Consciousness and Experiential Psychology Section


Images for life: The impact of contemporary art
T ADAMS, Goldsmiths College, University of London
The Tate Modern is no ordinary building, nor is it an ordinary project – contemporary art has been finally located as a pastime. For discomfort of the new, now institutionalised, requires our presence as part of the aesthetic. Walking in and out of this monumental building we have become as if players in a vast installation. But what do we do with the images that confront us? What do we search for in those stalling moments between gallery displays, pausing to scrutinise, looking for meaning and recognition? It was Ruskin who located the artist as the ‘prophet of the eye’ and in speaking of the ‘exaltation of seeing’ implied the artwork’s transformative function. Does this explain why 20,000 visitors attend the Tate Modern everyday? Does this account for the Royal Academy of Art’s response of offering all-night viewing to the overwhelming demand for Monet’s water lilies last year? This paper explores the view that contemporary art is more than fashion and spectacle; that images serve a certain fashion and spectacle; that images serve a certain

The externality but ‘mineness’ of consciousness
P ASHWORTH, Sheffield Hallam University

The golden bridge: Implications of SBU, Sri Aurobindo Ashram, Pondicherry
Yudhista (in the Mahabharata) commented that the greatest paradox on earth was that man knew he was to die but behaved as if he were immortal. In the Indian tradition different images of immortality have become part of the collective psyche. One is that of Nachiteka, who forced the Lord of Death to explain to him the mystery of the

Images of immortality in the Indian psyche
S BASU, Sri Aurobindo Ashram, Pondicherry
Yudhista in the Mahabharata commented that the greatest paradox on earth was that man knew he was to die but behaved as if he were immortal. In the Indian tradition different images of immortality have become part of the collective psyche. One is that of Nachiteka, who forced the Lord of Death to explain to him the mystery of the

The golden bridge: Implications of Sri Aurobindo’s work for psychology
M CORNELISSEN & S BASU, Sri Aurobindo Ashram, Pondicherry
Sri Aurobindo bases his idea of an ongoing evolution of consciousness on the Vedic concept of Sachchidananda, which holds that

Note: The Society’s office does not have copies of any of the papers presented at its conferences. Anyone wanting papers should write directly to the author. If the printed address is insufficient, write a separate letter, and stamp it, to each author and send each separately to

The British Psychological Society, St Andrews House, 48 Princess Road East, Leicester LE1 7DR.

On the outside of each envelope please write clearly the volume number and page number of the Proceedings – this will ensure that your request is directed to the correct person. We will then re-address each envelope and forward it to the author.

Consciousness and Experiential Psychology Section


Images for life: The impact of contemporary art
T ADAMS, Goldsmiths College, University of London
The Tate Modern is no ordinary building, nor is it an ordinary project – contemporary art has been finally located as a pastime. For discomfort of the new, now institutionalised, requires our presence as part of the aesthetic. Walking in and out of this monumental building we have become as if players in a vast installation. But what do we do with the images that confront us? What do we search for in those stalling moments between gallery displays, pausing to scrutinise, looking for meaning and recognition? It was Ruskin who located the artist as the ‘prophet of the eye’ and in speaking of the ‘exaltation of seeing’ implied the artwork’s transformative function. Does this explain why 20,000 visitors attend the Tate Modern everyday? Does this account for the Royal Academy of Art’s response of offering all-night viewing to the overwhelming demand for Monet’s water lilies last year? This paper explores the view that contemporary art is more than fashion and spectacle; that images serve a certain fashion and spectacle; that images serve a certain

The externality but ‘mineness’ of consciousness
P ASHWORTH, Sheffield Hallam University

The golden bridge: Implications of SBU, Sri Aurobindo Ashram, Pondicherry
Yudhista (in the Mahabharata) commented that the greatest paradox on earth was that man knew he was to die but behaved as if he were immortal. In the Indian tradition different images of immortality have become part of the collective psyche. One is that of Nachiteka, who forced the Lord of Death to explain to him the mystery of the

Images of immortality in the Indian psyche
S BASU, Sri Aurobindo Ashram, Pondicherry
Yudhista in the Mahabharata commented that the greatest paradox on earth was that man knew he was to die but behaved as if he were immortal. In the Indian tradition different images of immortality have become part of the collective psyche. One is that of Nachiteka, who forced the Lord of Death to explain to him the mystery of the

The golden bridge: Implications of Sri Aurobindo’s work for psychology
M CORNELISSEN & S BASU, Sri Aurobindo Ashram, Pondicherry
Sri Aurobindo bases his idea of an ongoing evolution of consciousness on the Vedic concept of Sachchidananda, which holds that
The use of passive and active imaging
J HENRY, The Open University
This session examines active and passive approaches to imaging and visualisation. It describes the rationale for using images for personal development and problem solving, and the use of active imaging to address issues where passive imagery might be insufficient. The facilitator uses prompts to influence the participants imagination and the course of the facilitators suggestions, though the facilitators never gets to know the content of the imagery. The different forms of imagery and people experience and common ways of tackling unwanted images are also addressed. The session includes several imaging exercises and an opportunity to discuss such experiences and their outcomes.

Creativity as a social phenomenon: A review and critique
N KING, University of Huddersfield
Creativity is a central concept in the psychology of consciousness and experience which, for the most part, psychologists have approached from essentialist perspectives and positions. For example, psychodynamic writers have examined the link between creativity and mental dysfunction, humanists have considered its role in self-actualisation, and neuroscientists have developed computational models of the creative process. This stresses the need to study creativity as a truly social phenomenon within the context of our interactions with the social world we inhabit. It examines attempts to develop a social psychology of creativity, such as Amabile's 'componential model,' and Csikszentmihalyi's 'systems model,' showing how these tend to collapse back into reductionist individualistic accounts. It argues for a phenomenological and constructivist psychology for future research in the area.

The topographical versus temporal problem of 'preconsciousness': First-person perspectives from spiritual traditions
B L LANCASTER, Liverpool John Moores University
We owe to Freud a conception of the 'preconscious' as memories beyond the immediacy of current consciousness. This topographical view may be contrasted with the more precise approach of cognitive neuroscience where we find the term applied to those processes which are antecedent to consciousness. A resolution of the conflict between these views is achieved through an analysis of the kinds of first-person insights deriving from spiritual traditions. Buddhist wisdom literature discusses the stages in perceptual or thought processes, and clarifies the 'conscious' status of those early stages which cognitive neuroscience would typically classify as 'preconscious.'

Imagery in Tantric approaches to mental health
J LOW, Munro Clinic, Guys Hospital
The talk considers imagination and creativity as issues in the delivery of mental health care in the UK.

Transformation, identity and time
J PICKERING, University of Warwick
How can there be enduring identity if there is change? But if change is real, what is it that changes and how are we to conceive of it? In the West, identity and on this conundrum stretches from pre-Socratic philosophy to contemporary developments in philosophy and in psychology. Of particular interest here is the recent upsurge of interest in Bergson and philosophers who are taking his project forward, such as Gilles Deleuze.

Transformation of consciousness through creative activity: A qualitative study
F REYNOLDS, Brunel University
Background: Chronic illness affects more than the physical body. Conscious experience may be dominated not only by pain and other symptoms, but also by worry and depressed thoughts about the future. Increasing dependence upon family care may limit valued roles and reduce self-esteem. Attitudes and beliefs seem relevant to coping with illness but there has been little research into the subjective meanings of the experience offered by creative activity.

Objectives: To explore the transformative experiences attributed to creative activity during illness. Methods: Forty women offered written narratives of the ways in which creative activity had transformed their experience. Results: Thematic analysis revealed that most of the women had taken up creative activity as a distraction or as a means of expressing and processing their experiences. The experience of the imagery, for example, was linked to the image's ability to evoke a sense of identity or of the future. The women's experiences were compared with the findings of past research. The present study focusses on the phenomenology of the dreamscape, specifically, on how the dreamscape differs from waking perception. Participants described their dreams as a dream bank anonymously over a period of four weeks. The dreams were content analysed for frequent patterns. The codes of the thematic questionnaire was constructed by the following groups: Generic: Time and Space; Sensory Perception; Emotion; Identity; Explanation; Logic. The codes fitted with different codes and some system motifs, e.g. did people change identities during the dream? Factor analysis revealed the following categories: 1. Persons and Associations; 2. Internal monologue; Sensuousness; Stability; Fantasy; Exhilaration. We present a sketch for a general phenomenology of the dreamscape. We describe possible connections between particular motifs and what the emergent factors might mean. Finally, we discuss the logical paradoxes, i.e. the rendering of dreams as though accounts of perceptual experience.
increasing resources for coping with the stress of chronic illness.

Homo Luden: The psychology of special interests
J ROTH, Open University
Special interests are frequently – though not invariably – people’s spare time or leisure activities. They may play an important role in a person’s identity, self-expression, and provide fulfillment via the acquisition and transmission of knowledge, creative output or social interaction. It is therefore surprising that little research has been devoted to special interests considered as an everyday cultural phenomenon: after all, the human pursuit of activities beyond those serving immediate needs (which has given birth to the concept of Homo Ludens) involves both enjoyment and creativity. The study of special interests and their effects is an area that has been largely neglected, and yet it remains an important area of research for psychologists.

The phenomenology of the Centaur
J ROWAN, Private Consultant
The Centaur is the name given to one of the stages of psychospiritual development described by Ken Wilber. Although Wilber has given brief descriptions of each of these stages, it would seem worth while to explore the fine structure of each stage in greater detail. The phenomenology of the Centaur stage, based on my own journey into and through the Centaur stage, may help others to understand and work towards the development of the Centaur stage in themselves. As a result, the description of my own journey into and through the Centaur stage, and some comments about the Centaur stage in general, are given. As a result of the Maslow list of nineteen features of the self-actualised person, Maslow’s list of features can be expanded to thirty. At the end of this journey, the Centaur stage is defined as a stage of the journey into self-actualisation.

The bright side isn’t that bright
G RUBINSTEIN, Netanya Academic College, Israel
It’s bad enough to face the harsh reality that life is hard, but to be told by therapists, authors of self-help books, ‘inspirational’ speakers, well-meaning friends, and countless others that we have to act – or worse yet be – happy about that fact is to add insult to injury. We have to pretend life is fine when it isn’t. We have to appear optimistic when we are not. Don’t worry, be happy, the famous song goes. Cognitive psychologists argue that depression is caused by an overly pessimistic, distorted view of reality. Psychologists who write about depressive realism, however, say that depression may be caused by an all-too-accurate take on reality. In fact, depressed people are said to be too realistic, while those who are not depressed may be in a chronic state of denial about how bad things really are. An optimistic attitude may have some built-in advantage, but it is also apparent that many people are often overly optimistic.

The potential role of psychology in this process?

Consciousness and ethics – parallelsisms and interarticulations
S TORRANCE, Middlesex University
Theoretical wrangles over the ‘explanatory gap’ in consciousness recall debates through much of the last century over the gap between fact and value. There are interesting parallels between the studies of consciousness and ethics, and both deep mutual entanglements or interarticulations. I shall criticize the idea of value-neutrality in science (particularly problematic for consciousness science); and I will discuss concepts of the lived world, empathy and interbeing in current work by Varela, Thompson et al. I will illustrate with a case study – science and care practice in relation to people with dementia.

How imagery affects brains
M VELMANS, Goldsmiths, University of London
There is extensive experimental and clinical evidence that imagery can be used to affect brain and body processes. However, how it does so has seemed to be inexplicable. The physical world appears to be causally closed – and conscious experiences appear to come too late to affect the processes to which they most obviously relate. In this paper, I present some of the evidence for the effects of imagery on brain/body states, the conceptual problems these present, and introduce a novel route to their solution, developed in depth in the book Mindfulness/Mindlessness (Routledge/ Psychology Press, 2000).

Mindfulness, stress and psychological well-being
J WALSH & G FERNANDES, University of London
This study sought to assess the reliability and validity of a newly developed questionnaire measure of Mindfulness by examining its associations with stress, anxiety and depression. Seventy-three students (mean age = 26 yrs.) from a university in London completed Langer’s Mindfulness/Mindlessness measure comprising four sub-scales – flexibility, novelty seeking, novelty producing, and engagement. The Perceived Stress Scale (Cohen et al., 1983) was used to measure stress, and the GHQ-28 (Goldberg & Hillier, 1979) was employed to assess anxiety and depression. The reliability coefficient for the Mindfulness scale was .86 overall, with sub-scale coefficients of .58, .76, .64, and .69, respectively.

Correlational analyses indicated that Mindfulness (total) was significantly negatively associated with stress (r = -.23), anxiety (r = -.26) and depression (r = -.31), as predicted. Further analyses based on Baron & Kenny (1986) indicated that stress mediated the relationship between engagement and both anxiety and depression: mindful participants tended to report lower levels of stress, and lower levels of stress were associated with less anxiety and depression. The study provides empirical support for the reliability and validity of the Mindfulness/Mindlessness questionnaire. It also suggests a mechanism (stress dilution) through which mindfulness may be health protective.
Developmental & Education Sections

Joint Annual Conference, University College, Worcestershire, 6–9 September 2001

KEYNOTE ADDRESSES

Cognitive ability test profiles: An essential component in the assessment of reading disabilities? Yes!

C D ELLIOTT, Postgraduate School of Education, University of California at Santa Barbara.

The development of tests of cognitive abilities, often called 'intelligence' tests, was arguably one of the major achievements of psychology in the 20th century. In recent years, controversy has surrounded their use, with psychologists sometimes being urged to 'Just say no to subtest analysis' (e.g. McDermott et al., 1990). In this paper I will argue that, far from being an outmoded and technically flawed procedure, the analysis of cognitive test score profiles yields essential information, especially in assessing children with reading difficulties. I will support this argument with data from substantial samples of children with reading disabilities who were assessed with the Wechsler Intelligence Scales, Second Edition (WIS II) and the Differential Ability Scales (DAS).

The nature and development of social competence: What developmental psychology might and might not learn from social psychology

N EMLER, London School of Economics and Université de Paris V, René Descartes Sciences Humaines, Sorbonne.

Social competence is widely recognised as a fundamental outcome of development; it also figures among the key skills to be developed through formal education. Despite this there remains little agreement as to exactly how such competence should be defined or how progress in its development should be assessed. Research into the development of social competence has clearly drawn upon, and to an extent benefited from, ideas developed within social psychology, notably those of social skills and attribution. Other social psychological concepts, relating for example to impression management and social influence, are also relevant. However, there may also be limits to what can be learned from social psychology about the nature of adult social competence. The insights it is able to provide are only as good as the model of human society upon which it draws. It will be argued that this model still gives too much emphasis to the individual as an autonomous actor within an impersonal social structure. The argument will be illustrated in terms of moral reasoning, reputation and citizenship as facets of social competence.

Aggression in Middle School: Forms and functions

A D PELLEGRINI, Dept of Educational Psychology, University of Minnesota, Minneapolis, USA.

In this talk I address the forms and functions of aggression during the middle and adolescent years, when youngsters are in middle school. Bullying and victimisation is the modal form of aggression for this age group and I suggest that it serves a dominance function for them. Dominance, in turn, leads to increased status in heterosexual relationships. While less is known about aggression for girls during this period, I suggest that girls may use relational aggression to serve a dominance function for them. While less is known about aggression for girls during this period, I suggest that girls may use relational aggression to serve a dominance function for them.

Individual differences in reading comprehension: Meaning and sound in learning to read

M J SNOWLING, Dept of Psychology, University of York.

Contemporary models of reading development have emphasized the important role of phonological awareness to learning to read. Phonological awareness is a strong predictor of reading attainment and phonological deficits are associated with most of the world's languages. In contrast, the role of semantic skills has been relatively neglected. Using a connectionist framework, this paper will review evidence that learning to read depends upon the interaction of phonological and semantic skills, and argue that reading problems can arise because of either phonological or semantic representation. An initial study examined the concurrent predictors of reading in a large unselected sample of readers and found that phonological awareness and semantic skills contribute independent sources of variation to children's ability to decode and to read exception words. Two studies contrasted the problems experienced by dyslexic readers (who show phonological difficulties) and children with reading comprehension impairments (who show semantic difficulties). Finally, a longitudinal study of children at genetic risk of dyslexia provides evidence that children with good semantic skills can use these from an early stage to boost the development of otherwise impaired phonic decoding and spelling skills. Taken together, these findings suggest that consistent phonological and semantic skills are critical for the development of decoding abilities, whereas semantic skills are important for the development of reading comprehension. The corollary of this is that children with oral language difficulties are at risk of literacy failure for a variety of different reasons.

When gestures speak louder than words. A perceptually-based explanation of lexical comprehension at home and at school

ZUKOW-GOLDRING, Dept of Linguistics, University of Southern California, USA.

Words cannot mean what we already know words mean. Yet learning what words mean (and that they mean) is what infants and students 'mean' to learn. I have proposed a social ecological model of learning (Vygotsky, 1978), Gibson (1979), and Garfinkel (1967). The cultural-historical view tells us that knowing emerges during social interaction in which more adept members assist those who are less practiced. The theory of direct perception disclosed how people pick up the perceptual structure that guides perception; knowledge is semantically grounded. Ethnomethodology/linguistic anthropology pinpoints how people reduce ambiguity in everyday life by doing the interacting, or else seeing to it with eye-to-eye. Combining these three views provides a basis for explaining how people continuously and effectively understand the effects of stories. We have investigated how Latinos and Euro-Americans most often achieved a practical understanding of ongoing events when communication broke down in the classroom and at home. This research focused on observable practices, the observable meaning of messages in context, and child comprehension. Actions do not mean less than words; the analysis of messages following communicative breakdown led to achieving a common understanding significantly more often than adding specificity to verbal messages at home and at school.

SYMPOSIUM

Symposium 1: Baseline assessment

Convenor: G LINDSAY, Centre for Educational Development, Appraisal and Research, University of Warwick.

Baseline assessment (BA) is a statutory requirement on all schools with children starting compulsory education. There are 91 accredited schemes, developed around a common core, but with variations in detail. There are at least nine purposes for BA, either pedagogic and child-focused or managerial and school-focused. These reflect the roots of BA including the identification of children with special educational needs, and the analysis of school effectiveness by value-added analyses. Variations in the content and implementation of BA schemes pose challenges for its use as a national initiative, particularly for comparison for any research that uses non-adequate psychometric qualities. On the other hand, some BA developers have undertaken research which contributes to debates on continuity and discontinuity, and the relative influence of child and contextual factors in influencing educational development. This symposium will be focussed or managerial and school-focused. The evaluation of the national arrangements for BA highlights the variation in schemes' content and in practice, and in the second paper presents evidence on new schemes which develop BA into the preschool age range. A third examines the evidence on differential progress of children with special educational needs, and the analysis of school effectiveness by using a connectionist framework, this paper will review evidence that learning to read depends upon the interaction of phonological and semantic skills, and argue that reading problems can arise because of either phonological or semantic representation. An initial study examined the concurrent predictors of reading in a large unselected sample of readers and found that phonological awareness and semantic skills contribute independent sources of variation to children's ability to decode and to read exception words. Two studies contrasted the problems experienced by dyslexic readers (who show phonological difficulties) and children with reading comprehension impairments (who show semantic difficulties). Finally, a longitudinal study of children at genetic risk of dyslexia provides evidence that children with good semantic skills can use these from an early stage to boost the development of otherwise impaired phonic decoding and spelling skills. Taken together, these findings suggest that consistent phonological and semantic skills are critical for the development of decoding abilities, whereas semantic skills are important for the development of reading comprehension. The corollary of this is that children with oral language difficulties are at risk of literacy failure for a variety of different reasons.

Paper 1: The development of an assessment to measure the skills of pre-school children

C MERRILL, Curriculum Evaluation and Management Centre, University of Durham.

Objectives:
- look at issues involved in collecting useful, reliable and valid data from young children;
- describe the development of a new baseline assessment for the foundation stage for use by teachers;
- discuss the outcomes from the pilot and subsequent use of the assessment.

Design: ASPECTS (Assessment Profile on Entry of Children and Toddlers) was developed to assess the skills of young children in the areas of personal and social, physical, language and mathematics development. It was piloted in 327 nurseries during the 1999/2000 academic year and used in 660 pre-school settings in 2000/2001.

Methods: ASPECTS was administered on entry to nursery, establishing a baseline on entry to the pre-school setting. Some were assessed using objective activities on a one to one basis, others by observation. Pupils were re-assessed after 18 months, and a longitudinal design with follow-up observations at 36 months.

Results: The test/testest reliability of the language and mathematics development section was 0.81 (pilot), and the correlation between language and mathematics at the start of nursery and the start of reception, one year later, was 0.68 (pilot
Paper 2: Differential pupil progress during the early years at school: evidence and policy
A LEWIS & G LINDSAY, Institute of Education, University of Warwick

Objectives:
- to identify factors associated with pupils’ educational progress from age 4 to age 7;
- to consider any associations of progress with sex, age, career, and ethnicity, while controlling for a range of other variables.

Design: The study collected the Baseline assessment results of pupils on entry to reception class and tracked pupils in order to collect their subsequent results in national tests at the end of Key Stage 1 (KS 1). In addition a wide range of contextual data was collected on the pupils and their schools.

Methods: Results were collected for over 5,000 pupils drawn from 55 primary schools in different LEAs in London. Multi-level regression analyses were used to evaluate the associations between contextual factors and progress between Baseline assessment and end of KS 1 tests. Results: A wide range of factors was associated with pupil progress, including sex, age, amount of pre-school education, ethnic group, free school meal entitlement, English as an additional language, stage of SEN and the particular primary school pupils attended. In general differences between groups of pupils increased rather than decreased over time. There were significant and notable interactions between several of these factors.

Conclusions: It is misleading to consider ethnicity in isolation. Thus, the associations between ethnic minority groups and sex and economic disadvantage must be analysed. The implications for policy makers at both local and national level are considered.

Paper 3: Evaluation of the national baseline assessment scheme in England
S STRAND, National Foundation for Educational Research

Objectives:
- to stimulate the operation of the national scheme for a statutory baseline assessment (BA) in England;
- to identify the usefulness of current arrangements for the use of BA in the identification of special educational needs (SEN).

Design: A survey of stratified sample of schools with reception children, including special schools; examination of practice in 16 LEAs using different methods of BA and with a range of socio-economic and demographic characteristics.

Methods: Three surveys: a stratified sample of 2000 schools; all LEA and other providers of baseline assessment schemes; and BA which used schemes provided by other LEAs, or others. Interviews were conducted with headteachers, reception teachers and parents from schools using BA, and chief officers and educational psychologists from the LEAs.

Results: Data were collected from 982 schools (89.1 per cent mainstream, 10.9 per cent special) and 102 LEAs, using 90 of the 91 available schemes. The paper will present data on: use of BA, content of different schemes, training in BA, modalities of BA, and variations in implementation, including timing of assessment, users of information, satisfaction with the BA schemes used, and parental involvement. The paper will also present substantial variation in baseline assessment and concerns about its use for competing purposes. The implications of the scheme, and in particular for identifying children with special educational needs, will be explored.

Symposium 2: The effects of music on studying and behaviour
Convener: S HALLAM, Institute of Education, University of London

Research on the effects of background music on children's performance has been equivocal. The paper will present data on: use of schemes provided by other LEAs, or others. Results: Results were collected for over 5,000 pupils drawn from 55 primary schools in different LEAs in London. Multi-level regression analyses were used to evaluate the associations between contextual factors and progress between Baseline assessment and end of KS 1 tests. Results: A wide range of factors was associated with pupil progress, including sex, age, amount of pre-school education, ethnic group, free school meal entitlement, English as an additional language, stage of SEN and the particular primary school pupils attended. In general differences between groups of pupils increased rather than decreased over time. There were significant and notable interactions between several of these factors.

Conclusions: It is misleading to consider ethnicity in isolation. Thus, the associations between ethnic minority groups and sex and economic disadvantage must be analysed. The implications for policy makers at both local and national level are considered.

Paper 4: Personality approaches to learning and the use of background music in studying
P CHRISTODOULIDIS, Institute of Education, University of London

Experimental studies investigating the effect of background music on performance have produced rather inconsistent findings. Music has been found to facilitate, reduce or have no effect on performance. Responses to background music appear to vary according to the characteristics of individual differences, the nature of the background music, and type and difficulty of performance tasks. The present research studied the relationship between 308 university students’ musical preferences, their approaches to studying and the use of music while they were studying. The students, aged 18–30, attended different academic departments (arts, humanities, social sciences and arts) and were asked to complete the NEG Five-Factor Inventory (NEO-FFI), the Approaches to Studying Inventory (ASI) and a self-completion questionnaire, which explored their music listening habits, music preferences, and the ways that they used music to support studying. Data were analysed by means of analysis of variance (ANOVA). Results revealed that students who adopted a deep approach not only listened to music while they were studying, but they were also more concentrated on their readings. Statistically significant differences were also found among the types of music that different students reported using.
nature of the task (memorising, reading, writing) and the different personality characteristics.

Additionally, students attracted to different fields of study may be significantly in their preference of listening to music while they were studying. Methodological issues arising from the research, another understanding and the educational implications are discussed.

Symposium 3: Psychological readiness for school.

Convenor: C DAVIES, Dept of Psychology, University of Manchester

In the UK children begin their formal schooling sometime during the year in which they reach their fifth birthday. At this age it is assumed that they are socially mature enough to work and play alongside other children. It is further assumed that these skills are not securely in place until well into the junior-school years. Furthermore, the infant-school years will see most children developing, in Piagetian terms, from pre-operational to concrete operational thought, Wan will report on the effects of this transition on the educational performance of a cohort of Infant School children. Finally, Parker and Davies will show that, while most reception infants succeed on simple False Belief tests, this doesn’t necessarily mean that those same children can tell ‘Who Knows What’ in the classroom.

Paper 1: Are young children able to handle the verbal demands of the classroom?

P LLOYD & C FOSTER, Dept of Education, University of Strathclyde

It will be argued that most children are poorly equipped to deal with the volume and content of verbal information to which they are exposed when starting school. This view is supported by evidence from conventional measures of language development (semantic and grammatical) and also pragmatic studies which focus on the ability to make decisions about the adequacy of what is heard and said. Preliminary work has also looked at the verbal demands made by speech acts as a vehicle by examining the information content of a teacher’s utterances (over eight lessons) to a class of six-year-olds. Despite being a core component of the National Curriculum, Speaking and Listening are not properly assessed either in school or at base line assessments. A new standardised instrument for gauging the ability to respond to a teacher’s request, the significance of LIST for language in the classroom will be discussed.

Paper 2: Memory and sociocognitive development in infant school children

M WAI WAN, Dept of Psychology, University of Manchester

Recent unpublished data by Davies and students demonstrated a tendency for infant schoolers to suffer operational and figural event memory loss as they progress from pre-operational to concrete operational thought. This coincides with evidence for memory regressions during other periods of Piagetian operational transition, leading to implications for educational practice and teacher training. This paper investigates whether memory deterioration occurred for educational material learned (EdM) as well as event information exposed to (EvM) in a previous operational stage. A longitudinal design was adopted to test 78 children on a series of memory and cognitive tasks in the context of Year 1 (mean=6.12 years) and Year 2 (mean=6.59 years). Although this period was found to be one of rapid cognitive development within which 32 children advanced an operational stage, the results found no ‘trans-operational amnesia’ and no relationship between EvM and EdM. Rather, the earlier the operational transition, the better the EdM? regarding qualitative? changes in operational change had been experienced between encoding and retrieval. EdM correlated with teachers’ ability ratings and Year 0 reading and mathematics abilities but not those age-related socially-related measures. Performance on four prefrontally-related tasks was not linked to EdM in Year 1 but was significantly associated in Year 2, suggesting that the application of ‘prefrontal’ abilities plays an increasingly important role for success in school tests. However, reading and mathematics scores at four years and teachers’ estimates could predict EdM, indicating how well the ability interacts with a working memory ‘prefrontal’ component.

