



Universiteit Utrecht

What panel studies can learn from the design of smartphone-app studies *.... and vice versa*

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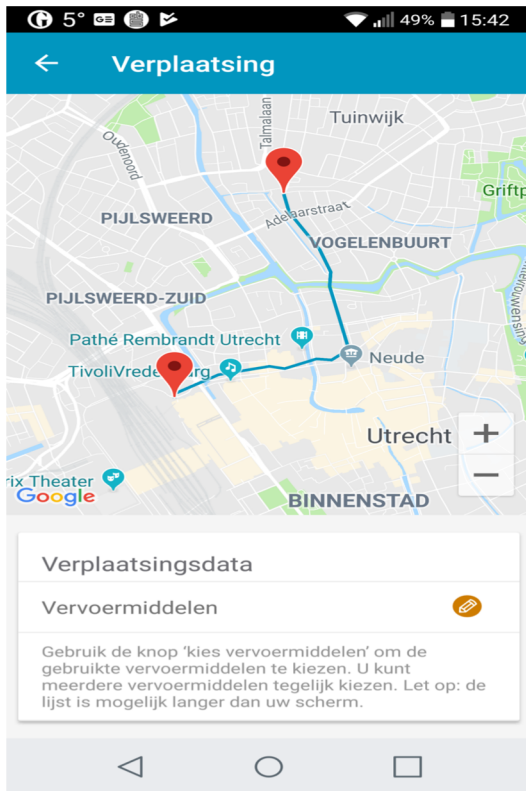


Bella Struminskaya, Vera Toepoel, Danielle McCool, Anne Elevelt (Utrecht University), Marieke Haan (University of Groningen), Ralph Dolmans, Annemieke Luiten, Jeldrik Bakker, Dierdre Giesen, Vivian Meertens, Victor Verstappen, Jelmer de Groot (CBS), Barry Schouten (CBS & Utrecht University), Laurent Smeets, Katie Roth, Goran Ilic

<https://win.sites.uu.nl>

Alex Wenz, Florian Keusch, Jan Karem Hoehne (University of Mannheim), Mick Couper (University of Michigan), Oriol Bosch (LSE), Melanie Revilla (Pompeu Fabra, Barcelona), Annette Jackle (University of Essex)

