


Appendix one – interview transcript

First interview

1.	
	Pain in neck at a certain posture.
2.	What are the common causes?
	Sports, poor sleeping postures, accidents (car, bike), static working postures.
3.	Is clinical massage a main type of techniques you do for treating neck pain?
	No, it's only a small part of physiotherapy.
4.	Do you combine it with other techniques?
	Yes, I mainly do mobilization and stabilization techniques, you can call them manual therapy. I also give patients takes, some exercise, after the treatment. If one muscle has high tension, it's good to exercise the counteractive muscle to achieve a balance.
5.	Does clinical massage mainly work on muscles?
	You can say that, but it can also work on joints and nerves. That depends on the need.
6.	Do you work on same muscles for different patients?
	No, of cause not.
7.	What is the basis of your decision about which muscle to work on?
	Base on patients complain and my assessment.
8.	Are there certain "trigger points" need more attention?
	Yes, there is.
9.	How do you find those points?
	When you press at the muscle, you feel some points are harder.
10.	How do you deal with those points?
	Just keep pressing at it with thumb, about 30 – 50 times.
11.	What are the questions you ask patients during massage ?
	Job, sports they do, medication they use, health status.
12.	How do the questions influence the treatment?
	To see possible causes.
13.	Which part of the clinical massage treatment do you think is essential?
	Release the tension of muscles.
14.	Are you aware of some massage devices in the market?
	Yes, I saw some.
15.	What's your opinion about them?
	Some works some don't.
16.	Is there a self-treatment device you recommended to your patients?
	I used one before to assist my treatment. But it was broken recently and I haven't bought a new one yet. It has three ball shaped tips and it can vibrate.
17.	Do you have any suggestion for my project?
	The one I mentioned can only work on large areas. If you are going to design something similar, I hope it is suitable for the whole body.

Second interview

1.	What are the most frequently occurred complaints about neck pain?
	 <p>The pain at (pointing)</p>
2.	What are the common causes?
	Sitting in front of computers too long. I have many patients who are students with neck pain.
3.	Is clinical massage a main type of techniques you do for treating neck pain?
	It's part of the treatment.
4.	Do you combine it with other techniques?
	Yes, I let the patients do some exercise. Sometimes if they have problem with mobility, I also do some passive movement to mobilize.
5.	Does clinical massage mainly work on muscles?
	Yes
6.	Do you work on same muscles for different patients?
	No, but for people with similar symptoms probably yes.
7.	What is the basis of your decision about which muscle to work on?
	Base on symptoms.
8.	Are there certain "trigger points" need more attention?
	I don't have much experience with that, maybe my colleague who does dry needling can answer that question. (Maybe it's not the right word to use. When I say "trigger points", it means some special points that is more important to be treated during massage.) Then, there are some points or some areas on the muscle that act like a button. When you massage on them, the muscle is released. Those areas are not always the same area where the pain occurs, but when those areas are treated the painful area is also released.
9.	How do you find those points?
	Base on the symptom and my experience, I know which muscle has the problem. The points locate on certain part of the muscle according to their structures. However, you still need to feel with your hands to find the right point because the muscle system is not in a single layer, there are many overlaps among different sets of muscles.
10.	How do you deal with those points?
	Sometimes I use my thumbs, sometimes my elbow. Depends on where it is and the patient's body size.
11.	What are the questions you ask patients during massage ?
	What kind of work do they do; When they feel the most painful; What would they do after noticing the pain, whether they can continue what they were doing; whether the pain continues when they stop doing the work; what sports do they do, whether they feel more pain or less pain during sports; what other diseases do they have, are they taking any medicine.
12.	How do the questions influence the treatment?
	To assess the causes and severity. If they are not visiting hospital for other diseases, not feeling more painful while doing sports, not feeling pain while resting, most likely the problem is related to their work.
13.	Which part of the clinical massage treatment do you think is essential?

	Every step is equally important. The assessment, the relaxation, the finger work and so on.
14.	Are you aware of some massage devices in the market?
	Yes.
15.	What's your opinion about them?
	I didn't study that. I can't give comments.
16.	Is there a self-treatment device you recommended to your patients?
	No, I don't recommend them to use those devices frequently. First, when they use the products they need to hold them statically which builds up extra tension on muscles. Then I don't want them to be dependent on treatment. The best way of managing neck pain is to be more active and keep a good habit. I don't even suggest them keep coming here for treatment. Our goal is to let them free of neck pain and any treatment.
17.	Do you have any suggestion for my project?
	Maybe you can do something about their emotion. Some patients tend to overemphasize their neck pain. Even though their pain is gone or very light, they still think there is something wrong with their neck and always want to have a treatment.

Supplementary interview

1.	What are the most frequently used massage techniques?
	Press with one finger, gliding with one finger, and hold the neck with hands.
2.	Do you have anything to add or change for the following process? <u>Assessment</u> <u>Plan</u> <u>Treatment</u> <u>Reassessment</u> <u>Health suggestions</u> <u>Documentation</u>
	In most cases, the plan phase is quickly done in my mind. Some patients are more curious about what I'm going to do. Then I will discuss with them. But in most cases patients are not very involved in the plan phase, because we have limited time. The reassessment part is also briefly done. I would ask patients what they feel after the treatment, and that's it. Every patient has an online profile, I will write down their information during the treatment. Before the next session I will have a quick review.
3.	How do you position clinical massage in neck pain management?
	By massage and mobilization treatment, people who can't do exercise before can do exercise again. People who feel largely disturbed by neck pain can get relief. It's not something that can be cured by treatment. But it can be managed. When people are visiting physiotherapy, they are more aware of their neck pain and pay more attention to manage their neck pain.
4.	Don't you think continuous massage treatment can cure the patient?
	It can work. But I have to say it's not the best way. For people with mild neck pain, continuously coming for treatment is a waste of resource. For them, self-management is the key. I recommend them do more exercise, watch out their habits rather than being dependent on treatment. Having no problem at all, and continuous treatment, which do you think is better, of course the first one.
5.	What if the patient indicates he has other diseases? What diseases will affect the treatment?

It can affect the treatment in two ways. First, if people have other diseases, that disease might be the cause of neck pain. For example, I have a patient who has cancer for many years and he complains about neck pain. Actually, his neck pain was because of the problem in his vascular system which I can do nothing about. Then, for people with weak bones, I can't use some techniques.

6. Is it common that the neck pain is caused by disorder in other parts of the body?

Yes, it happens. It's very common that neck pain occurs together with pain in the arms and shoulders because it's a whole system. Often when the pain on the neck is treated, the pain on other parts is also gone. In some cases, the neck pain occurs because there is some disorder on the arms, so they must be in a wired posture such as tilting their necks. Then I will focus on treating the arms. It also happens that people feel pain only at the neck but the actual problem is in another area. For example, if people use a mouse with a bent wrist, the tension is throughout a series of muscles but it's possible that they only feel pain at the neck. I can diagnose by palpation and letting them perform certain tasks. It requires a lot of experience.

Appendix two: Booklet



NECK PAIN MANAGEMENT - USER STUDY

INTRODUCTION OF THE STUDY

The study is part of a graduation project which is dedicated to help people manage their neck pain more conveniently. The aim of this study is to understand how people manage their neck pain; how they estimate the effectiveness of neck pain treatment and what they value the most when choosing self-treatment devices.

In the session next week, participants are going to do simple tasks while communicating with each other. To prepare for that, please fill in this booklet. Note that there is no bad answer, all your insights are valuable.

Thank you very much for participating my research, see you next week on the session!

PARTICIPANT INFORMATION

My name is _____ (male female).

I'm _____ years old. My job is _____ Designer _____.