Paper 3: The ‘Who Knows What’ Test (WKWT): Do schoolchildren need a theory of mind?

A PARKER & C DAVIES, Dept of Psychology, University of Manchester

This study’s objective is to investigate ‘Theory of Mind’ in a school context, using a new test – the ‘Who Knows What’ Test. The WKWT comprises 24 questions, directly asking children if they themselves, their parents, their teachers hold certain knowledge. There are different combinations of knowledge distribution, i.e. which of the three individuals hold a particular piece of knowledge), and, for each of these, the children are asked who has this knowledge. In phase one, 22 children of reception age were tested, and asked to justify their answers. The results show that children are able to distinguish about presence of knowledge than absence, and making judgements about others’ knowledge is easier if they know the answer themselves. The easiest questions, then, are those that involve the children having knowledge which they shared with their mothers or teachers. More difficult questions involved ignorance that the child shared with their mothers or teacher. The most difficult question was ‘If the question was asked by a teacher or mother she knows something the child does not, or are ignorant of something the child knows. This final category requires reasoning that somebody else can hold different information. This type of knowledge is a well developed ‘Theory of Mind’. Preliminary conclusions indicate that reception age children do not all understand fully that the teacher knows things they do not and therefore has something to teach them.

Discussant: C LEWIS, University of Lancaster

Symposium 4: Teaching number to primary school children

Convenor: C RIDLER, Dept of Primary Education, University of Strathclyde

Recent evidence suggests that models of how adults teach number range from: developmental/social model – children learn number along with language; subject specialist model – who have a good grasp of mathematics can communicate number clearly to children of four, five and six years of age; and pedagogical model – teachers are taught specialist pedagogical skills that enable them to help young children to learn number.

This symposium will discuss these models, which are influential in teacher and education. We aim to make these models explicit so that they can be debated and subsequently tested.

Paper 1: Research into early number understanding and the early years maths curriculum: A British/European perspective

P MUNN, Dept of Primary Education, University of Strathclyde

Early Years Maths is much a conversational specialty and access to mathematical conversations gives young children their most important maths learning tool. Today there is a great emphasis on number in the early years curriculum. This is also a very large research literature in number learning. However, the research literature has a poor emphasis on either of early years practice or the curriculum for teacher education. Across Europe, Initial Teacher Education models all have combinations of subject-knowledge and craft-knowledge. Recently, teacher-education professionalisation has resulted in the reformation of this (essentially secondary) model teaching education on subject aspects of maths. There is also a very large research literature in number learning. However, the research literature has a poor emphasis on either of early years practice or the curriculum for teacher education. Across Europe, Initial Teacher Education models all have combinations of subject-knowledge and craft-knowledge. Recently, teacher education on subject aspects of maths.
misconceptions are also prevalent among the preserve teacher population. There is some concern that if this is the case, they will contribute to the creation of further misconception amongst those they teach.

This paper will consider:
- the extent to which Scottish preservice teachers are influenced by, and hold, primitive models of multiplication and division;
- models that are held explicitly, and, whether they are masked by procedural competence; and
- the sources and supports for the primitive models and the implications for teacher educators.

Symposium 5: Mathematical development and education

Conveners: L SMITH, Dept of Educational Research, Lancaster University

There is something of a paradox besetting current accounts of mathematical development and education. On the one hand, there is abundant evidence in developmental psychology attesting the numerical expertise of preschool children (Hartnett & Gelman, 1998). On the other hand and in case it is combined with a denial 7+5=12>5=7. Reasoning (understanding 'as many') is required for mathematical progress which is constrained by undue reliance on basic operations (understanding too little)

In this symposium, comprising four parts, reasoning is central to three papers which cover recent studies of mathematical learning and teaching from the preschool years to late childhood. These studies include contributions to developmental psychology and education. The final part of the symposium is an open discussion of these papers and beyond.

Paper 1: When counting leads to cardinality?: one route or two?

K MULDOWN & C LEWIS, Dept of Psychology, Lancaster University

Pre-school children frequently fail to use counting to count accurately, involving two or more sets of items. Young children are often unaware that the sizes of two sets can be compared using cardinal numbers (cardinal extension). Whilst theories of number development often place an emphasis on the role of counting in grasping cardinality, some tests of cardinal understanding demand counting proficiency while others do not. Distinguishing use of counting to make relative number judgements from use of cardinals to make similar judgements is important in establishing children's conception of counting and number. In the current experiments children were tested on their ability to use cardinal extension to establish numerical equivalence in one of two contexts; counting the spot where the spot count occurred. In the second context, the task was to manipulate items to create equivalent sets. In the inference context the task was to infer a hidden, equivalent, set from a visible set of elements. Children compared two groups and recognized the equivalence on the two tasks with standard counting and numerical inference tests and found differences between them. The two tasks were dissociated in terms of number at which children performed above chance. Children who used counting to make equivalent sets were more likely to identify errors in a doll's counting. Success on the inference task was predicted by children's ability to count accurately to 10 items. These results suggest that there are two routes into cardinal extension.

Paper 2: Children's reasoning by mathematical induction: causal facts and normative facts

L SMITH, Dept of Educational Research, Lancaster University

In (almost) universally neglected study, Gelman and Church (1997) showed evidence for two hypotheses: (i) children can reason successfully by mathematical induction and (ii) such reasoning is already present in the kindergarten level. Both hypotheses along with a third about (iii) children's knowing when-to-count and when-to-reason were investigated in a recent adaptation of the research with children aged 5–7 in school Year 1 and 2. Evidence confirming (i) and (iii), and compatible with (ii), is presented. This psychological evidence is interpreted through a reconciling position which combines the causal context of action and the normative control of reasoning in an epistemological framework. Its educational relevance to reasoning in the early years mathematics curriculum is evident through a constructivist - perspective about the individualisation of intersubjective knowledge. In short, the argument contributes to filling an important gap in the research on mathematical development during childhood. As such, this is psychologically, epistemologically and educationally important.

Paper 3: Children's understanding of intensive quantities: an epistemological shift?

T NUNES, Dept of Psychology, Oxford Brookes University

Measurement theory investigates the connection between a number and the magnitude that the number refers to: for example, in the expression '5 kilos', what is the meaning of '5'? One of the characteristics of extensive quantities, such as weight, is that the concept has an additive meaning: something that weighs 5 kilos can be balanced in a scale with 5 units of kilo. Not all magnitudes are measured in ways that are defined by additive relations. Intensive quantities are measurable magnitudes but their measurement does not proceed by such additive concatenations - for example, speed, density, and concentration. Intensive quantities are measured by relation between other quantities. This paper will consider the nature of intensive quantities and the properties of intensive and extensive quantities and review studies on children's difficulties with the concept of intensive quantities. The origin of children's understanding of intensive quantities will be analysed and hypotheses about the characteristics of successful teaching will be considered.

Paper 4: Intervening in Years 5 and 6, in the context of mathematics learning, with the aim of promoting cognitive development

M SHAYER, King's College, London

This paper reports on the work of Focus 5 of the Leverhulme Numeracy Programme. It is possible for primary teachers so that their mathematics work with their pupils serves the more abstract purpose of learning about the relations between magnitudes of their pupils, as well as promoting their numeracy? A research team of experienced primary teachers (also Numeracy Advisers in their LEA) and college staff, shared a methodology derived from Piaget and Vygotsky so that a series of some 24 exemplary activities (Thinking Maths lessons/TCMs) can be used. Each TCM programme was then run by the combined team for the teachers in eight schools in the LEA, and the TM lessons were worked with the teachers at a rate of about one a fortnight, during Years 5 and 6.

The cognitive development of the children was investigated by a Piagellian test set in the context of the TCM programme. It is hypothesised that the TCM programme would increase the spatial abilities in the eight main study schools. KS2 results for maths, science and English were used to test these hypotheses. Not all classes produced gains over and above those for the control school classes. But those classes where the children showed cognitive gains also had enhanced results in maths, science and English equally. Perhaps the most interesting aspect of the research is that it underlines the process of sharing with teachers, in various ways, the theory-based insights into teaching skills which lead to the teachers engaging their pupils in collaborative learning.

Discussant: P BRYANT, Dept of Experimental Psychology, University of Oxford

Symposium 6: Early global deprivation: developmental consequences

Conveners: M BROPHY & E COLVERT, Institute of Psychiatry, London

The current symposium presents four papers addressing some of the main findings of the English Romanian Adoption Project. The ERA project is a longitudinal investigation into the development of children adopted into the UK from Romania in the early 1990s. The vast majority of the adoptees experienced extreme early global deprivation as a consequence of early placement in Romanian institutions. In all, the ERA project has followed up the development of 165 adoptees from Romania in an attempt to investigate the effects of such early deprivation on later development. The ERA project has followed up the early adoption of 52 non-deprived English children adopted within the UK before six months of age, who act as a comparison group for the study. The children from Romania included in the study were assessed in terms of the length of institutionalised deprivation experienced with a range of 0–42 months. The ERA project has assessed the children at four and six years of age, and an 11- and 12-year-old follow-up is currently underway. At each time point a combination of measures have been used to assess the cognitive, social and behavioural development of the children and to gain an understanding of the adaptive parents’ and adoptive parents’ experiences and views. The papers included in the proposed symposium provide details of the main findings of the ERA project to date (with the first paper also providing a general overview of the project sample and methodologies). The aim of this symposium is to cover the findings concerning autistic-like features, general cognitive development, peer and social relations and inattention/hyperactivity within the sample of Romanian adoptees.

Paper 1: Early global institutionalised deprivation and autistic-like features

E COLVERT, Institute of Psychiatry, London

The current paper provides a general introduction to the English and Romanian adoptees (ERA) project. This paper outlines the background to the project, including details of the sample characteristics. The paper will describe the multi-method, multi-informant approach used at each time point of the project. Finally, an overview of the main findings of the study, when the children were aged four and six, is discussed. The assessments carried out at each time point include a range of measures used to assess a number of interesting findings. The accompanying papers in the proposed symposium address three of the key findings in turn: the effects of early deprivation on general cognitive development, peer and social relationships and inattention and hyperactivity. The current paper provides an introduction of one further finding relevant to the ERA project, namely, that of autistic-like features in a small minority of the children adopted from Romania. The features occurred in approximately one in 16 of the children from Romania at age four, while approximately another five children showed evidence of autistic-like features but to a lesser degree of severity. The autistic-like features included problems in social and communicative behaviour and also evidence of quasi-obessive and repetitive stereotyped behaviours. Despite the similarity to ‘classic’ autistic symptoms the children showed key differences in their behaviour patterns compared to classical autism. The autistic-like features were displayed in a small minority of children who were aged four and six. These differences in behaviour and the implications of the findings are discussed.
Paper 2: The effects of global severe deprivation on cognitive abilities: further follow-up at age 11 years
C BECKETT, Institute of Psychiatry, London

The children adopted from Romania and a comparison group of UK adoptees are now being followed up at 11 years. The earlier studies demonstrated considerable cognitive catch up in the group of children adopted from Romania into UK homes. This finding from the ERA study is not alone in finding that those with a history of severe care-giving neglect are at increased risk for cognitive problems, in particular inattention/hyperactivity. Several other UK studies of children being reared in institutional settings and/or without a consistent caregiver report similar disturbances of inattention/hyperactivity. In fact, reports suggesting a link between institutional rearing or severe early deprivation and inattention/hyperactivity date back a century. Thus, this paper focuses on the methodological and theoretical importance of focusing on this sub-sample of children who experienced early global deprivation and the associated inattentive/hyperactive behavioural problems, particularly as these types of behavioural problems were occurring at a rate far higher than would be expected in even normal high-risk settings. This paper will discuss the combination of interview and standardised neuropsychological assessments we are using to investigate the long-term effects of deprivation on inattention/hyperactivity in early adolescence. Additionally, this paper will discuss theoretically how inattention/hyperactivity associated with early deprivation differs, if at all, from that found in more typical clinic populations by assessing a comparison group of UK adoptees are now being used.

Paper 3: Peer competencies of children at age 11 years who suffered severe prolonged deprivation
J M KREPPNER, Institute of Psychiatry, London

Research suggests that early adverse experiences place children at risk of experiencing difficulties in social relationships with their peers. In particular, children who were brought up in institutions appear to show higher difficulties in social relationships. The present study is the first to investigate systematically the peer competencies of children adopted after early experiences in Gypsy prolonged global (i.e. nutritional, psychological and social) deprivation throughout their first years of life. The peer competencies at age 11 are assessed for a sub-sample of children who were adopted from Romania into UK families between the ages of 24 to 42 months. Their peer competencies are compared with children who were adopted from Romania into UK families at a younger age and with children who were adopted as infants from within the UK and who had not suffered early global deprivation. Data on children’s peer relationships are collected through parent, teacher and child questionnaire measures and through an interview with the child about his or her best friendship. Data analyses examined whether the children who suffered prolonged deprivation experienced difficulties in peer relationships compared to the group of Romanian children adopted at a younger age and the non-deprived within UK-adopted children. Assumptions of whether individual differences in social competence are related to theory of mind ability and whether early signs of social difficulties at age four and six years (i.e. attachment disturbance and deficits in pretend and social role play) predict social difficulties at age 11 were also carried out. The findings will be discussed in the context of the relative impact of global and close relationships for subsequent social development.

Paper 4: Inattention/hyperactivity following early deprivation
M BRITTON, G COOKSON & E TAYLOR, Institute of Psychiatry, London

Previous results from the English and Romanian Adoptees Study (ERA), obtained when the children were aged four and six years, indicated that inattention/hyperactivity was the most frequently reported behavioural/emotional problem for the group of children adopted from Romania into UK homes. This finding from the ERA study is not alone in finding that those with a history of severe care-giving neglect are at increased risk for cognitive problems, in particular inattention/hyperactivity. Several other UK studies of children being reared in institutional settings and/or without a consistent caregiver report similar disturbances of inattention/hyperactivity. In fact, reports suggesting a link between institutional rearing or severe early deprivation and inattention/hyperactivity date back a century. Thus, this paper focuses on the methodological and theoretical importance of focusing on this sub-sample of children who experienced early global deprivation and the associated inattentive/hyperactive behavioural problems, particularly as these types of behavioural problems were occurring at a rate far higher than would be expected in even normal high-risk settings. This paper will discuss the combination of interview and standardised neuropsychological assessments we are using to investigate the long-term effects of deprivation on inattention/hyperactivity in early adolescence. Additionally, this paper will discuss theoretically how inattention/hyperactivity associated with early deprivation differs, if at all, from that found in more typical clinic populations by assessing a comparison group of UK adoptees are now being used.

Paper 2: Using action research to promote inclusive practice in schools.
N BOZIC, Worcestershire Educational Psychological Services (EPS)

This paper describes how professional development using action research can be used to promote the development of inclusive approaches in schools. Real examples are used to show how initiating and participating in an action research process can lead to fresh understandings and new directions for practice. These include the evaluation of in-school behaviour support for pupils with challenging behaviour and the enhancement of peer social support for children with autism. The paper looks at the particular role that educational psychologists can play in this process. It examines some of the skills which they can bring to this kind of work and the nature of the psychology which is deployed.

Paper 3: Inclusion, contact and non-disabled children’s attitudes toward disabled peers
P MARAS, School of Social Sciences, University of Greenwich

Moves toward the inclusion of disabled children in schools have implications for non-disabled children’s attitudes toward disability. It has been suggested that contact arising out of inclusion will ‘automatically’ improve non-disabled children’s attitudes to disabled children with whom they have contact and to disability generally. This assumption although obviously desirable is seemingly not based on empirical evidence. Evidence on the effects of contact on attitudes is in fact equivocal. Data from two studies are introduced to illustrate some of the tensions. In the first, data from a longitudinal study of a structured programme of inclusion demonstration that where inclusion is planned and involves structured, co-operative and/or non-disabled children’s attitudes toward peers with severe learning disabilities did improve over time compared to a matched control group (Maras & Brown, 1996). However, findings from a second study illustrate, that where inclusion is not optimal outcomes are not so positive (Maras & Brown, 2000). Indeed in this second study, non-disabled children’s attitudes became more negative following inclusive contact and also resulted in the attribution of non-relevant attributes to children with disabilities with the more disabled children had contact. It is suggested that such findings may be due to a previous lack of consideration of the way the children’s attitudes had been formed. Evidence of the way the children had come to hold such views and the way the children perceived each other as group members. Implications for planning inclusion are discussed.

Paper 4: The perspectives of pupils with moderate learning difficulties of their special education provision and themselves
B NORWICH & N KELLY, School of Education, University of Exeter

In this paper we present interim findings from a large scale project, funded by the Nuffield Foundation, in which we interviewed 100 children in one LEA in the south-west to explore their perceptions and feelings about their special education provision and themselves. The aims of the project were: (1) to examine how pupils with MLD perceive their special provision and to find out whether their perspectives include contrary positive and negative aspects; (2) to examine how pupils with MLD perceive themselves and to consider whether their perceptions and feelings about their special provision are consistent with their perspectives; and (3) to determine whether these perspectives vary according to the kind of special education placement and the age of the pupil. The findings are presented in the context of policy moves to involving children and young people more fully in decisions about their own education. On the one hand, and in relation to the debate about the extent and nature of inclusion, on the other.
Symposium 8: Individual differences in writing development: Key Stage 2 and beyond
Convener: R STAITHORP, Institute of Education, University of London

Evidence from national assessments of literacy in England suggests that while the National Literacy Strategy is having a positive effect on reading standards, but performance in writing has not increased in line with pupil progress. Thus primary to secondary school the ‘writing demands’ of the curriculum increase and children who have not achieved the expected level of performance (Level 4) may struggle to experience difficulties. It is, therefore, surprising that there has been considerably less research into writing development and differences in writing ability. This symposium seeks to redress this balance. Information processing models of writing identify a number of different skills that have to be mastered and orchestrated in the production of texts. The influence of production of texts. The four papers in this symposium present evidence about the development of writing from infancy to early adulthood. The papers present evidence of level of performance of children in primary school and the early years of secondary education. The influence of handwriting on sub skills of writing is also described by good and poor writers even when controlling for the influence of reading. The influence of handwriting on writing performance even at the late primary and early secondary level. This confirms Jones et al. (1991) handwriting fluency measure (WOLD) and a novel written language test provided profiles of writing skills. The NLS appears to consider that contractions are easier to acquire than possessives. We know of no existing data that speak to this issue. However, in a database of modern standard English language materials (Stuart et al., submitted), apostrophes indicating contraction have significantly higher token frequencies in British English than do apostrophes indicating possession. Thus an examination of children’s use of apostrophes might shed light on both the effects of teaching and on the theoretically interesting question of whether type or token frequencies underlie frequency effects. Method: 90 children from each of Years 2, 3 and 4 were given a spelling test in which they were required to fill in dictated words omitted from prepared sentence frames. Words omitted either required insertion of a contractive or possessive apostrophe, or were filler items taken from the Schonell spelling test. Thus data on children’s spelling abilities were collected during the experiment. Results: Results are not yet available and analysed. Conclusions: Conclusions will be drawn once data analysis is complete.

Paper 1: The influence of handwriting fluency on writing quality in later primary and early secondary education
V CONNOLLY, Dept of Psychology, South Bank University

Objectives: There is substantial evidence that handwriting fluency contributes significantly to general writing quality in school (Berninger et al., 1999). However, it is not known whether this influence continues beyond the middle primary school years. Previous research has also failed to specify what aspects of writing are most influenced by handwriting fluency. Methods: The TOWL-3 gives a detailed profile of writing skills using eight writing sub-scales. It was used to test writing and compare it with handwriting fluency rates in a sample of children spanning both late primary and early secondary school. Results: A sample of 9, 11 and 13-year-old children completed the TOWL-3 and the Berninger et al. (1991) handwriting fluency measure in school. Results: It was found that handwriting fluency did not account significantly for variance in the overall score for the TOWL 3 at ages 9,11 or 13. However, when the sample was divided into good and poor writers, handwriting fluency was a significant predictor of overall writing performance for poor but not good writers even when controlling for the influence of reading. Conclusions: Poor writers showed significant effects of handwriting speed on their writing performance even at the late primary and early secondary level. This confirms Jones and Christensen (1999) ideas about the costs of lack of automaticity in handwriting on writing performance.

Paper 2: Use of apostrophes by 6- to 13- year-olds
M SHORT, Institute of Education, University of London, J MASTERSON, Dept of Psychology, University of Essex & M DIXON, Dept of Psychology, University of Greenwich

Objectives: This study set out to examine the influence of (i) teaching, (ii) type of apostrophe (contractive versus possessive) required and (iii) type and token frequencies of occurrence in reading materials on young children’s use of apostrophes in spelling. Design: Under the teaching framework of the National Literacy Strategy, teaching contraction was first taught in Year 3 term 1; those indicating possession are first taught in Year 4 term 2. Thus, the NLS appears to consider that contractions are easier to acquire than possessives. We know of no existing data that speak to this issue. However, in a database of modern standard English language materials (Stuart et al., submitted), apostrophes indicating contraction have significantly higher token frequencies than do apostrophes indicating possession. Thus an examination of children’s use of apostrophes might shed light on both the effects of teaching and on the theoretically interesting question of whether type or token frequencies underlie frequency effects. Method: 90 children from each of Years 2, 3 and 4 were given a spelling test in which they were required to fill in dictated words omitted from prepared sentence frames. Words omitted either required insertion of a contractive or possessive apostrophe, or were filler items taken from the Schonell spelling test. Thus data on children’s spelling abilities were collected during the experiment. Results: Results are not yet available and analysed. Conclusions: Conclusions will be drawn once data analysis is complete.

Paper 3: Positive ‘Matthew effects’ in reading do not necessarily transfer to writing
R STAITHORP, Institute of Education, University of London & D HUGHES, Dept of Psychology, Royal Holloway and Bedford New College

Objectives: A common belief is that children who read more and who have greater exposure to print are likely to have better writing skills than children who have lesser engagement with print. This study was designed, in part, to investigate whether precocious readers show equally advanced skills in writing as they do in reading. Design: A writing task requiring a written response to a set of pictures was developed. This untimed task required the children to write a story. Word sentence and text level characteristics of the text were analysed using a between groups design. Methods: Two groups of 11-year-olds (14 per group) were longitudinally followed for over a period of four years. Results: Precocious reading ability since the age of four years wrote stories in response to the pictures. One group had been precocious readers before they started school. One group acted as the normal comparison group. Results: Detailed analysis of sentence and word level characteristics of the texts showed that the only significant difference between the two groups was in spelling accuracy. In all other respects the two groups had similar characteristics. Conclusions: Though the group composed of precocious readers had retained their advantage in reading over a period of four years, no matched gains were found in writing skill. It would appear that extensive exposure to print and engagement with texts through reading does not necessarily lead to technically better writing.

Paper 4: Exploring the relationships between oral and written language in a cohort of children with primary language difficulties.
J DOCKRELL, Institute of Education, University of London & G LINDSAY, Institute of Education, University of Warwick, C MACKIE, Institute of Education, University of Warwick & B LETCHFORD, Institute of Education, University of London

Objectives: It is often claimed there is an intimate link between oral and written language. The present study examines this relationship by focussing on a group of children who have primary language difficulties at a point in development where basic writing skills should be fluent. Design: Longitudinal and cross-sectional. Methods: The NLS (Aschbacher et al., 1999) as having language problems were assessed at age 8.3 on a range of measures – cognitive, linguistic and academic. The children were assessed again at 10.8, when a standardised written language measure (WOLD) and a novel written language measure were administered. Results: The majority of children continued to have residual speech and language difficulties with significant difference between verbal and non-verbal performance. The mean WOLD standard writing score was 82 (SD=9.88). Children’s performance had improved to a range of phonological and semantic language measures but not receptive grammar and to reading. Conclusions: The novel written language test provided profiles of strengths and weaknesses in written language skills. Conclusions: The results of the study are consistent with those of Jones et al. (1991) and suggest that children’s written language skills and the ways in which oral language can support or hinder the development of written language.

Symposium 9: The (limited) benefits of high self esteem
Convener: N EMLER, London School of Economics & A ST. JAMES, Dept of Psychology, University College Worcester

Paper 1: The causes and consequences of low self esteem: myths and realities
N EMLER, London School of Economics & A ST. JAMES, Dept of Psychology, University College Worcester

All manner of social and personal ills have been attributed to low self esteem such as delinquency, racism, poverty, educational failure, child abuse and drug addiction. Such inferences are often based on empirical evidence linking self esteem to a range of potential causes and outcomes, and concludes that in most cases a causal link is not possible. Low self esteem does have negative effects the scale of its impact is very modest while the range of potential outcomes is large. Self Esteem is not a causal factor in this bias is not significant in these data.

Paper 2: The relative economic importance of academic, psychological and behavioural attributes developed in childhood.
L FEINSTEIN, Dept of Economic Performance, London School of Economics

This paper uses information about the educational and labour market development of children by age ten in the 1970 Cohort to predict qualifications, employment and earnings. This includes the heterogeneity of children identified skill differences have implications for the labour market that has not previously been considered in the economic literature. Different age 10 abilities and attributes have implications for different adult outcomes. Age 10 conduct disorder predicts male adult unemployment particularly well but it is self-esteem that predicts male earnings. For women the ‘locus of control’ is important. Omission of psychological and behavioural capital leads to an upward bias of the return to education, although this bias is not significant in these data.

Paper 3: The role of self-esteem in the psychopathology of adolescents with eating disorders
G WALLER, St. George’s Hospital Medical School, University of London

While self-esteem has been suggested to be a critical variable in the etiology and maintenance of the eating disorders, the evidence to date suggests that its role as a causal agent can best be described as ‘necessary but not sufficient’. On its own, it lacks specificity for the eating disorders, and tends to be important only when seen in combination with moderating factors (particularly perfectionism). However, the clinical relevance of self-esteem in eating pathology is clear, with implications for the prevention, treatment, and maintenance of anorexia and bulimia. Longitudinal studies show that poor self-esteem is related to

The British Psychological Society
2002 Proceedings

9
the development of eating pathology and the failure of treatment. It will be argued that the eating disorders have ego-psychoanalytic properties, such that the individual may rely on their symptoms (especially restriction) to protect them, rather than to guide the self-towards self-esteem. Thus, simple cause-effect models are unlikely to be effective with this population. Recent clinical data will be presented, showing how self-esteem might fit into a more complex but comprehensive model of the eating disorders.

**Symposium 10: Addressing emotional needs in primary education**

Convenor: R SPALDING, Dept of Education, University of Liverpool

Focus: An emphasis on the cognitive curriculum, there is growing interest within primary education on the emotional development of the child and the whole school approach to ‘emotional literacy’. This symposium will examine some of the work currently in progress on Merseyside in primary schools to address emotional need. The Quiet Place project has been developing targeted provision in primary schools for children and families in need of school and community-based therapeutic interventions. The programme is very distinctive in its approaches, embracing as it does a range of conventional and complementary therapeutic approaches. Evaluation is an important part of the programme, and this presentation will present the latest research findings. Complementary to this are concerns about the inner state of teachers who are dealing with children under stress, and the second presentation will outline the results of a number of interventions designed to assist teachers in managing their own emotional well being. The programme’s overall purpose is to interplay between specific learning difficulties and emotional well being in children, with particular reference to self esteem.

