



The potential of apps in changing consumers' food waste behaviour

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Background

About one third of all produced food is wasted and consumers are responsible for a large part of it. Consumers' food waste behaviour is influenced by many factors. Apps may present a low-cost and accessible approach to change food waste behaviour, however little is known about their effectiveness.

Objective

In this study, we aim to evaluate the use of three "food planning apps" and explore to what extent usage of such an app leads to changes in food waste behaviour.

Methods

Inventory ICT tools

First, an overview was created of existing ICT based tools and smart technologies for food management and waste reduction in consumers. These tools were examined for their functionalities in different phases of household food logistics. From this overview, three applications were selected for a consumer study.

Consumer study

A total of 30 Dutch consumers, aged 18-65 years old, were recruited. Each of the three apps were tested by a group of 10 consumers for a period of three weeks (N=2 dropped out). After this period, the consumers joined a focus group discussion of 90 minutes. The aim was to gain insight in how consumers experienced using the app and to what extent using the app led to a perceived change in food waste behaviour. After the focus group discussions, all participants filled out an online evaluation survey.

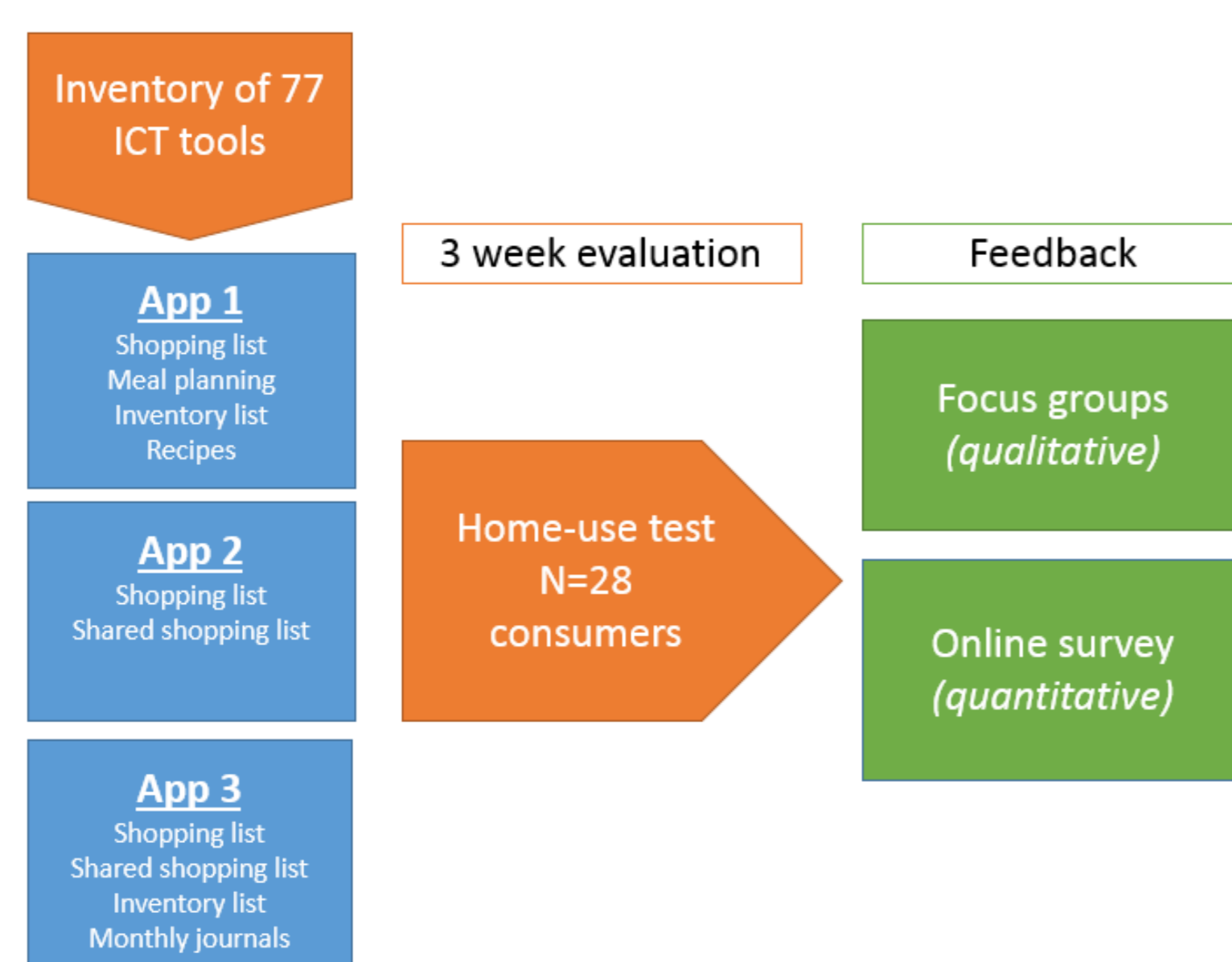


Figure 1. Study design: three apps with different functionalities were selected from an inventory of 77 ICT tools and tested in a home-use test by 28 consumers. Findings were discussed in focus groups and quantified in an online survey.

Results

Inventory ICT tools

77 apps and websites that relate to food waste behaviour were found. Most cover the phases of *planning*, *acquiring*, and *storing* of food. They can be categorized as: informative, reminder, food sharing, planning, recipes and supermarket apps. Supermarket apps, reminder apps, and food sharing apps are most frequently used.

Based on the criteria of high number of installations or novelty, three apps from this inventory were selected for use in the consumer study. Functionalities of each app are displayed in figure 1.

User experiences

- App 1 and 3 were not user-friendly and were time consuming in use
- None of the apps was recommended to family and friends

Effects on groceries and meals

Table 1. Median scores per app for statements from our survey on "groceries and meals", measured on 7-point-Likert scales (1=completely disagree, 7=completely agree)

	App 1 (N=10)	App 2 (N=10)	App 3 (N=8)
Effect on groceries and meals			
Using the app influenced my groceries planning	1.5	2.0	2.5
Using the app influenced the amount of groceries I purchased	1.0	1.0	3.0
Using the app influenced the type of groceries I purchased	1.0	2.0	3.0
Using the app influenced the type of meals I prepared	1.0	1.0	2.0

- None of the apps showed an effect on self-reported food-waste related behaviour (meal planning and groceries shopping).

Effects on awareness and behaviour

Table 2. Median scores per app for statements from our survey on "awareness", measured on 7-point-Likert scales (1=completely disagree, 7=completely agree)

	App 1 (N=10)	App 2 (N=10)	App 3 (N=8)
Awareness			
Using the app raised my interest about food waste	3.0	1.0	4.5
Using the app led to conversations about food waste in my household	1.5	1.0	3.5
Using the app made me more aware of food waste	1.5	1.0	5.0
Using the app increased my motivation to reduce food waste	1.0	1.0	4.5

- In general consumers were open to and interested in apps that help reducing food waste
- However, many participants lack *intrinsic motivation* to use such an app ("I don't waste that much food.")
- In the survey, app 3 showed small, positive effects on *awareness* and *motivation*
- The tested apps lacked *clear incentives* that *reward* and *reinforce* positive behaviour

Conclusions

- Consumers were open to apps that help reducing food waste. However, **user-friendliness** of the tool is a key component in achieving behaviour change, since consumers have low intrinsic motivation to use these type of apps.
- A direct **insight** or **feedback** on food waste behaviour should be included in future tools to reward the user
- Future research is recommended to obtain a comprehensive picture of the effects of ICT tools on consumers' awareness, motivation and behaviour in relation to food waste