I have neck pain at:
(Circle the spot on the figures)



Beside the neck, I also feel pain at: head shoulders arms chest.

I assume, my pain is caused by: stiffness of muscles. distortion of my spine.

dislocation of joints. sensitivity of my nerves.

page 1-2

EXERCISE ONE: AN EXPERIENCE WITH NECK PAIN

Please describe your typical experience you suffered from neck pain following the route below. Feel free to add other moments on the route.



page 3-4

EXERCISE TWO: OPINION ABOUT CURRENT PRODUCTS

If you have used any tool for treating neck pain, please briefly describe and evaluate that tool.

As shown at the right side, there are six neck pain related products. Please select the one you think is the most effective and the one you think is the least effective and fill in the blanks.

Positive

I believe _____ is the most effective tool for managing my neck pain, because:

If the message done by therapists scores 5/10 on effectiveness, this device will score _____.

Negative

I believe _____ is the least effective tool for managing my neck pain, because:

If the message done by therapists scores 5/10 on effectiveness, this device will score _____.



page 5-6

Appendix three: Session plan

1.	Introduce each other and fill in the consent form.	5.15-5.20
2.	Energize: Neck exercise together	5.20-5.25
3.	Purge questions What do you think are the main causes of our neck pain? What do you think is the best way of treating our neck pain? long term and short term?	5.25-5.35
4.	Part one: massage for each other (Make two groups. Within the group, one is going to do massage for another one. The massager can have a look at the receiver's painful points indicated on the booklet and think how the massage can be effective.) Encourage them to have more communication. Question for massagers: What did you do? Why is that? What's the difference between your massage and therapists' massage? Question for receivers: Do you feel it helped you? How can it be more effective?	5:35-5:55
	Break, eat some food	5:55-6:05
5.	Part two: Reflect on the journey Now let's look at the journey. You indicated your emotion, does anyone of you feel nothing when you have neck pain? when you feel the pain, do you feel you need some help? When you realized you need to do something, do you need some help? Does the repetition happen to all of you? Do you think we can change that?	6:05-6:15
6.	Have you used any product that is not shown here? Did anyone give a device score higher than 5? Why? Let look at the products one by one.	6:15-6:25
7.	Can present your ideal solution to us and mention under what situation it is used. Who selected smart? Do you trust the smart device? Do you worry about your privacy?	6:25-6:45

Appendix four: Transcript of session one

Part one: Free discussion

J: Let's start with a neck exercise if you don't mind. Last week a therapist taught me this.

P4: Cool, that's helpful.

J: Now I would like to start the session with a round of discussion about neck pain. First, what do you think is the main cause of neck pain?

P4: In my case I think is too much time on the computer.

P2: Same.

P3: But before I started High school, I study in a static posture for very long time like a robot. Then I already had neck pain.

J: Yes, any other causes?

P1: Carry heavy stuffs .

J: Yeah. I heard ladies get hurt by long time carrying a purse. I wonder do you think it affects the neck pain?

P2: I think yes.

P3: Those camera man hang those heavy equipment on their neck. That will probably cause neck pain.

J: Oh yes. And how about other kind works like sketching.

P4: Well yes, when I'm 3D modelling. I use lot of the mouse. It makes me feel pain on this side (right side).

P2: Yeah, it happened to me as well. And also when I'm prototyping I have to stay for a long time on the prototype you have the same pain.

P3: And also the bed, if the bed doesn't fit the curve of your spine, it also make you feel sour the next day.

J: Did you experience that?

P3: Yes I did. When I was in UK my bed was very soft and can be easily distorted.

P1: And also the pillow. The pillows here are too soft and thin for me.

J: Then, what do you think is the best way of treating the neck pain.

P1: Take a massage? It is really relaxing.

P3: I think massage can be effective instantly but it doesn't help in a long term.

J: Then what do you think is helpful in long term?

P3: I think a sort of exercise regularly and change your habits. I know the importance of it but I never change my habit when I'm really stressed of doing something.

J: Then do you also do massage if you think it's not helping in long term?

P3: I still do (massage). I think it shows me the result instantly although it doesn't sustain.

P4: I don't know the name in English, maybe manual therapy, something like that. It can train the way you use your muscles. It's not a kind of massage, it's more like physiotherapy. It works to release some of your tension and increase the strength of those that not working that much.

J: Do you think that one (manual therapy) can help in long term compared with massage?

P4: Yes. I think so.

P3: But can it give you instant release after the treatment?

P4: Yes. It (manual therapy) does (give you instant release). Usually physiotherapists teach you some exercises that you can do it on your own to affect your habit as well, as you said. I think there is not that only one solution.

P2: Yeah, for me. I don't feel like someone massaging on me. I see people relaxing when getting massage, but I don't think it's good for long term. But physiotherapy is something different, it's more technical, and if you do it properly and regularly, I think it will help, but not just alone. I think exercising, some sports especially swimming is the most important for your neck.

P3: Yes I agree on that. But in delft swimming pool is not in gym. That is not convenient. I had a physiotherapy and the therapist suggested me to swimming. I think it's really helpful.

J: One question for you (P2). You mentioned that you don't like people massaging on you. Is that because you don't want others to touch you?

P2: I think some people get so wrong massage. They do it so hard. Also in Turkey there is a thing, if you are sitting like this, if there is somebody behind you, they can come without asking you or informing you they can massage you. I feel so bad when someone do it. And maybe that's why when somebody is trying to massage on me, I would be like, no.

J: Then how about professional massage?

P2: I haven't tried it because it's still a little scary for me.

Part two: massage for each other

J: Then it's a bit pity because our next exercise is to massage on each other. But we will have teams of two, only one is going to be receiver, the other one will be massager. Is that okay for you to be a massager? It will be two minutes.

(massaging)



J: My first question for the massagers is what did you do?

P2: I first checked which part they feel pain. I was thinking what other people did for massaging. They pushed, do this circle with a finger. Oh, yeah, to make some kind of pressure on this pain.

J: And why did you do that?

P2: Because others do that.

J: Do you think is effective for treating your neck pain?

P2: I think so. She said she's happy.

P1: Yeah, I can feel that those pain points are triggered. And she was very gentle. I feel really safe under her hands.

J: How about you?

P4: Well, I looked at the point where he felt pain and I also asked you to show me with your hand where it was hurting. And since he was seating and he got no support, so I tried to don't put too much pressure. And I also tried to do sort of like just have some blood flowing on the area and also to not do a lot of friction against the skin because this can be a little bit uncomfortable if you don't have a cream or something to. And I was also trying to remember how people usually do the same thing.

J: Do you think your massages as effective as what therapists do?

P2&4: No

J: What was the difference?

P2: Tow of my best friends are physiotherapists and when they are massaging, they search for some muscles or some areas or nerves. They know where are those points. And for example, if I say this part is hurting and they find something from here (pointing) and some other place and massage there to treat the pain. Something like that.

J: Do you mean the difference is they can search for some points but you don't know how to find this points.

P2: Because they studied anatomy maybe.

J: And what do you think?

P4: I feel the same. I wouldn't apply like a lot of pressure in someone without knowing what are you doing. And they usually do that and but they can do it on the way that doesn't hurt you at all. So because they know what they are doing like they know how the mechanics of your body work, these sort of things.

J: Then do you think what you did is effective to some degree.

P4: Yeah but not to the professional level. Yes, I think it is somehow effective, because when you apply some heat on a muscle that is has a lot of tension, this muscle will be more relaxed. If you your hands are not cold in the massaging area. It will probably help with this problem.

J: For the receiver, do you feel they are doing the thing that you want them to do?

P1: Yeah. Sometimes I think my painful points just need some more push.

