivienne and Ian

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Preface

Two decades ago, in a monograph on 'The Development of Social Sensitivity', one of us concluded that: 'The way is open for much more detailed and delicate study of the relationship between cognitive development and experience in a social environment' (Light, 1979, p. 117). Research in the ensuing years has indeed added greatly to our understanding of this relationship, and the purpose of the present volume is to explore one particular aspect of it, namely the relationship between children's learning and their experience of interaction with peers.

In common with a great deal of the research undertaken in developmental and social psychology over the last twenty years, our subject matter can be embraced by the term 'social-cognition'. However, this term encompasses a variety of very different research enterprises. On the one hand, we have research which is concerned with understanding of social phenomena. This encompasses perception and understanding of self and other, understanding others' intentions and emotions, and more generally the emergence of a 'theory of mind'. On the other hand, we have research which examines the ways in which more general aspects of cognitive development are shaped by social interactions. Here we see traditional topics of cognitive developmental research such as reasoning and concept formation analysed in social-interactional terms.

As Butterworth and Light (1982) observed, the relationships between these various strands of research on socio-cognitive development have often been poorly defined and confusing. Butterworth, in that volume, observed that: 'theories have been imported from cognitive development on the one hand and social psychology on the other, to lie in an uneasy relationship' (1982, p. 5). The appearance fifteen years later of a mammoth undergraduate text on 'Developmental Social Psychology' (Durkin, 1995) reflects the extent to which the rapprochement between developmental and social psychology has progressed, but Durkin still describes the difficulties faced by the enterprise as intimidating.

Durkin draws a similar distinction to that drawn above, between social cognition as concerned with 'cognition *about* social phenomena' and

social cognition as concerned with 'cognition *as a product of* social interaction'. The present volume addresses social cognition in this second sense, drawing substantially upon research which we have conducted with various European colleagues. More particularly, our focus will be upon *social interactions between learners* as an influence upon learning.

The capacity for collaborative learning is widely, and perhaps increasingly, seen as a key feature of human cognitive development. For example, in a major *Behavioral and Brain Sciences* (*BBS*) target article, Tomasello, Kruger and Ratner (1993) address the age old question of 'what's so special about humans?' Their answer is that what is most distinctive about humans is the possession of a culture. Culture is defined in terms of material artefacts, social institutions, behavioural traditions and languages, all having the capacity to change over time. Their hypothesis is that underlying all this distinctively human paraphernalia of culture is a fundamental characteristic of human learning, namely a capacity for *socially grounded* learning. Such learning is marked by the fact that it involves not just learning how to do things, but also coming to understand situations in terms of the purposes and intentions of others, and appropriating their points of view upon shared activities.

Tomasello *et al*. envisage a progression from imitation through instruction to collaborative learning, the capacity for which is seen as emerging in the early school years and as being a vital (perhaps *the* vital) ingredient in cultural learning. After all, they observe, 'Human children are born into a world in which most of the tasks they are expected to master are collaborative inventions' (1993, p. 508). They put the spotlight on the social sensitivity of the learner, attempting to establish the preconditions for cultural learning at the level of the individual. They ask, in effect, 'what do learners have to be capable of to engage in cultural learning?'.

This approach is open to the obvious criticism (taken up by many of the commentators on the *BBS* article) that it treats the individual as 'prior' to culture. The counter-view is that cultural learning is itself a product of culture. After all, opportunities to engage in imitation, instruction and collaboration are themselves afforded or constrained by what the culture offers, for example by way of apprenticeship or schooling. It may be going too far to claim that culture creates the child in its own image, but the relationship is surely at least a bidirectional one.

At some level, the efficacy of collaborative learning, for example, must depend upon the individual's developing psychological model of others. At the same time, the development of such psychological models must be dependent upon social experience. We are thus dealing with a dynamic system of transactions. Disciplinary traditions vary in the ways in which they conceptualise the relationships involved, but, whether one starts

from the standpoint of the individual developing learner or of the social and cultural order, it is apparent that social processes mediate learning in crucial ways.

The role of interaction in learning is an issue of obvious relevance to education as well as to psychology. The work described in this volume draws from both literatures. Educational interest in the potential of group work for fostering children's learning has a long pedigree, a useful review of which can be found in Kutnick and Rogers (1994). Educational reports on both sides of the Atlantic, certainly since the 1920s and 1930s, have lent encouragement to small group work in the classroom. In the UK, the Plowden Report of 1967 was in part responsible for a shift from whole class teaching towards small group teaching at primary school level. The Report advocated groupwork for a variety of reasons, some to do with classroom organisation and efficiency, some to do with socialisation, and some to do with specifically cognitive benefits of this mode of learning. Today, classrooms in the UK and throughout much of the developed world typically have children sitting around tables in small groups, rather than sitting in individual desks in serried ranks, facing the teacher.