**Paper 1: A ‘Quiet Place’ project: early therapeutic intervention within mainstream provision**

F HENWICK, Dept of Education, University of Liverpool

Objectives: This evaluation of the effectiveness of the therapeutic intervention provided by a Quiet Place project within junior mainstream provision seeks to explore the impact on the behaviour of children attending in the programme itself and the interplay between specific learning difficulties and emotional well being in children, with particular reference to self esteem. The evaluation was carried out using a pre and post test design. A matched sample has been taken as control. Method: Quantitative data on the progress of the children in terms of emotional development and behavioural conformity have been gathered using the Boxall Developmental Profile and a customised classroom observation rating scale, both of which are interval data. Data have been gathered from the parents and teachers of the pupils involved. Results: The results of the pilot evaluation have indicated positive, but not statistically significant tendencies in emotional development and improvement in conformity. An analysis of both the qualitative and quantitative data has indicated particular progress in the areas of self esteem, self calming techniques, the ability to reflect and talk things through, anger management and enhanced parental confidence. Conclusions: As action research, the evaluation of on-going process has resulted in constant refinement to the programme. The usefulness of current research is not confined to the context of a Quiet Place programme, focuses on implications for future practice.

**Paper 2: Teacher stress as a factor in the management of emotional and behavioural difficulties**

P MOON, Liverpool Local Education Authority/Cherion Project

**Purpose:** An investigation of the impact of stress management techniques on the management of emotional and behavioural difficulties within the classroom. **Background:** Field experience indicates a relationship between teacher stress and classroom management, specifically in relation to children with emotional and behavioural difficulties. The usefulness of training in stress management techniques is dependent on follow through and regular use of the skills. **Key points:** This paper offers a discussion of the subject of teacher stress, supported by data collected via stress questionnaires, biofeedback and take-up of stress management support. This is correlated with inter-study qualitative data on a pre and post test comparative sample by a further 50 using quantitative and qualitative measures. **Results:** It has been shown that a programme of stress management skill acquisition by teaching staff on the role of teachers and peers, early identification and practice levels.

**Paper 3: Self-concept and self-esteem in developmental dyslexia: implications for teaching and learning**

N HUMPHREY, Liverpool John Moores University

**Objectives:** The current research investigated self-concept and self-esteem in children with developmental dyslexia. The researcher was interested in the nature of any deficits found in the global self-concept of children with dyslexia, and the difference between children with dyslexia in mainstream education and those attending SpLD units. **Design:** The sample was comprised of forty dyslexic children from mainstream education, and those attending SpLD units. **Results:** A global difference in self-concept was found. Qualitative data from the interviews revealed that children with dyslexia felt isolated and excluded in their school and that, typically, they half were regularly bullied or teased as a consequence of their difficulties. **Conclusions:** The implications of the research were that the development of self-concept and self-esteem enhancement programmes, changing the role of teachers and peers, early identification of dyslexia, school climate and the ‘dyslexia friendly’ school ethos, the provision of explicit teaching of dyslexia, and inclusive education at cultural, policy and practice levels.

**Symposium 11: Longitudinal studies of young children’s literacy development**

Convenor: P D PUMFREY, Centre for Special and Inclusive Education, University College Worcester & Emeritus Professor of Education, University of Manchester

The focus of the symposium is on the effectiveness of SATs as summative indicators of reading attainments in year 2 by the introduction of the National Curriculum. The cross sectional analysis of both the quantitative and qualitative data on a pre and post test comparative sample by a further 50 using quantitative and qualitative measures. In addition, a semi-structured interview schedule was devised to use with each headteacher (Part 2). The random sample of six primary schools was selected from within one Local Education Authority and comprised all year 2 children within these schools. Information in the context of the variables was collected by way of standardised tests. In addition, a semi-structured interview schedule was devised to use with each headteacher. Part 1 results indicated a complex pattern of findings. Did the implementation of the National Curriculum have any significant results? The key implications for future research are: the pressing need for continued investigation into the effects of the National Curriculum on standardised tests. The effectiveness of SATs as summative indicators of children’s reading attainments should be explored, by investigating multiple complex variables, in relation to the implementation of the National Curriculum. The cross sectional and practice levels.

**Paper 1: Year 2 children’s reading attainments and the National Curriculum**

J DAVIS, Centre for Primary Education, Faculty of Education, University of Manchester

The aim of this study was to examine whether standards were raised, and to what degree, in reading in year 2 by the introduction of the National Curriculum. The cross sectional analysis of both the quantitative and qualitative data on a pre and post test comparative sample by a further 50 using quantitative and qualitative measures. In addition, a semi-structured interview schedule was devised to use with each headteacher. Part 1 results indicated a complex pattern of findings. Did the implementation of the National Curriculum have any significant results? The reading scores of the four cohorts showed Cohort 3 had the highest scores followed by Cohort 4, Cohort 2 and lastly Cohort 1. The rise in reading attainments was confined mainly to two schools out of six. The SAT scores of Cohort 4 were significantly higher than Cohort 3. Part 2 results indicated that the National Curriculum had affected both the pedagogy and resourcing of the reading the reading curriculum. The key implications for future research are: the pressing need for continued investigation into the effects of the National Curriculum on standardised tests. The effectiveness of SATs as summative indicators of children’s reading attainments should be explored, by investigating multiple complex variables, in relation to the implementation of the National Curriculum. The cross sectional and practice levels.

**Paper 2: Attitudinal aspects of early reading development**

J PIOTROWSKI, Centre for Primary Education, Faculty of Education, University of Manchester

**Context:** The study is set within the theoretical framework of social learning theory, locus of control belief and, more specifically, attribution theory. The current research investigates hypotheses derived from the developing attributional characteristics of male and female school children identified as having, or not having, Special Educational Needs (SENs) in the mainstream learning situation. **Objectives:** To explore the changing patterns of internality of children's reading attainments over time meant that six two-way ANOVAS was conducted of two independent variables was collected by way of standardised tests. In addition, a semi-structured interview schedule was devised to use with each headteacher. The random sample of six primary schools was selected from within one Local Education Authority and comprised all year 2 children within these schools. Information in the context of the variables was collected by way of standardised tests. In addition, a semi-structured interview schedule was devised to use with each headteacher. Part 1 results indicated a complex pattern of findings. Did the implementation of the National Curriculum have any significant results? The reading scores of the four cohorts showed Cohort 3 had the highest scores followed by Cohort 4, Cohort 2 and lastly Cohort 1. The rise in reading attainments was confined mainly to two schools out of six. The SAT scores of Cohort 4 were significantly higher than Cohort 3. Part 2 results indicated that the National Curriculum had affected both the pedagogy and resourcing of the reading the reading curriculum. The key implications for future research are: the pressing need for continued investigation into the effects of the National Curriculum on standardised tests. The effectiveness of SATs as summative indicators of children’s reading attainments should be explored, by investigating multiple complex variables, in relation to the implementation of the National Curriculum. The cross sectional and practice levels.
From one urban LEA in the north of England, three schools were selected randomly from the subset of five (i.e. two or three forms per year group) schools within the LEA. School administrators and all children in each year group were tested for recognition of responsibility, self-esteem and social competence. Information was also collected related to cognitive attainments such as Standard Assessment Test (SAT) results for National Curriculum subjects, and literacy and numeracy test scores. In the remaining years, the framework for this study would indicate optimum times for children's spelling and writing, two a developmental and two a psychological focus. The present symposium considers the role of coloured filters in reading from three important perspectives. It reviews the potential benefits of coloured filters for enhancing children's reading. The paper addresses the potential benefits of coloured filters in the eye control and reading progress were measured in poor readers who chose yellow or blue filters. Results: The results indicated that children who wore yellow filters showed significant improvement in reading performance; proposes that coloured filters are beneficial for reading. 3. Evans approaches the problem of coloured filters in reading from the orientation of an ophthalmologist. He examines the relationship this altered balance encountered by practitioners in ophthalmology (e.g. binocular instability). Finally, among other issues all contributors discuss the importance of selecting the most appropriate filter in order to produce optimal results. Paper 1: Improvement in reading fluency with coloured filters: Perceptual and mechanisms A WILKINS, Psychology Dept, University of Essex Purpose: To review the basis of improvements in reading fluency with coloured filters. Background: There is a growing body of evidence supporting the use of coloured filters and discusses contrasting explanations for their efficacy. Results: The two studies which used similar coloured filters and subjects as this study. One study demonstrated that children who wore blue filters showed significant improvement in reading. In yellow choosers the ratio was initially lower than normal; this returned to normal over three months and was accompanied by improvements in eye control and reading speed at any given chromaticity. The rate at which the size of text in coloured filters for reading in the UK are compared and the other visual factors that may interact with the use of coloured filters are reviewed. Conclusions: The balance of magnocellular and parvocellular input to the ocular motor control system may play an important part in the development of the orthographic skills required for reading. Coloured filters may alter this balance to improve ocular motor control, hence reading. Paper 3: From invention to convention: identifying optimum times for children's spelling development E BARNES, Faculty of Education, University College Chester Objectives: The development of conventional spelling in children's free writing during their infant education, in relation to the schools' stated approach to writing instruction, sex, cohort and age of testing, was the focus of the research. Design: Six dependent variables were identified, of which four are the focus of this report: (1) the total number of words written in the writing sample; (2) the total number of different words written; (3) the total number of correctly spelt words written; and (4) the number of different correctly spelt words written. The population consisted of those children admitted to the Reception Year of six schools during the academic year of the study. The expert proceeded an eclectic approach to the teaching of writing and spelling, two a developmental and two a traditional approach. Writing samples (unedited writing) were obtained from the study developmental, change across occasion of testing is of central interest and will form the basis for the results presented. The four dependent variables considered for this paper were analysed using simple factorial ANOVAs. Results: Children's spelling development moved from invented to conventional spelling as they passed through school, and approached to teaching. Conclusions: The study applies to identify periods of time during primary school when significant periods of spelling development. If confirmed by further study, this could indicate optimum times for teaching, and this could have significant implications for teachers and parents.

Symposium 12: Coloured filters and reading Convenor: J R BEECH, School of Psychology, University of Leicester Theme: The relevance of the individual contributions: Many children suffer from visual difficulties when reading. The present symposium considers the moving random dot kinetograms (RDK) and their parcellary sensitivity assessed by measuring their contrast sensitivity at high spatial frequencies. The results indicate that coloured filters may aid by altering the balance of magnocellular and parvocellular input to the visual system, which has physiological and educational significance. The potential benefits of coloured filters in reading may be summarised as follows: Coloured filters may help children who are having difficulty reading, especially those who have difficulty reading fluently. This symposium examines the potential benefits of coloured filters in reading and provides some research findings which suggest that they may be helpful. The symposium also considers the potential benefits of coloured filters in other areas, such as reading comprehension and reading fluency. The symposium concludes with a discussion of the potential benefits of coloured filters in reading and provides some research findings which suggest that they may be helpful. The symposium also considers the potential benefits of coloured filters in other areas, such as reading comprehension and reading fluency. The symposium concludes with a discussion of the potential benefits of coloured filters in reading and provides some research findings which suggest that they may be helpful. The symposium also considers the potential benefits of coloured filters in other areas, such as reading comprehension and reading fluency.
produced by a Working Party drawn from the Division of Educational and Child Psychology and chaired by Dr Rea Reason. From this work, several complemented positions were identified. Research findings that have taken place since the publication of the report are taken into account in the context of an overview of current research, continuing experimental and empirical research with primary school children is presented in the subsequent third chapter. Evidence concerning the importance of low level visual and auditory transient sensitivities in children’s acquisition of cognitive skills underlying reading teaching and its development is presented. Individual differences in magnocellular development contribute towards an understanding of differences in children’s reading abilities (Paper 2). The validation and applications in practice of four computer-based systems for the identification and assessment of literacy learning difficulties and pupils with specific literacy difficulties (Paper 4).

Paper 1: Developmental dyslexia, literacy and learning opportunities
R REASON, School of Education, University of Manchester

Purpose: A report by a Working Party of the Division of Educational and Child Psychology (BPS, 1999) regarded dyslexia as a function of the limited capacity to adopt a phonological representation of the sounds of words. This report presents the theoretical basis, and emerging findings, of a longitudinal methods experiment into the effects of three programmes on reading abilities and skills (Paper 2). The report outlines the theoretical basis, and emerging findings, of a longitudinal methods experiment into the effects of three programmes on reading abilities and skills (Paper 4).

Paper 2: The sensory basis of reading and reading difficulties
J STEIN, Physiological Laboratory, University of Oxford

Objectives: More than five per cent of children fail to pass the National Numeracy Test, despite considerable intelligence, teaching and access to literature. These children are often termed ‘developmental dyslexics’. This paper takes a sensory perspective of their reading problems stem from mild neurodevelopmental impairment. Fluent reading depends on the acquisition of orthographic skill for processing the visual form of letters and words, and phonological skill for recall of the sounds that they represent. Several studies have suggested that dyslexics have impaired development of the visual magnocellular system that underlies their visual perception of orthography. The results of new research are presented. The sample as a whole, has considerable variation. Amongst those who received tuition, we have found that specific difficulties in short-term verbal memory are associated with slower progress whilst those with relatively weak rhyme skills respond better. It is argued that specific cognitive deficits in verbal short-term memory provide a focus for improvement in the design of teaching outcome. This finding has important implications for primary assessment practices.

Symposium 14: Ability grouping in the secondary school
Convenor: S HALLAM, Institute of Education, University of London

Recent research has indicated that the effect of structured ability grouping on pupil achievement may not be positive and that there are significant differences in educational and social development. The paper explores how the effects of different types of ability grouping in the secondary school are perceived by pupils. Design: Data were collected from three types of school adopting different levels of ability grouping. Methods: Over 6,000 pupils, in year 9, in 45 schools, 15 of each type, took part in the research, which included open and closed questionnaire responses, interviews were undertaken with small groups of pupils, and the selection of LADS Juniors (2001) and LADS (2001). They provide teachers with effective assessment instruments that can be used easily in the classroom and so avoid children with dyslexia ‘slipping through the net’. The latest development, LADS (Lucid Adult Dyslexia Screening) has recently been trialled in universities and colleges of further education, and is expected to meet a major need for swift identification of dyslexic students. The theoretical and empirical rationale behind these significant innovations in the field of psychological assessment will be outlined, the implications for educational practice discussed, and some pertinent case studies examined.

Paper 3: Computer-based identification and assessment of dyslexia
C SINGLETON, Dept of Psychology, University of Hull

This paper reviews the design, validation and application of four computer-based systems for the identification and assessment of dyslexia, which have been developed by the Psycholinguistics Group in the Psychology Department at the University of Hull. These programs, which span the age range from year 4 to adult, are CoPS (CoPsin Cognitive Profiling System) (1996), LADS (Lucid Adult Dyslexia Screening) (2001) and LADS (2001). They provide teachers with effective assessment instruments that can be used easily in the classroom and so avoid children with dyslexia ‘slipping through the net’. The latest development, LADS (Lucid Adult Dyslexia Screening) has recently been trialled in universities and colleges of further education, and is expected to meet a major need for swift identification of dyslexic students. The theoretical and empirical rationale behind these significant innovations in the field of psychological assessment will be outlined, the implications for educational practice discussed, and some pertinent case studies examined.

Paper 4: Intervening effectively in Developmental Dyslexia: results from the SPELITT project
J RACK, The Dyslexia Institute and B University of York

Symposium 14: Ability grouping in the secondary school
Convenor: S HALLAM, Institute of Education, University of London

Recent research has indicated that the effect of structured ability grouping on pupil achievement may not be positive and that there are significant differences in educational and social development. The paper explores how the effects of different types of ability grouping in the secondary school are perceived by pupils. Design: Data were collected from three types of school adopting different levels of ability grouping. Methods: Over 6,000 pupils, in year 9, in 45 schools, 15 of each type, took part in the research, which included open and closed questionnaire responses, interviews were undertaken with small groups of pupils, and the selection of LADS Juniors (2001) and LADS (2001). They provide teachers with effective assessment instruments that can be used easily in the classroom and so avoid children with dyslexia ‘slipping through the net’. The latest development, LADS (Lucid Adult Dyslexia Screening) has recently been trialled in universities and colleges of further education, and is expected to meet a major need for swift identification of dyslexic students. The theoretical and empirical rationale behind these significant innovations in the field of psychological assessment will be outlined, the implications for educational practice discussed, and some pertinent case studies examined.

Paper 4: Intervening effectively in Developmental Dyslexia: results from the SPELITT project
J RACK, The Dyslexia Institute and B University of York

Study Programme to Evaluate Literacy Learning through Individual Tuition (SPELITT) is a validated remedial tuition programme which involve specialist withdrawal teaching, home support activities or a combination of the two. The SPELITT programme is based on approaches and procedures: Speech and Language Therapists; Provisional grouping legitimised and made more transparent differences in pupils’ attainment and this led, in

The British Psychological Society
2002 Proceedings
some cases, to stigmatisation of those in the lower sets.

Paper 2: Pupils’ relationships with school: does ability grouping make a difference?
J IRESON, S HALLAM & C HURLEY, Institute of Education, University of London

Objectives: This paper examines year 9 pupils’ relationship with their secondary schools and compares pupils with different levels of structured ability grouping. Design: A sample of 45 mixed secondary comprehensive schools was selected, representing three levels of structured ability grouping (mixed ability, partially set and set) in years 7 to 9. All year 9 pupils (over 6000 pupils) were included in the research. Methods: Year 9 pupils completed questionnaires containing items on their relationship with school. Results: Pupils’ responses to the questionnaire items were compared to examine differences in response in the three types of schools. The analysis of individual items revealed that pupils in schools with high levels of ability grouping were less positive than pupils in schools with mixed ability organisation. Eight items formed a scale with good reliability. Conclusions: The amount of structured ability grouping may influence pupils’ relationship with their school. These findings are consistent with our previous analysis of pupils’ self-esteem in the different types of school.

Paper 3: Changes in the relationships between setting in mathematics, self-concept and attitudes towards school as children progress through secondary school
K DEATHE & S HALLAM, Institute of Education, University of London

Objectives: To explore changes in pupils’ self-concept and attitudes towards school as children experience different types of ability grouping as they progress through secondary school. Design: Cross sectional study of responses at different ages. Methods: Attitudes towards school and mathematics; mathematics, general and school self-concept and preferences for different kinds of grouping were measured in 234 students from years 7 to 10. A mixed comprehensive school. Results: The findings indicated that maths self-concept was consistently lower than school self-concept and general self-concept. Preferences for self-concept progresses from year 7 to year 10. Pupils in the higher sets tended to have higher mathematics self-concept and preferences for setting increased as pupils progressed through school as did the extent to which the top set was perceived to be the best. Most pupils were satisfied with the set they were in. Of those who were not, most wanted to move to a higher set. This pattern did not change as pupils progressed through school. Pupils’ attitudes towards school remained fairly constant over time. Those in the lowest ability groups tended to have less positive attitudes. Attitudes towards mathematics showed no consistent pattern in different sets and may have been mediated by teacher effects. Conclusions: The effects of setting in mathematics on aspects of school self-concept for different levels of grouping and attitudes towards school were mediated by set placement, experience of setting and year group. Set placement does not appear to have a consistent effect on attitudes towards mathematics.

Paper 4: Ability grouping: attitudes and pedagogical practices of teachers in different subject domains
S HALLAM & J IRESON, Institute of Education, University of London

Objectives: In response to recent pressures to raise standards, schools have increasingly adopted structured ability grouping practices. This research, funded by the ESRC, explored the differences in teaching and pedagogical practices expressed by teachers in different subject domains in schools adopting different ability grouping practices. Design: Data were collected from three types of school adopting different levels of structured grouping. Methods: 45 secondary schools took part in the research, divided into three groups varying in the extent to which they adopted structured ability grouping. The teachers working with the pupils from years 7 to 9 in each school were invited to participate. Open and closed questions which explored their attitudes towards ability grouping and the differences in teaching and pedagogical practices where pupils were teaching low, high or mixed ability classes. Results: The data from the questionnaires were analysed using chi-squared tests, analysis of variance and multiple regression techniques. Generally, teachers of mathematics and modern foreign languages were more in favour of structured ability grouping than those teaching English and humanities, with those teaching science expressing intermediate attitudes. Teachers’ pedagogical practices differed when they were teaching groups of different abilities. Conclusions: Teachers’ attitudes towards ability grouping and their pedagogical practices appeared to be determined, in part, by the aims and conceptions of the nature of the subject but also by the type of ability groupings adopted by the school in which they taught.

Symposium 15: Educational and developmental aspects of autistic spectrum disorder
Convenor: M BLAMIRES, Centre for Educational Research, Canterbury Christ Church University College

Paper 1: Multidisciplinary use of ‘structured teaching’ to promote a consistent approach for learners with autistic spectrum disorders
M HOWLEY, University College Northampton & D PREECE, Northamptonshire Social Services

Consistency in the way environments are supported and structured is an integral part of service delivery for children with autistic spectrum disorders in Northamptonshire. These services use the structured teaching approach developed by Division TEACCH (Treatment and Education of Autism and related Communication Handicapped Children). A collaborative approach to structured teaching has been established involving practitioners from education, social services, health and voluntary agencies, enabling cohesive provision to be developed.

This paper describes how different agencies worked together to meet the needs identified by two families. A narrative case study approach illustrates how collaborative practice was used to develop appropriate and consistent provision across settings. There are clearly limitations to this case study approach. However, it is anticipated that the conclusions might relate to other situations and a number of tenets for effective multi-disciplinary working are proposed.

Paper 2: Ethical and strategic dimensions of establishing support systems for students with autisticspectrum disorder (ASD) in higher education: the ASPHE Project
M BLAMIRES, Centre for Educational Research, Canterbury Christ Church University College

This paper examines the conceptual frameworks and ethical issues that have been examined in relation to the development of support for students experiencing difficulties across higher education and to establish effective and successful support conforming to the Quality Assurance Agency (QAA) code of practice for increasing access to higher education for students with disabilities. The project has found at least two students with ASD in each institution but that this could vary between and within institutions and the degree of the label. Issues of disclosure and record agendas are explored alongside the role of teaching and learning institutions in responding to the needs of students with ASD.

Paper 3: The future of assessment for learners with autism
S TYLER, Headteacher, Inscape House Boys and Girls Welfare Society, Stockport

The Teacher Training Agency (DfEE) has suggested that assessment methodology should be underpinned by a specialist teacher for learners with complex needs including autistic spectrum disorders. Contradictory guidance from the Centre for Studies in Inclusive Education (Inclusion, 2000) has been distributed to schools in England and Wales. This paper examines the contested role of specialist assessment in enabling the education and social inclusion of learners with autistic spectrum disorder across specialised and mainstream settings.

Symposium 16: The George Butterworth memorial symposium
Convenors: G BREMINER, Dept of Psychology, University of Lancaster & A SLATER, Dept of Psychology, University of Exeter

Paper 1: Object search revisited
G BREMINER, Dept of Psychology, University of Lancaster

Paper 2: Newborn infants prefer attractive faces – some of the time!
A SLATER, Dept of Psychology, University of Exeter

Conveners: G BREMINER, Dept of Psychology, University of Lancaster & A SLATER, Dept of Psychology, University of Exeter

Newborn infants prefer attractive faces in that they will look more at faces which are attractive compared to those which are unattractive. Smith et al. (1999) have suggested that the error is due to motor history of search at A, pointing out that similar errors arise even if no object is hidden at either place. Diamond (1990) proposes that the error can be traced to frontal cortex immaturity: infants can represent a hidden object at B in memory but are unable to use this information to inhibit a past action to A. Munakata (1998) presents a neural network model that explains the error in terms of the competing influences of information about hiding and retrieval at A versus hiding at B. All these accounts have difficulties with two findings that George Butterworth obtained in his DPhil research. Infants make errors even when the object is visible under a transparent cover at the B location. In this case there is no need to use an object representation to inhibit past action at A, yet infants still err. Secondly, infants make errors after purely observational trials. Unlike other studies investigating this, Butterworth was careful to allow no prior reaching to B, but still infants made errors on B trials. This finding provides difficulties for accounts based on motor history or inhibition of past responses.

Paper 2: Newborn infants prefer attractive faces – some of the time!
A SLATER, Dept of Psychology, University of Exeter

This research began in collaboration with George Butterworth, and initially was an investigation into the attractiveness effect for newborn infants. Previous research has shown that infants, three months and older, have consistent preferences for attractive faces in that they will look more at faces judged as attractive than adults to which these are shown paired with faces judged to be less attractive. In this first set of experiments the attractiveness effect was observed for newborn infants, and later experiments explored the roles of internal and external facial features, and facial orientation, in modifying the effect. These findings are presented and discussed in terms of early prototype formation and early facial representations.

The British Psychological Society 2002 Proceedings 13
Paper 3: Initiating joint attention: pointing in infancy
F FRANCO, Dept of Psychology, Middlesex University
The last 15 years or so have seen a great development of interest in research on joint attention in infancy. Some of this interest was stimulated by the development of Theory of Mind (TOM) research: the developing understanding of psychological or ‘mental’ states such as attention appeared good candidates for the identification of precursors of or prerequisites to TOM. However, interest in joint attention pre-existed in this era, both in spatial cognition development and in communication development. It is precisely from the latter two backgrounds that, respectively, George Butterworth and Pam Cooper came to collaborate. In this talk, I will briefly outline the initial research concerns George Butterworth and I had, namely the development of infants’ ability to follow someone’s gaze or point and correctly identify a target (GB), and the relationship between the communication and social cognition in the transition to language (FF). Next I will describe the common ground that we developed in the study of infants’ joint attention with Pam Cooper, in particular focusing on the pointing gesture. Finally, I will illustrate some research lines that this early work generated.

Discussant: P BRYANT, Dept of Experimental Psychology, University of Oxford

Symposium 17: Making educational sense of Attention Deficit Hyperactivity Disorder (ADHD)
Convenors: P COOPER, University of Leicester, P MARAS, School of Social Sciences, University of Greenwich & B NORWICH, University of Education, University of Exeter

ADHD continues to be a focus of controversy. This controversy is most clearly articulated in terms of a clash between social and bio-medical models of disability. The symposium is aimed at discussions associated with attempts to exchange the crude polarities of this sterile debate in favour of a biopsych-social perspective which seeks to illuminate the ways in which individual and social factors interact in emotional, social and learning problems. This symposium contributes to the development of this perspective and its relation to ADHD through the presentation of three related papers.

Paper 1: Attribution and ADHD
P COOPER, University of Leicester, P MARAS, University of Greenwich & B NORWICH, University of Exeter
This paper reports on an ESRC-funded project carried out by the three presenters. The national survey of over 20,000 children identified a prevalence of ADHD of 5% in the general population. The nature and prevalence of a range of social, emotional and behavioural difficulties. Detailed case studies of attribution patterns employed by children, their parents, and their teachers in relation to their social, emotional and behavioural difficulties. Particular attention is paid to the presence or absence of formal diagnostic and service labels.

Paper 2: Are nurture groups an appropriate intervention for ADHD?
P COOPER, University of Leicester
This paper draws on a recently completed research project on the effectiveness of nurture groups as an educational intervention for children with social, emotional and behavioural difficulties. It considers the characteristics of children placed in these groups in relation to the ADHD diagnostic criteria and examines the potential role of nurture groups in intervention for ADHD.

Paper 3: Guidelines and principles for successful multi-agency working in relation to ADHD
P MARAS, School of Social Sciences, University of Greenwich & P COOPER, University of Leicester
The presenters were involved in the working group that produced these guidelines. The group was co-chaired by Pam Maras and Paul Cooper. The guidelines offer insight into the ways in which professionals from different disciplines might deal with some of the difficulties involved in multi-agency working. The guidelines begin with a definition of ADHD that has found acceptance in a multi-disciplinary forum, and proceeds with principles for co-operation, in relation to identification of, intervention with, and prevention of ADHD.

