

A conversation with Professor Joel Hektner, December 17, 2015

Participants

- Joel Hektner, PhD – Professor, Department of Human Development and Family Science, North Dakota State University
- Luke Muehlhauser – Research Analyst, Open Philanthropy Project

Note: These notes were compiled by the Open Philanthropy Project and give an overview of the major points made by Professor Hektner.

Summary

The Open Philanthropy Project spoke Professor Joel Hektner of North Dakota State University as part of its investigation into measures of subjective well-being (SWB). Conversation topics included challenges and potential improvements to the measurement of SWB.

Potential issues with ESM/EMA measures of SWB

Little use of item response theory

Subjective well-being is sometimes measured using experience sampling method (ESM) measures, a type of ecological momentary assessment (EMA). Although researchers in some areas of study (including educational testing and patient-reported health outcomes) use item response theory (IRT) to measure the parameters of the items on their measurement scales independently of the parameters of the populations being studied, this typically has not been done for ESM measures of SWB.

In part, this is because scale development with IRT requires large sample sizes, and ESM studies often carry a relatively high cost per participant — though, that may be changing now that e.g. most subjects have smartphones.

Selection bias

Although the inability and/or unwillingness of participants to respond to ESM/EMA prompts during certain types of experiences (in meetings or during sex, for example) may introduce selection bias, Prof. Hektner thinks it can be offset by offering prompts encouraging participants to respond as soon as they're able. He suggested working with participants to tailor this process.

Another type of selection bias is also common in ESM research, and that is that researchers typically can't get a representative sample of people from the general population. ESM studies nearly always use convenience samples, and even if they try to be more intentional about sampling, the sample is always in the end self-selected because researchers can't force people to participate. Research has shown that people who participate in ESM studies are more likely to be female, get higher

grades (if in school), and be more psychologically well-adjusted than the general population.

Back-filling reports

The problem of back- and forward-filling self-reports can now be detected with electronic measures. Time stamping shows researchers exactly when an entry was made.

Reactivity

Prof. Hektner believes that the problem of reactivity, in which the experience of being monitored affects the outcomes researchers are attempting to measure, can be solved in part by habituation. Researchers can extend the total number of days a subject is measured, and then discard the first few days of observations, including only the data collected after the subject comes to think of the process as a normal part of his or her life.

Older studies used inappropriate statistical methods

A 2009 paper by Cranford and colleagues, "A procedure for evaluating sensitivity to within-person change," suggests that the conclusions of earlier studies that used EMA measures of psychological states might be in some doubt because researchers used statistical techniques developed for studying between-person differences, whereas EMA largely focuses on measuring within-person changes.

Prof. Hektner was not familiar with this paper, but he believes the authors are likely correct, and that at least some EMA researchers have been aware of this problem for some decades now. There have been major advances in statistics over the last ten years that have allowed researchers to conduct more appropriate analyses of EMA data.

However, he cautions against dismissing all earlier EMA studies. For example, the older studies that focus on measuring traits are more susceptible to Cranford et al.'s critique than those that draw conclusions about states.

Comparing SWB measures

Some studies have found that ESM/EMA measures of SWB are correlated with other measures of SWB, including day reconstruction method (DRM) measures and life-scale measures. Although this could be construed as evidence of construct validity, Prof. Hektner thinks it is more likely that these methods measure different things that are correlated with each other. In particular, trait SWB and state SWB are usually correlated, but there are important exceptions that show us that they actually are two different things, for example:

- **The paradox of work** – When individuals are asked whether they enjoy work, they report negative feelings about it, but when asked how they feel in the moment, they frequently report that they are enjoying it.
- **Parenting** – Conversely, parents often speak positively about parenthood when reflecting on their experience but report many negative feelings in moment-to-moment interactions with their children. This was described in a recent book called *All Joy and No Fun: The Paradox of Modern Parenting* by Jennifer Senior.

Improving EMA measures of SWB

According to Prof. Hektner, improving the validity and reliability of EMA measures of SWB would require a multi-trait multi-method or triangulation approach. He suggested collecting a wide range of data through multiple tools, including not only text responses but also audio, video, and photographic responses in combination with both momentary and reflective self-reporting. Informant reports from those close to the subject may also be valuable.

Other people to talk to

Prof. Hektner recommended speaking with:

- Jennifer Schmidt, Ph.D. – An associate professor of educational psychology at Michigan State University who uses ESM in educational settings
- Kimberly Maier, Ph.D. – An associate professor of measurement and quantitative methods at Michigan State University who studies ESM-type data using IRT models

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