Smartphone apps to improve measurement



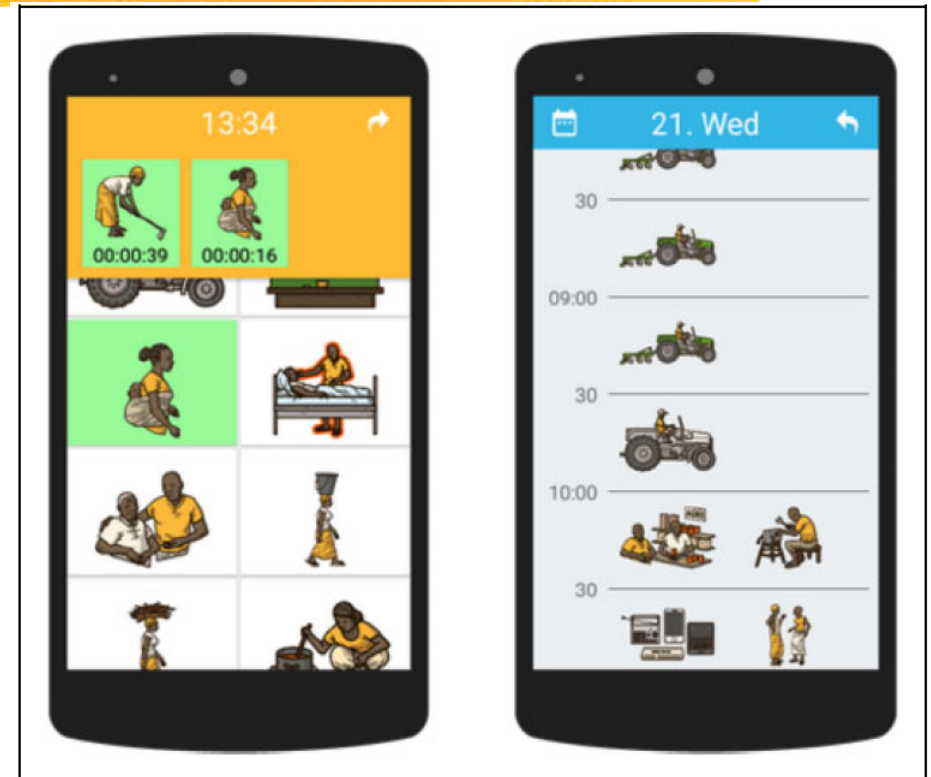
Travel

McCool et al (2020)



Household spending

Wenz et al (2020)



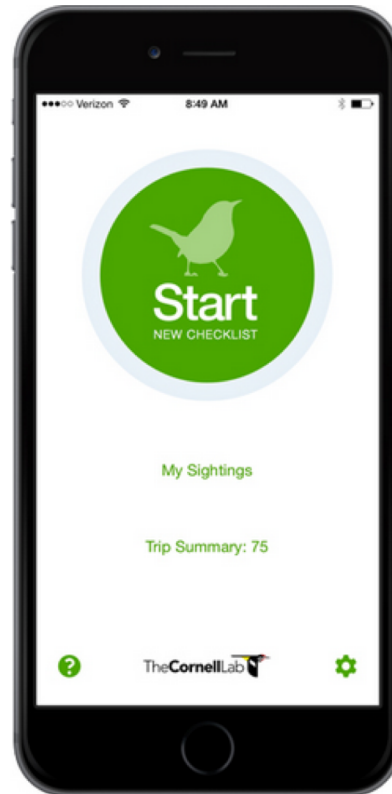
Time Use

Gerlicher & Birner (2019)

Smartphones for frequent measurement



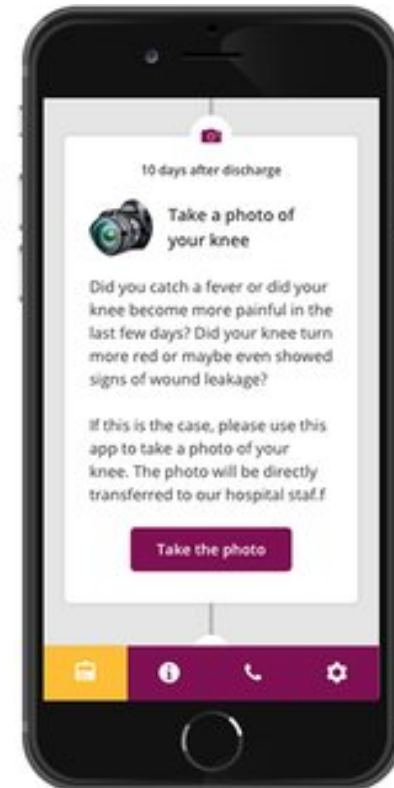
EMA/ESM



Citizen science



Mobile behavioral Intervention



Smartphones for special populations

Article

Utilizing Smartphones to Study Disadvantaged and Hard-to-Reach Groups

Sociological Methods & Research
2018, Vol. 47(3) 458-491
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Naomi F. Sugie¹

Abstract

Mobile technologies, specifically smartphones, offer social scientists a potentially powerful approach to examine the social world. They enable researchers to collect information that was previously unobservable or difficult to measure, expanding the realm of empirical investigation. For research that concerns resource-poor and hard-to-reach groups, smartphones may be particularly advantageous by lessening sample selection and attrition and by improving measurement quality of irregular and unstable experiences. At the same time, smartphones are nascent social science tools, particularly with less advantaged populations that may have different phone usage patterns and privacy concerns. Using findings from a smartphone study of men recently released from prison, this article discusses the strengths and challenges of smartphones as data collection tools among disadvantaged and hard-to-reach groups.

