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## Visualising eye tracking and associated purchase data to evaluate real-life shopper behaviour in a UK Online Supermarket: Proof-of-concept development of the "What the Eyes Reveal" Dashboard

Guari Venkatachalapathi<sup>1</sup>, Sally Moore<sup>2</sup>, Yael Benn<sup>3</sup>, Victoria Jenneson<sup>2</sup>, and Peter Ho<sup>2</sup>

<sup>1</sup>Leeds Institute of Data Analytics (LIDA), University of Leeds, UK

<sup>2</sup>School of Food Science and Nutrition, University of Leeds, UK

<sup>3</sup>School of Psychology, Manchester Metropolitan University, UK

### Introduction & Background

Research can inform strategies to improve population diets by understanding how to harness digital food retail environments to influence consumer purchase choices.

This project aimed to use data, including eye tracking and purchases, from a pilot study to better understand "how" people shop within online supermarkets to buy food in real-life.

### Objectives & Approach

To develop an interactive dashboard to visualise and explore eye-tracking, purchase and participant data from individual shoppers during their real-life online supermarket shops. Data was collected from ten participants of varying backgrounds, and prior online shopping experience, while they performed and paid for their own food shops (and home delivery) using the Ocado.com website on a University Tobii Pro desktop eye-tracker computer. Receipt data collected included cost, number and nature of all foods purchased. Analysis of eye-tracking data included classification of supermarket website navigation, and types of products (i.e. Fresh etc.) and webpages (i.e. product listings, basket, extra information pages etc.) viewed. Participants' visual engagement with individual webpages was quantified using eye gaze (fixations) and movements (saccades) over time. Data from eye-tracking and purchases were aggregated and linked with participant characteristics and visualised using a quarto dashboard with the objective of enabling interactive exploration of trends.

### Relevance to Digital Footprints

We show how participants' eye-tracking data can be combined with digital food purchase footprints to characterise real-life shopping trips and explore online decision-making behaviours, including supermarket website and webpage use as well as food choice.

### Results

A Quarto dashboard was created which enabled interactive exploration of visualised data on individual participant's attention (fixation count and duration) across their online shop, and by specific supermarket webpage types. Across shops, participants took between 7-61mins, viewed between 21-99 distinct supermarket webpages and purchased 6-68 products (£42-£119). Webpages, including product-listing pages where most fixations were captured, were accessed by participants via "search" and "navigation" paths, with no clear relationship between types of products viewed and purchased. The dashboard allows users' further exploration of the data interactively, filtering by participant, webpage, and product types.

### Conclusions & Implications

Our approach, data, and dashboard offer new insights into real-world consumers' online food purchasing behaviours to inform future research which can underpin supermarket website design. Future work includes scale-up to increase sample size, and quantification of participants' attention to specific within-webpage features such as pictures. Together these enable evaluation of marketing and product presentation within supermarket webpages to support sustainability and public health.

### Keywords

digital retail food environments, eye tracking, online supermarkets, consumer behaviour, purchases, food choice