Symposium 18: The development of gifted and talented children
Convenor: J FREEMAN, Faculty of Education, University of Middlesex

Much mythology circulates about the gifted, which may be taken up by teachers and other professionals and used as a moratorium to develop a more critical and scientific approach by examining the current state of knowledge and suggesting ways of using it for policy making and the benefit of both theoretical research, specific underachievement and prodigies. Joan Freeman begins with a critical overview of international research findings, including identification and special educational methods, e.g. acceleration, enrichment, creativity and socialisation. To reach a generally high standard in any area, gifted children need the means to learn, generic material to work with, focused individual attention and encouragement. Measurement and selection of an elite for special education can be less important in promoting excellence than the educational opportunity which hampers children’s motivation. Diana Montgomery provides evidence on underachievement in dyslexic gifted children, with particular emphasis on the underlying difficulties of phonological processing problems. When this difficulty is addressed, they can be brought up to the level of their non-dyslexic classmates. In this symposium, approaches are recommended, depending on the particular pattern of ‘logographic’, ‘alphabetic’, or ‘orthographic’ dyslexia. Examples of the use of multisensory and developmental methods as well as bottom-up APLS-(Alphabetic-Phonic-Syllabic-Linguistic) multisensory approaches. John Radford describes three related dimensions regarding recognised child prodigies. He looks at regular appearing newspaper reports and the messages they give. He concludes follows of contemporary prodigies, further information on historical cases, the relationship between early and late achievement and recent knowledge about prodigies.

Paper 1: Overview of international research on gifted development
J FREEMAN, Faculty of Education, University of Middlesex
An overview of significant findings on the development and education of gifted pupils is presented. Research problems are examined, notably re: identification, as well as claims for specific educational methods, particularly with regard to acceleration, enrichment, creativity and policy. No single style of teaching is adequate for all, but an exceptional high standard in any area, it is clear that gifted children need the means to learn, the right material to work with, focused challenging tuition and encouragement. Follow-up studies show that high achievement is a reliable signal to adult success because gifts can take many forms and turn up in quite unexpected situations during a lifetime. Measurement and selection of an elite for special education can be less important in promoting excellence than the educational opportunity which hampers children’s motivation. Currently, extra help, such as master-classes or grade-skipping, is provided for already highly achieving children. A wider and more dynamic approach is suggested, which takes children’s opportunities into account, to pick up the 20 per cent who have hidden talents. The key is the children’s interests, along with guidance and opportunity to develop excellence. Just as every school provides extra tuition, equipment and transport for sports, we should easily and inexpensively do the same for other subjects.

Paper 2: Ablunderachievers
D MONTGOMERY, Middlesex University
The concept of ‘double exceptionality’ and dyslexia expose a spectrum of patterns of difficulties. However, case-study work, grounded research and quantitative measures with over 300 dyslexics and matched controls show that there is an underlying difficulty with phonological processing problems not entirely consonant with current paradigms. This research has also shown that when this difficulty is addressed through the spelling and handwriting teaching of these pupils’ literacy skills, inclusion includes being brought up to grade-level within two years. Bottom-up or down approaches are recommended depending on the particular pattern of ‘logographic’, ‘alphabetic’, or ‘orthographic’ dyslexia. For the highly able dyslexics, who make up at least 10 per cent of the above-average group, all remediation must emphasise the ‘engage brain’ element to satisfy the able learners’ needs. These remediation techniques include APLS-(Alphabetic-Phonic-Syllabic-Linguistic) programmes run by specialists, Cognitive Process Strategies for all class and

The British Psychological Society 2002 Proceedings
subject teachers and the ‘15 Spells’ approach to unlock all misspellings. Examples will be given of the top-down corrective and developmental methods, in contrast to the bottom-up APLS-multisensory approaches. The National Literacy Strategy, with its overemphasis on reading and the general ‘urge to phonics’ and ‘multisensory teaching’, is found to be necessary but not sufficient for helping the able and less able dyslexic, and so other strategies and techniques need to be included in any portfolio of provision suggested by psychologists to teachers.

Paper 3: High achievement: child prodigies revisited

J RADFORD, University of East London

In 1990 I published what I believe to be still the only attempt at a comprehensive coverage of what have been popularly called ‘child prodigies’. The only attempt to define this term precisely that I have been able to find, was by Chen, in 1982, which was inadequate. Rather, I prefer my original conception of three dimensions which must be taken in relation to each other. ‘Child prodigies’ can be considered as ‘exceptional early achievers’. Such cases are constantly in the news: a ten-year survey of two national newspapers (Radford, 1998) found reports on average once every 12 days or so. Child prodigies, considered in this sense, are revisited in the following senses: (1) Are there cases of child prodigies which were missed in 1990 be followed up? Is there more information available on the historical cases? (2) More generally, what happens to early achievers in later life? Do conditions between early and later achievement? (3) Is more known about the conditions of high achievement than a decade ago? While the evidence is partial, but not complete, answers to these questions.

Symposium 19: Children with speech and language difficulties

Conveners: G LINDSAY, Centre for Educational Development, Appraisal and Research, University of Warwick

Children with speech and language difficulties have needs which require attention by both education and health services. The population is highly varied, including children with primary language difficulties and those for whom speech and language difficulties are associated with one or more major developmental problems, e.g. hearing impairment and autism. This symposium aims to identify the educational implications of the needs of children with speech and language difficulties, with particular emphasis on those with primary language difficulties. The symposium will report on a national ‘scoping’ study which identified speech and language needs, the provision made to meet those needs, and also identified models of effective collaborative practice between professionals in education and health professions, especially speech and language therapists. Three other papers will address specific aspects of the needs of children with primary language difficulties, focussing on their educational attainments and social-behavioural development. Issues to be addressed include patterns of numeracy development, co-morbidity of social and behavioural difficulties, and the performance of children on SATs. The Symposium will identify the importance of development of appropriate education in a context of increased accountability eg league tables, including effective collaborative models, levels of support, parental involvement and children’s entitlement.

Paper 1: Patterns of difficulties in numeracy development of children with specific language impairment

R BEECH, University of East London & J DOCKRELL, Institute of Education, University of London

Objectives: Children with language impairment frequently experience problems in their numeracy development. There are difficulties in producing numbers, counting objects and problem solving. However, the relationship between language difficulties and numeracy and the children’s verbal processing capacities is not yet clear. The present study provided evidence to address this gap. Method: The participants were 27 children with SLI aged 6–7 years and two separate comparison groups of children, one matched for chronological age and language level. Tasks were presented to systematically investigate children’s counting, grapho-motor production, addition, double-digit numbers and solutions to addition sums. The tasks were designed to explore the effects on performance of number size, verbal context, the presence of non-verbal features and use of written versus oral numbers. Results: Responses were analysed in terms of accuracy and error type and task features suggesting that the children’s difficulties were related to both verbal and non-verbal demands of the tasks. Conclusions: These findings have implications for supporting numeracy development, will be discussed in relation to the children’s verbal and non-verbal abilities and the processing demands of the tasks.

Paper 2: The behaviour and self esteem of children with specific speech and language difficulties (SSLD)

G LINDSAY, Centre for Educational Development, Appraisal and Research, University of Warwick, J DOCKRELL, Institute of Education, University of London, G C MACKIE, University of Warwick & B LETCHFORD, Institute of Education, University of London

Objectives: (1) to report the social and behavioural characteristics of children with SSLD, as identified by their parents and teachers at Year 6; (2) to report the children’s self esteem, as identified by them and their teachers; and (3) to investigate the stability of these characteristics from Year 3–6.

Design: Longitudinal study of sample of children with SSLD, with data taken from Years 3, 4, 5 and 6, and comparisons with Year 3. Methods: A sample of 69 children with SSLD, 59 from 2 LEAs and 10 attending regional special schools, was identified in Year 2, and has been followed up at Years 3 and 6. At Year 6 the children were assessed on emotional and behavioural development, including the Strengths and Difficulties Questionnaire, the Self-rating Scale and Self Perception Scale for Children. Results: Children with SSLD in Year 6 have an increased likelihood of social, emotional and communication difficulties, as rated by parents and teachers generally correlate significantly, but parents report higher levels of problem behaviour. These patterns show stability over the period Years 3–6. Conclusions: The implications of these results are considered with respect to provision for children with SSLD, including inclusion in mainstream education.

Paper 3: Effective provision for children with speech and language needs

J LAW, City University, London; G LINDSAY, University of Warwick, P PEACE, Institute of Education, G MASCIOIGNE, City University, N SOLOFF, City University, J RADFORD, Institute of Education & S BAND, University of Warwick

Objectives: The objectives of this study were to examine existing provision and identify areas which need to be addressed. Design: Phase 1. A questionnaire was circulated to all SLT managers in England, and to children’s health visitors in England and Wales. Phase 2. Fifteen LEA/Health/Support and Special Education Trust collaborative teams, including health and education, were asked to undertake a more detailed qualitative analysis of the factors determining the process of collaboration between health and education services. Phase 3. The third phase comprised a series of five meetings made up of managers, practitioners and parents from two LEAs in England and included validation findings from the two previous phases. Results: A number of interdependent themes were identified: Monitoring and coordinating, the need for common data sets, the identification process, co-terminosity between LEAs and Health Trusts, collaboration between LEAs and Health Trusts, entitlement and information, and the role of language therapists, issues which specifically relate to Welsh and English as an additional language. Service delivery: Models of provision for supporting children. The size and changing nature of caseloads, prioritisation systems, the role played by parents and carers. Training, education, support and communication, including the expectations of colleagues and parents. Conclusions: It is essential that providers address the issues raised in this report before assuming that effective provision is in place.

Paper 4: SATs and children with specific speech and language difficulties (SSLD): entitlement denied?

J DOCKRELL, Institute of Education, University of London, G LINDSAY, C MACKIE, University of Warwick & B LETCHFORD, Institute of Education, University of London

Objectives: (1) to identify the arrangements for, and results of, SATs at Key Stage 2 for children with SSLD; and (2) to identify the relationships between SATs and children’s cognitive and language abilities.

Design: Longitudinal study of sample of children with SSLD, with present data taken from Year 6. Methods: A sample of 69 children with SSLD, 59 from 2 LEAs and 10 attending regional special schools, was identified in Year 2, and has been followed up at Years 3 and 6. At Year 6 the children’s SATs were assessed on their emotional and behavioural development, and on their results on end of KS2 national curriculum assessments (SATs). Results: The present paper focuses on the SATs results of 63 of the original sample. Data will be presented which indicate substantial differences in attainment across English (lowest), maths and science (highest). A high proportion of children were disapplied for SATs at Year 3 and 6. Conclusions: The implications of these results are considered with respect to entitlement for children with SSLD, and the role of SATs as an indicator of children’s progress.

Symposium 20: Processes involved in successful collaborative learning

Conveners: S LAMB, Division of Psychology, Nottingham Trent University

This symposium addresses the nature of successful collaborative learning. A range of research findings is presented which demonstrate some of the underlying processes which affect a successful collaborative outcome. The issue is explored by looking at examples of children interacting across several different domains and with a range of abilities and ages. The first paper focuses on the nature of collaborative interactions of children with learning difficulties. The paper discusses factors which affect productive interactions and thus lead to successful collaborative outcomes. Paper 2 looks at the effects of a particular task on children’s interactions during collaborative problem-solving in mathematics. By changing the nature of the task, the author demonstrates higher levels of collaborative interaction and performance on the task itself. Similarly in the third paper, the authors discuss how characteristics of collaborative processes can affect the collaborative outcome in a computer mediated language environment. The final paper specifically
addresses the finding that these positive effects of collaborative learning are not always observed immediately. By analysing the interactions occurring during group tasks, the authors demonstrate that the nature of these interactions determines later conceptual learning. In their conclusions, the authors address the significance of these findings for the classroom context. In particular, the symposium highlights aspects such as the ability of the child’s partner, the type of the task, and the level and find decoding unfamiliar words difficult. The ability of the child’s partner, the type of the task, and the level of reading skill, and more particularly letter reading skill. We conclude that these tests depend on reading skill, and were better able to distinguish thought from speech. Conclusions: This study has: highlighted the interaction between learner and co-worker characteristics and the task characteristics; shown that BD is an effective tool for investigating collaborative interactions; provided base-line data on BD, particularly the frequency of use and depth of understanding in versus speech which will support future work with autistic children.

Conclusions: Whether the introduction of an analogy to a collaborative task would improve outcomes; and (b) The types of on-task strategies for promoting the development of these strategies. The results showed that a range of factors contribute to a child benefiting or not benefiting from intervention programmes designed to improve comprehension skills. The results of the study are discussed within a Vygotskian framework, in particular the role of the social context of peer relations: Children’s social networks on the playground.

**INDIVIDUAL PAPERS**

**Phonological awareness in children in and out of school**

K ALCOCK, M JUKES & D NGOROSHO, Dept of Psychology, City University, London

**Objectives:** Phonological awareness is a core skill including visual and auditory skills, phonemes, and phonological similarities, and the ability to break down words into component parts. Studies of phonological awareness tasks predicts future or concurrent reading skill; however some phonological awareness tasks are not possible for preschool children or illiterate adults. This study aimed to investigate the influence of causality by studying children who cannot read through lack of opportunity rather than lack of aptitude.

**Design:** The aim of the study was to further investigate the effect of ability, gender, power and task on the nature of collaborative interactions in a computer supported environment. A subsidiary goal was to provide baseline measures of the use of BD with children for future studies with autistic children. The software ‘Bubble Dialogue’ (BD) is designed to structure communication between users through processes such as role-playing, multiple perspectives turn taking, and makes a clear distinction between the processes of talk and thought.

**Design:** The comprised four between group factors, each with two levels: Ability, Gender, Power and Task. Methods: The sample comprised 53 children (seven to eight-years-old). The children were matched on chronological age and reading ability and in the peer/peer condition according to friendship when all other criteria had been satisfied. Measures taken included performance, process, and task measures associated with the use of BD. Results: Preliminary analysis revealed both qualitative and quantitative differences across the ability range. More able pupils produced dialogues that were longer and more coherent than less able peers, and were better able to distinguish thought from speech. Conclusions: This study has: highlighted the interaction between learner and co-worker characteristics and the task characteristics; shown that BD is an effective tool for investigating collaborative interactions; provided base-line data on BD, particularly the frequency of use and depth of understanding in versus speech which will support future work with autistic children.

**Phonological awareness in children in and out of school**

K ALCOCK, M JUKES & D NGOROSHO, Dept of Psychology, City University, London

**Objectives:** Phonological awareness is a core skill including visual and auditory skills, phonemes, and phonological similarities, and the ability to break down words into component parts. Studies of phonological awareness tasks predicts future or concurrent reading skill; however some phonological awareness tasks are not possible for preschool children or illiterate adults. This study aimed to investigate the influence of causality by studying children who cannot read through lack of opportunity rather than lack of aptitude.

**Design:** The aim of the study was to further investigate the effect of ability, gender, power and task on the nature of collaborative interactions in a computer supported environment. A subsidiary goal was to provide baseline measures of the use of BD with children for future studies with autistic children. The software ‘Bubble Dialogue’ (BD) is designed to structure communication between users through processes such as role-playing, multiple perspectives turn taking, and makes a clear distinction between the processes of talk and thought.

**Design:** The comprised four between group factors, each with two levels: Ability, Gender, Power and Task. Methods: The sample comprised 53 children (seven to eight-years-old). The children were matched on chronological age and reading ability and in the peer/peer condition according to friendship when all other criteria had been satisfied. Measures taken included performance, process, and task measures associated with the use of BD. Results: Preliminary analysis revealed both qualitative and quantitative differences across the ability range. More able pupils produced dialogues that were longer and more coherent than less able peers, and were better able to distinguish thought from speech. Conclusions: This study has: highlighted the interaction between learner and co-worker characteristics and the task characteristics; shown that BD is an effective tool for investigating collaborative interactions; provided base-line data on BD, particularly the frequency of use and depth of understanding in versus speech which will support future work with autistic children.

**Phonological awareness in children in and out of school**

K ALCOCK, M JUKES & D NGOROSHO, Dept of Psychology, City University, London

**Objectives:** Phonological awareness is a core skill including visual and auditory skills, phonemes, and phonological similarities, and the ability to break down words into component parts. Studies of phonological awareness tasks predicts future or concurrent reading skill; however some phonological awareness tasks are not possible for preschool children or illiterate adults. This study aimed to investigate the influence of causality by studying children who cannot read through lack of opportunity rather than lack of aptitude.

**Design:** The aim of the study was to further investigate the effect of ability, gender, power and task on the nature of collaborative interactions in a computer supported environment. A subsidiary goal was to provide baseline measures of the use of BD with children for future studies with autistic children. The software ‘Bubble Dialogue’ (BD) is designed to structure communication between users through processes such as role-playing, multiple perspectives turn taking, and makes a clear distinction between the processes of talk and thought.

**Design:** The comprised four between group factors, each with two levels: Ability, Gender, Power and Task. Methods: The sample comprised 53 children (seven to eight-years-old). The children were matched on chronological age and reading ability and in the peer/peer condition according to friendship when all other criteria had been satisfied. Measures taken included performance, process, and task measures associated with the use of BD. Results: Preliminary analysis revealed both qualitative and quantitative differences across the ability range. More able pupils produced dialogues that were longer and more coherent than less able peers, and were better able to distinguish thought from speech. Conclusions: This study has: highlighted the interaction between learner and co-worker characteristics and the task characteristics; shown that BD is an effective tool for investigating collaborative interactions; provided base-line data on BD, particularly the frequency of use and depth of understanding in versus speech which will support future work with autistic children.

**Conclusions:** The comprised four between group factors, each with two levels: Ability, Gender, Power and Task. Methods: The sample comprised 53 children (seven to eight-years-old). The children were matched on chronological age and reading ability and in the peer/peer condition according to friendship when all other criteria had been satisfied. Measures taken included performance, process, and task measures associated with the use of BD. Results: Preliminary analysis revealed both qualitative and quantitative differences across the ability range. More able pupils produced dialogues that were longer and more coherent than less able peers, and were better able to distinguish thought from speech. Conclusions: This study has: highlighted the interaction between learner and co-worker characteristics and the task characteristics; shown that BD is an effective tool for investigating collaborative interactions; provided base-line data on BD, particularly the frequency of use and depth of understanding in versus speech which will support future work with autistic children.
This study examines the reading skills of mainstream educated DS in two education authorities (LEA). Recruitment was via the special educational needs (SEN) department. Every participant received at least two years' formal reading instruction, was aged over seven and attended mainstream classes. Twenty DS children (10 each grade) of a statement of moderate learning difficulties (MLD) were recruited in the same way to form a contrast group. An assessment battery comprised of non-verbal IQ, reading comprehension, reading age, and spelling assessment was administered to 60 children, 40 DS and 20 MLD. Each child received two visits at school and all assessments were carried out by the same person. Parents and schools received a report based on the assessment. The results were analysed using an analysis of variance. The results show that the DS group could be divided into three distinct reading groups. The MLD children show a different pattern of skills in reading and spelling compared to DS children. This group show evidence of the use of phonological skills in their reading. The influence of the National Literacy Strategy is considered. The next phase of this study is a controlled teaching intervention to develop the reading of the two DS groups that showed the poorest reading skill.

Dictionary use and its effects on literacy and phonology

J BEECH, Dept of Psychology, University of Leicester

Objectives: To examine the developing use of the dictionary by younger readers to use a dictionary more could spell words. Persuading poor readers to use a dictionary to look up spellings. Poor readers who were evenly divided between using dictionary and not using a dictionary were much closer to their age-matched controls, who were evenly divided between using dictionary and not using a dictionary. Poor readers were much closer to their age-matched controls, who were evenly divided between using dictionary and not using a dictionary. The MLD children show a different pattern of skills in reading and spelling compared to DS children. This group show evidence of the use of phonological skills in their reading. The influence of the National Literacy Strategy is considered. The next phase of this study is a controlled teaching intervention to develop the reading of the two DS groups that showed the poorest reading skill.

Time processing and temporal knowledge in children with autism

J BOUCHER & S CRISPIN, Dept of Psychology, University of Warwick

Objective: To assess the hypotheses that biopsychological time processing is impaired in children with autism spectrum disorders (ASDs), that knowledge of clock and calendar time is unimpaired. Design: A fine cut's design was used in that children were tested concerning two closely related cognitive capacities. Method: A group of 20 high functioning children with DS and a group of 20 children with UCD were tested on age and verbal ability matched controls on four tests of involuntary time processing and temporal knowledge. Results: The first hypothesis was made in experiments assessing (1) children's ability to use the undated cue 'last week' to access accurate and specific event memories; (2) children's ability to estimate the day and hour within which a set of recent undated events occurred. Tests of the second hypothesis were made in experiments assessing (3) children's knowledge of dates and clock times relevant to their own lives, and (4) children's knowledge of days, months, seasons, etc. Results: The results support the contrasting hypotheses. Conclusions: Children with ASDs may have fundamental impairments of biopsychological (involuntary, unaware) time processing, whereas the implications of the findings should also be considered.

Way finding and map reading abilities in teenagers with Williams syndrome (WS)

J Boucher, Dept of Psychology, University of Warwick, M BLADES, Dept of Psychology, University of Sheffield & S CRISPIN, Dept of Psychology, University of Warwick

Objective: To assess way-finding and map reading abilities in teenagers with Williams syndrome (WS). Design: Experiments taken from the literature on typically developing children, some of which were developed by the second author, were used in this study. Method: A group of 12 teenagers with WS was compared with a group of 13 age-matched and verbally ability matched controls on (A) a test of way-finding; (B) tests of the ability to use a map-like diagram to find a hidden object; (C) tests of primary and secondary perspective taking. Children were also given a test of nonverbal ability. Results: The children with WS were not impaired on a test of controls in their ability to retrace a route they had only experienced once before. Both groups of participants appeared to rely more on surface features rather than on building a cognitive map of the area traversed by the route. The young people with WS also had impaired primary perspective taking, and impaired ability to use the map-like diagram, when this was presented in an orientation corresponding to the child's physical orientation to the room. However, the participants were not impaired on secondary perspective taking and on the ability to use an 'upside down' diagram. Conclusions: Children with Williams syndrome have demonstrated, warrant further investigation, which is planned. The relatively good way-finding skills are encouraging, and have practical implications for helping children and young people with WS to become independent.

Seeing round corners: children's understanding of line of sight

M BOYDELL, R N CAMPBELL & M DOHERTY, Dept of Psychology, University of Stirling

Flavel et al. (1991) showed that three- and five-year-olds, with five-year-olds showing a more accurate understanding than five-year-olds. When provided with feedback (letting them look) five-year-olds mostly corrected their predictions, but four-year-olds continued to overpredict. In a second experiment, where the '90°' and 180°) and was used in place of tubes. Both four- and five- year-old, that was heaved around count and curve the walls, but their predictions about looking round the walls with corners were more accurate. Five-year-olds outperformed four-year-olds, as before. These experiments show that children's understanding of gaze and vision shows gradual and context-dependent progression through the preschool age-range. This study used computer controlled light. The precise basis upon which they are doing so is unclear. There is more to an understanding of form than recognition across sensory orientations. The results support the contrasting hypotheses. Conclusions: Children with ASDs may have fundamental impairments of biopsychological (involuntary, unaware) time processing, whereas the implications of the findings should also be considered.

Infant understanding of form: can four-month-olds accurately map the shape of an object?

A BREMNER, P BRYANT & B ROGERS, Dept of Experimental Psychology, University of Oxford

Although newborns discriminate between different single forms independent of orientation (Slater et al., 1991), the precise basis upon which they are doing so is unclear. There is more to an understanding of form than recognition across sensory orientations. The results support the contrasting hypotheses. Conclusions: Children with ASDs may have fundamental impairments of biopsychological (involuntary, unaware) time processing, whereas the implications of the findings should also be considered.

The lexicality effect in serial recall in Williams syndrome

J BROCK, J BOUCHER & G D A BROWN, Dept of Psychology, University of Warwick

Objectives: Serial recall performance is better for high-frequency words compared with low-frequency (the lexicality effect) and for high- compared with low-frequency words (the word-frequency effect). Both findings have been attributed to 'redintegration' — the process of long-term processes that attempt to reconstruct partially decayed phonological traces. Previous research has shown that children with Williams syndrome (WS) exhibit an increased word-frequency effect. If this is due to a reduced influence of redintegration then individuals with
WS should also show a reduced lexicality effect. The current study, therefore, investigated the lexically effect in WS. **Design and method:** 16 children with WS (TD and MLD groups) were recruited to participate. The core deficit in WS is selective impairments in language learning disability (MLD) and typical development (TD) – performed computerised probed recall tasks in which familiar stories were learned for which occurred in a particular position in a list. Each child performed the task with words and with non-words. The child with WS performed better than MLD controls and both groups showed a significant lexicality effect. However, there was no interaction between group and lexicality. Results from TD children will also be reported.

**Conclusions:** The results suggest that the reduced word-frequency effect reported in WS cannot be explained by reduced sensory-perceptual processing. Instead it may reflect a general insensitivity to word-frequency in WS. Current studies are investigating the word-frequency effect using the same probe recall task with a traditional word-span task.

### New entrants to the teaching profession – their theories of teaching

**M BROWNLEE, Dept of Education, University of Adelaide, Australia**

The intensive one-year, postgraduate, pre-service Graduate Diploma in Education programme is seen as a preparation for teaching in all levels of education. Part of the major assignment for the common core subject which considers psychology of education required the students to outline their current theories of teaching and the assignment was outlined in the handbook for the subject at the beginning of the year and the due date set for four months. The assessment outcomes were either ‘non graded pass’ or ‘fail’. At the time of the due date nine of the 13 weeks for the subject, and most of the content, had been completed. One of the assessment tasks was a short essay on the strengths block had also taken place and many of the students were applying for appointments for the next academic year. The purpose of the essay was to identify the students’ views and theories of teaching. It was identified those concepts to which they attached most importance for effective teaching. Altogether 122 papers were considered. A content analysis of the writings was made in terms of the psychological concepts and theories included in the course, looking for the extent to which they were integrated into the students’ own theories of teaching. The conclusions that may be drawn from the study have a relevance for the ongoing course development, and can inform professional preparation of newly qualified teachers. Where new appointees may have gaps in their overall concepts of teaching and where support and extension is appropriate for understandings already formulated.

### Pictorial support for text comprehension in children

**L BUTTERWORTH & J OAKHILL, Laboratory of Experimental Psychology, University of Sussex**

It is well documented that less skilled comprehenders experience difficulties understanding texts. One way to engage these children with the text is to present a picture alongside the text. The hypothesis is that presenting a picture alongside a text will help less skilled comprehenders to understand a story. The study was conducted with 11 skilled comprehenders and 14 less skilled comprehenders (six and seven-year-olds) who, despite performing at an age equivalent level for reading accuracy, were poor at understanding stories. Skilled and less skilled comprehenders’ understanding of three different stories was compared. Stories were presented as text only or as picture and text, where the picture either overlapped or supplemented text information. Where the picture overlapped with the text allowed less skilled comprehenders to understand the stories more appropriately than the text alone and where the picture supplemented the text. In fact less skilled comprehenders found it more difficult to integrate the supplementary information into their understanding of the story. Where the picture provided new information this needed to be integrated with the text in order to get a full understanding of the story. However, where the picture overlapped with the text the picture was redundant, but for the less skilled comprehenders provided a more appropriate opportunity to understand the text with which they experience difficulties.

### Individual differences in children’s addition and subtraction knowledge

**K CANBIE, Dept of Psychology, University College Northampton**

**Objectives:** Individual differences in young children’s understanding of part-whole concepts in addition and subtraction were examined. Part-whole knowledge is fundamental to number sense and forms the basis for many relationships among addition and subtraction problems (e.g. parts differ in different orders to the whole – the commutativity principle). However, although researchers have explored isolated aspects of part-whole knowledge (e.g., commutativity), little is known about differences in part-whole knowledge and their role in mathematical development. **Design:** In order to identify and describe variation in part-whole knowledge, the accuracy of children’s judgments about various part-whole relations between problems, their understanding of various part-whole concepts. They also judged relations between problems in the context of a puppet demonstration. **Results:** A cluster analysis was conducted to determine groups of children’s part-whole knowledge. The solution revealed distinct groups of children with different profiles of understanding part-whole concepts. Conclusions: The possibility that distinct patterns of understanding identified in the study indicate different patterns of part-whole knowledge development has important implications for cognitive developmental theory in early arithmetic. The results also have educational implications, as a greater understanding of the conceptual profiles of different groups of children is likely to help inform the development of effective teaching and learning strategies.

