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Formative Study Results and Plan

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Introduction

For my portion of our groups study into exercise motivation and tracking technology I have performed three sit down interviews with members of the general public, as well as completed a literature review of "*Flow is not Enough*" by Knaving, Wolniak, Fjeld, and Bjork which discusses potential avenues for improving motivation for amateur runners. Raw interview data and completed interview consent forms are appended to the end of the document and a citation and link for the paper is included directly after the analysis of results.

Summary

The two primary areas of focus when conducting this research were exercise motivation and tracking and how they are enabled by technology. All three individuals interviewed had directly interacted with purpose built exercise trackers but, none of them were still using these devices highlighting their inconvenient and unsatisfactory nature. In addition, all participants still showed interest in exercise tracking despite their prior experiences. Regarding motivation, it seemed that social interaction and data tracking were quite motivating to participants, regardless of what activities they were participating in. This is backed up by results from "*Flow is not Enough*" which suggested multiple design themes related to group exercise. Hence, going forward, it seems important that we ensure any solution we develop is low-friction and enables increased group exercise and socialization opportunities, while also providing accurate data points for tracking over time.

I've broken the rest of my analysis into two sections representing the two most important points which I have focused on getting data from participants on, motivation and tracking of fitness and health.

Motivation

Overall, respondents seemed to agree that motivation for exercise was frequently extrinsic. The older participants also seemed to have more barriers that prevented them from exercising than the younger participant, primarily time and scheduling issues. These are good details to consider in the implementation of a solution as scheduling is something that is often easier solved by a machine. In addition, it seems that once Chris and Clement had found groups to play sports with, they were more committed to long term and found motivation to be less of a daily struggle. This, along with the aforementioned design themes from the paper, suggest that helping users find groups for support and motivation would be extremely beneficial. In addition, it is also noteworthy that all participants found the data and statistics motivating, but each in a different way. This suggests that a common platform for recording data with customizable or variable viewing modes / interfaces could be of benefit. Clement mentioned that seeing calorie data was actually demotivating; clearly while data is powerful it is key to ensure that the experience of viewing ones data can be tailored to users personal preferences, perhaps by considering the motivation for the user wanting to improve or maintain their health and fitness (i.e. a user who is trying to track for purposes of comparing with peers should be shown different data than a user trying to lose weight).

Tracking

On the subject of tracking, interviewees had mixed rationale for why they had tracked their activities in the past, but at one point all had owned and used a Fitbit smartwatch which they had each stopped using. When asked why they stopped tracking

their activity, a common thread was the inconvenience of either wearing a band which needed to be charged and maintained, or opening an app every time they exercised, ate, or slept. These critiques of traditional activity trackers should not be taken lightly, and creating a very low friction user experience should be of high importance when developing a solution. Participants were all concerned about accuracy to some degree and all had different device preferences, the common thread was that all participants wanted accurate tracking without the inconvenience of having to remember a tracker or remembering to charge a tracker for that matter.

Key takeaways from all interviews include the need for personalized low-friction solutions, as well as the need to incorporate social aspects of exercise while still remaining sensitive to individual sensitivities and preferences.

Participants	Mr. Chow	Ms. Martin	Mr. Sun
Features			
Group Exercise	Enjoys Social Activity, Friends Keep Him Active	Likes Solitude, Shy, Doesn't Want to be Embarrassed	Enjoys Social Activity, Struggles to find Partners
Data Tracking	Finds Experience Points and Tracking Motivational, Concerned about Accuracy	Likes to Compare Data Over Time to see improvement	Likes to ensure he is getting enough activity, Very Concerned about Accuracy, Finds some stats Demotivating
Primary Impediments	Cost, Space Availability	Motivation, Time	Motivation, Time
Preferred Device	Smartwatch	Smartwatch	Mobile Phone

Fig. 1 A summary of key data points and attitudes towards data tracking and group activity.

Citation:

K. Knaving, P. Wolniak, M. Fjeld, and S. Björk, "Flow is Not Enough,"
*Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing
Systems - CHI 15*, 2015.

