Dear Editorial Board members,

Please note: For consideration for the forthcoming special issue on “*Sources of variation in search and foraging*” (Alastair D. Smith & Carlo De Lillo, editors).

We routinely search for objects (cars in car parks, familiar faces in crowds, keys among books and papers in our offices). Given how much time we spend searching, one might expect us all to be relatively good at it. However, several recent studies have revealed very large individual differences in foraging and search strategies, with some people seeming to easily discern and implement behaviours that help them find targets quickly, and others performing much less efficiently. A particularly striking example of this range of individual differences in strategy appeared in Nowakowska, Clarke & Hunt (2017, Proc Royal Society B). In that experiment, an optimal strategy was defined as directing eye movements to the most informative locations. By this definition, some participants were almost perfectly optimal, some in between, and some the opposite of optimal, directing almost all of their eye movements to regions that gave them no new information. These individual differences pose a challenge for constructing a unified model of visual search, as models will need to describe all individuals, rather than their average.

Here, we tested a group of 64 participants in this search task over two sessions, one week apart. We also tested them in two other visual search tasks that have recently been shown to produce large individual differences in strategy and performance. Our questions were first, whether we can predict efficiency in search from one week to the next within a task (i.e., is being efficient in search a stable trait?) and second, whether performance and strategy in one search task can predict performance and efficiency in another (i.e., how general is this trait?). We find strategy and performance within visual search tasks is highly reliable, but also highly specific, with correlations between tasks being close to 0.

Our study demonstrates that strategies are stable over time and highly predictive of search performance, and not reflective of a domain-general factor like motivation or intelligence, but highly specific to the requirements of particular situations. This is important because our current models of human search and foraging are based on measures aggregated across individuals. Our findings reveal both an urgent need to account for individual differences in our search models and theories, and also an opportunity to harness these individual differences to better understand the mechanisms underlying visual search.

Given the timeliness and general interest of our results, we think the Quarterly Journal of Experimental Psychology would be an ideal journal for this work. We therefore kindly request you to consider our enclosed manuscript, entitled "Stable individual differences in strategies within, but not between, visual search tasks", for publication in your journal.

We look forward to your decision and thank you in advance for your consideration.

Sincerely,

Dr. Alasdair Clarke