The role of affordances in enhancing skill acquisition and expertise in sport

Over the past decade, key ideas from ecological psychology and nonlinear dynamics have been integrated into ecological dynamics (Araújo & Davids, 2011), a systems-oriented theoretical framework which conceptualises sport performers as complex adaptive systems (for an aligned rationale of human behaviour see Riley, Shockley, & Van Orden, 2012). From this perspective, the individual-environment relationship is proposed as the relevant scale of analysis for explaining how the intertwined processes of perception, cognition and action underpin expert performance and skill acquisition in sport. It emphasises how adaptive behaviours emerge from the information-regulated interactions between individuals and experimental and performance task constraints. This presentation will elucidate three key functional characteristics of complex adaptive systems, co-adaptation, emergent coordination tendencies and utilisation of affordances (as invitations for action), which underpin performance and learning in team and individual sports (Seifert, Button & Davids, 2013; Withagen, de Poel, Araújo & Pepping, 2012). These key principles of ecological dynamics inform understanding of learning and specificity of transfer, impacting on representative design (Brunswik, 1956) of practice task constraints in sport development programmes (Stone, North, Maynard, Panchuk & Davids, 2014). Research findings from studies of elite and developmental athletes in individual and team sports are presented to highlight principles of learning design captured in a nonlinear pedagogy. In a nonlinear pedagogy, skill acquisition specialists need to work with pedagogists as designers to enhance the specificity of practice tasks which simulate (aspects of) a competitive performance environment by providing learners with a field of relevant affordances to enhance their readiness to coordinate their actions with events in dynamic performance contexts (Chow, Davids, Button & Renshaw, 2015; Bruineberg & Rietveld, 2014).

Biography
Keith Davids is Professor of Motor Learning at the Centre for Sports Engineering Research, Sheffield Hallam University, UK and FiDiPro at the Faculty of Sport and Health Sciences, University of Jyväskylä, Finland. He graduated from the University of London and gained a PhD at the University of Leeds. In the past three decades, he has held positions in sport science departments in the UK, New Zealand and Australia. His research programme in ecological psychology and nonlinear dynamics investigates how utilisation of affordances constrains emergent coordination tendencies in athletes and sports teams classed as complex adaptive systems. Key ideas from ecological dynamics have been integrated into a Nonlinear Pedagogy. Over the years, findings of this research programme...
have been communicated in numerous peer-reviewed books, chapters and research articles in international journals in psychology, movement science and behavioural neuroscience. He currently supervises doctoral students from UK, France, Singapore, Taiwan, Finland, Australia and New Zealand.