Link:

<https://dl.acm.org/citation.cfm?id=2702542>

Name: Christopher Chow

Age: 21

Occupation: Student

1. Hi there, are you able to answer a few questions for a study I am doing on exercise motivation and tracking? May I audio record our conversation?
a) "Yes"
2. Can I confirm with you that you have signed the consent form? You should be aware that you may withdraw your consent at any time and are not required to answer any questions.
a) "Yes"
3. What are some active activities you participate in during a typical week?
a) "Soccer 2x a week, Some Walking to and from school"
4. Can you tell me what got you into (answer) from Q2?
a) "Likes Team Sports, Social Activity - friends were all playing sports"
5. Would motivates you to participate in active activities?
a) "Recreation Primarily, Also Exercise"
6. Have you ever used an app or electronic device to monitor your activity? If you chose to start using this yourself what was the reason you chose it?
a) "Used to use Fitbit to track running, it was gifted to me"
7. What features of (application or device) motivated you?
a) "Animations, Grades etc., Also Experience Points in the App"
8. What features of (application or device) made you less likely to stay active?
a) **Refer to Q-18**
9. What generally prevents you participating in active activities?
a) "The Weather - during bad weather and most of Winter indoor fields are needed and they are substantially more expensive than regular outdoor playing surface"

10. Do you typically do these activities with a partner or group? IF not do you think this would further motivate you? IF yes do you think this is helpful?

a) *"Yes Soccer as a team, not super helpful but maybe some small benefit."*

11. Do you get any professional guidance when working out? IF yes what kind of guidance do you get? How long have you been getting this guidance for? Do you think this is helpful? IF not would you like to in the future? What prevents you from getting professional guidance right now?

a) *"No, doesn't think it would necessarily be helpful but, does think group can decide things for team sport."*

12. Do you find it hard to find someone to do these activities with you? IF yes why? IF not who do you usually do these activities with? How did you meet them?

a) **Plays Team Sports**

13. If you prefer to do these activities with a partner or group, what kind of people do you like to work with? Do you prefer having someone with similar skill levels, or someone with drastically different skill levels? Why?

a) *"People at the same or higher level, wants to learn more which is only possible with more experienced players."*

14. Where do you usually work out/exercise? IF gym do you need to pay to access it?

a) *"Mississauga, You need to pay to access the indoor fields in the winter."*

15. Do you find it hard to find a place to exercise, either for a fee or for free?

a) *"Not super hard in summer, not hard in winter but expensive."*

16. Are you aware of any free gym/exercise options available to you? IF yes do you take advantage of these options?

a) *"Uses the gym at condo."*

17. What is the main goal you want to achieve by doing these active activities? How much progress do you think you have made?

a) *"Didn't do it to satisfy a particular goal besides fitting in with peers which was achieved right away"*

18. If you monitor your exercise activity with some app or device, do you also monitor other things, such as sleep, weight, water intake, your diet or something else? IF yes what are the greatest benefits you feel from this monitoring? IF no why don't you?

a) *"Fitbit isn't accurate. Needs to be charged. Just an overall hassle."*

19. Do you find the process of monitoring non-exercise activities difficult? IF so why?

a) *"Pretty hard to monitor, finds it easy to monitor sleep, difficult to monitor food and drink though."*

20. Would you rather monitor your active activity with a phone or with a wearable device like a smart watch?

a) *"Smart Watch is better, easy to use while working out and its always with you."*

21. What about general health monitoring, would you prefer monitoring this with a phone or with a wearable device like a smart watch?

a) *"Phone, because you need to type etc to enter your food options, though that's not necessarily something he likes."*

Thanks for your time today and for your answers, do you have any questions for us?

