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Behavioral Change Paper: SleepCycle

SleepCycle is an iOS app designed primarily to record and display data related to how you sleep. Before going further, it's important to note that this is not an intervention-base app, and it doesn't try to be one. With this in mind, SleepCycle is extremely well executed. The designers behind the app (evidently) thought deeply about how to uniquely leverage the data it collects in non-obvious ways that improve the experience of using it; they implement features that add to the UX beyond simply collecting and representing sleep data.

It's clear that the team behind the app took a step back and thought not about what an alarm clock was, but what it should be, given the context of a real person's life. A good example of this is SleepCycle's variable-range wakeup time: instead of going off an at exact moment in time, SleepCycle nudges users to use a range of time during which it will wake you. The app determines an ideal time to wake you based on what it infers from your REM cycles, preferring to wake you when you're in a light sleep. It's features like this that actually improve and augment one's sleeping experience that differentiate it from a simple data-collecting app, affording it features beyond those of a traditional alarm clock.

All in all, the app's pleasurable UX is well executed; it's clear that the designers considered the little things the shape the experience of using this data-driven alarm, like how I can snooze an alarm by slapping at my phone to trigger the accelerometer, an action that echoes the same behavior employed by a snooze bar of a traditional alarm clock. SleepCycle adds something beyond what's possible traditionally, using a variable-length snooze time calculated by estimated REM stage and urgency of alarm (i.e. it will give you a longer snooze time if it's not near the end of your wake up time range). But this care taken with regard to making a delightful product is helpful and important from an intervention standpoint too; too often with such tools that come from research and academia, people don't enjoy using the app because the. The focus of academia is often on the underlying functionality (i.e. what the kinds of information app can provide) and not the person using it. It goes without saying that people are more likely to use an app that they like, thereby improving the attrition rate of consistent use.

SleepCycle does not try to be a source of behavior intervention; there are no nudges to suggest a time to sleep, nor messaging pushing for a more healthy sleep schedule. The app's main selling point is that it can improve your life by waking you up in a more pleasant way and providing you with knowledge about yourself that you didn't already have.

Despite this, after a week of using the app, it feels like just by having this intimate knowledge about my sleeping patterns has brought the idea of getting a more healthy rest to the forefront of my

consciousness. Indeed, I would venture to say that the app provides a *passive* behavioral intervention by affording people information they had no access to prior to using the app. That said, the main issue with this suggestion of passive intervention is that I did not notice any significant and notable behavior change over the course of using the app.

On reflection, I did not highly prioritize getting better sleep, both because it would interfere with my work schedule, and because the app's messaging never made me think about it, allowing me to never directly confront this goal. With that caveat, I did notice a small, more fundamental change in how I thought about my sleep. If I had not gotten a good night's rest in the past couple nights, I felt an increased urgency to ensure I was able to catch up on my sleep that night. In the same vein, I noticed that knowing the amount of sleep I got in hours was affecting my behavior: if I got under 6 hours, I knew that I was supposed to be exhausted, and knowing quantifiably how tired I was made me feel that much more tired.

Changing sleep behavior is especially difficult because it's not an activity that humans choose to do, it's one we have to do. It's not like meditating daily or picking up a jogging habit; activities like these can be scheduled in a time block of an hour or (usually) less. Sleep is a necessity of life, and there are many reasons for not going to bed (including restlessness), or waking up earlier than intended because a road crew had arrived and was using a jackhammer on the sidewalk outside.

Often, I have trouble falling asleep. Relatively common sleep-related problems are not addressed by the app, and other than the general reason of reducing complexity (read: feature bloat), I cannot think of a reason why not. In my example of trouble sleeping, there are many ways an app like SleepCycle is in a unique way to solve this problem. I could imagine friendly reminders with tips suggesting limiting screen time before trying to sleep (or pushing the use of f.lux). Or they could try to nudge users to participating in a short breathing session as a way to help someone wind down before bed. SleepCycle is in a unique position to address such sleep-related problems that many people experience — people use the app and are faced with SleepCycle's messaging — but it would require the designers to reframe their thinking of the product as something that it is not. Yet.