David A. Booth (1997). Research interests.
Text from University of Birmingham School of Psychology person webpage, and its links in the School's Research Groupings. [Current version on www.birmingham.ac.uk/booth-david]

Fundamental Psychology

- Individual Cognition, Motivation and Emotion
- Cognitive bio-social approaches to human and animal life

Applied Psychology

- Health Psychology; Psychology in physical medicine
- Customer Psychology; Psychology of product development

An individual's mentation in a situation

Individualised cognitive analysis provides direct evidence as to what is going on in a person's mind (or in any well adapted system's performance) while tackling a task such as recognising and acting appropriately towards an object, a social situation, an emotional state or a bodily sensation. The evidence can be purely verbal, from an adequately structured conversation, or can be concrete actions or expressed dispositions in response to physically defined stimuli or culturally meaningful symbols (such as words or pictures).

My approach is to compare the person's responses to variants of the situation under test that disconfound features from each other and from their context. The data from one test occasion are analysed by normed multi-channel discrimination scaling: this is the simplest formulation of the classic ideas of dimensions of mental processing, learnt Gestalten and the just noticeable difference, and in that sense forms the logical foundation of all psychology.

For more information (text at end below) see the Multimodal Perception page at http://www.psychology.bham.ac.uk/research/groups/language/multimodal.shtml and research into the Social Psychology of Empathy and Compassion at http://www.psychology.bham.ac.uk/research/groups/dsa/empathy.shtml.

Nutritive and other health-related activities

Much of my research in Health Psychology concerns the consequences for long-term health of habitual patterns of eating, drinking and moving about. A "psychosocial short-cut" to identifying and advising on the healthier sorts of custom is to relate diverse individuals' choices as described in their culture to outcomes for their health, such as overweight and obesity, diabetes and high blood pressure. This new approach to psychometrics was first developed for long-term avoidance of body-weight gain. The directly evidence-based individual tailoring of advice it enables is now being extended to: the assessment and reduction of individuals' fat and salt intakes; the efficacy of management of joint mobility and pain in arthritis, rheumatic fatigue and cardiovascular health following heart surgery; and the development of interactive digital media for evidence-based health education in youngsters and adults.

Social cognitive path analyses have been developed from the psychology of dieting and (failures in) weight control. They are being extended to psychological problems in physical medicine, such as coping with the diagnosis of rheumatoid arthritis at a relatively young age. More open-ended investigations are also conducted into the personal meaning and social functions of the healthy and unhealthy practices.

Such social psychological approaches to health need underpinning by understanding of the "psychobiological system," i.e. the physiological consequences of the healthier and less healthy behaviour and their feedback onto such activities through the brain. This is vital for

relating the advised behaviour both to effective support from the environment (such as food formulations and services) and to the physical effects of any medical interventions.
Thus, we continue research on the visceral and metabolic after-effects of eating and drinking that satiate hunger and thirst, modulate intellectual and social performance and mood, and induce preferences and aversions all usually via some processes of learning. This work uses intakes and ratings in the way we first developed, to measure manipulated physiological processes that have been disconfounded from the learnt expectations triggered by sensory stimulation, linguistic information and social context. (This contrasts with the dominant practice of assuming that parameters of nutrient intake and the wordings of ratings measure particular influences on appetite.) The satiating effects of fats and carbohydrates and the cognitive effects of caffeine are under study by dose-response designs within individuals as they ingest food and drink in a familiar way.

For more information see the Health Psychology pages at http://www.psychology.bham.ac.uk/research/activity/dsa/health/index.aspx
and the enABLE*r/s* website, http://www.what-works-in-your-circs.org/

Psychological science of service and product uses

Individual cognition is uniquely capable of measuring simultaneously the actual material ("sensory") and symbolic ("marketing") influences on each customer's shopping and usage choices (and on the descriptions to which product sensory profiling and marketing concept specification are limited). Aspects of the physical product and marketed brand interact in the individual user's mind and their joint impact on behaviour is modelled by discrimination scaling of that person's disposition to acquire the various propositions generated at that stage of product development. Aggregation of these personally ideal hyper-spaces across a representative panel or sampled sub-segments gives uniquely precise and operational estimates of current market response.
This approach has been implemented in a number of academic and commercial demonstrations. It is being compared with currently established statistical treatments of grouped verbal data from sensory and market research. It is also being used to understand the neurophysiological receptor types through which manufacturing processes stimulate the cognitive integration of individuals choices and pleasures from texture, flavour and appearance of important food and drink products in everyday usages.