Chris had some questions about CSC318

Name: Rosalee Martin

Age: 50

Occupation: Homemaker

1. Hi there, are you able to answer a few questions for a study I am doing on exercise motivation and tracking? May I audio record our conversation?

a) *"Yes"*

2. Can I confirm with you that you have signed the consent form? You should be aware that you may withdraw your consent at any time and are not required to answer any questions.

a) *"Yes"*

3. What are some active activities you participate in during a typical week?

a) *"Walking, and Cycling both outdoors and indoors on a spin bike."*

4. Can you tell me what got you into (answer) from Q2?

a) *"Desire for fitness, as well as enjoyment."*

5. Would motivates you to participate in active activities?

a) *"Fitness as well as enjoyment."*

6. Have you ever used an app or electronic device to monitor your activity? If you chose to start using this yourself what was the reason you chose it?

a) *"Yes, Fitbit. I did it mostly out of curiosity to see my activity."*

7. What features of (application or device) motivated you?

a) *"Sleep Monitoring primarily."*

8. What features of (application or device) made you less likely to stay active?

a) **Refer to Question 18**

9. What generally prevents you participating in active activities?

a) *"Primarily Laziness and lack of Time."*

10. Do you typically do these activities with a partner or group? IF not do you think this would further motivate you? IF yes do you think this is helpful?

a) *"No. Doesn't think it would be helpful, prefers solitude."*

11. Do you get any professional guidance when working out? IF yes what kind of guidance do you get? How long have you been getting this guidance for? Do you think this is helpful? IF not would you like to in the future? What prevents you from getting professional guidance right now?

a) *"Has in the past but not currently, found it helpful. Cost and stress of having to workout with that person."*

12. Do you find it hard to find someone to do these activities with you? IF yes why? IF not who do you usually do these activities with? How did you meet them?

a) *"Yes."*

13. If you prefer to do these activities with a partner or group, what kind of people do you like to work with? Do you prefer having someone with similar skill levels, or someone with drastically different skill levels? Why?

a) *"Alone, would prefer similar skill level if working out with others."*

14. Where do you usually work out/exercise? IF gym do you need to pay to access it?

a) *"At home or a paid access gym."*

15. Do you find it hard to find a place to exercise, either for a fee or for free?

a) *"No."*

16. Are you aware of any free gym/exercise options available to you? IF yes do you take advantage of these options?

a) *"Not aware of any and unlikely to be eligible."*

17. What is the main goal you want to achieve by doing these active activities? How much progress do you think you have made?

a) *"Staying in and getting into shape."*

18. If you monitor your exercise activity with some app or device, do you also monitor other things, such as sleep, weight, water intake, your diet or something else? IF yes what are the greatest benefits you feel from this monitoring? IF no why don't you?

a) *"Yes, it helps me know if I am improving."*

19. Do you find the process of monitoring non-exercise activities difficult? IF so why?

a) *"Yes, because I need to enter everything into an app, and you know going in that it can't be very accurate."*

20. Would you rather monitor your active activity with a phone or with a wearable device like a smart watch?

a) *"Smart Watch, lighter and more convenient than a phone. Also sweat proof."*

21. What about general health monitoring, would you prefer monitoring this with a phone or with a wearable device like a smart watch?

a) *"Smart Watch, seems it would be more accurate."*

Thanks for your time today and for your answers, do you have any questions for us?

No Questions

Name: Clement Sun

Age: 44

Occupation: Investment Advisor

1. Hi there, are you able to answer a few questions for a study I am doing on exercise motivation and tracking? May I audio record our conversation?
a) Yes
2. Can I confirm with you that you have signed the consent form? You should be aware that you may withdraw your consent at any time and are not required to answer any questions.
a) Yes
3. What are some active activities you participate in during a typical week?
a) *"Hockey, Walking the dog."*
4. Can you tell me what got you into (answer) from Q2?
a) *"Family tradition, and owning a dog."*
5. Would motivates you to participate in active activities?
a) *"Recreation, Coaching, Socializing with friends at Hockey"*
6. Have you ever used an app or electronic device to monitor your activity? If you chose to start using this yourself what was the reason you chose it?
a) *"Yes, Fitbit. Found it enjoyable - wanted to use the technology, record some data."*