P3: The main difference is normally when I do massage I will lie on the bed. And as what she said, she was trying to push, but I have no support. I have to stay stable was well, so I'm using my muscle, so I'm not fully relaxed. But the way she did is still effective.

J: Is there anything you want them to do but they didn't do?

P1: Longer. Maybe some ice bag or warm bag that can tender the nerves.

P3: Yes, something like a heat radiation.

J: Do you feel better when you have a warm pad or an ice pad on your neck?

P3: I feel better for warm pad myself.

P1: And sometimes, when I feel that I'm so nervous, I want to have a ice bag here to cool down. May I don't know whether it's correct or not, but I just feel relaxed

J: When you guys are doing massage, what are you looking for? For pain relief or for long term treatment.

P3: Normally, when I decide to do massage, are the points when the pain is really disturbing. So I want to kill or release it. So I'm not looking for long term. And I know it's not for long term.

P1: I just recently had my graduation. I felt so painful and I went to massage place, and they scheduled three massage sessions for me. So I'm actually looking for quick pain relief and also for long term treatment. I'm so afraid that my spine is not straight.

J: So you are worrying about your spine right? Do you think massage can help that?

P1: Not really.

P4: Usually when I make an appointment with the massager. It is for instant relief, when I really need that.

Part three: Explain the journey

J: Okay, let's move to the next phase. Let's have a look at your journey. What you wrote down was what you experienced before. If you can make some changes to better manage your neck pain?

P4: What I usually experience about neck pain is when I'm using the computer. What I'm trying to do, is to find a place to seat and work that I find comfortable. Because some tables here in the faculty sometimes use the chair or the height of the table that just don't feel very comfortable. So I try to avoid those. And I also tried to keep like a good posture. I tried to correct myself for a while or take a walk and do some stretches as well.

J: Are you doing that right now?

P4: I'm doing it right now. Yes.

J: And is there any problem stopping you from doing those.

P4: No, IT's not something that it gets a lot of attention. You were just like sitting there. And all of a sudden you just do that and some kind of stretch and so on.

J: How about others. Do experience that the neck pain comes back after it is gone for a while?

P3: Yes. But I don't know which way is a more effective to avoid neck pain without affecting other works. And for instance, you have responsibility to work on projects. And you cannot on the bed to work.

J: I think that's a very good point. you want to work in a more comfortable place or working less. Probably there can be a tool to help you with that.

P1: Maybe when I sit there for a long time, someone can invite me for a coffee break.

P3: I was thinking that maybe checking neck exercise on YouTube may help, but they are not something trustable. Then I wouldn't trust them totally. Doing sports more is more efficient I suppose.

J: Does anyone have something to add?

P1: Of course I want to buy a massage device. But there are so many options. I don't know whether they are really helpful. If I can find one which is really effective and professional probably I will get one to relax my muscle regularly at home.

J: Why do you want to use a massage device?

P1: Because sometimes I do massage for myself, but I find it tiring. I need something to help me do that. And I can't push with enough force.

J: Are you expecting it to treat your neck pain?

P1: I wish it could cure me. Anything else?

Part four: Evaluate current products

J: Let's look at the next task. Have any one used an effective treatment device before?

P1: I used something looks similar to the third image. But there is no balls. It works like pliers. You hold the two handles, with only a little force, it can clamp you neck.

J: What do you think about that?

P1: It's quite cheap which is good. And it works. But it can only work one the side of my neck.

J: Where else do you also want it to work.

P1: the middle of my neck, my shoulders.

J: Do you feel tired when holding this tool?

P1: A little bit. But I don't do it for long time, so it's okay.

J: Anyone else have used other products?

P234: No.

J: Did anyone of you give any product a score higher than 5?

P2: I give number 6, the massage chair a 7.

J: Did you notice that the massage from therapists scores 5?

P2: No, I forgot that. But I will still give it a high score because it looks enjoyable and it's so common to see. It must be effective otherwise there won't be that many people using it.

J: yeah, that make sense. Anyone else have other comments on the products shown here?

P3: I don't like the third one because I'm not fully relaxed when I'm doing things manually.

P2: I don't like it either. The shape looks creepy.

J: What do you think that makes it look creepy?

P2: I don't know, maybe the plastic makes it looks easy to break? And the patterns, the dots.

P1: Yes, I agree with you. Also, the fifth one looks creepy as well. The material and shape looks like a sexual toy.

J: Okay, anything else?

P4: The second one looks too "rigid", seems difficult to position the device at the right point.

Part Five: Describe your ideal solution

J: Yes. Now let's look at the next page. I think you all have a good idea about your ideal massage device. Can you present it to us?



P2: For me, if I have really hard pain, I will visit a doctor or physiotherapy or something. But if it's like a smaller pain, I'll take some measure to treat myself. So it should feel easy to use. So it's something you wear on your hands. And it has some balls that help you to pressure on yourself. And kind of rolling on your skin.

J: Can you Explain a bit about your choices?

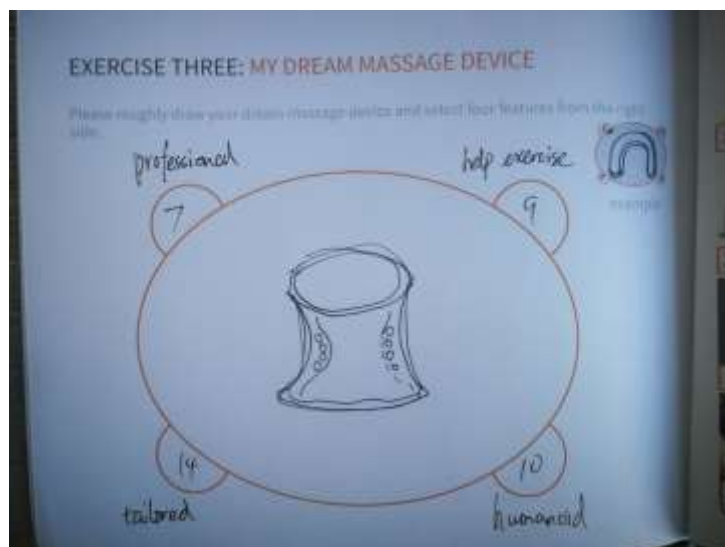
P2: I choose professional, enjoyable, fashionable, efficient. Because most of massage devices are creep, like hang your head somewhere which is funny. So it should have a nice look. And also enjoyable, I just want to feel comfortable.

J: Do you mean you will only use the massage device if you have a mild neck pain?

P2: Yeah, if it's really like strong neck pain, I mean I would go to a doctor instead of treating it myself.

J: And where do you think you are going to use it?

P2: At home. But I think it should be fun or nice to show your friends, if it's well designed.



P1: So mine is like a skull just around neck. There are some holes with some electronic components in it which can maybe rotate to release your pain. And the way I like it in this shape is because I want to use it during my work so that I don't need to use with my hand. It can just stay on my shoulder and I can keep on working. The words I chose are tailored, professional, help exercise and humanoid.

J: Do you think current products are tailored for you

P1: No, not really. so that's why I can't trust all of them. Because they are mass produced, and if I pushed the wrong points, it will hurt me more. So I'm kind of worried. And because of the shape, I made this need to stay here. So I think tailored is very important.

J: Do you guys have the same feeling that if it is tailored you trust it more.

P3 & P4: Yeah, same.

P1: I also selected help exercise because I think if this can stand on my neck, because a lot of patients when they hurt their necks they can't move like this. Then, they can stay still with this device.

J: Do you mean they can do exercise with the help of this device?

P1: Something I called exercise is just stay still. Probably not the thing we did at the beginning. But I also wish maybe it can force me to do things like that.

J: Why do you want that? You can also do it yourself.

P1: Because I always have deadlines and then I would just try to finish dead line first and then take care of myself. Just personally need the triggers.

