

# DearScholar: A mobile application to conduct qualitative and quantitative diary research

Peter M. Kruyen<sup>1</sup>

<sup>1</sup> Assistant Professor, Institute for Management Research, Radboud University, the Netherlands

DOI: [10.21105/joss.02506](https://doi.org/10.21105/joss.02506)

## Software

- [Review](#) ↗
- [Repository](#) ↗
- [Archive](#) ↗

Editor: [Christopher R. Madan](#) ↗

## Reviewers:

- [@gcdeshpande](#)
- [@kinow](#)

Submitted: 16 June 2020

Published: 13 November 2020

## License

Authors of papers retain copyright and release the work under a Creative Commons Attribution 4.0 International License ([CC BY 4.0](#)).

## Background

Increasingly, scholars in the social and behavioral sciences prefer longitudinal data over cross-sectional data to explore new research phenomena, test effects, and build theories. Indeed, top-tier journals in, among others, management, psychology, and organization science nowadays tend to reject studies in which no longitudinal data has been used to investigate causal relations (e.g., [Bono & McNamara, 2011](#); [de Jonge, 2011](#); [Rico, 2013](#)) in particular when testing mediation effects (cf. [Kline, 2015](#)).

Diary studies are one particular class of research methods in which “self-report instruments [are] used repeatedly ... to investigate social, psychological, and physiological processes, within everyday situations...” ([Bolger et al., 2003, p. 578](#)). While there is a rich tradition of diary studies (cf. [Iida et al., 2012](#); [Ohly et al., 2010](#)), these methods are used relatively infrequently to collect data compared to other methods to collect longitudinal data such as experiments, panel studies, and archival research. Given the administrative burden of diary studies for both respondents (i.e., research participants) and researchers, their relative unfamiliarity (or unpopularity) is understandable.

However, because of their potential to obtain a better understanding of both *between* and, especially *within* individual differences over time, scholars across disciplines call for more research in which diary methods are applied, such as in public administration (e.g., [Bakker, 2015](#); [Grimmelikhuijsen et al., 2017](#)), marketing (e.g., [Elliott et al., 2005](#)), and health research (e.g., [Jones, 2000](#)).

## DearScholar and other diary research apps

DearScholar is a hybrid, open-source smartphone application (app) that can be used on iOS devices (iPhones and iPads) and Android devices (basically all other smartphones and tablets) to conduct diary studies and, obviously, for other types of longitudinal research such as repeated-survey designs and log studies. DearScholar’s aim is to facilitate the research process for both respondents and researchers. Researchers can specify the number of measurement occasions (i.e., measurement schedule), survey layout, and question format. Respondents only have to download the app from the App Store<sup>1</sup> or Google Play<sup>2</sup>, fill out their assigned credentials, and start participating.

A limited number of alternative (commercial) diary research apps have been developed, including [Indeemo \(2020\)](#), [LifeData \(2020\)](#), [Open Data Kit \(2020\)](#), [PIEL Survey \(2020\)](#), [REDCap \(2020\)](#), and [Teamscope \(2020\)](#). Acknowledging their value, some of these apps target the researcher as primary respondent instead of research participants; some are rather expensive

<sup>1</sup>Link to App Store: <https://apps.apple.com/us/app/dearscholar/id1483121589?ls=1>

<sup>2</sup>Link to Google Play: <https://play.google.com/store/apps/details?id=net.peterkruyen.dearscholar>

for (large-scale) projects and make it difficult to change diary tasks during the study period; some are especially designed to collect qualitative data or quantitative data for one particular type of platform only (often Android); some store data outside the European Union, which is problematic for European researchers; and—last but not least—most alternative apps are closed-source projects.

## Use cases

Currently, DearScholar is applied in a study by Glenn Houtgraaf MSc, dr. Peter M. Kruijen and prof. dr. Sandra van Thiel to investigate work-related creativity in government organizations. The app is used to follow about 100 participants over a period of six months, asking them closed- and open-ended questions at bi-weekly measurement occasions to investigate creative processes. In 2021, Liesbeth Faas MSc, dr. Peter M. Kruijen, and prof. dr. Sandra van Thiel will replicate this study in local care teams.

## Acknowledgement

DearScholar is developed within the context of the research program “The creative public servant: Observations, explanations and consequences” with project number 406.18.R8.028, financed by the Dutch Research Council (NWO). The author wants to express his gratitude to prof. dr. Sandra van Thiel for her encouragements; to Glenn Houtgraaf MSc, Liesbeth Faas MSc, the ICT Services (Radboud University, Nijmegen, the Netherlands), and both reviewers and the editor at the Journal of Open Science Software for their advice, testing, and feedback; and last, but not least, all (pilot) respondents for their effort and feedback during the developmental process.

## Resources

Visit the project page on GitHub<sup>3</sup> for all resources (e.g., the manual, source code, and guides).

## References

- Bakker, A. B. (2015). A job demands-resources approach to public service motivation. *Public Administration Review*, 75(5), 723–732. <https://doi.org/10.1111/puar.12388>
- Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology*, 54(4), 579–616. <https://doi.org/10.1146/annurev.psych.54.101601.145030>
- Bono, J. E., & McNamara, G. (2011). From the editors: Publishing in AMJ—Part 2: Research design. *Academy of Management Journal*, 54(4), 657–660. <https://doi.org/10.5465/amj.2011.64869103>
- de Jonge, J. (2011). Editorial: A closer look at JOOP. *Journal of Occupational and Organizational Psychology*, 84(4), 625–632. <https://doi.org/10.1111/j.2044-8325.2011.02047.x>
- Elliott, R., Shankar, A., & Patterson, A. (2005). Processes, relationships, settings, products and consumers: The case for qualitative diary research. *Qualitative Market Research*, 8(2), 142–156. <https://doi.org/10.1108/13522750510592427>

<sup>3</sup>Link to GitHub: <https://github.com/pmkruijen/dearscholar>

- Grimmelikhuijsen, S., Tummers, L., & Pandey, S. K. (2017). Promoting state-of-the-art methods in public management research. *International Public Management Journal*, 20(1), 7–13. <https://doi.org/10.1080/10967494.2016.1169066>
- Iida, M., Shrout, P. E., Laurenceau, J. P., & Bolger, N. (2012). Using diary methods in psychological research. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology* (Vol. 1, pp. 277–305). American Psychological Association. <https://doi.org/10.1037/13619-016>
- Indeemo. (2020). <https://www.indeemo.com>
- Jones, R. K. (2000). The unsolicited diary as a qualitative research tool for advancing research capacity in the field of health and illness. *Qualitative Health Research*, 10(4), 555–567. <https://doi.org/10.1177/104973200129118543>
- Kline, R. B. (2015). The mediation myth. *Basic and Applied Social Psychology*, 37(4), 202–213. <https://doi.org/10.1080/01973533.2015.1049349>
- LifeData. (2020). <https://www.lifedatacorp.com>
- Ohly, S., Sonnentag, S., Niessen, C., & Zapf, D. (2010). Diary studies in organizational research. *Journal of Personnel Psychology*, 9, 79–93. <https://doi.org/10.1027/1866-5888/a000009>
- Open Data Kit. (2020). <https://www.opendatakit.org>
- PIEL Survey. (2020). <https://pielsurvey.org>
- REDCap. (2020). <https://www.projectredcap.org>
- Rico, R. (2013). Editorial letter: Publishing at EJWOP. *European Journal of Work and Organizational Psychology*, 22(1), 1–3. <https://doi.org/10.1080/1359432X.2013.752247>
- Teamscope. (2020). <https://www.teamscopeapp.com>