Parolees

Article

Using Smartphone Technology for Research on Refugees: Evidence from Germany

Sociological Methods & Research
1-32
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DOI: 10.1177/0049124119852377
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Florian Keusch¹, Mariel M. Leonard¹,
Christoph Sajons² and Susan Steiner^{3,4}

Abstract

Researchers attempting to survey refugees over time face methodological issues because of the transient nature of the target population. In this article, we examine whether applying smartphone technology could alleviate these issues. We interviewed 529 refugees and afterward invited them to four follow-up mobile web surveys and to install a research app for passive mobile data collection. Our main findings are as follows: First, participation in mobile web surveys declines rapidly and is rather selective with significant coverage and nonresponse biases. Second, we do not find any factor predicting types of smartphone ownership, and only low reading proficiency is significantly correlated with app nonparticipation. However, obtaining sufficiently large samples is challenging—only 5 percent of the eligible refugees installed our app. Third, offering a 30 Euro incentive leads to a statistically insignificant increase in participation in passive mobile data collection.

Refugees

Review Article

mHealth for schizophrenia spectrum disorders management: A systematic review

Olga Chivilgina¹, Tenzin Wangmo¹, Bernice Simone Elger^{1,3},
Thomas Heinrich² and Fabrice Jotterand^{1,2}

Abstract

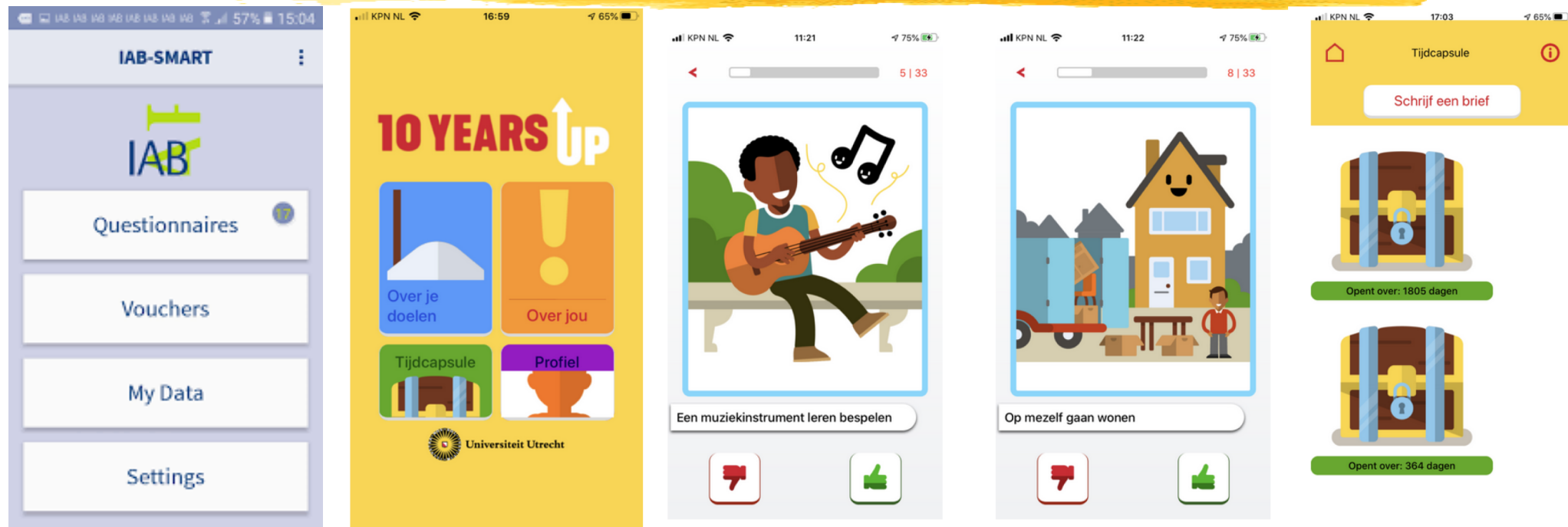
Background: Various types of computational technologies can be used to access, store and wirelessly share private and sensitive user-related information. The 'big data' provided by these technologies may enable researchers and clinicians to better identify behavioral patterns and to provide a more personalized approach to care. The information collected, however, can be misused or potentially abused, and therefore could be detrimental to the very people who provided their medical data with the hope of improving care. This article focuses on the use of emerging mobile technologies that allow the collection of data about patients experiencing schizophrenia spectrum and related disorders. Schizophrenia has been recognized by the Sustainable Development Goals of the United Nations for its burden on our health care system and society [1]. Our analysis provides an overview of the range of available mobile technologies for people with schizophrenia and related conditions along with the technology's reported capabilities and limitations, and efficacy of mHealth interventions based on the data from articles. Thus, the focus of this review is first and foremost to update the scope of existing technologies as previous systematic reviews such as the ones by Alvarez-Jimenez et al. and by Firth and Torous are outdated [2, 3]. Although we also examine the ethical issues arising from the use of these technologies, for an in-depth analysis of the ethical implications of mobile Health technologies (mHealth), we refer the readers to our follow-up article. In terms of the ubiquitous availability of technology on the internet, our article summarizes significant information for mental health specialists and appraises the reader about the existence of these technologies. **Objectives:** In terms of the ubiquitous availability of technology on the internet, our article summarizes significant information for mental health specialists and appraises the reader about the existence of these technologies.