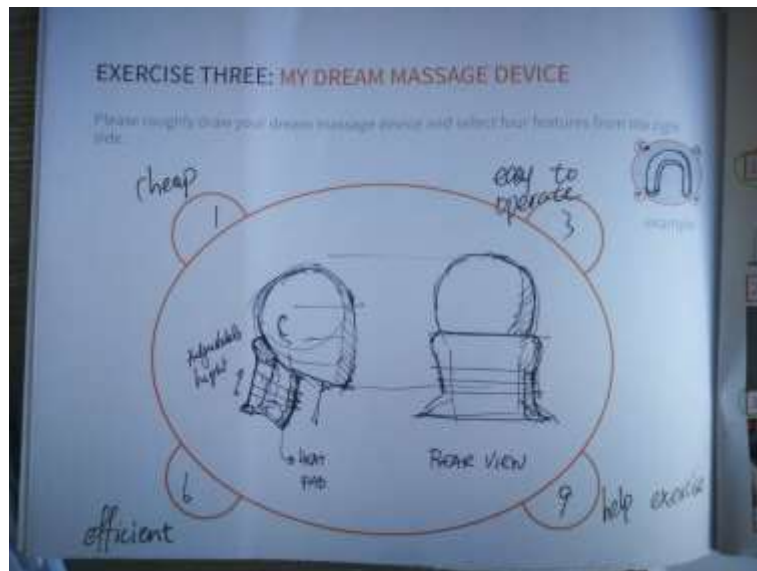
J: Do you guys also think that helps? Do you need that kind of help?

P4: I can relate to that. If there is a deadline. I'm going to stop my life and I'm going to finish this so I can understand that. And, I also agreed that the tailor mind set.

P2: I don't think like that because when there is a deadline, I don't want to pay all the focus on, because I have my life. And while I'm having my life, how much I can finish It, it doesn't matter. I mean it's important to stay in my life.

J: Do you also want to wear something while you are working? So you can have your life and work together.

P2: No, I will lose my focus.



P4: About mine, I thought about something that would be used during work or when you lay down on your bed and they are designed that you could adjust the height of it so you can stretch a little bit the muscles and you would have some heat pads on the device so you can feel a little bit more relaxed. And I think it should be something cheap in the sense that there is not a lot of technology involved. So it's something that is easy to fix. Other features are easy to operate, efficient and it helps you to exercise because it helps you to stretch a little bit.

J: You mentioned you don't want too much technology in it. Why is that? Don't you trust them?

P4: It's just that I feel like if something has a lot of the mechanics involved, it's usually something that is quite easy that you will find some problem on it after using it for a while. So I imagine like your example, something very simple, so that's something that nothing could happen to, which is quite easy to use. So I like this.

J: How about the smart technologies, AI kind of smart things? Do you like them to treat your neck?

P1: Is it necessary to have artificial intelligence?

J: If it can understand your pain and your preference. Do you want them to know? Will you use it?

P2: Kind of like doctors, therapists?

J: uh, everything in your mind related to smart technologies.

P2: I think it would be nice like let's say somehow my friends or my doctor can, uh, control the machine and it's about this person is far from me. Then the machine make massage according to this information.

J: Do you trust it?

P2: Yeah, because it depends on the logical things.

P1: I liked her answer. She said her friends manage the staff and I trust the person and their real opinions.

J: Do you mean you trust the real person rather than completely depending on the technologies. Can I say that, is that what you mean?

P1: That's what I meant not her opinion.

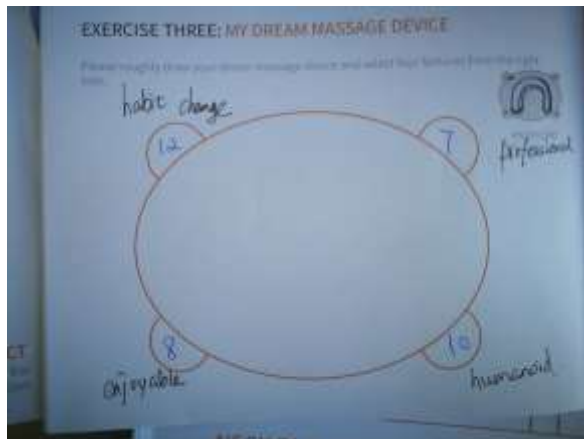
P2: yeah, I mean if there is an automatic process for everybody, for example, it does the same thing to you, to me, and it doesn't make sense because they have different pain. But if somehow, it's changed the massage thing according to our pain. Uh, maybe its still doctor doing this or there is the artificial intelligence behind it. Then it is more trustable.

P4: I think if this technology can enable some kind of personalization, then it's, it's very useful.

J: Do you worry about your privacy? Because maybe it can collect your data.

P2: I have every kind of social media. It's too late to worry about that.

P4: In this sense is not something that, I don't know. I don't see evil masterminds using the data of my neck thing to do something. It's not something like it would be something so important to be used.



P3: I didn't draw anything. I just use the keywords. Quite like others, professional, enjoyable and humanoid and then habit change. I think I don't want to be addicted to a device. Because if I'm addicted to a device and I don't have it sometimes for example when I'm travelling, how can I fix my neck pain then? So I think habit change would be good for me, If the device can guide me to form a better habit.

J: You mentioned the addiction. This is very interesting. Do you feel like addicted to massage or any other treatment?

P2: Somehow. Now since I the scheduled regular massage treatment, I feel more secured.

P3: I liked some therapists so much. But it's not always on your choice, you can't always get their massage, that feels bad.

J: Do you want to have this feeling?

P2: well, not really. I wish it can be totally cured.

J: And I find both of your selected enjoyable. Do you relate massage to something enjoyable?

P3: Yes

J: Enjoyable and treatment effectiveness. Which one do you care more?

P1: It depends on the situation. Like if I have pain and I need some help then definitely treatment.

P4: I think more enjoyable. Because I don't feel it's something that will help me in the long term.

J: Did notice that there are two kinds of massage. One is purely enjoyable, something in SPA. The other one is done in physiotherapy treatment. Do you think both are enjoyable?

P4: Sometimes the physiotherapy massage can hurt a little bit, but afterwards you feel very well, that is also kind of enjoyable for me, at the end.

J: Then do you think the massage in Spa also have treatment effect?

P4: I think it always helps. It makes you more relaxed.

Appendix four : session two

Part one: Free discussion

J:我们既然今天是病友交流会，我先活跃一下场面，带大家做个保健操。上周我去看医生的时候，他教我一套动作我们可以先练一下。很简单地低头抬头。然后用手就轻轻的45度往上托，轻一点。然后有一个动作，用力肌肉绷紧，然后这样向后绕一圈，转到前面。这个是绷紧的，不是很轻松。然后下巴用力贴近胸前，然后往左看，向右看。好，我们现在可以开始了，我们开始先探讨几个话题，

J:大家觉得我们的颈椎痛是主要是什么导致？**What do you think are main causes for neck pain?**

P3:学习 (study)

P2:还有平常姿势，可能有些人前伸。有些人从小养成的习惯。平时走路的时候一直都这样头像前伸。(postures also matters. and many people sit in front of computers with an awkward posture. There are some people walk with their heads leaning forward.)

