Provoking breath: an exploration of how to remind people to breathe

Vanessa Julia Carpenter & Dan Overholt

Technical Doctoral School of IT and Design, Aalborg University, Copenhagen, Denmark
✉ vjc@create.aau.dk

People forget to breathe. In this work, we explore the subject of breath, specifically how to remind people through subtle indicators or coaching, to remind them to breathe throughout their workday. Much research has been done into the effects of focused breathing, of deep breathing, and of a variety of breathing techniques [1]. However, on a very basic level, breathing brings oxygen to the body and with more oxygen, they have better brain function, blood flow, and overall wellbeing [2]. Studies of people working in offices, at desks, have shown that people do not focus on breathing often enough, despite the stress reducing qualities it offers and the increased focus it can provide [3]. Beyond a lack of focus on breathing, some also stop breathing or even hold their breath while sending emails [4].

Our ambition is to discover if we can encourage people in an office environment (desk work) to breathe more mindfully through persuasive interactions with extremely simple interactions. We created two prototypes, one which is subtle: an unusual, but static part of the environment, envisioned to sit beside the communal coffee machine in a 200-person office space. The second is an interactive device, training people to breathe deeply and follow a pattern of breathing. The first prototype will be explored in this work.

A variety of devices already offer breathing training, or reminding you to breathe. Apple's "Breathe" app [5] for the Apple Watch coaches you with different breathing techniques and haptic feedback and reminds you to breathe throughout the day. Fitbit [6] offers a "Guided breathing experience" through their Relax app. BreathMinder [7] trains you to breathe at a pace and reminds you to do breathing exercises. Spire [8], a small discrete wearable tracks your respiration throughout the day alerts you to when you are tense.

As opposed to requiring people to wear a device which they might not own or be interested in owning, our goal was to create something which was placed in a communal area. We are primarily interested in communal areas, which for our initial evaluation context includes a common coffee room where many people from an office building go for their coffee breaks two to three times per day.

Figure 2: The first prototype

The first prototype: (Figure 1)
A simple piece of laser cut wood, cut accordion style so it is flexible is the basis for this prototype. The top of the wood is attached to a servo motor which moves back and forth,

pausing at the ‘top’ and ‘bottom’ of the movement. As the wood is moved up and down by the servo motor, it pauses at the bottom, creating a rounded shape, and pauses, representing inhalation, a full stomach; then it returns to the top and pauses there for a longer moment, representing the space between breaths. The timing was based on the average adult breathing rate according to a website dedicated to respiratory rate information [9]. Above the flexible piece of wood was a legible inscription which said “breathe”.

This prototype was placed on top of an industrial coffee machine in the break room, just above eye level. Since the prototype was small, 12.5cm tall, it was not the primary focus when getting a coffee. When fabricating the prototype, we thought about the sound of the servo and decided that perhaps it might be either overshadowed by the sound of the coffee machine grinding and brewing coffee, or could be an intriguing method to gain attention of the person using the coffee machine. In testing it could be seen that as people waited for their coffee, they were able to hear the sound of the servo motor and looked upwards to see the prototype. Preliminary testing was conducted over a period of three days with the small prototype being placed on top of the coffee machine for each day.

Upon studying more than 20 visitors over three days, some patterns emerged. When more than one person was present to get a coffee, the person directly in front of the machine generally glanced at the prototype and continued getting their coffee and ignored the prototype. When a single person was alone and getting a coffee, it was observed that they typically first peered behind the prototype to look at the servo motor and then, from what we could determine through visual observation alone, approximately 4 out of 20 visitors visibly stood up straighter and breathed into their stomachs in time with the machine. On several occasions, groups of people contemplated the device together and tried to emulate the breathing rate. Two short one minute interviews of people who had used the coffee machine and then gone back to their offices revealed that they did had not noticed the prototype at all.

From this initial investigation, it can be seen that much more research can be done. In our future work, we are primarily interested to learn about the difference between the first prototype (a subtle static device) versus the second prototype (an interactive, responsive device) and how the effects of experiences either prototype carries into the office worker’s day (or not).

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