Reviewer's report

Title: The Virtual Supermarket: An Innovative Research Tool to Study Consumer Behaviour

Version: 2 Date: 25 March 2011

Reviewer: Cliona Ni Mhurchu

Reviewer's report:

MAJOR COMPULSORY REVISIONS

Overall:

This is a useful paper describing innovative software designed to study consumer behaviour. However, as far as I can ascertain there has been no independent assessment of the software's validity as a tool to measure consumer food purchasing behaviour. Prior to widespread use as a research tool I would consider it essential to compare purchases made in the virtual supermarket with those made in a real supermarket (numbers and types of products purchased, total expenditure etc). This should be done using independent measures of real-world food purchases such as supermarket sales receipts or electronic sales data. If such a validation study has been conducted the results should be included in this manuscript. If a validation study has not yet been undertaken this should be acknowledged as a major limitation and caution should be exercised in its use pending such validation.

Implementation, paragraph 2:

More detail is needed on the following aspects of development and implementation:

1. Was the design of the virtual reality supermarket based on any particular Dutch supermarket?

2. Why was the decision made not to include branding on products since this clearly makes the virtual supermarket very different to a real one?

3. A reference is needed for the statement "In the Netherlands an average supermarket sells 6000 to 7000 different food products". The total seems low compared to product availability in other countries. Does this number include different package sizes of the same products or relate to nutritionally unique products?

4. On what basis were the 38 product categories chosen? Do they relate to an existing Dutch or international food categorization scheme?

5. On what basis was the sample set of "popular and frequently consumed products" selected? Was existing national sales data used to determine inclusion of specific products? 512 products seems an extraordinarily small number given that the virtual supermarket is supposed to mimic a real supermarket, which would normally contain several thousand products. How confident are the
authors that these 512 products are representative of usual Dutch supermarket food purchases?

6. What nutritional guidelines were used to determine "healthy" and "unhealthy" product options?

7. Why were participants allocated a specific food budget rather than being allowed to shop according to their usual household food budget? Why were participants asked to remove groceries if they exceeded the allocated budget?

8. How were food prices attached to products? Were real food prices used and if so were they nationally representative prices or based on prices within one store?

MINOR ESSENTIAL REVISIONS

1. I suggest the title be modified slightly to "The Virtual Supermarket: An Innovative Research Tool to Study Consumer Food Purchasing Behaviour"

2. Abstract, paragraph 2: The tool could also be used to study the effects of food promotions or product placement (in addition to food pricing and labelling)

3. Abstract, paragraph 2: Suggest you replace "American version" with "English-speaking version"

4. Abstract, paragraph 2: By "participant rewarding" do you mean participant feedback?

5. Abstract conclusions: I also think a major advantage of the software is that it maintains researcher independence and avoids conflicts of interest that may arise when working with food industry/retailers

6. Introduction, paragraph 3: I do not believe it is possible to estimate price elasticity from single experimental studies. Large datasets that collect data from a nationally representative sample over time are needed to quantify price elasticities (e.g. household expenditure surveys)

Results, paragraph 2: I do not agree that the virtual supermarket may provide better quality predictions than modelling studies. Such modelling studies use price elasticity data derived from real food expenditure and are thus likely to be more accurate than simulated food expenditure.

Results, paragraph 4: Whilst there may not be any software tools comparable with the Virtual Supermarket may be worth elaborating on the lab-type experiments that have been conducted in relation to food pricing. Len Epstein (USA) has conducted a number of such food pricing experiments in artificial environments and arguably the Virtual Supermarket may offer a better research tool to study food purchasing behaviour than a laboratory.

Table 1: Provide a footnote outlining how Education Level was classified as High/Medium/Low

**Level of interest:** An article whose findings are important to those with closely related research interests
Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests