Motivation in Design Strategies for Behavior Change

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Abstract

Motivation is a key factor that determine behavior change. In this paper, the researchers study how people is motivated when interacting with two strategies that aim to change grocery shopping behaviors. The strategies are similar but with differences in mindfulness and nudging elements. Researchers collected qualitative data with observations and interviews from 12 user participants. Motivation categories of Fogg's behavioral model were used in the data analysis. Findings show that the strategies can trigger pleasure, pain, fear and social acceptance. People that used the reflective strategy with mindful processes were able to better express their motivations.

Keywords

Motivation, Design for Behavior Change, Behavioral Economics, Persuasion.

Introduction

When designers address behavior changes as the main outcome of an artifact or system, the challenge is not only related to usability but also to motivation and timing. Fogg (2009) introduced a new model about human behavior, which present three factors: motivation, ability and trigger. Each with subcomponents, three core motivation, six elements to define simplicity (ability) and three types of triggers. This model intends to support the analysis and the prescription of persuasive systems. This paper is a report of a study of motivation of people when interacting with two behavior change strategies.

Researchers have distinguished between reflective and automatic strategies (e.g. Sunstein, 2016). For example, John, Smith, and Stoker (2009) compared "nudge" and "think" strategies and suggested that designers integrate nudge and think strategies to achieve successful behavior change. "Nudge" consists of interventions that guide people's decision-making without limiting their choice and exploiting automatic thinking processes. "Think" strategies focus on the transformation of behavior that arises from the deliberation and reflection.

The strategies used in this study target shopping behavior in the grocery store. One strategy focused on activation of reflective thinking (reflective strategy) and the other on nudging the automatic thinking (automatic strategy). Both strategies are similar because both are interactive shopping lists for tablet devices, but each one provides different supplemental information.

The reflective strategy starts with a challenge, asking participant to sort two sets of cards in two piles: (a) products with added and not added sugars, and (b) ultra processed and minimally processed foods (see figure 1). After that, they saw videos that explain things about health.

Figure 1. Activity with cards

Then, participants are invited to plan their shopping in the interactive lists (see figure 2). Notice that this interface provides information about level added sugars and industrial processing. Participants then can take the tablet while they make decisions in the store and return the device after they pay. In this strategy participants are expected to be reflective and be more mindful in their shopping decision-making.

Figure 2. Shopping list in the reflective strategy

The automatic strategy starts showing participants two personas, one normal weight and one obese (see figure 3). Then, participants are invited to plan their shopping in the interactive lists (see figure 4). This list includes a simulation of effects of selected items in the weight of an adult. Participants then can take the tablet while they make decisions in the store and return the device after they pay. In this strategy participants are expected to be nudged to buy items that help the persona have less weight.

Figure 3. Personas in automatic strategy

Figure 4. Shopping list in the automatic strategy

Theory of Motivation

There are multiple theoretical approaches to motivation. A practical theory that includes the concept of motivation is Fogg's behavioral model (Fogg, 2009). This model is applied in design of persuasive systems. He proposed that a behavior needs three conditions: ability, motivation and a trigger. In the design of persuasive systems the triggers are key; it should be visible, related to the behavior and given in the precise time. A given trigger distracts when motivation is low and frustrates when ability is low. Fogg explained that motivation can be triggered in three categories: pleasure/pain, hope/fear and social acceptance/rejection. Last, Fogg distinguishes between three types of triggers: spark (for low motivation), facilitator (for low ability), and signal (reminder when both motivation and ability are high). In this study Fogg's categories of motivation were used as a theoretical framework.

Methods

This is a qualitative study that is part of an ongoing larger research comparing instructional and behavioral design strategies for health behavior change. In this study, the researchers selected participants who are part of the randomized trial comparing those strategies, directly observed them acting while using the artifacts that belonged to the strategies, and interviewed them in depth to find out how were their motivations.

A convenience sample was recruited inviting participants who finished their purchases in the supermarket. These participants previously accepted to use one of two design strategies (reflective and automatic) and were invited to respond to the interview

immediately after their finished their participation in the larger study. The sample was composed of a total of 12 participants with overweight of which half belonged to reflexive strategy and the other half from automatic strategy. They ranged between 18 years ago and 60 years ago.

To collect the data, the researchers took notes in the direct observation and audio recorded the interviews overweight and. During the application of the instruments were identified the main aspects that Fogg establish as motivators (pleasure/pain, hope/fear, social acceptance/rejection). The researchers paid attention to gestures, the way of expressions, the acting and answers. In the direct observation, everything was narrated with detailed about participants and their stayed in the store. For the interviews, only one participant rejected audio recording; in this case, the researchers took notes of answers.

Data was analyzed in software for qualitative analysis (ATLAS.ti). This tool allows order and regroups the material in a systematic way. Also accept analysis of audios of interviews and images of diary notes. The tool facilitated data coding and categorization. Categories were created based on the Fogg's motivation concepts (Fogg, 2009).

Findings

This section is a report of the findings based on the observations and interviews.

Related to pleasure/pain:

Finding 1. The people who used the reflective strategy (4 of 6) showed more enjoyment and satisfaction about using the prototype than the people who used the automatic strategy (2 of 6). These people in both groups (6 of 12) related the satisfaction with the benefits for health. Participant 4 (reflective strategy) said "yes, very good, very good, because in this way we can learn new things [...] there were unclear things for me, whether [if some items] had sugar; there I learned a lot, it was very good." P. 3: "No!, very cool, because when I selected things [...], there were things that we didn't know, such as this things were in certain ranges, and [...] with this, very cool, then we learned many things and things that we didn't know, for example how to sort the food and that." Participant 8 (automatic strategy) said "yes, it is good, it is also useful to see what products the family consume and which ones help us in health or are healthier."