J:有别的原因吗？

P1:有人躺在床上玩手机 (Some people play smart phone lying on bed)，然后一个姿势一直不动。尤其是错误的姿势一直不动。玩手机都是在低着头看一直保持一个姿势。

J: 还有别的特别想法吗？

P4:可能打游戏吧，跟学习类似，比如说坐姿不好，一直持续着那个动作。

J:你们觉得治疗我们颈椎颈椎痛，什么是最好的方法？**What do you think are the best ways to treat neck pain?**

P3:在家躺着不干活。(stop working)

P1:我觉得穿类似背背佳的东西 (wear "beibeijia", something that that force you to be in a good posture.)，就是有工具帮你养成好的坐姿。

J:你穿过背背佳吗？

P1:我小时候穿过没有什么用。

J:没有什么用为什么你还说这是一个很好的方法呢。

P1:我觉得它设计的好一点的话就好了。背背佳就感觉没有支撑到颈椎，只是在背部这里。

P4:运动比较有用，但是最重要的我觉得还是好习惯比较重要。坐姿站姿，直挺一点，那样的话就还是效果最好。(I think doing sports will help. But I think the best way is still keeping a good posture. However, staying in a straight posture can be very tiring.)

J:别的治疗方面的方法呢，医院一些治疗手段，自己觉得哪些是最好的？

P1:针灸，但是我没试过，也不知道原理是什么。因为大家都在做，经常听说，所以我觉得它的存在不会是没有原因的。

J:别呢，因为我们其实还有挺多治疗颈椎的手段。有听说过别的方法吗？

P4:理疗。他有一些设备，就好比说是电的那种，有一些特殊的形状，然后就躺在上面，它就会给你那些物理辅助上的治疗。

J:物理辅助治疗，你指的是什么呢？

P4:它会有一些比如震动。

J:你觉得这有用吗？

P4:我觉得效果其实不是特别好，比如说你真的是要习惯不好的话，它可能让你舒服一会儿。但是你一会儿它就又回来。

P3:我见过一个，就是袋子绑在上面，可以把你头吊着。因为这是治疗比较严重的情况的，我没有试过。那是干嘛用的？我妈以前的理疗科工作过。一个老年病人，平常呆着就痛，脖子就弯不了。然后他就被吊在那，就会感觉舒服一点，因为这样没有头压着。他那种吊法就是一个长带子着拖着你的下巴。你就坐在这，然后就把你身体整个往下拉。

J:你觉得像我们这种学生之类的，需要这种治疗吗。

P3:我们还不至于吧。

J:别的方法像什么按摩这些，你们有什么看法吗？

P3:以前在上海上班的时候，有时候累的不行，就会去做按摩。他其实也不贵。一次二十欧。但是他不是只给你整颈椎，他会给你整整个后背。按他们的说法，那叫气血不通。他用手指按来按去会有一个结的，平常摸不到，但是用手指推过之后，就会发现有个硬的东西。然后他推的按时候明显感到那里不一样。他说你隔三差五来一点用都没有。他的意见是一开始最好每天都来。有好转以后每次间隔不要超过一天两天，再连续来一个月就会好。他每一次按摩大概是一个小时，但是你这样算

一下一百块钱，然后每天都去一个月 600 多欧，还要花很多时间。我也不确定能不能彻底好，我是觉得不会，就没有坚持每天去。因为他也没说的特别肯定，也只是说可能，而且我觉得就算好了也会反复，这就像个无底洞一样。(When I was working in Shanghai, sometimes I feel really tired, then I will go get a massage. The massager has some technique that after massaging on a certain area, there occurs some hard pimples which you can't feel before. Then they will work on that. They told me I come every day for a month. It will disappear. After that I can come once a week to prevent it from occurring again. I didn't follow his suggestion because it feels like an endless investment. I'm not sure whether it works or not. The treatment is 15 Euros/time. If I go every day, it would be 450 Euro which is a burden for me. If the massager is close to me and cheaper, it will be the best way I think.)

P4:我试过拔火罐治颈椎的，但是也不好。他那个理论大概也是说气血不通，然后就拔了之后，他会帮你疏通一下。别人说有效果，但是我感觉我弄完了没什么作用。

J:你们一般想办法来治疗自己颈椎的时候，是想让他当时缓解而想长期的直接把这个病治好？(When you look for treatment, do you want only instant relief or do you want long term treatment as well?)

P2:肯定是希望长期的，不过当时如果很爽的话，也会让我心情很好的。(Of course I also want a long term cure. But if it only has instant effect, it's good enough for me.)但是其实我没法衡量它有效无效。因为有人给我按过，我当时不疼了过一会儿还是会疼，长期的变化又不明显，基本察觉不到。(actually, I can't examine the effectiveness of massage because although I feel less pain right after the treatment, the pain goes back after a while. In term, the change is not obvious)

Part two: massage for each other

J:讨论环节就先到这里。接下来我们分两组互相做按摩。自己决定谁给谁按，因为我们只有一轮。我俩决定好了。我来。接下来 massager 来看一下 receiver 哪里痛，booklet 上面有标出来。看完之后你心里琢磨一个方案，要怎么来缓解她这个痛。准备好以后我们就可以开始了。好，我已经决定好手法了。是做人你就努力想办法让他更有效果。好，我们可以开始了。你们可以互相交流一下，轻一点，上面一点，下面一点可以交流。

(massaging 你这里有点凉。你的手热乎乎很舒服。

轻一点，再轻一点。其实我没有感觉到疼。我感觉她用力了，但是我不疼。我发现颈椎病的人好像都有一点脖子往前伸的。尤其是你这样按完之后一痛，我就会不自觉地往前伸。来抄袭一下他们。)



J:行, 时间也差不多了, 你们爽够了没。好, 我现在要问一下刚才的 massagers, 一个一个来, 你刚才做了什么事情? **Massagers, what did you do?**

P1:我刚才的手法是因为它这两个地方痛不舒服, 就先捏这两个地方 **(I massaged on those two points because she said she feel pain there.)**, 捏了几下之后, 我就两个手指按住中间, 因为它中间这里就有个包在这里也痛, 我就开始捏这个包, 我然后就一直在揉那个包吗, 但是他又说了, 他后脑勺这里也疼。然后我就第一感觉我觉得这两个地方是血脉相通的, 我就这个样子。这样摠住她的肩, 然后这个样子, 然后就一边是又按摩她的后脑勺的地方。 **(She also said she has pain at the back of her head. I think the middle part of her neck is connected with her head, so I pressed there with my finger.)**

J:你主要是用手指吗?

P1:对。

J:为什么会只用手指 **(Why did you only use your fingers?)**, 我印象里那些按摩师还有很多别的手法。我看到还有人用什么肘部压。

P1:因为我觉得首我觉得就太过分了, 因为她也比较瘦小, 我觉得我力手指力气就够了, 然后就是什么拍打之类的那些我自己是觉得不太理解。 **(Because I think her skin is soft, my finger has enough force. Elbow will be too much for her. And fingers are more precise. As for flapping, I don't understand why people do that. I think massaging with fingers is the most effective)**为什么要拍打, 应该没什么用的, 还是捏着最有用。

J:你都做了什么?

P4:我也是用手指, 就是大拇指, 然后按他的肩膀, 这个地方还有颈椎后面, 因为颈椎后面就不是特别好用力, 面积有很小。就只用了大拇指。后来斜方肌那里就是用手捶了几下, 主要为了让他肌肉放松。 **(I also used finger, because the neck is not a big area. Especially the slot at the back of his neck. I pated on his shoulder to relax his muscle.)**

J:你们两位 massager 觉得自己做的和专业专业的理疗师相比, 谁更有效果。

P1&4:当然是他们。

J:你们觉得主要的区别是什么? (What do you think is the main difference between your massage and therapist massage)

P1:人家的手法多一点, 像我就只知道捏和揉, 而且我这是乱搞, 没有什么原理支撑。(Therapists know much more techniques, I only know the easiest one. They can apply different techniques in proper cases, I don't know the theory.)

P4:然后他们知道你是什么样的疼, 对应的怎么按比较有效。而且有的时候人家可能按的可能经验比较多, 知道怎么用力。(The know how to apply force. Just now I find it hard to apply a lot of force on the slot back his neck.)