### Research in infant cognition: implications for early years education

**D CATHEDWOOD, Dept of Psychology, University of Gloucestershire**

**Purpose:** The paper reviews main strands of research dealing with infant cognition, highlighting the radical reappraisal of early cognitive competence that has occurred over recent decades. The paper also considers the implications for infant cognition research of new key findings and methodologies in the domain of infant cognition are described. To illustrate this, research is presented on their unusual ability to group objects and to categorise in regard to the sensory background, requiring the perceptual grouping of known objects are shown masking a patterned background, along with a test of strong central coherence and one test of weak central coherence along with a test of emotion recognition. If central coherence is enhanced then individual differences in central coherence would be positively correlated, and weak central coherence would be negatively correlated with emotion recognition. **Design:** Six reception classes in three schools were recruited and every child in the classes participated. A range of tests was administered over the academic year as part of a larger study. **Methods:** Around 140 children (four to five-year-olds) participated in this study. The Children’s Embedded Figures Test was administered with three novel tests. The first was a measure of gestalt processing. In this test, well-known objects are shown masking a patterned background, requiring the perceptual grouping of isolated components. The second was the contour test in which participants have to spot connected components within an isolated component. The final test was an emotion recognition test in which participants were required to make forced choices to indicate named emotions. Results: All three central coherence tests are positively correlated with emotion recognition even when age and verbal ability are partialled out. Conclusions: The results are not simply due to differences in central coherence and instead suggest independent perceptual skills. This has important implications for theories of early years education, in respect to measures of infant cognition, and these newly developed tests promise to be useful in social understanding.

### Two little boys: calendrical calculators but not savants

**R COWAN, M ANASTASIOU & M KAPNOGIANNI, Institute of Education, University of London**

**Objectives:** This study follows up a previous investigation of two boys with some ability to name the weekdays corresponding to dates in the past and future. The aims were to determine whether these boys had improved their ability to recall and count their calendrical skills. Both are exceptional in their unusual skill. **Methods:** Assessments using the WISC III, WORD, WOND, NARA II, BPVS II, PhAB, Working Memory Battery, computer-presented calendrical knowledge tests, and other tests of weak and strong central coherence and emotion recognition. Objects included in the study indicate different patterns of part-whole knowledge in early arithmetic. The results also have educational implications, as a greater understanding of the conceptual profiles of different groups of children is likely to help inform the development of effective teaching and learning strategies.

### Research in infant cognition: implications for early years education

**D CATHEDWOOD, Dept of Psychology, University of Gloucestershire**

**Purpose:** The paper reviews main strands of research dealing with infant cognition, highlighting the radical reappraisal of early cognitive competence that has occurred over recent decades. The paper also considers the implications for infant cognition research of new key findings and methodologies in the domain of infant cognition are described. To illustrate this, research is presented on their unusual ability to group objects and to categorise in regard to the sensory background, requiring the perceptual grouping of known objects are shown masking a patterned background, along with a test of strong central coherence and one test of weak central coherence along with a test of emotion recognition. If central coherence is enhanced then individual differences in central coherence would be positively correlated, and weak central coherence would be negatively correlated with emotion recognition. **Design:** Six reception classes in three schools were recruited and every child in the classes participated. A range of tests was administered over the academic year as part of a larger study. **Methods:** Around 140 children (four to five-year-olds) participated in this study. The Children’s Embedded Figures Test was administered with three novel tests. The first was a measure of gestalt processing. In this test, well-known objects are shown masking a patterned background, requiring the perceptual grouping of isolated components. The second was the contour test in which participants have to spot connected components within an isolated component. The final test was an emotion recognition test in which participants were required to make forced choices to indicate named emotions. Results: All three central coherence tests are positively correlated with emotion recognition even when age and verbal ability are partialled out. Conclusions: The results are not simply due to differences in central coherence and instead suggest independent perceptual skills. This has important implications for theories of early years education, in respect to measures of infant cognition, and these newly developed tests promise to be useful in social understanding.
Initiatives for cross-service collaboration to meet children’s and families’ needs: examples from an Education Action Zone (EAZ)

V DANN, Director Herefordshire EAZ & K WEDELL, Herefordshire EAZ

The purpose of the paper is to explore innovative ways of meeting the educational needs of children and young people in areas where there are barriers to educational achievement. We report on two initiatives within an EAZ. The Herefordshire EAZ started in Autumn 1998, and includes 22 schools. The majority are located in remote rural areas with dispersed populations, and this makes it difficult to provide support services to children and their families. The two projects focus on providing preventive developmental support for children whose language was delayed, particularly those in receipt of special educational needs. The first project was focused on early identification and support for children, and the other on helping parents to support their children on entry to school. The aim of the language development project was to support teachers in recognising and responding to children whose language was delayed, particularly those in receipt of special educational needs. The project was based on the Teaching Talking Programme devised by Therapist from the Herefordshire Primary Care Trust to work part-time with the County Learning Support Service. The parent support programme was located in a large infant school serving a housing estate. The aim was to offer support to vulnerable parents. A new approach was adopted in the school, where social workers could interact with parents who had been informally referred by teachers and Social Services. Both these projects illustrated how cross-service collaboration could enhance the preventive support for children.

This is ‘my’ story: children’s stories and philosophical discussion

B DELAFIELD & M HARDMAN, Dept of Psychology, University College Dublin

Objective: Narrative texts and stories are widely used in schools in a variety of different ways. It has been claimed they are an effective way of giving and holding children’s interest, building on prior knowledge and introducing young children to moral argument. However, it has also been suggested that the use of narrative may act to produce closure to a discussion. This paper examines the use of stories as a basis for classroom discussion in Philosophy for Children sessions. As part of a larger research project, designed to explore the socio-cultural context of introducing Lipman’s “Philosophy for Children” to approximately 100 British primary schools. Design: A qualitative design was employed and discourse analysis used to explore the themes embedded in both the narrative texts and the class discussion. Method: Two classes of seven to eight-year-old children were observed and their discussion tape-recorded as they participated in their weekly P4C session, using texts chosen by the teacher. Results: Discourse analysis of transcripts of the sessions, examined for ways in which the themes embedded in the stories and those present in the class discussion, is currently being completed. Conclusion: Preliminary analysis of the results suggest that the types of text used as a basis for classroom discussion is important, particularly in promoting critical perspective taking. The interaction between teacher and pupils in relation to the narrative texts and the primary classroom will be further explored.

Linguistic influences on mathematical development: the case of Welsh

A DOWKER, Dept of Experimental Psychology, University of Oxford & D LLOYD, St Hilda’s College, Oxford

Objectives: The counting system in Welsh is much more complex than in English. The study was to test the prediction that Welsh-speaking children would perform numerical tasks better than English-speaking children. Design: Three groups of Welsh children with varying degrees of exposure to the Welsh language were given standardized tests of arithmetic, and a more specific test of understanding representations of two-digit numbers. Methods: Participants were 60 children: 10 six-year-olds; 10 six-year-olds; 10 eight-year-olds from each of three schools. Children at school VV spoke Welsh both at home and at school; school WE spoke Welsh only at school; and school WW spoke English only (the Welsh in pupil EE were good at both standardized arithmetic tests (WISC Arithmetic and BAS Number Skills); a standardized non-verbal cognitive test (WISC Block Design); and a Number Comparisons test of reading aloud and comparing 24 pairs of two-digit numbers. Results: Two-way ANOVAs, with age and language as factors, revealed no significant differences in the different groups’ performance on the standardized arithmetic tests, or Block Design. Both groups of Welsh speakers read and compared two-digit numbers more accurately than monolingual English children. Eight-year-olds performed better than six-year-olds on all raw scores; but not on age-standardized test scores. Conclusions: There are differences between the numerical skills of children in Welsh and English. Unlike Asian children, who differ from English children in both language and culture, the Welsh speakers are actually more proficient at tasks that directly involve the written representation of place value.

The psychological study of inner speech and development: theoretical assumptions and implications for novel approaches

M N DUNNE, Dept of Experimental Psychology, University of Oxford

Why is it, despite the obvious central importance of inner speech to the theories of Piaget and Vygotsky, that relatively little attention has been given to its nature, despite nearly a century of developmental research? This paper addresses this question and discusses the following main issues: (1) The methodological difficulties of studying inner speech, both experimentally and developmentally; (2) The theoretical assumptions employed in the former and the consequences of these for the latter; and (3) An analysis of the divergent theories of Piaget and Vygotsky on inner speech and how these theories may shape particular kinds of mental content, namely inner speech. Moreover, it is argued that the nature of other kinds of mental content, namely sensory and visual imagery, may be less dependent on participation in social linguistic relationships. Support for this suggestion comes from the recent proposal by Hams and Leevers (2000), mental rotation tasks by pre-school children (e.g. Estes, 1998) and self-reports of adults with high-functioning autism. Finally, a theoretical model that examines inner speech and visual imagery from the perspective of social context, mental representation and theory of mind is proposed. The model is grounded in the psychological and developmental study of inner speech are formulated and future research directions discussed.

Morphological cues and on-line syntactic processing: a developmental study in French

G GERARD, A CHARRIVALT & M KAIL, Laboratoire Cognition et Développement CNRS, Université de Paris V, Frenè Descharmes, Université de Bordeaux

Two groups of French children (mean age:10 and 12) and one group of adults took part in an experiment designed to investigate the syntactic strategies used in the on-line comprehension of ambiguous closure sentences, and the way different levels of processing (morphological and syntactic) shape particular kinds of linguistic development. All participants were tested individually, using the same apparatus and linguistic material. We used sentences like the following, manipulating all acceptable singular/plural combinations on the first and second nouns, the auxiliary and the preposition ‘l’ami (1st N) du prince (2nd N) qui était (Aux.) respecté (Part.) dans toute l’Europe est malade’ (The friend of the prince who was respected (Part.) throughout all Europe is ill). Each participant read 64 sentences (50 per cent experimental) presented using a self-paced reading procedure. Reading times per character were recorded for each word, and an ANOVA/MANOVA was conducted. The data show a massive number of errors, that were systematically related to the syntactic and morphological (number) processing interact in the computation of a single on-line representation, and reveal that the interaction changed in both the time course and the outcome of interactions. Overall, the results are compatible with a serial model in which the single representation initially computed corresponds to either the most frequent form in French (adults), or the most economical in terms of processing cost and the way working memory resources determine processing strategies is currently in progress.

Developing support for more inclusive schooling: a review of the role of SEN Support Services in English LEAs

P GRAY, SEN Policy Consultant, Nottingham

The research was jointly funded by the DfEE and the National Association for Special Educational Needs (NASEN)

Objectives: The aim of the research was to understand the role of support services in pupil with educational needs (SEN) in English LEAs, in the context of two major national initiatives: the move towards greater accountability and the increasing emphasis on LEA funding to schools. Design: The research was carried out in two stages: the first involving a questionnaire to all English authorities (150); the second a more in-depth study of eight contrasting LEAs. The work was carried out in Spring/Summer 2000. Methods: A postal questionnaire was used, involving a mixture of closed and open-ended questions. The investigation in the three case study LEAs involved individual and group interviews (semi-structured) and an analysis of relevant documentation. Results: The research revealed significant variation between LEAs in terms of implemented strategies and funding to support services. However, there were some emerging trends, including the increased delegation of support services for pupils with ‘high incidence’ needs (general learning and behaviour difficulties) and the retention of more specialist services. Conclusions: Evidence that expenditure on SEN in English on inclusion and on managing provision within available budgets was leading to some differences in agenda between support services and schools. Managing such stakeholder differences appeared to be a significant challenge, particularly where changes to service funding arrangements were being planned (or had already occurred). Both LEAs and schools were having to adjust their expectations in the light of policy and finding changes.

The child-centred approach in bullying research

S GUERIN & E HENNESSY, Dept of Psychology, University College Dublin

The main aim of this paper is to consider the...
suitability of the child-centred approach to research for use in the study of bullying in school. With the view of the child’s role in research moving from that of the child as research object to the child as research partner, this approach is becoming increasingly common in developmental psychology and educational research for the study of bullying. In this research area, as well as in the area of bullying in school, there is a need to highlight the benefits of this approach. This work appears to suggest that children place more emphasis on the effector aspects of real-life situations and intention which have been previously stressed in the literature. Also the benefits of involving children in programmes designed to tackle bullying in school are considered. Conclusions are drawn around the issues involved in the child-centred approach as well as suggestions for future developments in bullying research.

Post-modernism? Developmental research and educational practice

K HERDEN & M J SNOWLING, Dept of Psychology, University of Central Lancashire

A component of the process of learning to read is the ability to form associations between letters and sounds as well as between the written and spoken word. One way in which this can be thought of is that of a form of visual-verbal paired associate (PA) learning. It has been shown in the past that poor readers have a deficit in this form of visual-verbal learning.

The British Psychological Society

The developmental progression of comprehension related skill in EAL (English as an Additional Language) J M HUTCHINSON, H WHITELEY, C D SMITH & E CONNORS, Dept of Psychology, University of Central Lancashire

Objective: There is a tendency for the comprehension skills of children with English as an additional language (EAL) to lag behind their peers who are monolingual. The aim of this study was to look for a general pattern found for their monolingual peers. The comprehension difficulties EAL children experience are often attributed to lower levels of vocabulary and lack of phonological awareness of the process of literacy development, especially the impact of weaker language skills, will give a clear understanding of their reading and listening skills. Design: The study was a three-year longitudinal project following the developmental progression of the cognitive-linguistic skills of EAL children and their monolingual peers from school years two to four.

Method: 43 EAL children and 43 monolingual English-speaking children matched on age, gender and general ability were assessed on measures of reading accuracy, reading and listening comprehension, receptive and expressive vocabulary and phonological processing. The test materials were administered during individual testing sessions. The children were tested at the end of school year two and at the end of the next school year. The results were used to identify the similarities and differences of the two groups of children at each point in time.

Results: Analysis revealed similarities between the two groups of children in terms of their reading and listening skills, however, EAL children had lower levels of vocabulary and comprehension at each point in time. Conclusion: EAL children experience difficulty with reading accuracy but continue to have difficulty with vocabulary knowledge and comprehension skill. Data are discussed in terms of the progression of the development of underlying language skills and the impact of these skills on both reading and listening comprehension. The implications of the findings for classroom practice are considered.

Children’s evaluations of the distinctive features and motivational aspects of play

V B JENVEY & H L JENVEY, Dept of Psychology, Monash University, Clayton, Victoria, Australia

Objectives: Two separate studies aimed to investigate (a) what behavioural features children attended to and (b) the motives they attributed to different types of play. In Study 1, two separate studies elicited children’s descriptions of behavioural features and motivational aspects of play in response to interviews about (a) five video excerpts and (b) three triads of their usual play activities. These data were used to identify the distinctive features of play and its potential developmental significance. Thus, present studies investigated how children themselves classified play. Methods: Study 1: 34 (17f/17m) six to 12-year-olds were shown five video excerpts of school and home play and interviewed about how they recognised such behaviours as play. Study 2: 32 (16f/16m) six to 12-year-olds were shown five video excerpts of their usual play activities. Data was collected during individual testing sessions. Two aspects of play were assessed: (a) the motives associated in the developmental literature with poor and good readers was examined.

One participant is elaborated by another participant through, e.g. justification or display of emotions. The interaction to lead to transactive dialogue, and indeed more likely than other forms of social interaction to lead to transactive dialogue, and they did engender aggression. However, the effects of transactive dialogue and aggression were mediated by group composition, and once composition was taken into account the impact of dialogue and aggression on popularity changed. Conclusions: The study has shown that frequencies of responses differed according to participant gender and to participate in the study. Concluding remarks are made that suggest that the social costs of disputes may have been over-played.

The British Psychological Society

2002 Proceedings
The relationship between production and comprehension in drawing

R JOLLEY, E L KNOX & R L WAINWRIGHT, Division of Psychology, School of Sciences, Staffordshire University

The aim of the study was to examine the student achievement, responsibility and normative standards.

Analysis of teachers’ responses to both sections of the questionnaire revealed a similar pattern of results. Key Stage I and Key Stage 2 teachers demonstrated a differential awareness of the effects of season of birth, with Key Stage I teachers demonstrating greater awareness. Both groups perceived gender as having a potential effect on school achievement. Conclusions: The reduced awareness of Key Stage 2 teachers of the potential effects of season of birth has important implications for the support of summer-born children, particularly once they reach Key Stage 2. These implications are discussed.

Phonological memory as a predictor of language development in Down syndrome: a five-year follow-up study

J LAWS, Dept of Experimental Psychology, University of Oxford

Objectives: To observe the memory and language development over five years of individuals with Down syndrome. To investigate the role of phonological memory in this development. Design: A longitudinal design with assessments repeated after a period of five years. Methods: 30 individuals with Down syndrome, aged five to 19 years at Time 1, were studied. Assessments included tests of nonword repetition, digit span, receptive and expressive vocabulary, sentence repetition, sentence reading, a number of non-verbal tests from the Kaufman Assessment Battery for Children, and a hearing evaluation. Results: There were modest increases in most measures after five years, except for phonological memory tests where overall, no progress was recorded. There was little improvement in grammar comprehension, but greater advances in receptive vocabulary and nonverbal performance. Younger members of the sample made more progress, while many of the older participants seemed to have reached a plateau of development, or to have declined on some memory and language measures. Partial correlations between earlier memory measures and later language measures, controlling for nonverbal ability and earlier language scores, showed that phonological memory predicted later vocabulary knowledge, but was not related to later grammar understanding. There was no evidence that earlier memory predicted later vocabulary development, or that earlier vocabulary knowledge predicted later grammar.

Conclusions: The results confirmed the pattern of developmental strengths (in nonverbal ability and vocabulary) and weaknesses (in phonological memory and grammar) established in earlier research. The age related declines are worrying for earlier language scores, but were not related to later language scores, controlling for nonverbal ability and earlier language scores, showed that phonological memory predicted later vocabulary knowledge, but was not related to later grammar understanding. There was no evidence that earlier memory predicted later vocabulary development, or that earlier vocabulary knowledge predicted later grammar.

Working memory, language comprehension and mental state understanding in pre-schoolers: longitudinal evidence

C LEWIS, K FOSTER, Dept of Psychology, University of Lancaster & N FREEMAN, Dept of Psychology, University of Lancaster

There have been a heated debate over the nature of executive skills and over the relationship between these and a grasp of mental states. While there is good evidence to show that an understanding of false belief emerges at around the same time as developments in the use of working memory, attentional flexibility and inhibitory control, the age-related increases are hotly debated (see e.g. Perner & Lang, 2000). This paper explores the relationship between false belief performance and working memory, using longitudinal language development into account (following Astington & Jenkins, 1996). In two experiments false belief tasks (unexpected transfer, unexpected contents and appearance reality), two working memory tests (‘memory capacity’ and ‘working memory’) and verbal comprehension (BAS) were administered to three-year-olds and logistic regression analyses conducted. In experiment 1 both language comprehension and the two working memory tasks predicted later variance in the false belief performance of the three year olds. In the second experiment a group of 39 children was tested at three ages (39, 42 and 47 months). Longitudinal analyses showed that working memory skills at age 42 months predicted false belief understanding before language became a significant predictor. These findings are discussed in terms of the many possible causal connections proposed by Perner and Lang (2000) and the disadvantages and advantages of longitudinal statistical analyses used to tease apart causal patterns.

Infants’ memory for feature and location following brief occlusions

M DARESCHAL & M H JOHNSON, School of Psychology, Birkbeck College, University of London

Objectives: The purpose of this study is to examine four-month-olds’ ability to remember surface feature (identity), location, and the conjuncture of surface feature and location information following brief occlusions. This has direct implications for the studies of object permanence. Design: We report on four studies using familiarisation and preferential looking procedures. Each study uses a repeated measures design with four trials. Test order is determined by a repeated Latin-Square. Method: All four studies use the same presentation method with four different familiarisation trials in which two objects come in and out of hiding, each from behind a different screen. In the test phase, the screens are raised to reveal either (1) the two expected objects, (2) the baseline condition; (2) one familiar and one novel object – feature violation condition; (3) both familiar objects behind the same screen – location violation condition; and (4) the familiar objects swapped around – conjunction violation condition. There were 20 trials per condition in each experiment. The target objects used were faces, coloured flowers, toys with prior manipulation, and toys without prior manipulation in Experiments 1 to 4 respectively. Results: Infants (Exp. 1) infants responded only to violations of identity, with coloured flowers (Exp. 2) infants responded only to violations of feature, and toys (Exp. 3) and infants responded only to violations of location. Conclusions: The affordances of the objects to support action determine what features infants are able to use.
the hypothesis that early infant perceptual categories of cat and dog reflected bottom-up processes rather than the application of top-down schemas (e.g., relative size). We used one such model, the 3-laminate model (Nicolson & Boldsen, 1991), which consists of three layers: a sensory layer, a motor layer, and a top-down layer. The sensory layer receives input from the environment and processes it into feature vectors. The motor layer then uses these feature vectors to generate motor commands. The top-down layer influences both the sensory and motor layers, allowing for top-down guidance of bottom-up processing. 

To test this hypothesis, we conducted an experiment where infants were presented with a novel object of the same category as the familiar object. We measured the infant's attention allocation to the novel object and compared it to the familiar object. Our results showed that infants were more likely to attend to the familiar object than to the novel object, which suggests that infants can form perceptual categories even in the absence of a specific cue. This finding supports the idea that infants can use a top-down strategy to guide their bottom-up perceptual processing.
Analogy is commonly understood as the process of relating novel concepts through a common bond. This understanding is rooted in Piaget's (1932) hypothesis that the development of children's moral reasoning is facilitated by peer interaction. Data collection has been completed and analysis is imminent.

A Japanese child's understanding of the superordinate categories

Natural and Artificial: comparisons with children from the UK

O PETERSCHMIEDEL, Dept of Experimental Psychology, University of Oxford

Children aged six to eight years from Japan (n=102) and Britain (n=90) were tested individually in two sessions. First, they performed in a categorisation task consisting of colour photographs of 15 different objects. In the second session, each child was given a standardised version of a picture vocabulary test used in each country. Contrary to the predictions arising from the Japanese religious tradition and cosmology, Japanese preschoolers performed similarly to (and identified the same origin of) the different items and significantly better than expected by chance. Consistent with other studies, the children performed slightly better on artefacts than on natural items. Surprisingly, however, Japanese children were significantly more accurate than UK children of the same age on the simple association tasks. This finding contradicts some earlier claims about the prevalence of animism in Japanese children's conceptions of nature but is consistent with the linguistics explanation. Implications of these results for the development of cosmological reasoning in childhood are discussed.

Working memory and education difficulties during childhood

S J PICKERING & S E GATHERCOLE, Dept of Experimental Psychology, University of Bristol

Objectives: To systematically examine the nature of working memory performance in children with special educational needs in comparison to children without special needs, using a set of standardised tests which measure the stability of memory in this type of population. Design: A cross-sectional study of children between five and 12 years of age from the inclusion of two groups (SEN and non-SEN). Methods: A battery of working memory tests was developed on the basis of the Working Memory Test Battery for Children or WMTB-C. The battery includes tests of phonological loop, visuo-spatial sketchpad and central executive functions. Participants included children ages 6 to 9 years, from four primary schools in London that were measured through the presentation of eight story vignettes involving different types of rules. As a measurement of the participant's peer status, each participant will be peer-rated by each of their classmates on a three-point Likert scale. The British Picture Vocabulary Test will be administered to control for any differences in the verbal reasoning abilities of the participants. Analysis of the reasoning measures and the child's peer status will be conducted. At present there is little understanding of the differences between young children in their moral reasoning. A significant correlation between the child's moral reasoning and their peer status would highlight how, and to a degree why, children differ in aspects of their moral development. Furthermore, support for the current hypothesis would provide further support for Piaget's (1932) hypothesis that the development of children's moral reasoning is facilitated by peer interaction. Data collection has been completed and analysis is imminent.

Can contrast modelling promote children’s learning in domains other than language?

K J PINES & D MESSER, Dept of Psychology, University of Hertfordshire

Objective: To investigate the effectiveness of contrast or immediate resolution to a ‘hard’ problem, on children in which children were making errors in two domains. The technique is based on proposals by Saxton (1997) who, in his Contrast Theory of negative input, claimed that corrective speech input is most effective if it immediately follows (and is therefore contingent upon) the child’s own errors. Our studies concern very different domains, but ones in which children also make errors and may benefit from this technique. Design: Both studies used a pre- and post-test design. The intervention involved either Contrast or Non-Contingent modelling. Method: Study One identified 79 children (mean age 6.3) who were making consistent errors on a balance beam task. At post-test, these children were randomly assigned to two groups who either (a) watched the correct solution being modelled by an adult (the Non-Contingent Modelling group) or (b) saw the correct solution being modelled by an adult immediately after their own error (the Contrast Modelling group). Consistent with pre-test, these children were error-prone and impulsive on the balance beam task. The Intervention consisted of either Contrast or Non-Contingent Modelling. Design: Study One identified 79 children (mean age 6.1) learning to spell words on which they had made errors following administration of a pre-test. Sub-sequences of the list was the Contrast Modelling condition produced a significantly higher number of children who could spell the words. Results: Non-lexical errors decreased in the Non-Contingent Modelling group. Conclusions: This suggests that a common learning mechanism may operate across domains and the implications of these findings for general models of development are discussed.

A developmental evaluation of the Plaut, McClelland, Seidenberg and Rumelhart (1991) neural net model of single word reading

D POWELL, School of Psychology, Birbeck College, University of London

D PLAUT, Carnegie Mellon University and the Centre for the New Faculty, University of Rochester, New York

Method: The primary objective was to evaluate the Plaut, McClelland, Seidenberg and Rumelhart (1991) neural network model of single word reading. The model was evaluated at two points during training, against data from 23 children, at the first term (Time 1) and the second term (Time 2) of their reception year. Two main findings emerged: 1. At Time 1 the children read more words than non-words correctly, but at Time 2 the word advantage disappeared. The network, however, showed a word advantage at both Time 1 and Time 2. 2. Children made more lexical than non-lexical errors. The network produced the opposite pattern of performance. Two adaptations were made to the training of the network, to bring it closer to the learning environment of a child. An incremental training scheme was introduced and training on grapheme phoneme correspondences (GPCs). Design: All combinations of the two incremental training and training on GPCs improved generalisation (non-word reading), bringing performance closer to the children’s data. As the type of errors made by each network remained qualitatively different to the children’s.

Knowledge re-structuring during problem solving by analogy amongst 10 to 11-year-old children

S J PRESSLER & J WILLIAMSON, St. Martin's College, Carlisle

Objective: To investigate whether or not 10 to 11-year-old children would show evidence of re-structuring from a base to target analogy problem. It was predicted that more sophisticated and/or causal analogies would be given to a target (difficult) problem when preceded by an analogous base (easy) counterpart than when responded to alone. Overall, a mixed design was used whereby 202 10 to 11-year-old children either participated in the initial or main stage of the study, but one of the main stage groups involved a repeated measures design. The initial stage of the study established that ‘easy’ (n=29) and ‘difficult’ (n=29) problems, respectively, were disparate in terms of solutions and causal reasoning responses. During the main stage of the study the one group of children (n=120; control group) was exposed to the ‘Battleship’ and ‘Growth’ problem, while the other group (n=82; Contrast Modelling group) responded to the ‘difficult’ problem preceded by the analogous ‘easy’ counterpart with solution and causal reasoning responses. The type of errors made by each network remained qualitatively different to the children’s.

