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Project Exercises

## Project Overview:

Simply stated, the goal of my project is to create an intervention that will encourage sedentary, but not morbidly obese, individuals to proactively undertake moderate exercise (e.g. brisk walking for 30 min. a day). Relevant to this class, one difficult aspect of creating such an intervention is getting the user to maintain use of the intervention after the "novelty" period has passed. I hope to find a good relational model that can be employed by this device to help alleviate the long-term use issue.

## Exercises

### Week 2:

- **Enticement:** Lose weight, reduce stress, and live a more fulfilling life.
- **Relationship:** Using a model of change, persuasive human-to-human social psychology principles, context-aware sampling, and some user customizability.
- **Fulfillment:** Hopefully a healthier, happier life. Also, allow the user to reflect on their progress through the behavior change in a journal-like structure.
- **Main goal:** The main goal is to influence sedentary users to walk at a brisk pace for at least 30 minutes a day 3-5 times a week.
- **Why should it be relational?** There are probably a few reasons, but the most blaring is that behavioral change is difficult and exercise is easy to give up in lieu of other everyday activities. Thus it is important that the system overcome the users tendency to simply shut it off by creating a relationship over the long-term. A second reason is that these interfaces tend to be annoying and by forming a relationship with the device the user may view certain interventions as less annoying. Finally, the user should build a certain trust dynamic with the device since the device may need to ask seemingly more personal questions, such as weight.
- **What about it is relational?** The way that the device asses and "discusses" daily choices and the setting and achieving of target behavior goals. In short, the motivational aspect of the device that takes the user through the behavioral change process.
- **Target population:** Majority of U.S. adult and perhaps child population. That is, any person that is not getting enough exercise in a week as defined by the U.S. Surgeon General as minimally healthy.
- **How would you evaluate it?** This seems to be the most difficult aspect of this project and I am more than willing to hear suggestions. The first test will need to be the user perceived effectiveness of each strategy of change used and see which ones were annoying or ineffective. Ineffective strategies are strategies that do not encourage user progression towards change or causes the user to quit using the

device. Evaluation of progress can be seen if the user starts moderate exercise or not.

Different groups would need to be tested as well. Groups include users with different levels of acceptance. Also, users initially in different stages of the behavioral model would be a good population. From this group it would be interesting to see what stage users who had success with the device started in. Another interesting test would be not to tell the user what the device was, until the device told the user itself, and see if the user engaged the device and eventually used the device. If they did not use the device, why did they not or at what stage did they stop using the device and why. One test of the motivational power of this device is to see how well it works on individuals that have tried the behavior change themselves and has failed.

### Week 3:

- ***What aspects of human-human or human-animal relationships do you want to use?*** Below is a list of important human-human/animal relational aspects I would like to use and the reason to use them. Further detail is presented in the subsequent questions.
  - Reciprocation - for intimate disclosure
  - Authority - for perceived knowledge and expert status
  - Similarity - for prolonged interaction and increased trust
  - Trust - for self-disclosure
  - Cooperation - for goal achievement
  - Encouragement (social support) - for progression through behavioral change model. Includes Esteem support, practical support, and informational support.
  - Response to affective queues - hard but useful to capitalize on the non-verbal human behavior.
  - Social Deixis and social dialog - small talk and politeness to set relational expectations and increase likeability and perhaps similarity. Also help in conversational transitions which make device seem more natural. All this will be done in a non-verbal manner.
- ***What's the benefit?*** By forming a relationship the user will associate benefit with the device and continue prolonged, consistent usage. A relationship will establish trust and allow the user to confide in the device and be more responsive to its suggestions. Both may be used to progress the user through the stages of behavior change. Also, the user will be more open to the devices encouragement and the more intimate disclosure may be used to enhance the encouragement and celebrate the accomplishment. Also, a good relationship will make the user more tolerant of the devices faults.
- ***How will you establish the relationship?*** I think establishing the relationship is one of the more difficult and unpredictable tasks. Luckily, if the user has come in contact with the device, chances are that there is some internal impetus for the user to initiate the relationship or at least some value assessment has taken place.

This is important since relationships require some mutual benefit for them to be worthwhile. Thus it is important that the device uses a few techniques to establish a benefit to the user and a few to initiate and further the relationship.

The first impression is important in human-human interaction and will be important in the computer-human interaction here. The first impression can be the look of the interface, the way the device introduces itself, etc. From Tim Bickmore's work we see that small talk and using the user's language can promote the social process of the start of relationships. Also, avoiding "trivialities" that destroy a relationship would be helpful as well. A frustrating interface or an annoying way of communicating or interrupting the user will adversely effect the relationship and in early stages may destroy the possibility of a relationship.

Further, similarity can promote a reinforcement effect that will promote the establishment of a long term relationship. Perhaps just the fact that the machine and the user have a similar goal can promote similarity feelings. As Horvath put it, "the positive joining of the counselor and client against the common foe of the client's pain and self-defeating behavior." The working alliance of common goals and outcomes can promote the relationship and start to form a bond that will be strengthened later on when the behavior change becomes more difficult and the device will need to offer more support.

The above discussion brings us back to last weeks exercise and the discussion of fulfillment. In order for the relationship to work, the device must at least present the promise of future reward. The actual fulfillment is necessary to maintain the relationship over time which is what the next question addresses. A corollary to the fulfillment discussion is related to expectation management. It is important that the device clearly communicates what it can and cannot do so that the user does not have expectations that are impossible to fulfill.

It is also important to entice the user to have frequent interactions at the beginning that are seen as beneficial to the user. As Duck stated, "Interaction has a positive effect on liking, and it modifies the effect of dissimilarity on its own." This will help ease the obvious dissimilarities between the user and the device. Malone & Leeper have an excellent paper on the principles of fun that could be employed to entice interaction.

- ***What will need to happen to maintain the relationship over time?*** First, the device will have to adapt through the whole process of change the user will go through. The first stage the device will have to be like a teacher and the user a student as information about the behavior is conveyed. In a later stage, the device has to take the role of a personal trainer to help motivate the user. The device has to also take the role of a trusted friend so the user confides in the device and so that the device may encourage the user when needed. Finally, the device must become like a dentist in a sense, praising and motivating the user at longer intervals and assessing the behavior of the user between intervals. This will help

the user make the behavior an intrinsic behavior while guarding against relapse.

The device must also perform expectation management and fulfill promises as was discussed in the previous section.

Duck presented another necessity for a long term relationship. Namely, the device and user must partake in an extended process of uncertainty reduction that is continually shifting. The device must further assess the user's interpretation and try to react in a limited sense to that. This will help maintain and strengthen the interdependence relationship. It is important that interaction does happen however so that the relationship will be maintained.

The device will also need to be sensitive to the social stages that the relationship is going through as well as the behavioral stages that the intervention is leading the user through and how the user is responding to these stages. It is important that the device balance the users view of both so that frustration does not occur and the user decide to terminate the relationship.