J:然后你刚才讲到一个点挺有意思的, 你说他们知道要怎么用力, 你觉得你不知道怎么用力吗?

P4:比如说颈椎凹陷去那地方, 我按起来肯定是不是特别熟练, 我不知道该怎么发力, 可能人家有技巧。

J:两位 receiver,你们觉得刚才的按摩有帮助到吗? 有一点。但是现在就基本消失的差不多。(Receivers, do you think the massage they gave you treated your neck pain?)

P2:之前肌肉紧张缓解了一下。但是现在感觉好一些了。

J:你觉得按摩对肌肉紧张会有效吗。

P2:不管怎么按紧张都会消除一点,至少心理上是这样。(I think as long as others touch you and massage on you, no matter it is professional or not, the tension can be treated a little bit. At least mentally.)

J:那你们当时被按的时候, 有没有希望他们能再做点别的事情呢?

P2:没有。主要是当时是被痛苦在支配的。我是不管他按哪里我会痛, 根本没法想到说哪里还不舒服, 你帮我缓解一下。因为这不是变舒服跟难受对比, 是痛苦跟痛苦对比。

J:就是刚才他给你念太重了是吗?

P3:不是, 我确实是因为问题比较多, 太容易痛了。他给你一点力, 你就会痛。(Maybe my neck has too much problem, it is painful as soon as someone pressed on it. So I only feel the pain just now.)

J:你觉得痛吗?

P2:因为我对疼的耐受力挺高的。

P3:因为你颈椎还好，以前的时候我也还好，但是后来熬夜太多了，然后又做模型什么的，后来就这个地方，有一段时间是轻轻一按就痛，不用使力。

P3:一般人没事的，我这一按就痛，确实没办法。

J:你意思。颈椎病越严重就越容易被按痛是吗。

P3:对。

Part three: Explain the journey

J:这个环节时间也差不多了，我们看一下我们的 journey。

J:关于你的情绪，有人填的是 nothing 吗？就是你们脖子疼起来之后就也情绪没啥变化。 **For your emotion, does anyone feel nothing when you have the pain?**

P2:我。因为经常疼，疼就疼吧，就习惯了。 **(I feel no emotion because I always have it, I'm used to it.)**

P3:我经常不是疼我是僵。我脖子在这里就有时感觉抬不起来，它不是痛，就是感觉这一块就不自然，感觉有一个力道别在那里不自然，所以年轻忍了，要不就活动一下，其实心态没有变，你们没把它太当回事。

J:这里面有没有人填焦虑？

P4:会有点吧？因为比如说你正在做你的作业或者什么的，你疼的话其实会影响你的。你可能就是有点烦，就是你想做，但是又特别疼。

J:我在这里焦虑的意思，就是想我脖子又疼了，明天会不会啥也干不好，有没有过这种感觉？

P4:没有。

P3:我可能有一点点，比如说要熬一个夜，赶明天早上 8 点交的东西，现在是凌晨四点了，我还没做完，然后我脖子开始疼。就开始焦虑。感觉它在阻挡我完成这个东西，脖子疼促进了我的焦虑。

P3:我觉得脖子疼不构成我焦虑的来源。它只是一个我焦虑了，所以有时候可能会脖子疼，但是我觉得他是一个并发症，但他不是焦虑的来源。可能心里就是埋了一堆焦虑，然后脖子痛只是一个 trigger。我真正难受的是，比如说我明天哪个事做不完，但不会是因为脖子疼。

J:下一个问题，你脖子疼之后你想要去干嘛？这个时候你们如果可以寻求外界帮助，你们希望得到什么样的帮助？(What kind of help do you want at the moment you feel the pain?)

P2:突然伸出一双小手过来给我做按摩。(A hand massaging on me.)

P1:我觉得出门遛弯去商场用共享按摩椅。希望家里有更好，但是好贵的不想买。而且那东西太大了。(I may go to library to use the shared massage chair)(I would like to buy one but it is too expensive and occupies too much place)

P4:我会去运动一下，比如说出去遛一圈，或者是去健身房锻炼一下。比如说你早上或者白天疼了，你晚上下班了以后你就去运动运动。

J:那疼的当时呢，比如说你工作一半没法停下来。

P4:那真的就是休息一会儿吧。有的时候甚至就躺到椅子上睡一会儿。

P3:我是真的不行，你让我起来走一圈干嘛的没有用。我就得躺在那，把枕头堆起来，垫在脖子这。(I will have to lay down, and have couple of pillows to support my neck)

J:那这样你说是你会接着工作吗？

P3:没办法，就必须躺一会儿，感觉舒服点。但是其实我感觉他也没有好，只是缓解了一点。因为人类已经退化了，就是我们的头越变越沉，我们的脖子越来越弱，然后我们的脖子撑不起来我们的头。人类是所有动物的脑子最大的，所以你颈椎病腰间盘都是进化病，这就是人类特有的东西。我总感觉我头特沉我都托不起来，要往前垂。

J:我后面最后一个问题问的是颈椎病还会反复，就是你本来已经不疼了，过段时间他又开始疼了。有人没有反复的情况。Have you all experienced the repetition of neck pain?

P4:我是没有，因为我是一直疼，就没治好过。真的，每天都很难受。我理解的你的反复是特定做某些事情的时候会反复但是我并不是每一天，比如说到什么时候会疼，他有时候好几天都不疼。然后他有时候有些时候就突然开始了。

(I didn't experience the repetition. In my case it never stop. Sometime it does feel better for several days, but it goes back very soon)

J:那你们有过有没有过很长一段时间，他都没有再疼过？What about others, have you ever cured your neck pain?

P3:说实话，我放假的时候都没疼。

(To be honest, I don't have neck pain at all during holidays.)

P2:对,我也没。天天歇着什么事都没有。(Me neither, If I don't need to work, there is no problem.)

P2:我男朋友有一年寒假回家,可能是玩手机或者打电脑,打多了,然后脖子就动不了了,然后他就去针灸了。扎了一个疗程。十来天,他就每天去,然后扎那么一个小时候左右,后来他就好了,他就说能动了。这种疾病我觉得跟我们日常遇到的就是突然写作业脖子疼了也不太一样,我们平时就是一个慢性的。

J:就是说并不是把病治好了,比如我去哪做按摩或者多做运动之后治好了,而是不工作了自然就不疼了。

P3:对,我甚至不用怎么管他,比如说放假再家,每天做饭,然后出去旅游什么,这时候就真没事。

J:有没有过没有放假在你们工作的时候,一边工作一边治疗,成功的不疼了,有这样的经历吗。

P2:没治好过。我没真的认真治疗过其实。但放假回来,有段时间它就是好的,就没有那么疼。

P4:我曾经有这么一个事儿,就是我本来也是一直疼,但是后来有一段时间感冒就特别严重,真的就是躺在床上一整天不起来。也就一天多点,结果我脖子真的就不疼了。我觉得像这种还可以恢复的话,我脖子问题应该不大。真的是啥也别干就行。比如说一天我就躺着,不要让他承担大脑的重量。

P2:其实我从小脖子就疼,一直持续到现在,都是断断续续的(I have neck pain since childhood. Sometimes better sometimes worse. But it is always there)。我小的时候就堆积木,人家小孩都是要么趴着堆,要么就是坐着拿个小台子堆什么的,我是蹲着堆,然后这样窝着,然后导致头在两个膝盖中这样探着,然后就可能这样玩久了脖子疼了,从小姿势就不对吗,而且从小写字姿势也很不正确,但是后来才反应过来,就是可能小学快毕业的时候或者初中的时候,然后高中那会儿偶尔会疼,然后反应过来了,好像不太对,但是也没有当回事。然后疼痛程度也没有加重或者减轻,一直差不多这个程度,但是上学期加重了。因为上学期总也不动弹。然后可能跟心情有关系,上学期可能有点不太开心,然后就觉得说可能不太开心,加重了这种疼的感觉。(It might be also related to emotion. Last semester I was not very happy, then I feel it was heavier.)