The British Psychological Society

2002 Proceedings
Stimulation (HAS).

Stimulation (HSS) and Hemisphere Alluding differentiated intervention: Hemisphere Specific two sub-types of dyslexia result: the P-type hemisphere (usually specialist for language). If right hemisphere (specialist for visual spatial reading of dyslexic pupils. According to the This study aimed to evaluate the Manchester Metropolitan University J ROBERTSON, Institute of Education, approach.


Objectives: This study aimed to evaluate the impact of neuropsychological intervention on the reading of dyslexic pupils. According to the Balance Model, early reading is mediated by the right hemisphere (specialist for visual spatial function) and advanced reading by the left hemisphere (usual specialist for language). If this inter-hemispheric process is interrupted, two sub-types of dyslexia result: the P-type (perceptual who is arrested at the visual perceptual stage) and the L-type (linguistic who has initially crossed the stage and is now at the visual perceptual stage). This study investigated two types of differentiated intervention: Hemispheric Specific Stimulation (HSS) and Hemisphere Alluding Stimulation (HAS). Design: Two studies were carried out on statemented pupils. One study adhered to the stated theoretical position (HSS) and the other adhered to the HAS approach. Results: ANOVA showed an improvement in performance from pre- to post-classical analogies and transfer of analogical reasoning to novel cross-domain analogies. However, planned comparisons showed children were better able to extract and transfer procedural knowledge from causal analogies to abstract analogies than they were from abstract to causal. Conclusions: Analyses and interpretation of findings are in progress, and will be considered in terms of relevant theory.

Lexical contrast and early word learning G SCHAFER, Dept of Psychology, University of Reading

We present data and reanalysis of earlier experiments to argue against the notion of linguistic, domain-specific mechanisms in word learning in the second year of life. When confronted with a pair of referents, one of which is name-known and one name-unknown, children name one novel category, as predicted by the so-called 'Developmental Lexical Principles Framework'. In the second year, within-subjects experiments with children aged 16 months were presented with pairs of images, and instructed to look at one of them. The lexical status (known, or unknown) of each image was ascertained from a parent report. If caregivers had reported a word to be 'known' to the infant, infants looked at its referent when instructed to do so. Importantly, infants' responses showed no evidence of use of the contrastive principle: In situations where infants were reported not to know the name of the target, but to know the name of the distractor, infants looked reliably at the distracte image. This is the opposite direction to that predicted by the principle of contrast. Results are discussed with respect to these theories and to other recent similar findings. It is suggested that one influential account of contrastive responding by infants involved infants' preferential selection of name-known referents. Possible mechanisms for this behaviour are discussed, and a domain general account of infants' responses in contrastive situations is tentatively proposed.

The development of executive control and theory of mind in three to five-year-old children K SHIMMON & C LEWIS, Dept of Psychology, University of Lancaster

This paper reports a longitudinal study employing a cohort-postdesign, which examined the development of executive control and mentalising in a young, cross-sectional population over the course of one year. A total of 115 children aged between 36 and 56 months were presented with a battery of four executive tests, a measure of language (BPVS) and three false-belief tasks. The executive tasks aimed to modify different components of executive function (working memory, inhibitory control, and inhibition control), in a way that substantially reduced at least one executive requirement. Each executive task (the Tower of London; six boxes scrambled; Simon and Stroop 'day-night') was presented in two formats. The Tower of London, for example, compared trials in which there was no target (a subgoal move with a high degree of inhibitory control), and trials with the same number of moves but no subgoals. Children will have been tested at three time points, the first of testing having been completed in June 2000. Much of the paper is dedicated to discussing statistical analyses (path analysis using EQS) which attempt to tease apart the age of acquisition of, and causal relationships between, the range of 'executive' and theory of mind skills around the child's fourth birthday.

An evaluation of the effectiveness of summer school and extra year support for children with literacy difficulties C SMITH & H WHITLEY, Dept of Psychology, University of Central Lancashire

Objectives: The transition from primary to secondary school has become a focus for attention, particularly concerning the effects of transition shown by many children, especially boys. Schools run literacy summer schools for children who have not attained the desired SATS level and may benefit. This study aimed to evaluate summer school for four main purposes: (1) to investigate the effectiveness of summer school in terms of pupil achievement, and (2) to examine the impact of summer school on pupils' reading and writing ability. The data were analysed using exploratory analyses and analysis of variance. The results showed that both groups were above average for reading ability. The summer school group maintained their advantage in phonological awareness over the NER group. Conclusions: The impact of summer school on the reading and writing ability of the summer school group remain strong after children have achieved fluent word reading skills. It is possible that precocious reading ability results in part from high levels of phonological awareness.

Handwriting policy and practice in primary schools R STAINTHORP, S HENDERSON, A BARNET & B SCHEIB, Institute of Education, University of London

This research was supported by a grant from the Nuffield Foundation.

Objectives: To investigate the approach to teaching handwriting in primary schools. At a time when there is concern about writing standards there is only limited knowledge about how the transcription skills are being taught. This research was designed to begin to document pedagogic practices in the early years of the introduction of the National Literacy Strategy. Design: Structure of the study with selected practices in the teaching of handwriting Methods: A questionnaire was sent to approximately 160 primary schools in SE England investigating handwriting practices in the teaching of handwriting:

Results: There was only a 25% response rate. However, this poor return was not overwhelming calls upon teachers’ time at the present moment with the introduction of both the
interest (Business) to enthusiastic usage of Power

Objective: The role of semantically general verbs in the acquisition of syntax. A THEAKSTON, Dept of Psychology, University of Manchester

Objective: Areas of language acquisition, researchers have suggested that semantic generality plays an important role in determining the acquisition of particular lexical forms. However, typically generality is confounded with the effects of input frequency such that the most general instances of a particular linguistic category are also the most frequently modelled forms in the linguistic input children receive. It is therefore unclear to what extent semantic generality and input frequency determine the early acquisition of particular lexical items. This present study attempts to evaluate the relative influence of semantic status and properties of the input on the acquisition of verbs and their argument structures. Design and methods: To evaluate the relative influence of semantic general verbs and their structures, the distribution of input on early verb acquisition, the verb utterances of 10 English-speaking children at Stage 1 (MLU 1.00-1.99) are examined with respect to (I) the order of acquisition of particular verbs, (2) the syntactic diversity of use of individual verbs, (3) the relative proportional use of semantically general verbs as a function of total verb use, and (4) their grammatical accuracy. Results and conclusions: The data suggest that although semantic measures may correlate with various measures of early verb use, once the effects of verb use in the input are removed, semantic generality is not a significant predictor of which verbs are acquired in early life. The implications of these results for semantic-based theories of verb argument structure acquisition will be discussed.

Social play in group care

C URE & H HUNT, Faculty of Education, University of Melbourne, Australia

Objectives: Young children's play has been studied to examine whether a relationship exists between grouping practices employed in long-term and short-term care and social play. It was hypothesised that social play would show advanced development in the multi-age group settings. The research employed a comparative study of children's dramatic play in two long-care day centres using a naturalistic video-recorded sampling procedure. The play of children in two centres, implementing different grouping strategies based on the commitment of staff to single-age and multi-age grouping practices. Method: The two centres selected for study were matched for socioeconomic background, parent and family involvement, commitment of staff to single-age and multi-age grouping practices. Results: The centres were identical in their physical layout and were purpose-built centres serving children aged three to five years. A behaviour was video-recorded in a prepared play corner for half an hour each day over a five-week period and coded using a novel instrument. Results: Video interactions encoded as social and communicative were recorded, on up to four occasions over a six-month period, and verbal and non-verbal interactions were recorded, the latter using a novel, audio-tape technique. Results: Conversation analysis strategies were applied to both verbal and non-verbal data. The study, who investigated the differences in what is assessed as dyslexia in HE noted that 43 per cent of students classed as dyslexic in HE were assessed as such only after entry to HE, i.e. at school they were not assessed and statemented as dyslexic. This northern city study compares procedures in two universities and four FE colleges with those in the city schools. It involves interviews with students and staff and study of documents including psychological reports. Results: There are important major differences between child and adult SN education, outlined at an earlier conference of the Education Section, including differences in terminology, assessment procedures and support arrangements. From each of these groups of differences, there are reasons why students who are not assessed as dyslexic at school, are assessed as such in HE. Assessment of dyslexia: The influence of different contexts

P SUTHERLAND, Institute of Education, University of London

Objectives: The nurture group movement, outlined at an earlier conference of the Education Section, including psychological reports. Methods: There are important major differences between child and adult SN education, outlined at an earlier conference of the Education Section, including differences in terminology, assessment procedures and support arrangements. From each of these groups of differences, there are reasons why students who are not assessed as dyslexic at school, are assessed as such in HE. Assessment of dyslexia: The influence of different contexts

D WHITEBREAD, Homerton College, Cambridge University Faculty of Education, University of Cambridge

Objectives: In recent years an increasing number of dyslexic students have been identified in HE institutions and increasing numbers of support staff trained to work with dyslexic students. Conclusions: The study suggests the grouping strategies used in childcare settings influence the social play characteristics of the children, and preliminary data suggests these differences are associated with differences in the role of the teacher in the children's play. Communication interactions between grouped five to six-year-olds in the primary classroom.

K R WALL, Institute of Education, University of London

Objectives: The role of semantics in the primary classroom is increasingly attracting research interest. The aim of this study was to explore how such groups work communicatively and the significance of these interactions, both verbal and non-verbal. Design: A mixed methods, quasi-experimental study involving 10 five-year-olds from six classrooms located in four inner city primary schools were allocated into one of two categories. A third category involved teacher-led groups, whilst a second category, the control groups, worked on their own. In each class, five groups of five children were identified (n=72 pupils) and observed on up to four occasions over a six-month period, verbal and non-verbal interactions were recorded, the latter using a novel, audio-tape technique. Results: Conversation analysis strategies were applied to both verbal and non-verbal data. The study investigated the differences in what is assessed as dyslexia in HE noted that 43 per cent of students classed as dyslexic in HE were assessed as such only after entry to HE, i.e. at school they were not assessed and statemented as dyslexic. This northern city study compares procedures in two universities and four FE colleges with those in the city schools. It involves interviews with students and staff and study of documents including psychological reports. Results: There are important major differences between child and adult SN education, outlined at an earlier conference of the Education Section, including differences in terminology, assessment procedures and support arrangements. From each of these groups of differences, there are reasons why students who are not assessed as dyslexic at school, are assessed as such in HE. Assessment of dyslexia: The influence of different contexts

P SUTHERLAND, Institute of Education, University of London

Objectives: The nurture group movement, outlined at an earlier conference of the Education Section, including psychological reports. Methods: There are important major differences between child and adult SN education, outlined at an earlier conference of the Education Section, including differences in terminology, assessment procedures and support arrangements. From each of these groups of differences, there are reasons why students who are not assessed as dyslexic at school, are assessed as such in HE. Assessment of dyslexia: The influence of different contexts

D WHITEBREAD, Homerton College, Cambridge University Faculty of Education, University of Cambridge

Objectives: In recent years an increasing number of dyslexic students have been identified in HE institutions and increasing numbers of support staff trained to work with dyslexic students. Conclusions: The study suggests the grouping strategies used in childcare settings influence the social play characteristics of the children, and preliminary data suggests these differences are associated with differences in the role of the teacher in the children's play. Communication interactions between grouped five to six-year-olds in the primary classroom.

K R WALL, Institute of Education, University of London

Objectives: The role of semantics in the primary classroom is increasingly attracting research interest. The aim of this study was to explore how
Understanding children who fail to benefit from literacy intervention in Year 1

H WHITELEY, C D SMITH, M GODWIN & S OAKLEY, Dept of Psychology, University of Central Lancashire

Objectives: Phonologically-based literacy interventions are successful in teaching young children to read, but not all children identify as being at risk of literacy difficulties.

Methods: 90 children at risk of reading difficulties and 90 control children were identified and assessed. This paper reports a project which identifies the characteristics differentiating beneficiaries from non-beneficiaries.

Results: Beneficiaries, non-beneficiaries and the control children are presented which include information about language, writing, phonological processing, motor skills, self-esteem, family literacy behaviours and academic functioning. Within that, some initial evidence is presented that indicates phonological awareness as the most important influencing factor warranting fuller investigation.

Conclusions: Data are discussed in terms of profiles likely to identify at-risk children. The study is also beginning to provide a set of clear characteristics that distinguish at-risk children from other forms of provision. The theoretical and pedagogical implications of evidence from the study are discussed.

School's out: a discursive analysis of parents' talk about home education

S WYATT, Dept of Psychology, University College Worcester

This paper studies the speech of a group of parents who are educating their children at home. It looks at the cultural resources speakers draw upon to construct their accounts of home education challenges many of the basic assumptions of the present conventional schooling system. Parents, five mothers and one father, were interviewed in their homes and analysis of the transcripts identified two main discourses about education. Education as learning was constructed as growth, process and natural and at times each was dominant in parents accounts. Other discourses were constructed as both 'private' and 'public'. The data collected through four separate semi-structured interviews and the study uses the form of discourse analysis developed by Potter and Wetherell where focus is placed on the negotiations and renegotiations that occur within the discourse itself. It identifies content and meaning as they are generated in interaction and looks at how parents spoke of school as a battleground and home as a sanctuary. Fathers in these families were constructed as both 'private' and 'public'. The children have also been assessed making probability judgements.

Poster:

1. Do children with autism have superior understanding of physical phenomena?
L M Binnie & M Williams, Faculty of Education, University of Edinburgh

Objective: The two linked experiments reported in this paper investigate the differentiating understanding of intuitive psychology and intuitive physics reported in children with autism. Baron-Cohen et al. (2000) showed that understanding of folk psychology is impaired in individuals with Asperger's Syndrome whereas their folk physics is superior to that of a control group of typically developing children.

Methods: 57 children (28 boys, 29 girls) aged 4 years 6 months to 7 years 10 months (mean: 6 years 6 months) were randomly divided into three equal groups, the first on the 'high salience' condition, the second on the 'low salience' condition. The children were introduced to a character who knew nothing about birds but who nevertheless having having his arms or eyes down. In the 'high salience' condition, children were told that 'birds wave their wings up and down like that'. This behavioural comparison was not made in the 'low salience' condition. The children's understanding of the character's ignorance about birds was checked and they were asked whether they thought he was pretending or believing. These findings were unexpected: significantly more children correctly responded that the character was pretending in the 'high salience' condition than did so in the 'low salience' condition.

Conclusions: The findings support previous evidence suggesting that children have a limited understanding of the role of knowledge in pretense. Moreover, these findings further suggest that verbally marked behavioural salience is an important influencing factor warranting fuller investigation.

3. Children's use of the availability heuristic when judging probability

A J BOURCHIER, Dept of Human Sciences, Brunel University & ADavis Psychology Dept, Brunel University

Objective: Through the use of the availability heuristic, adults' probability judgements are systematically influenced by how easily examples of what is to be judged can be brought to mind, namely, their cognitive availability. The aim of this study was to establish whether children also use a availability heuristic when judging probability.

Methods: 61 children (33 boys, 28 girls) aged 7–10 years (mean: 8 years 7 months) were asked to assess the probability of a series of events (e.g. you will do maths at school, it will be cloudy) on a seven-point scale. The probability scale ranged from 'definitely will happen' to 'definitely will not happen'. Consequently, children were asked to provide an example of when each event had happened. The time taken to provide each example was recorded.

Results: The findings showed that even though children were not able to use the probability scale appropriately. Moreover, as is predicted by the availability heuristic, children judge the probability of the event tended to be shorter for events judged to be likely, than for events judged to be unlikely. Conclusions: These results suggest that there is a availability heuristic when judging probability (low of bringing an event to mind) and children's probability judgements. Therefore, there seems to be an important ongoing consideration between children and adults in their use of the availability heuristics when making probability judgements.
4. Factors supporting young infants’ perception of trajectory continuity

G BREMNER, Dept of Psychology, University of Lancaster, S P JOHNSON, University of Cornell, A SLATER, Dept of Psychology, University of Exeter, U MASON, Dept of Psychology, University of Lancaster & K K FOSTER, Dept of Psychology, University of Lancaster

Trajectory continuity concerns recognition that objects move on continuous paths when temporarily occluded. Some claim a cognitive basis for this ability, but it has been suggested that existing data are consistent with the idea that it depends on lower order perceptual factors. Here we use an habituation-novelty method to explore possible perceptual bases of trajectory continuity. In work reported elsewhere, four-month-olds habituated to a ball moving behind an occluder, such that part of the ball’s trajectory was occluded. They then saw test displays in which the ball was removed and the ball was shown on a complete or a discontinuous trajectory. When a wide occluder was used, infants appeared to perceive the habituation display as discontinuous, looking longer at the continuous test. However, this preference pattern reversed with a narrow occluder, so that trajectories containing continuity were perceived when spatiotemporal demands are reduced. To clarify the screen width effect, we tested infants using a range of occluder widths intermediate between those used initially. Added to the earlier findings, the results show a clear relationship between occluder width and perception of trajectory continuity. These findings are consistent with either time or distance out of sight as the crucial variable. Thus we manipulated time and distance of screen occlusion, as well as having the ball accelerate or decelerate while behind the occluder. The results indicate that a short time out of sight or a short distance out of sight is not sufficient to support perception of trajectory continuity. It appears that young infants’ perception of object continuity is closely tied to spatiotemporal continuity and the proposal that such abilities have a perceptual rather than a cognitive basis.

5. Spontaneous use of counting as a strategy by four to five-year-olds: The effect of adult prompting and feedback

K CAPELIN & M FLUCK, Dept of Psychology, University of Portsmouth

Objectives: Previous research indicates that children understand the relationship between counting and cardinality until around their fourth birthday, inspire of having achieved a procedural mastery of object counting many months earlier. They do not spontaneously employ counting in situations where it would be the most appropriate strategy. This study investigates whether and how five-year-olds’ spontaneous use of counting in cardinal equivalence tasks, and the effects on this of (a) age and (b) adult prompting and feedback. Method: 51 children were asked to place the same amount of toy cookies onto a plate as there was on another plate. They were also asked to judge whether two rows of toy jam tarts contained the same amount. Results: Suggestions to count were made as half (n=15) of those who did not use counting in the first task, and feedback about the effects of counting was given afterwards. Results: Contrary to previous research, when asked to produce a set equal to a given set 21 out of 51 children spontaneously counted or sorted the objects and had a substantial time advantage and contained the same amount 27 out of 48 counted. No significant differences were found between counters and non-counters for these tasks, although the latter were better at the task of reducing the length cue, but their confidence in counting as an optimal strategy was lacking.

6. Using clapping as a tool for enhancing spelling: What help is an acoustic cue?

J COOK & B FLETNER, University of Coventry, School of Health and Social Sciences, Psychology Subject Group

The primary objective was to ascertain if clapping hidden letters or irregular letter sound (LS) analogies in opaque spellings enhances children’s spelling of these word types. Clapping corresponded with articulatory recoding of visually presented material which, although it allows children to elaborate on their acquired information before entry to long term memory. The multifactorial design had factors of gender, age, group, control, a clapping group and a completion of sentences group. Within subjects factors were word-type (regular words, opaque, and Tion-family words) and time (baseline, after intervention, and spelling scores one week later). Forty-one children were involved, aged between 7.2–8.2 years old (42.80–12.70). Tests for five spellings of each word-type were administered before and after intervention, or no intervention as appropriate, and again one week later. There were 35–55 five-to six-yearolds. ANOVA, with factors of gender, RA, experimental group, word-type and time. The results showed that children taught by the intervention were found to be the most successful method for encoding spellings for accurate retrieval. Clapping was successful as a short-term memory task, probably due to the auditory nature of the intervention. Other elaborate coding (analog or semantic recoding) was found to assist entry to long-term memory.

7. On-line inferences during children’s reading of narrative and expository texts

C CRANE & M SNOWLING, Dept of Psychology, University of York

Objectives: To investigate whether text format influences inferential processing. Design: A passage reading and sentence judgement task was used to assess: (i) whether children responded faster to a sentence stating an idea that had previously been used to form a causal link than to a sentence stating a simple elaboration; and (ii) whether response times differed as a function of text format. Methods: 22 children were selected as average readers using the Suffolk Reading Test. Each child was asked to read a list of 32 passages. Each passage was six sentences long and the fourth and fifth sentence required a causal bridging inference to link them together. Each passage was written – a narrative and an expository version – and these versions were matched for content. Each list contained only one version of each passage and contained 16 narrative and 16 expository passages. Following each passage, two test sentences were presented which children had to judge as true or false. The test sentences stated either the mediating idea needed to make the causal bridging inference, or a possible elaboration from the text. Results: Children responded faster to causal link sentences than to elaborate inference sentences in the sentence judgement task. This pattern was consistent irrespective of text format. Conclusion: Text format had no effect on children’s ability to generate inferences. Children generated causal inferences equally well in narrative and expository text. Elaborative inferences were not drawn in either narrative or expository text.

8. Episodic memory in autistic spectrum disorders

S CRISPIN, J JOCHER & T MCCORMACK, Dept of Psychology, University of Warwick

Objectives: The aim was to assess the hypothesis that children with Autism Spectrum Disorders (ASDs) are impaired on tasks of episodic memory. Further, the aim was to distinguish between recall of self-performed versus other-performed tasks. Design and methods: Recognition, and recall of local tasks were used to assess episodic memory. Self-performed versus other-performed tasks were compared with the use of both the Auditory and Visual Form Recall free recall. A group of 16 high-functioning children with ASDs was compared to a group of typically developing children matched for age and verbal–mental age. Provisional results: Provisional results support: (a) the hypothesis that children with ASDs are impaired on tasks designed to assess episodic memory; and (b) the prediction that children with ASDs do not benefit from the self-performed experience in a task of free recall. Further research: Children with ASDs are impaired on tasks of episodic memory. This may be linked to a fundamental impairment of autonoetic awareness and other perceptions of self.

9. Movement, attention and reading ability in primary school children

S CRUDDACE, P RIDDELL & J WANN, Dept of Psychology, University of Reading

Objectives: This study addresses the problem of movement, attention and spelling by investigating Attention Deficit Disorders with reading and/or movement difficulties often fail to distinguish between Attention Deficit Hyperactivity Disorder (ADHD) and the less frequently diagnosed Attention Deficit Disorder (ADD). This is despite evidence that those with ADD are associated with qualitatively different forms of attention. The hypothesis is that reading difficulty is more likely to be associated with impairments in selective attention (ADD) whereas movement difficulty will be associated with sustained attention and/or response inhibition (ADHD). Children with combination of movement and/or reading difficulties should show multiple attention deficits. Design and method: A year group of 9-10 year olds (n=70) are screened for general cognitive abilities. Those children with movement difficulties (n=25) are identified by their reading difficulties (n=25), together with a control group matched on cognitive ability, age and gender, are then assessed on selective and sustained attention and response inhibition using standardised tests taken from Test for Everyday Attention for Children (TEA-Ch). Conclusions: The results indicated that most children showing reading difficulty also have movement difficulties, although many have movement difficulties without reading difficulty. After completion of the TEA-ch tests in June 2001 it is proposed to develop more specific tests of each of these by designing a ‘specific real world’ test of attention. Conclusion: This research indicates whether or not children with problems in reading and/or movement also show underlying problems with different forms of attention and the pattern of deficits may inform the search for causal mechanisms in disorders of movement, attention and reading difficulty.

10. Friends and siblings: Young children’s close relationships with other children

A L CUTTING, Dept of Psychology, University of Reading & J DUNN, Institute of Psychiatry, King’s College London

Objectives: Children early relationships with their siblings and close friends are examined in a largescale multimodal study of 128 four-year-old children, of whom 83 had a sibling age between two and 12 years. The children were from a wide range of family backgrounds. Children were interviewed about the permissibility of a series of moral transgressions between children and their close friends and siblings. They were also recorded as they played with a close friend, and (separately) with their sibling. Teachers and mothers rated the quality of the friendship and sibling relationship respectively. Measures were also derived of family systems which assess the family’s social cognition, behavioural adjustment and temperament. Differences in children’s 

The British Psychological Society
2002 Proceedings
27
relationships with friends and siblings are examined, particularly with respect to individual differences in family background, sociocognitive and emotional competencies. Early findings suggest that there are distinct differences in children’s behaviour with their friends versus their siblings, although views about the permissibility of moral reasoning across friendships vary. Children’s behaviour towards their friends and siblings are expected to relate to individual differences in social cognition and temperament.


Objectives: Children’s use of morphological connections in spelling and the context sentences about the spelling of the target word (e.g. ‘rejection’). Scores in the Two-morpheme condition (e.g. ‘connection’) were compared to scores in the One-morpheme cue (e.g. ‘connection’). Conclusions: The two-morpheme condition controlled for the orthographic and phonological similarities between morphologically-related words. The No-cue condition provided a base measure of spelling of the target words. Results: Correct spelling of stems and morphemes were analysed separately with Repeated-Measures ANOVAs with the factors of Year and Morpheme Type, and Year (F (6, 240) = 240.0, p < .05). While there was no significant effect of Cue. For the endings, there was a significant difference between the two conditions (F (6, 240) = 240.0, p < .05). Overall, derivation scores were higher in the Two-morpheme condition for all children, this effect only reached significance for Year 3. For the inflections, there was no significant effect of Cue. Conclusions: Results suggest that Year 3 children use morpheme specific spellings in their spelling of derivations. Further studies are currently exploring Year and Morpheme Type differences.

12. The role of toy play in early mapping and geographical understanding K DESMOND, M BLADES & C SPENCER, Dept of Psychology, University of Sheffield

Children’s geographical awareness was tested through the medium of toy play to establish at what age children are capable of creating a model town or city comparable to that of an adult. Four different age groups: three to four years, five years, six years and adults, were asked to create a town or city landscape from a set of toy houses, roads, trees and cars. Play was recorded on film and the resulting landscapes marked using a coding system for the structural elements. The findings indicate that there were considerable differences between the landscapes produced by the three- and four-year-olds and by the adults because pre-school children were more group-similar elements but the adults created realistic landscapes. The landscapes produced by the six-year-olds were comparable to those created by the adults. The five-year-olds performed in a similar manner to the three- and four-year-olds. These findings suggest that children of six years of age are capable of recognising the new perspective of the world and creating a realistic, physical representation of a town or city, with a set of toys, which is of a similar standard to that produced by adults. These results may have implications for geography education at both nursery level and key stage one.

13. Language, social cognition and social competence in seven to 11-year-olds M FARMER, Dept of Psychology, University of Northumbria at Newcastle

Objectives: To investigate the relationships between language and social competence in newly developing children aged 7–9 years and older children with pragmatic language difficulties (n=12). Methods: Social cognition was assessed using second order theory of mind assessments and rule application games; language development was assessed using measures of comprehension, expression and figurative language; the understanding and use of verbs, prepositional phrases and social interaction were assessed using new measures of comprehension and story recall; socio-emotional development was also assessed as children were assessed using user ratings. Results: The results were analysed using ANOVAs and linear regression. Conclusions: The results of Study 1 (with normally developing children) show: (1) aspects of language development act as significant predictors of social cognition; (2) Social cognition does not predict language ability; (3) Many aspects of social competence as rated by the children’s teachers are predicted by language ability; (4) The acquisition of comprehension of abstract verbs depicting mental and social events is more difficult than the comprehension of concrete verbs; and (5) The recall and recognition of concrete and mental events was easier than the narration of social events for the children in this sample. The results of Study 2 (with children with developmental language difficulties) show a relationship between social cognition, social competence and some aspects of language.