The physical arrangement of the classroom can be deceptive, however. The children sitting in these groups may be working separately at different tasks. Whole class teaching also can and does go on within such classrooms. Observational classroom research in the UK indicates that teachers rarely assign tasks that depend upon collaborative modes of learning, and that rather little in the way of pedagogically effective groupwork actually occurs (Bennett, Desforges, Cockburn and Wilkinson, 1984; Galton and Williamson, 1992; Tizard, Blatchford, Burke, Farquhar and Plewis, 1988). However, there is at least one aspect of the curriculum in relation to which groupwork has seen something of a renaissance in recent years, namely the use of computers.

A combination of hardware shortages and a lack of confidence amongst many teachers may have conspired to favour a pupil-centred, small group approach to learning with computers. A survey of UK primary schools in the mid-1980s found that computers were predominantly used by two or three children at a time (Jackson, Fletcher and Messer, 1986). Indeed many of the teachers responding to that survey saw one of the main educational benefits of computers as being the fact that they were particularly good at supporting groupwork. With computers it is also often the case that some of the children in a class have considerable expertise gained outside school, thus disturbing the usual 'teacher-centred' distribution of expertise (Shrock and Stepp, 1991).

Despite the fact that the typical desktop computer seems to have been designed for a single user, classroom observations of computer use have

long emphasised the potential of computers to support effective learning interactions (e.g. Cummings, 1985). Relatively autonomous groupwork around computer resources seems to many observers to offer opportunities for genuine discussion between pupils of a kind which is hard to sustain in other classroom contexts (Scanlon, Issroff and Murphy, 1998). The social dimensions of children's learning interactions around computers will emerge as a major focus of this volume.

The role of discussion and disagreement between peers has long exercised researchers concerned with the role of social interaction in children's cognitive development and learning. As we shall discuss in more detail in the first chapter of the book, Piaget has played a key role in shaping the agenda for developmental psychology in this area. Suspicious of any suggestion that intellectual development results from 'transmission' of knowledge and understanding from experts to novices, Piaget (e.g. 1932) downplayed the importance of adult–child interchanges in favour of an emphasis on the productive potential of peer interactions. He argued that the egocentrism which so limited the thinking of preschool and early school-age children could be overcome through encounters with different points of view. Differences of points of view between *peers* he saw as having particular value as they demand resolution, whereas differences of view between a child and an adult may result simply in compliance.

Neo-Piagetian developments of these ideas, associated most notably with the work of Doise and colleagues (e.g. Doise, 1990; Doise and Mugny, 1984) have bought the concept of 'socio-cognitive conflict' to prominence, and we shall have a good deal to say about it in the pages that follow. But through other concepts, such as 'social marking', Doise recognised that the social dimensions of learning interactions extend far beyond the immediate face-to-face encounter. The wider social world of rules, conventions and social etiquette impinges in a host of more or less subtle ways on the learning situation, which is thus in an important sense 'social' even when no-one else is present.

This wider sense in which intellectual development is a fundamentally social process was explicitly addressed by Vygotsky, whose rather fragmentary writings (e.g. Vygotsky (1931) 1990) have come to be regarded as seminal in this field of research. Vygotsky offered an account of some of the mutually adjustive properties which characterise effective teaching/learning interactions, building on concepts such as the zone of proximal development. This has helped to foster a tradition of experimental research on effective strategies for teaching and learning which has contributed in turn to the development of computer-based intelligent tutoring systems (Wood and Wood, 1996). It has also provided the basis for an

approach to understanding how peer interaction can facilitate learning and problem solving. This highlights processes of joint construction of an appropriate representation of the problem and its solution, most notably through discussion (Mercer, 1995).

On another level, Vygotsky offered a starting point for a wider theoretical development which has come to be known as 'cultural psychology' (Crook, 1994; Cole, 1996). Crook uses the biological analogy of a 'culture' as a *medium* in which living material (bacteria, tissue cells, or whatever) can be supported and 'grown'. In a similar way, human culture is conceptualised as a medium which supports the development of thinking.

Cultural psychology focuses on thinking and reasoning as activities which take place in particular situations. This approach has come together with influences from anthropology (Lave and Wenger, 1991) and cognitive science (Suchman, 1987) to form the basis of what is now widely referred to as the 'situated learning' approach. Here learning is considered to be an intrinsic and inseparable aspect of participation in the various 'communities of practice' that make up a society.

All of these very diverse disciplinary, sub-disciplinary and multi-disciplinary perspectives see development and learning as dependent in one way or another upon the nexus of social relationships within which they occur. Many of them suggest that interactions between learners, as well as between teachers and learners, may have an important and formative role. In the chapters that follow, some of these perspectives will be explored in greater detail than others. The research evidence to be presented at times may lend itself to explanation in terms of one approach rather than another. But the different positions sketched here are not in conflict, or at least not in the sense that if one is right the others are necessarily wrong. All of them offer a case for taking child–child interaction seriously in the context of development and learning. The present volume affords us the opportunity both to pull together a considerable body of empirical research on this topic that we and our colleagues have been directly involved in, and also to set this work within the wider context of contemporary research in the field.

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