J:心情不好时更容易是吗。心情不好的时候自己放大了这种疼,你们有没有过这种感觉。

P2:心情不好的时候就格外对那些不顺利也好,脖子痛也好,这种负面的事就格外关注。平常有时候脖子痛,开开心心的也就不在乎了。

J:所以你的意思是你情绪不是病理上增加了脖子的疼痛，而是让你格外关注。

P3:他就是会烦，就平常开心的时候脖子痛，我不会烦。但是我感觉并不是我心情不好，他会让我物理上产生恶化。我不信这个。(I don't think this emotion leads to physical change. Instead, your neck pain is always there, when you feel less happy you pay more attention to the neck pain.)

P2:应该说这是一种慢性病，然后可能是他一发作你就烦。然后如果说每次发作的时候，它能让你不那么烦，或者给你一个比较积极的反馈，大概他给你做完按摩了以后，你会得到怎样的缓解。(It's a chronic disease, every time it occurs you feel annoyed. To feel less annoyed, the device can give a positive feedback saying you are better now, in which way the treatment helped you.) 我觉得他如果在按的同时或者按完以后给你这个反馈，你可能就会觉得这个东西让我觉得放心，比如说本身我可以这一周每天都用它，我也可以这一周只用他一次，但如果每一次都告诉我，你哪里好些了，我肯定会愿意经常用，就经常的想起来。

J:如果他特别科学的告诉你，你一点状况都没有好转怎么办？你会不会就不用了。

P2:我就在想，如果是我自己花价钱花一些价钱买来的，即使他这样对我也会留着他的，我只会说可能是我已经没救了她真的没什么关系。

J:那你是希望他骗你还是希望他告诉你真实的数据？

P1:我作为觉得他可以以一种友好的方式告诉，虽然这次没什么用，但是不要气馁，也许下一次就有用了，效果是日积月累的，他就这样告诉你那还行。但我不太接受骗你。如果我是一个消费者，我肯定希望他告诉我真实数据。

J:像我们这种你们觉得有没有尝试过找一个治疗手段，真的把它彻底治好。

P2:我尝试找不同的人给我按摩，逮着什么机会，我就按一按。

P3:我所了解到的就是它毕竟是个慢性病，你就要长期的一直持续的治，持续的采取措施，但是我不愿意花这个精力。持续的养成习惯，做运动这些呢？(As far as I know, to cure the chronic disease, you need to take continuous treatment. But I don't have the perseverance to keep on taking actions)

J:你们觉得自己可以做到吗。

P3:看着我我就知道我做不到。

P1:我也做不到。(Me neither)

P2:我觉得有点难。因为如果他真的很严重的话，我会愿意去做运动，问题是我感觉也不是说特别严重，也不是也没有觉得有怎么样，然后我要是运动的话，我就会付出巨大的精力和意志力，我觉得没有必要在这个事情上消耗那么大的意志力，我

就不会去做。(I think it is hard to keep the habit. If it is really severe I will be willing to do something for it. But for me it's not that urgent, I can't spend too much willpower on it.)

P1:对, 因为我也一直觉得他不是什么大事, 然后我也一直没有想过要把它治好, 我就以为它就是一个大家都会有的不舒服的感觉, 我就说要是天天去用一下那按摩椅就是能舒服一点就行了, 也没想说把它彻底治好了, 没把它当成大病, 对。

(I feel the same, if there is a massage chair beside me, whenever I feel neck pain I can have a instant relief, it's already good for me.)

P4:我觉得比如说你们要是有一个自己特别喜欢的运动, 然后又能对颈椎病有帮助, 我觉得这个也还挺好的, 比如说游泳。

(Or you can choose to do your favorite sport. that will be easier to keep.)

J:不愿意为他专门每天做颈椎操这些吗?

P4:比如说是一群人一块的话, 我觉得还应该挺有意思的, 好比说你有几个人一块的每天定个点, 然后就一块做一下挺有意思。我觉得你一个人坚持做一件事是一件很很难的事儿, 就比如说这个东西, 每天只坚持三分钟, 你发现坚持一个多星期之后就很难了。但是好比说大家几个人一块互相监督的那种, 能坚持的长一点, 就是让大家互相监督一下。

P2:然后还有最后一点就是说可能对于女生会有一点特殊, 比如我这个肩膀是斜的, 穿衣服就很丑, 然后如果他跟我说你天天按你按 30 天你斜方肌就能下去, 我肯定会提前按的。还是说颈椎这个价值对我们来说还是小了点, 要是再捆绑点别的价值对吧? 变漂亮或者什么的, 我们会更想要。

(Or you can attach other values to the treatment. For example, my shoulder is not straight which is not so beautiful. If the treatment can soften my trapezius, I will be more motivated to buy it and use it)

Part four: Evaluate current products

J:我们看一下下一页, 你们在上面这栏有没有填, 就是你们觉得自己用过很有效的治疗的东西。

P1:我填了按摩椅, 就是商场那种。我经常没事就去用一下。又便宜, 又方便, 而且很舒服。

J:你觉得它有治疗效果吗?

P3:我是这样感觉,用完之后顿时就感觉是身上的肌肉被放松,就很舒服。但是我在想,如果长期每天都去搞个五分钟,可能会有效果,至少能抵消掉你这一天的错误姿势带来的坏影响。我觉得可能你觉得这种东西如果每天用的话,它也是有治疗效果。但如果只是隔三差五,可能就不行了。(I like the shared massage chair in the library, it is cheap and comfortable. I feel all the muscles are released after using it. At least the whole day exhaustion is removed. Although it's not as professional as therapists, I think it also has treatment effect if you use it every day.)

P2:我体验过我姥姥的一个按颈椎的东西,就差不多枕头那么大,然后上面有跟按摩椅差不多有突起,然后人躺上去,然后他就开始就像按摩椅一样给你按,就戳你。但是我觉得一般人可能受不了,那个东西疼,可能肉厚的,或者是说脖子不是那么疼的,应该会接受。你用完自己觉得有舒服一些吗。特别爽,我刚开始本来是想按五分钟,后来按了15分钟,后来在那睡觉睡着了一直案的,

J:你有没有每天用?

P2:没有,我就过年回家用了一次。你有没有想过自己买一个这种东西,在家里面每天用。多少钱?没多少钱吧,因为这东西本身应该挺简单的。但是这东西只能躺着用,不是你压在他上面,你才能感到他按你。你姥姥有每天用吗,她差不多吧。他颈椎病挺严重的,有一段时间还打吊瓶还是什么的。

P2:然后我还用过那种小锤子,然后还用过贴脖子发热贴。然后我就没事想着贴了感觉也还行。但是我发现那个东西贴时间长了特别难受。(I used a warm paste before, it feels good. But you can't use it for long time. Otherwise you might get burnt)就贴一会儿还可以。但是如果时间长了之后,觉得就好像烧了。

P3:那种长时间贴着会低温烧伤的。

P4:我试过一次就正好能在那几个点上确实贴一会儿挺舒服。正好在那几个点上。(I also used it before, if feels good if it is exactly on the painful points.)

J:你说你自己就往那几个点上贴上吗。

P4:他好像是一个套式的那种的,你可以裹到脖子上,然后再在那几个点上,它会有发热的那东西。它是怎么确定那几个点?它是范围大概是。

J:就这里面。你们有给哪东西打超过五分吗?我这里面有一个限定条件,如果理疗师给你的按摩是五分的话,这些东西你觉得有超过五分的吗?