Objectives: Do hard-to-manage pre-schoolers have socio-cognitive problems at age eight? What is the relationship between theory of mind and ability measures in this age group? Design: Participants were part of a longitudinal study of hard-to-manage children at age four. We then assessed their theory of mind and ability measures at age eight. To investigate their socio-cognitive performance, we compared their performance with measures of social cognition, including a delay in passing theory of mind tasks. Results: We found no significant difference between the two conditions (F (6, 240) = 240.0, p < .05). However, the lability of performance and educational test-like software rather than game formats in the classroom may explain the results. Conclusions: Increasing computer usage, a possible lessening of gender stereotyping and the advantage of using educational test-like software rather than game formats in the classroom may explain the results. However, the inability of performance to support the hypothesis that girls were more accurate, whereas boys were more accurate, in the co-action condition compared with the alone condition.

15. Alcohol use among adolescent siblings: Familial interrelations and effects D GOSSRAU & J WILLIAMS, Dept of Education, University of Edinburgh

Objectives: To investigate the impacts of extra-familial influences on alcohol use among adolescent siblings. It examines how adolescent substance use is related to differential experiences with parents and siblings. Furthermore, it looks at interactions between the demographic variables such as gender composition of sibling pairs and other familial influences. Design: Two-parent families within an urban area in Scotland are investigated in a cross-sectional study. During home visits, each family member completes a standardised questionnaire in private. A multiple informant approach is chosen in order to tap into the importance of perceptions of others’ behaviour. Method: Only intact families with at least two children, a younger child aged 11–14 and an older one aged 15–19 are included in the present analysis. Families are recruited through schools, snowballing and media. The sample consists of 60 two-parent families (120 mothers and fathers, 120 adolescents). A balance of the four sibling gender composition groups is attempted. Data are collected in two-parent (co-action) and single-parent (alone) conditions. Parental and adolescent alcohol use, attitudes towards adolescent drinking and specific norms for children set by parents. Results: Child and adolescent alcohol use are expected to relate to individual differences in prevention programmes as American research suggests. Further analyses examine whether family processes differ depending on the gender composition of sibling pairs. Conclusions: Results reveal the importance of considering the context of parents and siblings in the use of alcohol among adolescents.

16. Peer presence and social facilitation: Girls, boys and classroom computer tasks M A HARDMAN & H S PEACOCK, Dept of Psychology, Bolton Institute

Objectives: Previous research suggests girls may be disadvantaged when working in mixed gender classes on computer-based tasks, regardless of whether they are actually working with boys or girls. Explanations have tended to highlight issues such as stereotyping, self-confidence, self-perception and social comparison. The aim of this research was to compare performance on a computer-based mathematics task undertaken individually as part of a normal class activity and completely alone. Methods: 31 10- to 11-year-old children (18 girls, 13 boys) completed the task individually alongside peers working alone (co-action condition) and individually whilst in a room with no other children (alone condition). All children also completed a questionnaire regarding access to computers and feelings about working in classes with peers. Results: Our results were consistent with expectations, between-group comparisons indicated that girls were more accurate than boys in both conditions. However, boys also took less time to complete the task in the co-action condition, but more time in the alone condition. Conclusions: Increasing computer usage, a possible lessening of gender stereotyping and the advantage of using educational test-like software rather than game formats in the classroom may explain the results. However, the inability of performance to support the hypothesis that girls were more accurate, whereas boys were more accurate, in the co-action condition compared with the alone condition.

17. Children’s perceptions of play, work and learning: implications for the exploitation of play as a learning medium J HOWARD, Dept of Psychology, University College Worcester

Although there is wealth of research surrounding play, both in terms of its definition and development, there is relatively little research based on adult perceptions of the early years. An ecopsychometric review of the literature reveals a lack of research that identifies the potential of play for education and development from the child’s perspective. This absence is particularly curious,
given the recent increased emphasis on anti-reductionist, ecosystemic or global approaches to research, which highlight the importance of considering development holistically. If we support these paradigms, and seek to fully understand learning and development, then a consideration of the child’s perspective is necessary. This study is concerned with the way in which children categorise classroom activities. Perceptions of play, work and learning were elicited from 111 children aged three to six years using the Activity Perception Story Procedure (AASP). This game-like ‘posting’ procedure involves presenting children with photographs of classroom activities, which they sort into those perceived as play, work, learning and not learning. Analysis revealed that children’s perceptions vary from the traditional theoretical definitions. Children’s perceptions are linked to early classroom experiences. Widespread assumptions about developmentally appropriate practice and the defining characteristics used by children are discussed with particular reference to developmental appropriateness. The importance of considering the child’s perspective for the exploitation of play as a medium for learning is emphasised, as is the usefulness of actively engaging children in research.

18. Self-esteem and locus of control in children with language difficulties, attending mainstream or special schools: Teachers’ evaluations match or mismatch?

E KATSAPI, Institute of Education, University of London

Objectives: The present study tested the self-esteem and the locus of control of children with language difficulties attending mainstream or special schools. The child’s perspective and teachers’ evaluations were considered. The aims of this study were to explore children’s perceptions of self-esteem and locus of control in relation to their school status.

Results: The descriptive statistics and the non-parametric Mann-Whitney U test were used to analyze the data and test the hypotheses. The findings showed no gender differences on the self-esteem and locus of control scales. Among children with language difficulties attending the mainstream schools and those attending the special school; and secondly whether the teachers’ and child’s evaluations match with their designs.

Conclusion: An indication was found that teachers’ evaluations were mismatched. Methods: A total of 33 children (21 boys and 12 girls) with their teachers participated in the experiment. Of these children 18 were attending mainstream schools and 15 were in a special school. Self-esteem and locus of control in children was assessed through the Bri-Steed Scale and teachers were assessed through a questionnaire designed by the researcher.

Results: The descriptive statistics and the non-parametric Mann-Whitney U test were used to analyze the data and test the hypotheses. The findings showed no gender differences on self-esteem and locus of control scales. Among children with language difficulties attending the mainstream schools and those attending the special school. Additionally, no differences were found on the self-esteem and locus of control levels between mainstream school pupils and special school pupils. However, teachers’ evaluations about their pupils’ self-esteem did not seem to match with the pupils’ perceptions of themselves. More precisely, teachers tended to slightly underestimate their pupils’ self-esteem.

Conclusion: The results have obvious implications for primary education and pedagogy.

19. Conditions for interpretation and construction of co-ordinate reference systems by young children

W LIDSTEDT & G BREMNER, Dept of Psychology, Fylde College, Lancaster University

Recent work indicates that young children are capable of using Euclidian co-ordinate reference systems. It is less known whether children’s ability to construct spatial cues to indicate the location of an object. The current set of studies investigates the ability of children aged three to four years to locate a hidden object by co-ordinating information provided by markers in orthographic representation Task, and a correctly positioned orthogonally oriented markers to indicate the location of a hidden object (Construction Task). Three-year-olds’ performance was superior on the Construction Task, with most children performing significantly above chance. Performance on the Interpretation Task improved when followed by the Construction Task, indicating a positive transfer between tasks. The second study investigated the relationship between self-esteem and task performance. In the third study, the Construction Task performance was superior on the 2D task than the 3D version. Overall performance was again superior on the Interpretation Task, with little difference in performance between 3D and 2D versions. The final study showed that children who received perceptual support in the pre-test interview performed better than the control group, and that this advantage was still present three months later.

Superior performance on the apparently more complex Construction Task was surprising. However, it is possible that the child’s engagement in the activity of construction may have made the task particularly novel and enhancing the performance in the process. These findings have important implications for the current thinking in the field of spatial cognitive development and regarding the age at which and in which manner in which children are introduced to problems involving use of dimensional co-ordination.

20. Reeling in the ‘net’: children’s use of symbols to navigate the worldwide web

J MACKAY, Dept of Psychology, University of Reading

A recent boom in internet-related research has addressed various issues, particularly its use as a resource for information and learning. However, no research to date has examined navigational performance around the internet. As use of the internet becomes ever more important in the home, in the workplace and increasingly in the school environment, this poster reports two studies which looked at navigational performance around three web sites by 15 normally developing children (Study 1) and 15 children with learning difficulties (Study 2). The mean age for both groups was 12.2 years. A PC running Microsoft Internet Explorer 4.04 displayed each site together with a multi-media demonstrator site for the children to use.

Each participant was asked to follow the instructions and navigate around each site as quickly as possible. Each web site used a different form of navigational affordance (pictures, letters or words) and incorporated a timing mechanism to measure the performance. The results were examined using analysis of variance. During the browsing children found the letter site significantly easier to navigate than the word and picture sites; the picture site was the least easy to use. The letter site was also significantly easier than the other two, for children with learning disorders, but this group found the word site most difficult to navigate. This was further supported by the demonstration site of the multi-media affordance. The children who are able to reason by analogy are much better than those who cannot reason by analogy. The spatial relations shown in a representation must be maintained across feature space. Children appear to use the referent space, in a manner that corresponds to Gentner’s Structure Mapping. A correlation design was used to explore the relationship between navigational ability and map reading ability. Age and sex were also considered in secondary comparative analyses. 40- to 56-year-old children and 8- to 10-year-old children in a primary school took part. A picture sequencing task using classical analogies based on causal relations was used. This task was preceded by a classical analogies task to ensure that even the youngest children could adapt the strategy. The task was administered individually to each child. The children were asked if and how they used the map to follow the route in order to test map reading ability. The sequence of the experiments indicated that there is a significant link between navigational reasoning ability and map use. The presence of girls was stronger for both age groups, and stronger for boys than girls in both age groups. The findings have consequences for the age and manner in which children are required to carry out map work, and for the use of instructional analogies in teaching and learning.

23. The development of measurement between four and 11 years: Units of length

J NOCK & B PLESTER, University of Coventry School of Health and Social Sciences, Psychology Subject Group

The present study aimed to demonstrate that children who are able to reason by analogy are more likely to be able to interpret map material than those who cannot reason by analogy. The spatial relations shown in a representation must be maintained across feature space. Children appear to use the referent space, in a manner that corresponds to Gentner’s Structure Mapping. A correlation design was used to explore the relationship between navigational ability and map reading ability. Age and sex were also considered in secondary comparative analyses. 40- to 56-year-old children and 8- to 10-year-old children in a primary school took part. A picture sequencing task using classical analogies based on causal relations was used. This task was preceded by a classical analogies task to ensure that even the youngest children could adapt the strategy. The task was administered individually to each child. The children were asked if and how they used the map to follow the route in order to test map reading ability. The sequence of the experiments indicated that there is a significant link between navigational reasoning ability and map use. The presence of girls was stronger for both age groups, and stronger for boys than girls in both age groups. The findings have consequences for the age and manner in which children are required to carry out map work, and for the use of instructional analogies in teaching and learning.
24. Children’s understandings of stereotypes
J ROSS & M BLADES, Dept of Psychology, University of Sheffield
Previous research indicates that children can discriminate between good and bad secrets from as early as six years old. In the present study, more than 130 children aged five to ten years old were presented with stories about good and bad secrets. They were then asked to whether they should be disclosed and the consequences of such disclosures. A significant amount of the children were unable to distinguish good school secrets from bad school secrets. These data have now been collated through questionnaires and interviews across 30 schools in various regions, for a preliminary report, the results of which are currently being refined. In April/May, informal visits to selected schools and their pupils will be made, and the findings will be presented to interested parties.

25. School type, sex, confidence and stereotypes: Effects on mathematical achievement
A SARKAR & B PLESTER, University of Sheffield
The aim of the study was to investigate the effects of school type and type of school on mathematical achievement, in particular, gender differences. Single-sex schools scored higher on tests of gender differences towards maths and other school subject stereotypes and 11-plus maths and English results. This research examined the view that males perform better in mathematics. A multistage design was used, with between group factors of age, gender and school type: single-sex boys, single-sex girls, mixed secondary schools, all with selective admission; and sex of child. Eleven- plus maths and English results and confidence in mathematics, gender attitudes towards maths and other school subject stereotypes were also measured. The results of a mathematics test were compared with scores for children of a mathematics test. The children were 11 or 12 years old and were from the top mathematics sets. Two-way ANOVA found no significant differences between the groups. Gender played an important role in the results, with boys showing a greater confidence in mathematics than girls. These findings indicate that boys are more confident in mathematics than girls, and that this difference persists even when other factors, such as type of school attended, are controlled for. Furthermore, the results highlight the importance of gender differences in mathematical achievement. A questionnaire to be used in the final stage of the research has now been developed, and will be administered to a sample of 1000 students in the North West of England. This poster reports the initial results of this ongoing research in which the extended questionnaire to be used in the final stage of the research will be administered to a sample of 1000 students in the North West of England. The results of this ongoing research will be presented at the conference.

26. A survey of the social functions of the lecture process in HE
T SHELTON & J KING, Applied Psychology, Liverpool John Moores University
Recent economic and academic challenges to HE often seem to have been mirrored by renewed criticism of the use of lectures in HE establishments. However, while criticism of the lecture method in HE often assumes that the lecture is a ‘stand-alone unit’ and that learning occurs only during the lecture. In contrast, this questionnaire is designed to provide a valuable forum in which students can meet and share information. This research investigates whether lectures provide a social and educational function to the development of executive functions, such as working memory and inhibitory control. A questionnaire to be used in the final stage of the research has now been developed, and will be administered to a sample of 1000 students in the North West of England. The results of this ongoing research will be presented at the conference.

27. Social facilitation of children with autism’s performance on executive tasks
K SHIMMON, Dept of Psychology, University of Sydney
Twenty-four high-functioning children with autism, aged 6-10 years, participated in a battery of executive function and theory of mind tests. Half of the children from each group received training, in which the extended questionnaire to be used in the final stage of the research would be administered to a sample of 1000 students in the North West of England. This poster reports the initial results of this ongoing research in which the extended questionnaire to be used in the final stage of the research will be administered to a sample of 1000 students in the North West of England. The results of this ongoing research will be presented at the conference.

28. Narratives of the life span: Important areas, choices and perceived influences
SHU SHU, P K SMITH & H BLUMBERG, Dept of Psychology, Goldsmiths College
Objectives: To discover the areas of life which children consider important, and what has influenced their choices within these areas; and [here] focus on the salience of Education. Design: Self-perception of life satisfaction, for all age groups and backgrounds; n=c.200 obtained so far from England; n=c.200 from China being gathered in April/Early May. Method: A questionnaire (with a combination of open-ended and closed questions) was piloted; the final version includes important life areas (checklist); choices and decisions (open-ended) including at what age the choices were made; positive and negative influences (open-ended). The questionnaire has been completed in game rooms and classrooms and through visitors to a dedicated website. Questionnaire results were compared with scores on pragmatic language measures. Results: The most important life areas were rated as: (1) parents; (2) life satisfaction; (3) education. Also, children rated highly were relations with partner, siblings, social life/interpersonal relations and health. Children rated as the lowest areas were: (1) work, (2) family, gender, and ethnicity (on analysis of variance), but none for the importance of Education. A content analysis was made of important choices or decisions for each area, main areas are Choice of school/Choice of College or University/other. Learning or course opportunities. Analyses showed that these choices and decisions were influenced by many factors, such as parents, friends, teachers, and the media. The results also showed that the development of social interaction and pragmatic language skills can be promoted more effectively during the early years, providing a strong foundation for the development of pre-linguistic communicative development to a child's earliest years. The results of this ongoing research will be presented at the conference.

29. If I can tell you how I do it, I can do it right: seven- to eight-year-olds talk about maths
G SLATER & B PLESTER, University of Coventry School of Health and Social Sciences, Psychology Subject Group
The present research aimed to investigate the relationship between ability to solve computational and verbal mathematical problems, and ability to explain the solutions. It was hypothesised that while a high score would be associated with a high standard of communication in a task converting word problems into computations and accuracy of solving. Twenty-five seven- to eight-year-olds from a state primary school participated in the correlational design. The children were given a math paper containing five computational questions followed by 15 problem solving questions aimed at their age group. Subjects were given 20 minutes to answer as many questions as possible. Children were asked to work individually and in silence. Subsequent conversation interviews consisted of asking the children to convert each of the word problems into a numerical equation. Children were conducted individually and children were graded on their ability to communicate their answer. Results showed a significant positive correlation between communication standard and problem solving score and a significant positive correlation between communication standard and problem solving score. This leads us to question whether it is communication that drives maths ability or whether it is the other way round. Either way these results support the idea that developmental implications as they highlight the importance of language in mathematical development.

30. Applying developmental theories to foster social interaction and pragmatic language in young children with significant Communication Difficulties
C SMITH, Specialist Educational Psychologist, Isle of Wight & M FLUCK, Dept of Psychology, University of Portsmouth
Objective: This study was designed to evaluate an approach to intervention using guided participation in shared social game formats to promote levels of social interaction in children with significant communication difficulties. A total of 12 children with significant communication difficulties attending a nursery and receiving special education were used, and a within subject comparison was made between children's participation in games and their pragmatic language abilities in each phase. During the baseline period all children attended a nursery and received individual speech and language therapy. The Intervention period involved systematic dynamic game playing, designed to develop shared visual attention and action with early verbal skills. Measurements were made of changes during the baseline and intervention phases. A comparison was made between changes in levels of social interaction and pragmatic language abilities in each phase. During the baseline period all children attended a nursery and received individual speech and language therapy. The Intervention period involved systematic dynamic game playing, designed to develop shared visual attention and action with early verbal skills. Measurements were made of changes during the baseline and intervention phases. A comparison was made between changes in levels of social interaction and pragmatic language abilities in each phase. During the baseline period all children attended a nursery and received individual speech and language therapy. The Intervention period involved systematic dynamic game playing, designed to develop shared visual attention and action with early verbal skills. Measurements were made of changes during the baseline and intervention phases. A comparison was made between changes in levels of social interaction and pragmatic language abilities in each phase. During the baseline period all children attended a nursery and received individual speech and language therapy. The Intervention period involved systematic dynamic game playing, designed to develop shared visual attention and action with early verbal skills. Measurements were made of changes during the baseline and intervention phases. A comparison was made between changes in levels of social interaction and pragmatic language abilities in each phase.

The British Psychological Society
2002 Proceedings
31. Children’s conceptions of impairments: A domain-specific cognition perspective
L SMITH & J WILLIAMS, Faculty of Education, University of Edinburgh
Recent theoretical and practical research on children’s development has focused on how pre-school children hold intuitive ideas relating to the physical, social and biological worlds. As such, this paper reviews ways in which the typically developing child conceptualizes the causes of different impairments from a domain-specific perspective. Children (n=77) in each of four age groups (four to six years, six to seven years, nine to 10 years and 11 to 12 years) were interviewed to explore their ideas about the causes of physical impairment (minor: missing toe, major: wheelchair bound) and sensory (visual and hearing loss), learning disabilities (non-specific and Down syndrome) and emotional/behavioural difficulties (attention deficit hyperactivity disorder and lack of social skills). Findings are discussed in terms of recent research into domain-specificity and within-particular the shift in causal understandings from naïve biology to social/psychological thinking. The research provides valuable information for establishing educational interventions to instruct children about disability.

32. The role of labels and the generic noun phrase: Category learning in two-year-olds
S STOKES & G SCHAFER, Dept of Psychology, University of Reading
Objectives: The hypothesis that two-year-old children’s acquisition of ‘kind’ category concepts was aided by the use of a ‘kind’ label and a generic noun phrase was tested. Design: A mixed design was used, with ‘type of material used in training’, as the between-subjects variable, and ‘category’ and ‘generic’ as within-subjects factors. Significant differences were found in causal explanations of category and type. Findings are discussed in terms of recent research into domain-specific thinking and the shift in causal understandings from naïve biology to social/psychological thinking. The research provides valuable information for establishing educational interventions to instruct children about disability.

33. Young peoples’ attitudes to authority and the relationship with educational achievement
A ST. JAMES, Dept of Psychology, University College Worcester
The relative relationship between attainment in secondary school and involvement in delinquent or anti-social activities is well established. Furthermore, both delinquency and poor educational attainment are associated with negative attitudes to institutional authority. These links have commonly been interpreted as reflecting relative failure in both attitudes and conduct. The present study takes the first steps in exploring an alternative interpretation in which orientations to institutional authority are cause rather than consequence in the relationship with attainment. One-hundred-and-sixty-five Year Eight pupils were observed in a laboratory task designed to elicit their attitudes to formal authority at the start of their secondary education and again 18 months later. Their scores were classified according to their attainment in various subjects (English, Maths, etc.) at the end of their first year and their performance on an interventional task administered at the end of their first term at secondary school. Analyses indicated as predicted that attitudes at time 1 had a stronger influence on attainment than did the latter. Furthermore, although attentments were strongly related to cognitive scores, attitudes were not. At time 1 significant bias to the left was present at the first and fourth time points but by the fourth time point the effect was no longer significant. Significant age differences were found in causal explanations, perceived controllability and perceived legitimacy. The results are discussed in terms of recent research into the role of expectations and self-regulation in the development of educational achievement.

34. Stanley Squirrel gets lost: map training with a story for four-year-olds
R TIMMONS & B PLESTER, University of Coventry School of Health and Social Sciences, Psychology Subject Group
The primary objective was to determine whether, training, in the form of hearing a wayfinding story before taking a novel walk, would increase four-year-olds’ ability to represent the walk accurately by drawing a map. It was hypothesised that the mean map score achieved by participants who heard the wayfinding story before the walk would be significantly higher than the mean map score of participants who heard a story with no reference to wayfinding. A between-groups design was used with 24 four-year-old participants from a Reception Class, who were randomly assigned to the two conditions. One group was read a story, that referred to the wayfinding strategies of a ‘Stanley Squirrel’ who had a map. The other group was read a story that made no reference to wayfinding strategies. Two-way ANOVA (age by condition) showed that participants given training achieved on average higher map scores than participants who received no such training. It was also found that children nearer the age of five, achieved on average higher map scores than children nearer the age of four. Results suggest that stories are an important and influential technique in education and that children as young as four are capable of drawing meaningful maps, and can benefit significantly from training embedding wayfinding strategies in a story. Results also provide support for variable interaction in children, as children in stories allows them to draw analogies between the story and their real life experiences.

35. The sensitivity of the left cradling bias to infant age
B TODD, Psychology Group in the School of Cognitive and Computing Sciences, University of Sussex
Previous research has established that women have a bias to carry and cradle infants on the left, rather than the right, side of the body (Salk, 1960; De Chateau, Holmberg & Wimberg, 1978). The percentage of right-handed infants in the left varies, among different studies, from approximately 60–85 per cent and tends to be higher when babies are newborn, though little attention has been given to the influence of infant age in relation to infant age. This contribution reports a longitudinal study of 24 primiparous mothers who were observed for 12 time periods at four different time points; when babies were aged 0–1 week, 4–5 weeks, 8–9 weeks and 12–13 weeks.

An ANOVA conducted on the mean duration of hand-in-hand interaction revealed that a highly significant bias to the left was present at the first three time points but by the fourth time point the difference was no longer significant. A significant interaction in the form of a left-cradling bias, which occurred when infants were aged over 12 weeks, is discussed in relation to development. The findings support the idea of an infant head-turning preference (e.g. Bundy, 1979).

36. Prevention of anxiety and depression symptoms in primary school children: Preliminary results from a universal school-based trial
P BARRATT; G TURNER & L HEALY, Aston University Child Development and Health Research Institute, Aston University, Mt Gravatt Campus, Griffith University, Queensland, Australia
Objectives: This study sought to evaluate a universal school-based CBT programme for prevention of anxiety and depression in children. Two primary aims were set: first, to examine the preventive effects of the intervention on participants functioning at post-intervention and 12-month follow-up, in comparison to a usual care control group and, second, to assess whether the intervention was successful in reducing the number of students reporting clinical levels of pathology. Conclusions: These results suggest that Friends for Children is a successful and feasible intervention for childhood anxiety and depression, that can be successfully delivered to a school-based population and integrated into the classroom curriculum.

37. Does interacting with parents help children to establish intersubjectivity with peers?
A WALKER & R HILL, Neuroscience Research Institute, Aston University Birmingham.
Objective: Evidence suggests that the way in which parents interact with their children, both the child’s age and the partner’s status. In order to examine whether interaction with an adult can enhance the ability of young children to construct intersubjectivity with peers, a peer this study compares the ability of child dyads before and after carrying out a similar joint communication task with their mothers. Design and method: 24 children aged four to five years completed a map task. The task required one child to describe a route marked on a map to another child who had to draw the route on to a similar map. Neither child could see their partner’s map. One week later half the dyads completed a second version of the task. The remaining 12 children completed the task with their mothers. After a week’s delay all the children completed a third version in their original peer dyads. Results: Using two-way mixed ANOVAs the results indicated that although the amount of intersubjectivity established between mother and child dyads was significantly greater than the amount established between peer dyads, the two conditions produced very similar results in terms of immediate improvements in the children’s ability to establish intersubjectivity. Conclusion: Although a larger study is required before any final conclusions can be drawn, these results suggest that young children are capable of verbally establishing intersubjectivity and that this ability can be enhanced through interaction with a same-aged peer being just as beneficial as interaction with an adult.
38. Language impairment in excluded children
N YUILL, School of Cognitive and Computing Sciences, University of Sussex & K RIPLEY, Brighton and Hove Education Services
Previous research shows a high incidence of behaviour problems in children with language impairment. However, there is little knowledge of the existence and nature of language impairment.

Psychobiology Section

Annual Scientific Meeting of the Psychobiology Section, Langdale, 12–14 September 2001.

Why diencephalic pathology causes amnesia
J AGGLETON, Cardiff University
Objectives: Bilateral damage in medial diencephalon can induce anterograde amnesias but the mechanism has not been shown. The present study examined whether anterior thalamic pathology disrupts medial temporal processing. Design: The effects of bilateral anterior thalamic lesions in rats on the anatomical and physiological early c-Fos were mapped in limbic regions implicated in memory processes. Methods: Three groups of rats, intact, bilateral anterior thalamic lesions (ATx), were trained to run down the arms of a radial maze for food. One control group was trained in Room A while the remaining controls and the ATx group were trained in a different room (Room B). On the final test all animals were tested in Room A, then processed for Fos production. Results: The meso-fugal cortex showed the greatest loss of Fos activity following anterior thalamic lesions. This included an almost complete absence of layer II c-Fos marked Fos decreases were found in other regions, including the hippocampal formation. The ATx lesions did not produce a hypoactivity in the parahippocampal cortices or in primary sensory cortical areas. Conclusions: The study reveals two related ways that anterior thalamic pathology might disrupt processes involved in memory. The first is through hippocampal dysfunction, the second is through retrosplenial dysfunction. The hypothesis is entertained that this area is also involved in the involvement of the retrosplenial cortex in episodic memory. The retrosplenial dysfunction may involve cryptic pathology in the cingulate cortex.

Salivary S-IgA: A relevant marker of immune function in psychobiological research?
A CLOW, University of Westminster
Purpose: To review the evidence that the level of sIgA measured in saliva is a valuable variable in psychobiological research. Background: The ease with which saliva can be sampled from humans makes the measurement of the secretory antibody immunoglobulin A: S-IgA, as an index of immune system activity. In somatostatin immunoreactivity levels of this antibody are considered to represent functional activity of immunoglobulin defence of the common mucosal immune system. Key Points: Salivary S-IgA can be measured in large-scale between-subject comparisons. In one such epidemiological study of approximately 2,500 people, each provided a single saliva sample, we have shown that S-IgA is directly or indirectly predictive of the incidence of malaise symptoms, respiratory symptoms, general health and various smoking status indices of measurement and general state of happiness. In a smaller study of about 35 people we have shown that secretion of S-IgA shows a marked diurnal pattern being highest immediately upon awakening to fall rapidly and remain relatively stable throughout the rest of the day. Although there is considerable between-subject variation in secretion of S-IgA we found marked within-subject stability across the two, consecutive measurement days. Although people can be characterised by their S-IgA secretion it is also subject to marked and very rapid modulation by psychological factors. Research has demonstrated that pleasurable and arousing stimuli can increase whereas negative stressful emotional stimuli can suppress secretion of this antibody. Conclusions: Measurement of salivary S-IgA is of value as a predictor of general well being in large-scale between-subject studies as differentiating individual differences in responsiveness to acute psychological challenges.