7. What features of (application or device) motivated you?
 - a) *"Statistics etc. and trying to beat them day over day."*
8. What features of (application or device) made you less likely to stay active?
 - a) *"Statistics can also be demotivating - i.e. tiny calorie counts."*
9. What generally prevents you participating in active activities?
 - a) *"Time constraints, Laziness, Age."*
10. Do you typically do these activities with a partner or group? IF not do you think this would further motivate you? IF yes do you think this is helpful?
 - a) *"Hockey is with a team, the team spirit is motivating and makes the activity more interesting."*
11. Do you get any professional guidance when working out? IF yes what kind of guidance do you get? How long have you been getting this guidance for? Do you think this is helpful? IF not would you like to in the future? What prevents you from getting professional guidance right now?
 - a) *"No, and while he says professional guidance would be helpful he likes the solitude."*
12. Do you find it hard to find someone to do these activities with you? IF yes why? IF not who do you usually do these activities with? How did you meet them?
 - a) *"Yes, scheduling is always an issue."*
13. If you prefer to do these activities with a partner or group, what kind of people do you like to work with? Do you prefer having someone with similar skill levels, or someone with drastically different skill levels? Why?
 - a) *"I prefer equal skill level, so that I feel I am not the worst and so that I can compete, most fun."*
14. Where do you usually work out/exercise? IF gym do you need to pay to access it?
 - a) *"Local Rinks, yes you need to pay but its very affordable."*
15. Do you find it hard to find a place to exercise, either for a fee or for free?
 - a) *"Not hard to find rinks but, hard to find available time slots."*

16. Are you aware of any free gym/exercise options available to you? IF yes do you take advantage of these options?

a) *"Yes, dog park and other parks are free."*

17. What is the main goal you want to achieve by doing these active activities? How much progress do you think you have made?

a) *"Purely for socializing."*

18. If you monitor your exercise activity with some app or device, do you also monitor other things, such as sleep, weight, water intake, your diet or something else? IF yes what are the greatest benefits you feel from this monitoring? IF no why don't you?

a) *"Only exercise, uninterested."*

19. Do you find the process of monitoring non-exercise activities difficult? IF so why?

a) **Not Relevant Doesn't Do**

20. Would you rather monitor your active activity with a phone or with a wearable device like a smart watch?

a) *"Phone, because it is always with him. And getting a wearable for activity is annoying."*

21. What about general health monitoring, would you prefer monitoring this with a phone or with a wearable device like a smart watch?

a) *"Preference would be something wearable that is linked to the phone and only used during activity, wants to use what's most accurate."*

Thanks for your time today and for your answers, do you have any questions for us?

Nope

Signature _____

CSC318 Research Study - Consent Form

January, 15, 2018

Reece Martin

Consent Form: Reece Martin 1

Group Identifier: "*The Problem Solvers*"

I hereby consent to participate in a research study conducted by Reece Martin, Ellen Chen, Yi Liu, Manuel Velarde, Kyle Haas, and Louise Xia. for an assignment in University of Toronto Computer Science course CSC318 The Design of Interactive Computational Media.

I agree to participate in this study the purpose of which is to investigate the use of health and fitness technology by the general public.

I understand that the procedures to be used are a face to face interview with recording.

I will receive no compensation for my participation. I am free to withdraw before or any time during the study without the need to give any explanation.

All materials and results will be kept confidential, and, in particular, that my name and any identifying or identified information will not be associated with the data.

PARTICIPANT

Name (please print) Lee Ann Martin

Signature 

Date Jan 23, 2019

INVESTIGATOR(s)

Name Reece Martin Signature RM

Name _____ Signature _____

CSC318 Research Study - Consent Form

January, 15, 2018

Reece Martin

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All materials and results will be kept confidential, and, in particular, that my name and any identifying or identified information will not be associated with the data.

PARTICIPANT

Name (please print) _____Christopher Chow_____

Signature __________

Date _____1/24/2019_____

INVESTIGATOR(s)

Name _____Reece Martin Signature **RM**_____

Name _____Signature _____

