

ESAN 3rd meeting abstracts

Tues oral (3 or 4 no.)

Weds Oral (2 no. and 3 no.)

Weds Poster (unlimited)

1. No title

Dr Joe Causer, Lecturer, LJMU

Adaptations in cognitive processes support decision-making in multiple domains. The aim of this study was to examine skill-based difference in cognitive processes and how they alter as function of removing context-specific information related to the patients medical condition. Skilled ($n = 9$) and less skilled ($n = 9$) emergency medicine doctors responded to high-fidelity simulated scenarios in a high and low context information conditions. Skilled participants demonstrated higher diagnosis accuracy and a lower reduction in accuracy when context-specific information was removed, compared to less skilled participants. Moreover, they adopted a forward reasoning strategy, generated more options and selected the best quality option. Finally, skilled participants employ the same cognitive processes during high and low context conditions. However, the additional context-specific information allows them to update the cognitive representation of the scenario and successfully diagnosis the patient's condition.

2. The interaction of learner skill level, task difficulty and conditions of practice: testing the Challenge Point hypothesis

Dr Philip Kearney, Senior Lecturer, University of Chichester

According to the Challenge Point hypothesis (Guadagnoli & Lee, 2004), learning is optimised by balancing the difficulty of the skill, the experience of the learner and the conditions of practice (e.g., level of contextual interference). A specific prediction of the hypothesis is that highly skilled individuals should benefit from practicing under low contextual interference provided the task is sufficiently difficult. An experiment with sixteen highly skilled golfers (handicap ≤ 4) practicing the flop shot under low or high contextual interference conditions supported this prediction. To optimise learning, conditions of practice should be modified based on task difficulty.

3. Skill acquisition servicing within a multi-disciplinary examination of expertise in cricket spin bowling

Dr David Mann, Post-doc, Vrije Universiteit, Amsterdam, Netherlands

Australia has performed an exhaustive search to find a spin bowler capable of replacing Shane Warne in the Australian Cricket Team. This presentation will discuss the role of skill acquisition in a multi-disciplinary team (also involving biomechanics, physiotherapy, physiology, and psychology) working with coaches in an effort to profile skilled spin bowlers in Australian cricket. A selection of key results examining the developmental histories of elite and emerging players will be presented as a background to a discussion of how these results have been used to inform coaching, talent identification, and team selection.

4. An exploration of decision-making preferences amongst cricketers

Dr Stewart Cotterill et al., Senior Lecturer, University of Gloucestershire

Decision-making forms a central component of the game of cricket. Due to the different formats of the game, players are often required to execute very different courses of action despite being presented with the same set of environmental cues (such as the type of delivery faced by the batter). This study sought to explore the degree to which the perceived correct course of action differed depending upon the position that the player occupied in the team. Results are discussed in terms of the response bias of players and preliminary indications are that there are individual differences in this regard.

5. How immediate is the effect of quiet eye training in novices?

Lee John Moore, PhD Research Scholar, University of Exeter

Quiet eye training interventions have been shown to facilitate the learning of motor skills, however, little is known about how quickly this benefit occurs. Such information may provide an insight into how the quiet eye operates. This study examined the immediate effects of quiet eye and technical training interventions on golf putting performance, quiet eye, and putting kinematics in forty novice participants over one block of forty training putts. Results revealed that while both groups improved significantly over one block (and had lower clubhead acceleration), an interaction effect was evident; the improvement was greater for the quiet eye trained group.

6. Differences in Visuomotor Skill in Children with High and Low Movement Ability

Charlotte Miles et al., PhD Student, University of Exeter

Severe deficits in motor control can have a detrimental impact on a child's health and physical activity participation. Quiet eye (QE) training interventions might be effective in guiding a more optimal visuomotor strategy, improving motor control and subsequent activity participation. In the first study to examine QE in children, we found that children

with low movement ability (LMA; assessed via the validated MABC-2) had significantly later and shorter QE periods in a catching task compared to high ability counterparts. These initial findings have enabled us to develop a QE training intervention aimed at improving visuomotor control of LMA children.

7. Producing a developmentally appropriate game for Under-11 Rugby Union players

Gethin Thomas, PhD Student, University of Exeter

The RFU are seeking to help the development and retention of children in rugby union by experimenting with the rules by which mini rugby is played (U7 – U11). The current study examined what nine elite rugby union coaches felt was essential for the development of U11 mini rugby players, and is part of a larger project (Shaping the Game) examining the effect of new rules on player behaviours. In line with Côté's Developmental Model of Sport Participation (DMSP), coaches felt that sampling across sports was important, and that early specialization into 'set positions' was counterproductive in the long term.