Schizophrenia patients

IJISIP

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Social Psychiatry
2020, Vol. 66(7) 642-665
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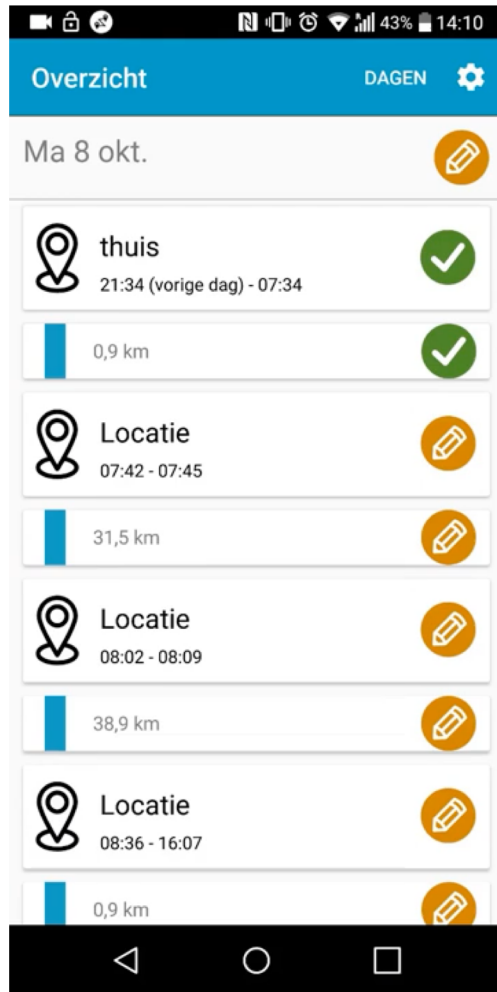
... apps also for Internet panels



IAB smart panel
Haas et al (2020)

10 years up: gamification and feedback

Utrecht and Statistics NL: apps since 2006



1. Wifi and GPS sensors populate diary
 2. Respondents annotate the diary
- General population: response about 30%
 - Fine grained travel data
 - Continuous observations for individuals
 - Better measurement for short trips
- (See McCool et al 2021)

Online Panels and apps - similarities



- ◆ Study of change within individuals
- ◆ Variation across individuals
- ◆ Inference to the general population
- ◆ Recruitment and dropout are a problem
 - But often larger in apps
 - Different patterns of nonresponse?
- ◆ Survey questions are important ingredients of both panel and app

Panels and apps - differences



1. Measurement
2. Infrastructure
3. Populations
4. Modes of communication

1. Measurement differences



PANEL

- ◆ 95% questions

APP

- ◆ Questions + sensors

2. Infrastructure



PANEL

- ◆ Web survey + panel database
- ◆ Design for 10 years
- ◆ Cheap and quick
- ◆ Everyone can use
- ◆ Data ready to analyse

