

### A Cross-Sectional Observational Study of Online Pre-order Systems for School Lunches in Primary Schools

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**Objectives:** To explore how children (4–11 years) interact with online pre-order systems (OPS) to select school lunches.

**Methods:** A combination of direct observation and an online questionnaire was used to examine the operation of OPS in four UK primary schools. An observation form was developed to collect data on how the menu options were displayed on the OPS, how children selected options, and the interactions between children and others when making food selections. A questionnaire was used to collect data on parent's perspectives on their children's school food choices and the OPS. Descriptive statistics were followed by Fisher's exact tests to examine associations between characteristics (e.g., year group) and outcomes such as having a school lunch or who the decision-maker was. Qualitative data were analysed using a thematic approach.

**Results:** Twelve hours of direct observation in 24 classrooms with children aged 4–11 years ( $n = 682$ ) were conducted. The food displayed on the systems differed across the systems and schools, reflecting the

schools' respective menu cycles. Most children (70%) having school lunches pre-ordered these in the classroom (the alternative was remote selection with a parent account). Differences in the food choice process related to children's ages; older children (8–11 years) were observed to be more independent when making food selections, compared to younger children, often supported by parents or teachers. The questionnaire was completed by 125 parents and over half of the parents (54%) of children having a school lunch reported that their child was the decision-maker when choosing the menu option. Interestingly, there was a significant association between year group and who chose the lunch option from the menu ( $p = 0.007$ ), with a moderate effect size. Three main themes emerged from 151 comments from parents, including those related to children's independence when choosing lunch and parents viewing this as part of children growing up.

**Conclusions:** Observation was invaluable in understanding the OPS and how pupils chose their meals. Given the potential expansion of these systems in schools, there is an opportunity to develop interventions to guide children towards specific or different options from the school menu.

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