

# Differences in Gaze Behaviours During Green Reading of Mixed Ability

## Golfers: A Pilot Study

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### 1. Introduction

**Objectives:** Research has identified experts are typically more efficient in visual search strategies enabling effective processing of environmental information. It has been suggested that examination of the gaze behaviour of golfers engaging in their pre-shot routines alongside their subsequent skill execution is warranted (Campbell & Moran, 2014).

### 3. Method

**Design:** This study used a between-participants (Novice v Expert) experimental design. Golf putts were completed in three slope conditions; Straight (S), Right to Left (RL), and Left to Right (LR).

**Participants** Fourteen mixed ability golfers (age: 26±9.9 yrs.) were divided equally into expert and novice groups based on handicaps and took ten familiarisation putts on a synthetic putting green. All gave written informed consent and the study was approved by the local ethics committee.

**Task and Measures** Participants completed ten putts on each of the three putting green slope conditions. Performance measures recorded were mean duration of visual fixations, mean number of visual fixations and mean number of fixations to key features (KF) of the putting green.

**Procedure:** Participants wore a Tobii Glasses 2™ mobile eye tracker to record gaze behaviour towards KF of the putting green. Ten putts were competed in each condition.

### 4. Results

There was a significant main effect of group ( $p=0.05$ ) in all conditions with experts typically displaying longer fixation duration, a greater number of total fixations, and a greater number of fixations towards the KF compared to novices.

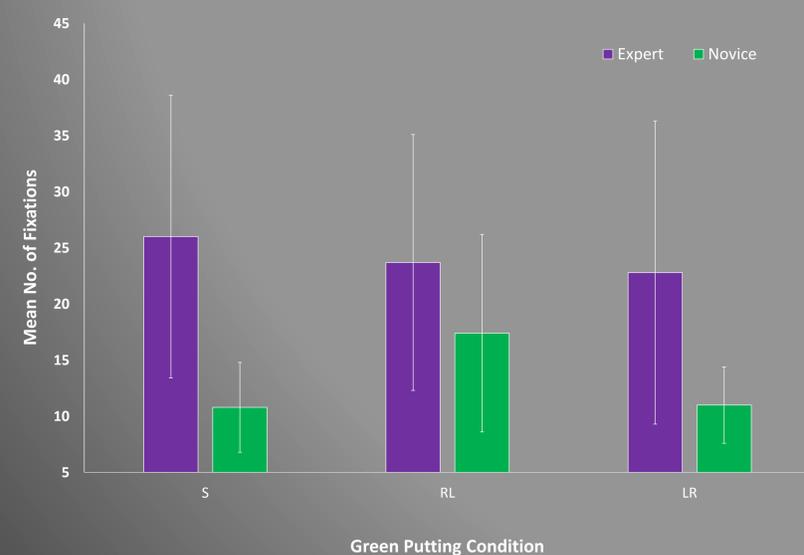


Figure 1: Mean Number of Fixations

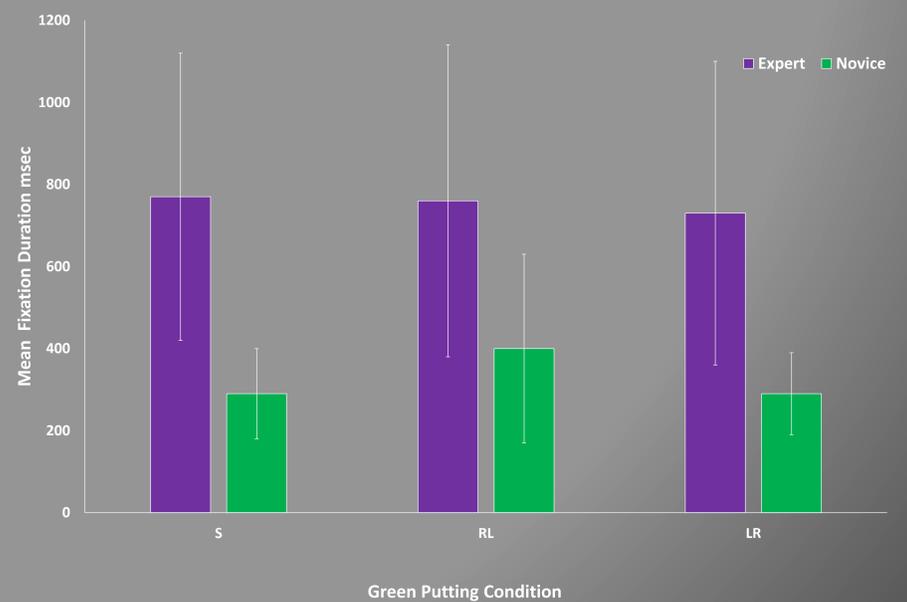


Figure 2: Mean Fixation Duration

### 5. Conclusion

These preliminary study findings provide evidence to suggest that expert golfers displayed more distinctive gaze behaviours towards KF of the green across all putting green slope conditions. Experts also displayed significantly longer fixation durations on key environmental features prior to shot execution suggesting that they are better able to identify and plan movements in relation to putting conditions.

### 6. References

- Campbell, M.J., & Moran, A.P., (2014). There is more to green reading than meets the eye! Exploring the gaze behaviours of expert golfers on a virtual golf putting task. *Cognitive Processing*, 15: 363-372.
- Vickers, J.N., (1992). Gaze control in putting. *Perception*. 21, 117-132.
- Vine, S.J., Moore, L.J., & Wilson, M.R., (2011). Quiet eye training facilitates competitive putting performance in elite golfers. *Frontiers in Psychology*. 2(8), 1-9.

### 2. Aim

To examine differences in green reading behaviour used by novice and expert golfers during varying green complexity in golf putting.