8. No title

Dr Sam Vine et al., Lecturer, University of Exeter

Laparoscopic surgeons are required to perform in highly pressurised and stressful environments. Blascovich's (2008) Biopsychosocial Model of Challenge and Threat postulates that if an individual determines that their available resources are sufficient to meet the demands of a stressful situation, then a challenge state is adopted. If the resources are insufficient, then a threat state is adopted. Such states can be indexed via distinctive cardiovascular responses; with a challenge state linked to superior performance. The current study examined the differential effects of challenge and threat states upon the acquisition and resilience of basic laparoscopic surgical skills in 52 medical trainees.

9. Bartlett revisited: is now the time to consider timing in sport expertise?

Dr Matt Dicks, Post-Doc, Vrije Universiteit, Amsterdam, Netherlands

In 1947, the British experimental psychologist Fredric Bartlett published a two-part review in the British Medical Journal entitled "The measurement of human skill". In these articles, he speculated on the mechanisms that underpin skilled performance, as suggested by research he had undertaken at the University of Cambridge. One of his observations, that skilled performers "...have all the time in the world" (p.836) is seminal in the sport expertise literature and is commonly cited to explain findings from perceptual

skill studies. It is important to note, however, that the above quote does not fully reflect Bartlett's observations on skilled performance. In this presentation, I will aim to provide an accurate overview of Bartlett's observations, before considering the implications for perceptual expertise research.

Bartlett, F. C. (1947). The measurement of human skill. *British Medical Journal*, 1(4511), 877-880.

10. Effects of anxiety on performance and execution of police arrest and self-defence skills

Dr Peter G. Renden et al., Vrije Universiteit, Amsterdam, Netherlands

We investigated the effect of anxiety on the quality of police officers' arrest and self-defence skills. Anxiety was manipulated by attacking the police officers with either a rubber knife or shock knife. Full-body kinematics were obtained while officers kicked or blocked the attacker. Results revealed that performance decreased when police officers were anxious. Furthermore, kinematic analyses showed that under anxiety police officers demonstrated characteristics of avoidance behaviour, such as making themselves smaller or leaning more backwards. It is suggested that training in threatening circumstances could be a proper method to get used to performing under anxiety, thereby inhibiting avoidance behaviour.

11. Effects of anxiety, a cognitive secondary task, and expertise on gaze behavior and performance in a far aiming task

Nicky Nibbeling, Vrije Universiteit, Amsterdam, Netherlands

The current study investigated the effects of anxiety, cognitive load, and expertise on perceptual-motor performance. Eleven expert dart players and nine novices performed a dart task in high- and low-anxiety conditions with and without a secondary task. Anxiety evoked a decrease in dart performance, but only for the novices. Processing efficiency decreased for both groups with anxiety. Most important, the decrease in performance for novices was accompanied by less efficient gaze behavior. The dual task did not affect performance. Findings provide support for Attentional Control Theory as a suitable framework to explain effects of anxiety, cognitive secondary tasks, and expertise in far aiming.

12. Action-specific perception: Changes in visual processing independence associated with performance

Dr Rob Gray, Senior Lecturer, University of Birmingham

Expert baseball players were asked to perform three different directional hitting tasks in a batting simulation and make interleaved perceptual judgments about three ball parameters (speed, location, and size). Hitting performance was positively correlated with perceived size and negatively correlated with perceived speed. Furthermore, perceived ball size was largest (and perceived speed slowest) when the ball crossing location was optimal for the particular hitting task the batter was asked to perform. Performing directional hitting created functional processing dependencies between perceptual variables (e.g., speed and location) that are typically processed independently. Such processing dependencies could serve to improve action selection.

13. Effect of Focus of attention observational model on the learning of motor skill: The mediator role of self-efficacy

Dr Mohsen Shafizadeh , Senior Lecturer, Sheffield Hallam University

The purpose of this study was to investigate the effect of focus of attention during observation of a model on the learning of dart throwing skill. 48 novice students were selected voluntarily and divided into four groups according to type of practice and focus of attention. Internal-attention group focused on limbs but external-attention group focused on dart and target. Mixed ANOVA showed a significant main effect of focus of attention so that external-attention group performed better in the retention and transfer tests after controlling the self-efficacy score ($P < 0.05$). In conclusion one of the learning effects of external focus of attention is self-efficacy.

14. Coaching decision making in sport

Alan Olive, High Performance Coaching Manager, UK Sport

My presentation will cover the work I have been doing with Sailing, Canoeing and Hockey developing decision making. This work looks at the topics and factors for developing decision making through controlling the learning environment, specifically the use of feedback, questions, reflection and game play type sessions. This work also looks at the process being used to develop coach's understanding of this subject and the practical applications in their coaching.