APP

- ◆ App development for iOS and Android
- ◆ ???
- ◆ Expensive, slow develop
- ◆ Not all respondents familiar
- ◆ A lot of data processing

3. Type of population



PANEL

- ◆ General
 - Subsamples possible
- ◆ Large

APP

- ◆ Special
- ◆ Small

4. Communication




PANEL

- ◆ E-mail -> web
 - Text message 2nd
- ◆ Rarely feedback
- ◆ Gamification rare

APP

- ◆ Push-message -> app
 - Text and e-mail 2nd
- ◆ Feedback normal
- ◆ Gamification

To summarize -> what next?



Internet Panels:

- + for the general population
- + 'cheap' to set up, maintain
- measurement
- + long term change

APPS:

- motivated and specific population
- expensive
- + measurements
- + short-term change

What can we learn from apps?

- ◆ Measurement burst designs (Nesselroade, 1991!)

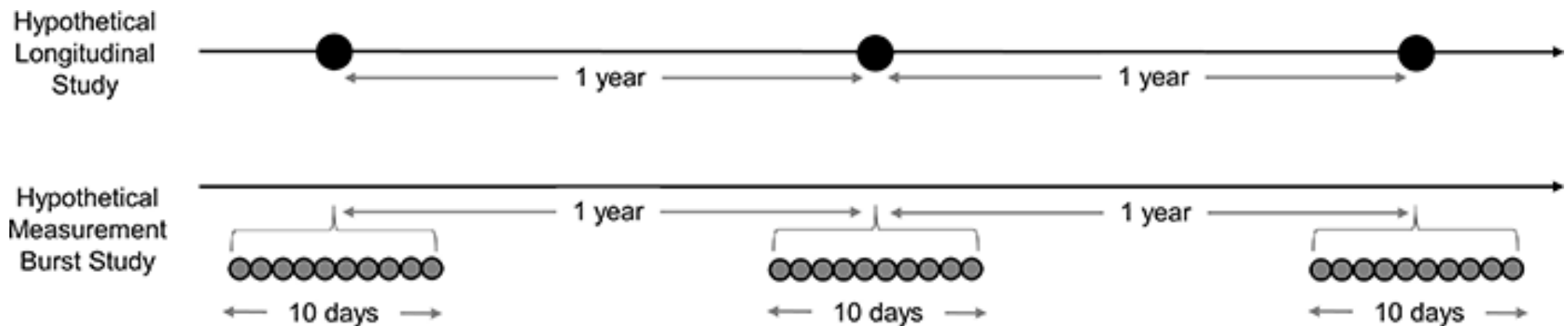


Figure taken from Cho, G., Pasquini, G., & Scott, S. B. (2019). Measurement Burst Designs in Lifespan Developmental Research. In *Oxford Research Encyclopedia of Psychology*.

Towards a new type of panel?



- ◆ Continuous measurements, respondent input
- ◆ Event-driven intensive measurements
 - Life events: Please tell us when you?
 - » become pregnant, Move house, Start a new job
 - News events:
 - » Snap polls (but then really snap!)
- ◆ Geo-fencing as screening
 - Everyone who visited a particular location
- ◆ ESM/Ema: link short-change to long-term change

Some existing examples



- ◆ Mannheim Corona study (Blom et al 2020)
 - Daily questionnaires in panel
- ◆ MCS, LISS, Understanding America, SHARE, HRS
 - Use of accelerometers (e.g. Kapteyn, 2019)
 - Scales, other health apps.
- ◆ PASS, Understanding Society
 - Use of APP for specific purposes (spending, location)
- ◆ MCS, various other panels
 - Time use diaries (often still web)

What to teach to app studies?