Finding 2. While the majority of reflective group (5 of 6) expressed interest with knowledge, just some of automatic group (2 of 6) did it, for example: P. 2 (reflective strategy): "[...] good, you know that we bought sometimes like that and we didn't realize and with this we put more attention in which things we will buy [...] is like I told you, before we didn't be conscious about which are processedor which are better for our health, instead with this experience we pay more attention in this things." P. 7 (automatic strategy): "No, the system that you are implementing is very good, because we are more conscious about that, is not what we want and [...] to become aware, become aware about health… truly, is a little bit, it's about what we want at the moment or what we want to eat, but for health issue we are more restricted."

Finding 3. Half of the participants of the reflective strategy (3 of 6) expressed ideas related to the motivator of pain when they talk topics to address issues related to health by the death or illness of a close relative. For example participants 4 said "my dad's dead, from there we decided to eat with less fat and sugar. That made us change." P. 10 Made comments such as: "I buy chocolate powder because my mom is diabetic". Or at the time of selecting the products on the shopping list said: "I would buy cookies but whole."

Related to hope/fear:

Finding 4. Some participants of the automatic strategy (2 of 6) showed fear and felt uncomfortable to be reflected in the obese person. This was identified through instrument notes and interview. For example, participant 7 said, "Yes, [it can help me make better healthy shopping] because I saw the image there very fat I would like different food. One questions oneself."

Finding 5. All participants (12 of 12) gave contact information with confidence to the researchers, which happened after started the activities and made the grocery shopping. This was identified through instrument notes.

Finding 6. Half of participants of the reflective strategy (3 of 6) showed fear at the moment that they had to do the activities, because they thought that it would have a note or they don't like to show that they didn't know something. It was identified through the notes of the instrument.

Related to social acceptance/rejection:

Finding 7. The majority of the participants of reflective strategy (5 of 6) said have been influenced by our expectatives. Participant 2 said "Yes, maybe,

[researcher expectations influenced] in a positive way." Participant 9 said "[this activity influenced] a little bit because one does not pay attention to eat vegetables and stuff like that."

Finding 8. Some participants (3 of 12) did not use the tablet while they were in the aisles; they only updated the list at the end before they returned it. This was identified through the notes of the instrument.

Finding 9. All of participants (12 of 12) showed comprehension about information, although some more than others, but in general it is evident that all of them had a significant learning. This could be deducted through all the process and every moment of each activity and in the interviews people repeat all the things that they learned. Participant 12: "I help to not lean towards some unhealthy products. The activity reinforces previous information that one has."

Finding 10. The majority of participants (8 of 12) said that with this activity they are more conscious. Participant 2 said "well, as I said, one does not buy consciously what is processed, what is not, what is healthier; instead, with this experience one pays more attention to this stuff."

Discussion

This section is organized with Fogg's motivators in behavior change (2009). Regarding pleasure and pain, the first three findings show that the reflective strategy triggered these motivators more. For example, participants of this group were clearer to show satisfaction or showed pain related to death and illness. One possible explanation is that the language related to added sugars, natural foods, and processed food is somewhat familiar for people and reminds them of health conditions. This motivation shows also that people is more mindful using the reflective strategy. Participants of the automatic strategy could also have this motivation; however, the strategy may be more abstract for them and, thus, they have a harder time identifying their own pain or pleasure when they are interviewed. The alternative explanation is that participants see the simulation and personas as a playful feature and motivations of pain are not triggered.

Regarding hope and fear, all participants felt hopeful about the activities because after the first minutes of planning shopping they were happy to share their personal data. This means that the researchers were successful in creating a calm environment for people to not feel fear of the activity. Designers could make sure that people have no fear of the strategies, which could lead to better user experiences and facilitate change.

Participants in both strategies showed fear but for different reasons. While in the reflective strategy some participants were afraid to have make knowledge mistakes, in the automatic strategy some participants expressed fear related to the depiction of the obese persona. For the designers fear was the intention only in the automatic strategy: to trigger fear of obesity and motivate change of purchasing behaviors. This visual strategy could be explored further to take advantage of this motivator. A more refined simulation could show personal effects of shopping habits.

Regarding social acceptance/rejection, participants in both groups said that they learned and were more conscious about their grocery shopping. Social acceptance/rejection may have a role of putting pressure on people to do well the activity. There is one difference in the groups; participants in the reflective strategy identified that the researchers were putting some pressure on them. The explanation here is the same of pain, the language clearly links the activity to health and participants easily say that they feel influence. Social pressure to perform better could be present in the two strategies, but the clarity of the reflective strategy facilitates the acknowledgement of the influence.

Conclusion

The paper showed the study of motivation as a determining factor in the application of strategies to influence behavior change, specifically in grocery shopping. Aspects reflecting motivational relationships such as pleasure-pain, hope-fear and social acceptance-rejection are evident in both reflective-mindful and automatic-nudge strategies.

Direct observations and interviews at the place of purchases can affect users responses by acting as triggers of fear and social rejection. It is evident that the participants of the reflexive strategy felt more comfortable to express their motivations because they seem to have a clearer understanding of the strategies. It is recommended for future research in design for behavior change to include the study of triggers that affect motivation of people.

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