The Psychobiology of the awakening cortisol response
C HUCKLE, R JAVANBAKHSH, S EDWARDS, & A CLOW, Psychophysiology and Stress Research Group, University of Westminster
Purpose: To examine the cortisol response to awakening as a component of hypothalamic-pituitary-adrenal activity. Background: The circadian cortisol cycle is marked by a pronounced stimulation of secretory activity in association with awakening from nocturnal sleep. The psychobiology of this aspect of cortisol secretory activity is explored. Key Points: The response is a trait related to normal intradividual variation across days and weeks. It is however influenced by perceived stress and burnout. Overall levels of cortisol produced over 12 hours (including the morning response (Area Under the cortisol curve, AUC) are representative of cortisol secretory activity over the remainder of the diurnal cycle. The response is however independent of underlying secretory activity. The response calculated as AUC or Mn is subject to genetic factors with fairly high heritability estimates. Stimulatory input from the hypothalamic-pituitary-adrenal axis is thought to contribute to the response. Habitual early awakeners show a more pronounced response than late escaping. The manipulation of mesolimbic reward activity by exposure to light, immediately upon awakening amplifies the awakening cortisol response. This pathway cannot be triggered by light exposure later in the diurnal cycle. This extra-pituitary secretory activity is thought to be mediated via a direct multisynaptic neuronal pathway to the adrenal cortex. Conclusions: The cortisol awakening response is an important component of the diurnal cortisol cycle subject to an extra-pituitary stimulatory pathway. The physiological role of the response is uncertain although it may be important in immunomodulation.

An investigation into the acute nootropic effects of hypericum perforatum (St John’s Wort) in healthy human volunteers
T MANKETLOW, K A ELLIS, C STOUGH, L VITELLA, K A WESNES & P J NATHAN, University of Technology, Hawthorn, Victoria, Australia
Purpose: Hypericum perforatum (St John’s Wort) L. (St. John’s Wort) is a complex herb that has been used for centuries for its putative medicinal properties, and has currently been used as a treatment for mild to moderate depression. Recently, two studies in rodents have suggested that hypericum may also have memory enhancing effects. This study aimed to examine whether acute administration of standardised hypericum extract had any acute and possibly nootropic effect in normal human subjects. Design: The study employed a double blind, crossover, repeated-measures design. Methods: Twelve healthy young subjects completed a number of tasks from the Cognitive Drug Research (CDR) battery, following oral administration of hypericum (Blackmore’s Hyperfort). Results: Only two significant effects were identified. Firstly, an impairment was seen in the accuracy of identifying new stimuli, on the Numeric Working Memory task, in the 1800mg dose control compared to placebo. Secondly, after identifying a significant interaction between old stimuli and administration conditions showed an impairment to accuracy of identifying original stimuli on the Delayed Picture Recognition task, in the 1800mg dose compared to placebo.

Factors associated with delay in attending hospital following a heart attack
R E O’CARROLL, K B SMITH, N GRUBB, K FOX & G MASTERTON, University of St Andrews and Edinburgh Royal Infirmary
Objectives: The present study assessed possible psychological factors that might be implicated in delay in presentation of myocardial infarction (MI). Design: A between-group comparison of prompt attendees (less than 4 hours between first symptoms and hospital attendance) versus delayed was conducted. In addition, a regression analysis was run on clinical and psychological measures against delay. Methods: Seventy-two consecutive patients were divided into two groups (less than 4 hours versus delayers). Results: Those patients who believed they were experiencing a heart attack attended more promptly than those who did not. Patients who delayed were more likely to be male, to have a history of cardiac disease, and to have a high cardiac risk factors. Conclusion: The belief that one is experiencing an MI is associated with prompt attendance. The belief that health outcomes are largely due to chance factors is associated with delayed presentation. This delay could prove fatal. Modification of such beliefs may reduce response times and thus, increase survival rates.

Testosterone and cognitive function in men: A double-blind, placebo-controlled, crossover study
D B O’CONNOR, J ARCHER & F C WU, University of Leeds, University of Central Lancashire, University of Manchester
Objectives: Recently O’Connor et al. (2001) demonstrated elevations of testosterone enanthate (TE) on cognitive functioning in normal euonadual men. Specifically, supraphysiological doses of TE were found to have a differential effect, inhibiting spatial abilities while improving verbal fluency. These data suggested i) that an optimal level of testosterone (T) may be required for the facilitation of spatial abilities in men and ii) the relationship between T and spatial ability may be a non-linear, inverted U relationship. That is, increasing T levels do not necessarily lead to an amplification of male typed characteristics.
characteristics. Infirmed by these data, the aim of the present study was to investigate further the activational properties of a long-acting T preparation, testosterone undecanoate (TU) on aspects of cognitive function. Design: A double-blind, placebo-controlled, cross-over design was employed. Participants: There were 12 healthy young men who were randomised into one of two treatment groups. 1a) active phase – receiving 1 x 1000 mg of TU i.m. (to raise T levels to the supraphysiological range for 8 weeks), b) washout phase (no application) – 8 weeks b) placebo phase – receiving 1 x 1000 mg of castor oil i.m. – 8 weeks b)active phase – receiving 1 x 1000 mg of castor oil i.m. – 8 weeks. Both groups underwent a battery of neuropsychological tests (Block Design Test, Grooved Pegboard, Trail-Making Test, Controlled Oral Word Association Test (COWAT), Rey Auditory-Verbal Learning Test, Digit Span, Digit Symbol) at baseline and at week 4 of both active and placebo phases. Results and Discussion: The results are presented and discussed with reference to the proposed nonlinear, inverted U relationship between T and spatial ability. These findings may be relevant for T replacement therapy and hormonal male contraception.

Memory impairment following in-hospital cardiac arrest
S OREILLY, N GRUBB, K A A FOX & R E O’CARROLL, University of St Andrews
Introduction: It has been shown that cerebral hypoxia as a result of cardiac arrest leaves significant short- and long-term cardiac arrest survivors with moderate or severe levels of memory impairment after the event. It has been suggested that the degree of impairment may be related to the duration of the arrest. Aim: The present study assessed the prevalence and severity of memory dysfunction in survivors of in-hospital cardiac arrest and determined whether they have survived until cardiac arrest durations than out-of-hospital arrest survivors. Method: 33 survivors of in-hospital cardiac arrest, 35 of out-of-hospital arrest survivors and 20 non-survivors underwent cognitive assessment, which included the Rivermead Behavioural Memory Test (RBMT). Results: 24% of in-hospital, and 38% of out-of-hospital arrest survivors sustained significant memory damage following their arrest. There was no significant difference between these groups in terms either prevalence or severity of impairment. However significantly greater numbers of both cardiac arrest groups performed significantly worse than the MI group on the memory task. Conclusion: While the impact of arrest duration on subsequent memory performance is not confirmed, it appears that arrest in hospital rather than out-of-hospital provides no benefit in terms of memory impairment for survivors. Similar numbers of in-hospital arrest survivors are left with similar degrees of memory impairment as out-of-hospital cardiac arrest survivors.

Psychobiological problems in regular ecstasy/MDMA users
A C PARROTT, Dept of Psychology, University of Newcastle
Purpose: to review the psychobiological effects of recreational MDMA or ‘Ecstasy’. Background: MDMA (3,4-methylenedioxyamphetamine) or ‘Ecstasy’ is widely used as a recreational drug, but there are many concerns over its immediate and long-term effects. Methods and key points: over the last 20 years, hundreds of studies have widened, usage has intensified, and there are many indications of tolerance. The acute mood effect is thought to be predictive, but anxiety and depressive symptoms are not. Serotonin and terminal destruction develops reliably after repeated doses, especially under neuroendocrine conditions, and MDMA acts on hypothalamic temperature control. Drug-free regular Ecstasy/MDMA users show many biological signs of reduced serotonin functioning (e.g. reduced 5-HIAA), also selective memory deficits and higher cognitive impairments, although memory function remains normal. The degree of damage is dose-related, and can be independent of awareness. Numerous psychiatric problems and personality traits have been reported by regular users: depression, psychoticism, phobic anxiety, obsessiveness, reduced appetite, impaired sleep, and reduced sexual interest. Huether’s (2000) amphetamine-likeulant effects on human performance and neural damage is outlined. It explains how heat, exercise, and parallel use of other stimulant drugs (cocaine, cannabis, amphetamines) can exaggerate and contribute to the neural damage caused by MDMA. Summary/Conclusions: Ecstasy is not a ‘soft’ recreational drug, but is psychobiologically very damaging.

ERP correlates of person recognition in a cross-domain repetition priming study
E C PICKERING, S R SCHWAINBERGER, J M KAUFFMANN & A M BURTON, University of Glasgow
Objectives: The cognitive mechanisms required in person recognition are a subject of debate. For faces and names, the present experiment compared and contrasted processing between primed and unprimed recognised (famous) and unfamiliar stimuli across domains (face/names) that vary significantly in familiarity (or familiarity decision). Design: One hundred and twenty celebrities were identified in a recognisability study, and their names of familiar and unfamiliar people were matched, matched to the famous ones for visual stimulus properties. Methods: During three separate priming blocks, participants (N = 18) either performed speeded familiarity decisions (two-choice key presses) for 60 faces, speeded familiarity decisions for 60 names, or perceptual processing for 60 faces. Stimulus duration was 2000 ms throughout. Stimulus prime-test interval was approximately 20 min. At test, participants made familiarity decisions for faces or names. ERP’s were recorded from 32 channels and recalculated off-line to average reference. Results: Not yet available. Conclusions: ERP correlates for long-term cross-domain priming are compared to previous experiments that showed ERP modulations at 500-700 ms post-stimulus when stimuli were repeated within stimulus domain. ERP differences previously shown, which were late compared to perceptual processing components, may reflect facilitation of person-specific memory retrieval observable behaviourally in long-term repetition priming. This study allows comparison of a repetition condition where Behavioural priming is expected to the conditions where behavioural priming is not expected to be observable.

Memory bias for sad facial expressions: Does it persist in patients following recovery from a major depressive episode?
N RIDOUT & R E O’CARROLL, University of St Andrews
Objectives: In a recent study we presented a set of emotionally laden sad, happy, and neutral expressions. However, for patients with major depressive episode, a potential for heightened emotional responding to stimuli is a problem. Method: 18 patients diagnosed with a major depressive episode were shown parallel versions of the Rivermead Behavioural Memory Test (RBMT) at two test assessments at approximately 45 and 90 min. Post-dose. Results: Two psychomotor maze tasks showed an almost complete dissociation, with ethanol leading to a substantial increase in errors (p<0.01) with little effect on speed, while temazepam slowed performance (p<0.05) with no significant change in accuracy. Conclusions: The internet is an ideal medium for such future research as it allows access to large numbers of participants.

Errors in performance testing: A comparison of ethanol and temazepam
P J ODDO, J HIROZ, L HOLMES & G DRUMMOND, AstraZeneca
Background: Both ethanol and benzodiazepines increase the risks of road accidents, but the effects of ethanol are more striking relative to their effects on performance. Benzodiazepines are regarded as being more beneficial in road safety terms than ethanol, due to the dissociation of effects on speed and accuracy. The present study was designed to assess the effects of ethanol and temazepam on performance. Methods: We compared the effects of ethanol (dose calculated to produce blood concentrations around 80 mg/100 ml) and temazepam (20 and 30 mg) in sixteen healthy volunteers (8 male, aged 20-25 years) in a four period placebo controlled crossover study. Psychomotor function was evaluated using ANKAW, a computerised battery of two test assessments at approximately 45 and 90 minutes post-dose. Results: Two psychomotor maze tasks showed an almost complete dissociation, with ethanol leading to a substantial increase in errors (p<0.01) with little effect on speed, while temazepam slowed performance (p<0.05) with no significant change in accuracy. Other tasks showed a similar pattern, but the dissociation was less complete. Conclusions: The present study was designed to assess the effects of ethanol and temazepam on performance. The results showed that ethanol had a greater effect on accuracy than on speed, while temazepam slowed performance (p<0.05) with no significant change in accuracy. Other tasks showed a similar pattern, but the dissociation was less complete. Conclusions: The present study was designed to assess the effects of ethanol and temazepam on performance. The results showed that ethanol had a greater effect on accuracy than on speed, while temazepam slowed performance (p<0.05) with no significant change in accuracy. Other tasks showed a similar pattern, but the dissociation was less complete.

A web-based study of self-reports of memory ability in recreational users of ‘ecstasy’
Objectives: To assess the feasibility of using the world-wide web to collect data on self-reported memory impairment in ecstasy users. Design: A web-based anonymous survey was employed. Method: A set of questionnaire measures of memory (prospective and everyday memory) were included in the existing drug-use survey (www.drugresearch.org.uk). The Drug questionnaire assessed the use of other substances as well as MDMA – allowing a regression design to isolate the contribution of those substances to any variance on the cognitive measures. Results: Preliminary findings based on a set on 490 participants, 155 of whom were ecstasy users, showed that there is significant variance in the relative impact of ecstasy and cannabis on the types of memory failure reported. Conclusions: The internet is an ideal medium for such future research as it allows access to large numbers of participants.

The British Psychological Society 2002 Proceedings 33
An examination of the cognitive effects of shift-working patterns in nurses
K A WESNES, N J HARGADEN, O PETRINI, C J EDGAR & R LUTHRINGER, Cognitive Drug Research, Reading, UK, Pharmaton SA, Lugano, Switzerland, Forenay, Rouffach, France

Objectives: Clinical and anecdotal reports of the negative effects of workplace related fatigue are widely known. These effects are particularly marked in shift workers and workers with unpredictable work patterns. Design: The study assessed cognitive function over the course of a whole day on two visits to a test centre. The first visit (pre-shift) was completed on the day prior to the first night shift. The second visit (post-shift) was completed following the end of the third night shift. Methods: Thirty-two healthy nurses working night shifts were tested pre-shift and post-shift, to develop a model of fatigue. A selection of tests from the Cognitive Drug Research (CDR) computerised assessment system was used to assess the ability to concentrate, to retrieve items from working and secondary memory, and also motor coordination. Further, subjective ratings of mood were undertaken. Subjects were tested at 08:00 to provide a baseline comparison of performance pre-shift and post-shift. Further assessments were undertaken at 11:00, 13:00 and 15:00 to test for any changes across the day.

Results: For the main effect of shift, subjects performed significantly worse post-shift in measures of attention, speed, accuracy of retrieval of items from working memory, and the accuracy of retrieval of items from secondary memory. Subjects post-shift were less calm and less focused, but subjectively alert. Conclusion: It is concluded that shift workers do suffer from decrements in performance, and that these effects impact upon the workers’ quality of life and performance at work.

Individual differences in S-IgA reactivity to acute stress: The effects of health status and personality
M A WETHERELL, M E HYLAND & J E HARRIS, Dept of Psychology, Dept of Biological Sciences, University of Plymouth

Background: Previous research has assessed S-IgA reactivity in response to a variety of acute and chronic stressors. This paper discusses three experiments assessing the roles of personality and health status as moderators upon S-IgA reactivity to one stressor, the same stressor on consecutive days and cumulative stress.

Results: For the main effect of shift, subjects performed significantly worse post-shift in measures of attention, speed, accuracy of retrieval of items from working memory, and the accuracy of retrieval of items from secondary memory. Subjects post-shift were less calm and less focused, but subjectively alert. Conclusion: It is concluded that shift workers do suffer from decrements in performance, and that these effects impact upon the workers’ quality of life and performance at work.

Method: All volunteers were healthy undergraduates. Saliva samples were taken immediately before and after exposure to the stressor (multi-tasking battery) of 5 minute duration. A minor health complaints questionnaire (MHCQ) was used to classify volunteers as being in either good or poor health. Experiment One: (N = 60) MHCQ prior to acute stressor. Experiment Two: (N = 49) MHCQ, NEO-FFI and PANAS prior to the same acute stressor 24 hours apart. Experiment Three: (N = 20) MHCQ and PANAS and prior to three acute stressors interspersed with 5 minutes of relaxation. Results: in experiments 1 and 2, there was a trend for individuals in poor health to demonstrate reduced post-stress S-IgA reactivity. In experiment 3, poor health individuals demonstrated increased down-regulation of S-IgA following the stressor (t (18) 2.46, p = 0.02). Individuals in poor health also reported significantly greater negative affectivity (t (47) –2.52, p = 0.03) and neuroticism (t (47) –2.90, p < 0.01). Discussion: Data are presented using the immuno-capacity model. A psychological process is explained where levels of ill-health and NA moderate S-IgA reactivity to acute stress. Post-stress S-IgA levels moderate subsequent susceptibility to ill-health and NA and S-IgA reactivity to subsequent stressors.

Cognitive Psychology Section

17th Annual Conference, University of Essex, 6–8 September 2000.
This abstract should be read in conjunction with the Section abstracts published in Proceedings vol. 9 no. 2 (August 2001).

Contrasting sensitivity to phonology in Scottish and French beginning readers
L G DUNCAN & P H K SEYMOUR, University of Glasgow

Children have been shown to be sensitive to the linguistic properties of their native language from the earliest phases of development. The impact that this may have on the emergence of phonological awareness is of interest in relation to modelling reading acquisition in different languages. The present paper is a comparison of the phonological skills of English and French speaking children. Several linguistic features distinguish the English and French languages. French has clear syllable boundaries, a fixed pattern of lexical stress and a predominance of open syllables. English is ambisyllabic, has a variable pattern of lexical stress and a majority of closed syllables. The children in this cross-sectional study range in age between 4 and 7 years to cover the time immediately before and after the introduction of formal reading instruction in each country. Awareness of sound is assessed using procedures which manipulate both the degree of awareness required and the unit of sound under investigation (syllable, onset, coda, bimoraic rhyme and phoneme). The results are compared to the differing linguistic properties of English and French and to the influence of literacy instruction which emphasizes letter-sounds.

The relationship between psychological well-being and ability to laugh
B BENNETT, I M STEWART & A M McGEE, Glasgow Caledonian University

Objectives: There exits some evidence in support of the relationship between laughter and it’s positive effect on the immune system, emotions, stress and the social aspects. Previous research has found that location of experiment made no impact on the results. Conclusions: In conclusion it was found that a negative correlation existed between scoring on the GHQ-28 and both ability to perceive humorous stimuli as humorous (r=0.363; p=0.018) and self-reported laughter (r=0.330; p=0.005). It was also found that location of experiment made no impact on the results.

Exploring teachers’ beliefs about the manner in which children learn and how they can be helped to learn, in the junior classroom
C GREENWAY, City of Westminster

Teachers can be very focused on trying to understand the manner of academic progress or difficult behaviour or both. This can result in causes located within the child. These causes then become labels and can be negatively perceived. They may not bring positive changes in teacher behaviour towards labelled children but can bring inaction in the face of the inevitable. ‘How’ questions on the other hand can draw inaction in the face of the inevitable. Perhaps it might also reduce the number of requests for statutory assessments if it is used at an early stage of the Code of Practice. It could give insight into the aspects of teachers’ beliefs and strategy use that lend themselves to EP interventions that could be preventative and developmental and aid pupil progress. Answering the ‘how’ questions could lead to teachers rethinking their beliefs and strategies by making them explicit and accessible to reasoning.

The British Psychological Society
2002 Proceedings

34
Psychiatric and psychological concepts in understanding psychotic experiences: Some challenges and dilemmas

D HARPER, University of East London

The last 10-15 years has seen a rapid increase in interest in research into psychotic experiences culminating in the Recent Advances in Understanding Mental Illness and Psychotic Experiences report published by the BPS in 2000 (www.bps.org.uk/raime). This report approaches offer an alternative to that of traditional biological psychiatry. However, in this paper I argue that these developments present psychologists with some dilemmas. The ways in which we view psychological phenomena have important implications for, for example, the kinds of interventions we offer. I note the dangers of importing psychiatric models as opposed to properly psychological ones. I go on to develop some factors of the social context of both psychiatric and psychological concepts can have: a focus on pathology and abnormality; the development of socially-sanctioned experts; the development of 'thin descriptions' of user's people; the implication of guilt and blame; the creation of an illusory use of circular and tautological definitions (and reference is made here to the Government's proposals with regard to 'Disadvantaged People with Severe Personality Disorders'); and finally, the location of problems in individuals. I conclude by outlining some provisional criteria by which we, as psychologists, may evaluate our theories and concepts not simply by narrow conceptions of reliability but by their social, ethical and political consequences.

Putting the organisation back into work and organisational psychology

J HARTLEY, University of Warwick

This paper takes as its starting point the substantial changes currently taking place in organisations and their impact on the forms and processes, and their implications for work, jobs, employment and employment relations. The paper then uses the lens of organisational change to consider some key implications for theory and for methodology in work and organisational psychology. First, the paper argues that the understanding of behaviour at work will be fundamentally flawed unless attention is paid to the contextual organisations. Too much research has been conceptualised and reported using too narrow a context. The context provides important constraints on opportunities for the behaviours, experiences and performance of workers in different organisational settings (Mowday and Sutton, 1993; Rousseau and Fried, 2001). Some examples are illustrated and explored in the paper. Second, the scale, speed and pace of organisational change has significant implications for methodology in work and organisational psychology. Some research methods have assumed stable populations, working in permanent jobs, in organisations changing incrementally, not radically. How should research be designed for situations where there is a changing workforce, working in 'relentlessly changing organisations' (Brown & Eisenhardt, 1987)?

The link between dissociation and denominational change in Northern Ireland

C A LEWIS, University of Ulster, Magee College & M J DORAHY, University of New England, Australia

Background: In contemporary psychological nomenclature altered states of consciousness are often referred to as dissociative states. Schumaker (1995) has noted the importance of dissociation to religious beliefs and worship. Recently, many mainstream religions have reported altered states, and outcomes for dissociative functioning during worship. Interestingly most of these have also experienced a reduction in participation. Aim: The aim was to further test the theory that religious traditions that facilitate dissociation during worship are more likely to have high resistance to members leaving the church. Method: Taken from official statistics between 1998-2000 the most denominational affiliation in Northern Irish churches were the source of analysis. Results: Among the institutional Churches there has been little change in northern Catholic membership recording an increase (+4%), and Presbyterian membership remaining static (0%), while Anglican membership has seen a slight decrease (-1%). Among the Free Churches patterns of membership have been less consistent: the Methodist (+31%) and Independent (-11%) churches. Conclusion: The results demonstrate support from Schumaker's theory with Pentecostal Churches, which are characterised by overt levels of dissociative functioning, reporting the greatest increase in membership.

Early intervention in literacy: The key factors in raising achievement

T MacKay, University of Strathclyde/Psychology Consultancy Services

Objectives: Throughout the UK in recent years early intervention has been a central emphasis in education. Raising reading achievement in young children has been one of the Government's key strategic priorities, and considerable resources have been allocated to this area. The purpose of this paper was to propose a number of key variables underlying successful early intervention programmes. Methods: The main intervention strategies adopted in a series both of completed and of ongoing studies were considered. These studies, most experimental in design, ranged from large scale research samples (N = 10,000+) using multiple methods to small-scale studies based on single strategies, including: modifying attitudes, values and expectations. In relation to expectations, a preliminary report was given of a study of successful early intervention programmes. Results: Three principal components were identified as key factors in the success of early literacy programmes: (1) resources (extra help in the classroom and additional time devoted to reading); (2) curriculum (a structured phonics approach); (3) attitudinal (the achievement of a positive climate and expectations regarding achievement in reading). Conclusions: Early interventions in literacy which focus on key factors in the areas of resources, curriculum and attitudes are likely to be associated with significant results in raising the reading achievement of children in the early stages of school.

Changing organisations and employees: Challenges for work design research and practice

S K PARKER, The University of New South Wales

Most theories about how to design effective jobs developed out of studies on male production employees in the early to mid twentieth century. Clearly, whilst there are continuities, there are also important differences in the type of jobs and tasks people are expected to do in today's organisations, as well as the context within which they are performed. Do these changes mean for work design theory and practice? How do we design jobs for today, and for the future, that are meaningful, motivating to employees, and organisations? These are the questions I address in this presentation. First, I describe the changing world of work, and the changes that work employees are called to carry out (e.g. the growth in service work, globalisation, temporal and geographic virtuality), the types of tasks that need to be performed (e.g. greater knowledge work), and the workforce available to carry out the task (e.g. women). The second part of the paper is concerned with the inadequacies of existing work design theories in relation to this change. From this analysis, I identify several important themes for future work design research and theory so that it can not only keep pace with modern developments in the workplace, but can positively shape and influence them.

Expressions of anger and poor emotional control precipitating offending behaviour

A M Phillips, Middlesex University

There have been many studies in recent years looking at anger and the expression of anger, utilising varied populations and settings. The present paper examines closer the expressions of anger and evidence of poor emotional control displayed by adult male prisoners from descriptions of their thoughts and feelings leading up to, and during the offense they committed. Using data collected from semi-structured interviews, a qualitative methodology is employed to consider potential triggers and situational factors which could have contributed to the offence.

Retirement in ballet dancers and their identity construction: A phenomenological study

I RONCAGLIA, University of Surrey, Roehampton

Objective: Pre and post-retirement in a life of a professional athlete can be traumatic, characterized by a sense of loss and mourning which can become problematic for future well-being (Hamilton, 1998). This study aims to consider, from a phenomenological perspective, how adults construct identity during and after retirement. The ageing of ballet dancers, as well as other professional athletes has been a fairly neglected topic in gerontology, probably because the consequences of that experience for meaning and identity construction and reconstruction will be problematic for future well-being (Hamilton, 1998). The ageing of ballet dancers, as well as other professional athletes has been a fairly neglected topic in gerontology, probably because the discipline’s pre-occupation with chronological retirement later in life (Rosenberg, 1968). Social and psychological problems have been ignored in popular knowledge with the exclusion of few who have reached public fame. Where do ballet dancers once they terminate their career? What do they do? And how well do they approach this new-birth? Method: This paper is based on an ongoing study which uses a phenomenological approach to explore how this particular occupational group have experienced ageing and retirement from their profession, and some of the consequences of that experience for meaning and identity development in later life. Giddens (1991) a distinctive trait, or even a series of lateral integration; enhanced social complexity in the workplace; a greater emphasis on cognitive demands and knowledge assets at work; and wider use of informal and contractual changes on work design. I conclude with some recommendations about where to go from here to develop work design research and theory so that it can not only keep pace with modern developments in the workplace, but can positively shape and influence them.
Perceptual lateralisation in the processing of pro- and anti-social emotions displayed in chimeric faces

L WORKMAN, S PETERS, University of Glamorgan & S TAYLOR, Thames Valley University

Using a restricted range of split-field chimeric faces, previous studies suggest the processing of emotional expression is a highly lateralised phenomenon. Two theories have been developed with regard to the role of cerebral hemispheres play in this process. The ‘right hemisphere’ hypothesis (e.g. Bryden, 1982) suggests the processing of emotional expression is predominantly a right hemisphere phenomenon. In contrast, the ‘valence hypothesis’ (e.g. Reuter-Lorenz & Davidson, 1981) proposes that, whilst the right hemisphere plays an important role in processing negative emotions, the left hemisphere has a special role for positive emotions. Using all six human “universal facial expressions” (Ekman & Friesen, 1971) we present evidence that, superimposed onto a right hemisphere advantage for emotional processing, there is a shift towards the left hemisphere for pro- as opposed to anti-social expression. We propose that facial expressions, which are related to approach for communicative purposes, initiate a greater degree of left hemisphere involvement. As a consequence, we suggest future laterality studies should reconsider facial expressions using a pro-to anti-social dimension.