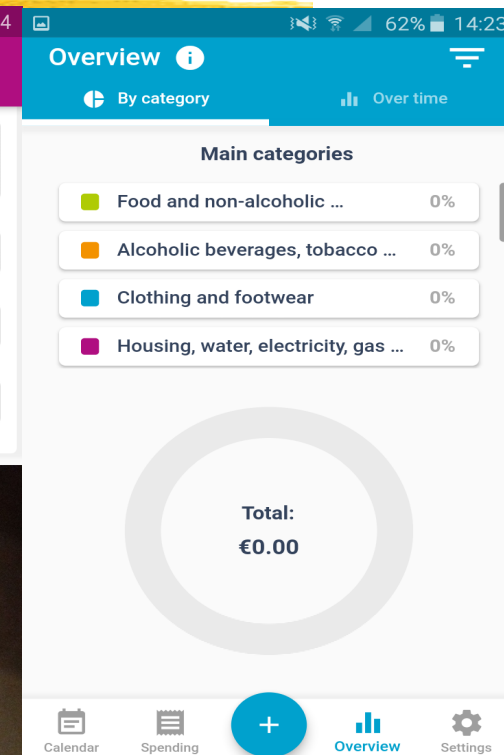
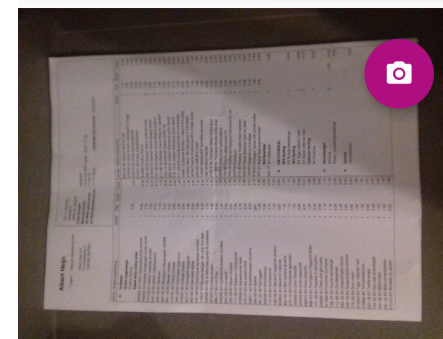
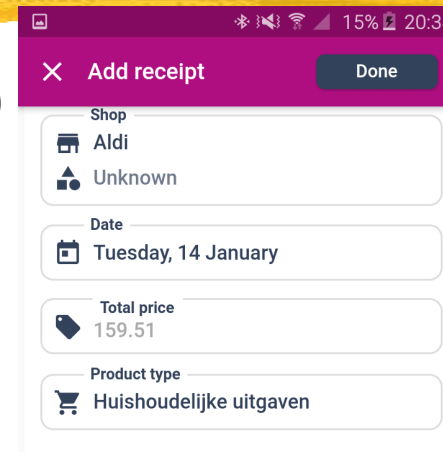
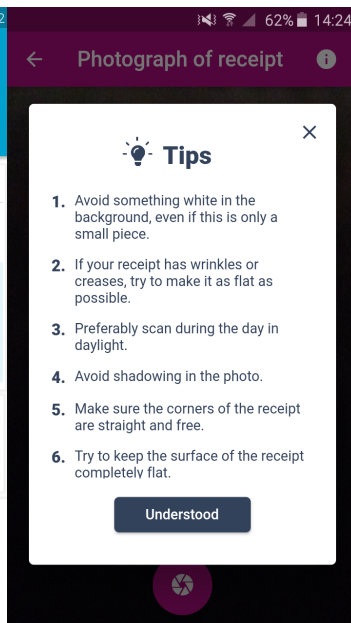
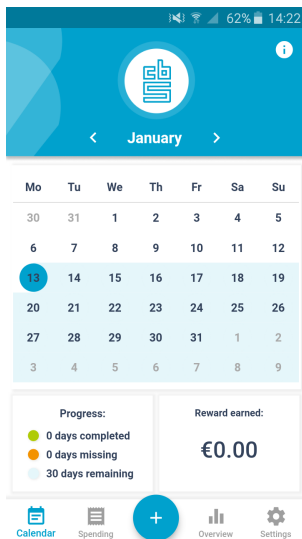


- ◆ Recruitment and retaining respondents
- ◆ Making it work for the general population
- ◆ Taking the long view
- ◆ Not all gamification is good
- ◆ Standards for app-development
 - Platforms?

[Skip to end](#)

Current & future projects

- Household Budget Survey (2021)
- New travel survey app (2021)
- Time Use survey (2022)



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Recent smartphone-app pubs

See www.peterlugtig.com

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More info:



- ◆ Win project: <https://win.sites.uu.nl>
- ◆ www.peterlugtig.com
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