For more information see the Multimodal Perception group pages at
http://www.psychology.bham.ac.uk/research/groups/language/multimodal.shtml

Text from the links given above

entry under **Multimodal perception**. A range of projects concerned with the coordinated use of multiple sensory systems.

Multimodal object recognition

An individual’s mental processes during physical and social perception of a particular object or material in a reaction, act or description within a specific situation can be characterised by means of multiple discrimination scaling. Personal cognition encompasses verbal and other symbolic stimuli and the cultural meaning of physical stimuli - both manufactured (such as consumer products) and natural, such as facial expressions, gestures or body shapes and sensations from muscles, joints or the digestive tract. Applications of sensory with semantic perception include thirst, hunger and their satisfaction, chronic pain and fatigue (with or without physical pathology) and user-perceived functional quality of materials such as foods,

drinks, medications and domestic goods. Basic work on complex textures of foods in collaboration with food chemists is currently supported by the BBSRC, within the Food Quality wing of the Food Quality & Nutritional Psychology Research Group. Software to support industrial research and training and consumer education is under development for the enABLE*r/s* system of the Archive Research Group (Health Psychology).

entry under navigation bar from **Social cognition and neuroscience (SCoNe)**

Social psychology of empathy and cooperation

Research into the human psychology of empathy, compassionate altruism and cooperation is supported by the School's Hilary Green Research Fund, generously endowed by Mr Grenville Green. This research can include:

- determining the nature of emotional or other mental, social or biological processes involved in empathy, compassionate altruism and cooperation
- assessing variations among people in the extent of empathy and actions out of compassion
- obtaining evidence on how empathy and compassionate action can be enhanced in one-to-one relationships or within or between groups.

The Fund encourages such research by making awards to individual applicants as a short-term Research Fellowship/Associateship, a Research Studentship of up to 3 years for work on a PhD, or a Research Prize for a public Lecture, the organisation of a Conference (with support for attendees early in a research career and for invited speakers), preparing an evaluative overview for publication, developing research tools or educational services, or other promotion of the Fund's research area, in any case based in the University of Birmingham.

The PhD projects centre on empathy and cooperation in everyday life, empathy for pain in healthy adults and patients with chronic pain, and on communication within households and by healthcare professionals about the emotion and motivation involved in healthy eating, in the general population, in type 2 diabetes or in developmental disorders.

The psychological processes of empathy, compassion and helpfulness are to be related in some of this research to processes in the brain using imaging by fMRI or by EEG psychophysiology or to parentally imprinted gene expression.

entries under **Health psychology** Researchers in this area explore the psychological aspects of physical health, and address such issues as diabetes in adults and children, the psychology of old age, pain, and the psychological aspects of cancer.

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Applied Biosocial Cognition

***Archive Research Group* (enABLE*r/s*)**

This Group specifies evidence-based calculations of culturally recognised and personally tailored information on feasible activities to improve health or to gain better services from consumer goods and potentially from other public or commercial services. Users of this education in self-described behaviour can become more ABLE to care for themselves as they wish. They may also, if they want, help to enable others like them. This is because we also analyse the research data volunteered by users of the educational service, and feed the extracted evidence back into the tailoring calculations, to improving practices by professional providers of healthcare and consumer goods, and into papers for international peer-reviewed

research journals.

The Group aspires to develop a new sort of relationship between the universities research community and individual members of the public and is the base for “enABLEr/s” (evidence-networking Archive of Best Life Education research/services). The enABLEr/s system will also include a “Shopper’s Guide” for information where to obtain goods according to personal specification. This is built on the Personal Cognition software, CoPro, for multi-feature discrimination scaling of cognitive processes (including consumer products), currently being tested on food products in BBSRC-funded projects in the Food Quality & Nutritional Psychology Research Group.

In addityion, a generous donation for research into the psychology of empathy and cooperativeness has established a perpetual fund for income to be spent on research staff, students, lectures or conferences. This memorial to his late wife, Hilary Green, by Mr Grenville Green, includes a PhD studentship for 2006-9 to continue a review of psychological theory and methods in this research area and to investigate in new ways the cognitive processes involved in empathic perception, sympathetic feeling and compassionate action by individuals in particular situations. [Ses the Social Psychology of Empathy and Cooperation]

Food Quality & Nutritional Psychology Research Group
Work on healthy eating (including within prevention of obesity and diabetic blood glucose control) is carried out also within the Nutritional Psychology wing of David Booth’s Food Quality & Nutritional Psychology Research Group.