P3:我给5号打的七分。

J:你觉得他比理疗师的按摩还有效是吗?

P3:嗯。

J:为什么呢?

P3:我就是每天晚上都在干这个事吗?把枕头叠起来,然后让他养着,对我来说就确实是缓解。作用很大。

J:你意思是理疗师间断性的给你的按摩,不如你说每天使用这个。

P3:怎么说,理疗师毕竟是要花钱的,虽然当时效果很好,但是那个过程十分的痛苦!然后我这个东西其实就让自己舒服一点,我觉得他可能也不会治疗什么,但是确实会对我来说,平常脖子痛的时候真的睡不着,然后那样架起来之后就感觉一下血流就通畅了一下,很放松,可能一会就睡着。他让你舒服就行,没打算用它给你治好。(anyway the physiotherapy is costly. I there is a cheaper solution that can alleviate my pain, although it can't cure it, still want to use it.)

J:我发现刚才通过谈话发现你们大家都没有把它治好的这种冲动。I find you are not so motivated to completely cure it.

P2:觉得没戏 (I don't think it's possible. I know I can't completely change my lifestyle or habits. So I think I will just live with it).

P3:他不是你一下两下能治好,真的是一个习惯的问题。你好比说真的,毕竟大家每天都要学习,或者是工作。这玩意对我来说真的是就是个代价,我想要付出更多的时间去工作,代价呢就是脖子会痛。(I think that's the price I pay for living my ideal life, to be an architect)

P2:而且我觉得脖子疼的根源不是说你按摩器好不好,说你这个人整个的生活方式正不正确,工作压力大不大?然后姿势对不对?对,而且说持续治疗的问题,就是持续治疗这个事儿,不是我想或者不想,而是作为一个懒惰的现代人,我只能持续地做那些不情愿的事情。就除了娱乐那个事,就因为短暂的让你大脑开心,我能每天持续做其他事情,那种比较痛苦的,比如说治疗运动学习也好,我只能有很少的那些不得不做的东西,我能坚持下来。我坚持学习,是因为我不得不做,不是因为我想。就算有一个很有效的东西告诉你,你每天坚持做,你一定可以把它治好。

(I keep study every day because I want to. But neck pain is not that important and I don't have that much will power.)

J:但是你刚才意思是你也很难坚持每天做。

P2:是对,因为这玩意没有到危及我生命的那个阶段。因为懒不想搞。

J:其他人都同意吗。

P1:完全同意，我们生活中有太多需要我付出意志力的事情，就坚持学习，坚持什么其他的東西，我就沒有意志力在放在這上面了。也沒有必要我感覺。

J:還有別人有打超過五分的嗎。

P4:我給二打了五分，三打七分。

J:你是衡量着理療師推拿來打七分嗎。

P4:我是覺得這兩個東西如果它管用的話，還可能就比较有效果，因為這個東西你可以隨便就拿着，在哪都能用。方便，然後又不是特別貴。(I like those two because I can use them everywhere. If it's effective, it will be perfect)如果他能有有效的話，比如說他真的是能幫你減輕一半的疼痛的話，其實我覺得就还挺有效的，我就給了七分。

P1:我也給二打了 5.5，因為比老師有效感覺它很小，你可以 24 小時都帶着，也不是 24 小時，你可以一直帶着，包括出門就隨身帶着，他肯定使用時間可以比理療師更長。你們沒有考慮到他他到底有沒有效果，他萬一他這個東西，它真的能讓你舒服一小伙，

J:但是他沒有治療效果，你們不關心是嗎？

P1:我倒是關心的。如果沒有任何治療效果的話我我不會願意去買的。如果他真的沒有治療意義的話，我搞一個東西強加在這兒，然後帶着到處走，我是不太情願。

J:拋去方便，不方便這個角度來看。就這兩個東西看起來給你治療起到幫助嗎？

By simply looking at the image, do you think they are effective?

P1:覺得會幫忙，因為它是掛脖子的。然後形狀看着也很特殊 This one looks effective because the shape is so special, looks like designed to fit the shape of neck.但我感覺這東西就是你聽你這麼一說，我感覺他可能有點就是騙人。因為我感覺這個他設計的太好看了，然後感覺他的實際作用可能其實沒有它宣傳的這麼好，反正我感覺有點不太信，還有就是我一眼看上去我看不出他的工作原理，你像別的這些就很清楚是怎麼個工作原理，我就心裏面覺得踏實點。但這個就是有點懷疑 (I'm not sure for this one because it looks simple and fancy, I can't figure out the working principle of this one)

J: 他如果真的看得太好看了，沒有這種醫療的感覺，你就覺得可能會有宣傳成分。

P2:我覺得對我來說，這些東西都是沒有理由是值得信任的，因為理療師他是專業學過，你哪塊肌肉在哪兒？為什麼會變成這樣，他心里都清楚。所以說就只有理療師在按我的時候，它才能不停的給你說，就是你這兒太緊了，因為什麼。而且還要跟你交流，所以整個過程很特別讓人信任。對，每一下，你都會覺得很靠譜，每一

下都是有依据的在按。不会说像这个似的，可能我不知道他到底有没有效果。理疗师说我在给你松这块皮，我再给你松那块肉，我就觉得说我按完了以后说，我轻松，而且我这种轻松的感觉是被加强了，(I think compared with therapists none of those products is trustable. Because therapists learnt about the disease. They understand the reason of your symptom and know what to do with it)

(There is communication between the therapist and patients during the treatment. The therapists can tell you what they are doing and why is that. After hearing about that you trust it more. Just like when you go to the hospital, if the doctor simply give you the medicine you still feel unsecured. If the doctor tell you what's wrong with you and what's the effect of this medicine you feel better.)

J:理疗师给你解释了治疗的原理，就他觉得他是可靠的是吗？

P2:对。

P3:而且它是根据你的情况来。我们几个朋友一起去的时候，其实每个人状况都不太一样，我是这个位置吗。有朋友是中间这一条，每个人他难受的地方不太一样的，然后他告诉你，哪里需要治疗。最恐怖的是他按了之后那些比如说气血不通的地方指出来之后，你自己能感受到。就是他对你说完这些你还能感觉是这样。对，因为你确实是那块有东西，别人摸也能摸得到，他推着推着那块儿不同的地方就会显现出来。(Yes, especially when they show you some evidence. Something you don't feel when not taking the treatment.)

J:平时你还摸不到，他按完之后你才能摸的到是吗？

P3:对。

P2:按摩椅那种，你觉得其他好舒服，但是哪儿有问题你也不知道。理疗师会摸出来这不对，然后就针对你这个地方给你搞。(The massage chair never know what's wrong with you, how severe your neck pain is. It always do the same thing to you. If the process adapts to your situation, you trust it more)

J:你觉得他在按的过程中，跟你说哪里不对，这个让你也觉得更可信了吗？

P2:确实是。

P1:而且再有就是说像这种,不管你怎么痛，他每次按的程序都是一样的。比如说那些按摩椅什么的，每次就是先给你这样按，然后那样按，然后一轮下来结束了。但是如果是理疗师的话，它可能就是步骤会有调整，然后他给你的反馈也是不同的，然后这样你就会觉得说很靠谱，然后可能说我这一块得到了加强，然后下一次我就还按这一块就很爽。

然后就觉得说我按完以后，不光是生理上得到了缓解，心理上也得到了信念上的加强，觉得我愿意再次接受按摩，然后我愿意让自己变更好这样。

(If it tells me in what way I'm treated I will mentally feel better and I'm likely to continue using it.)

J:第一个颈椎运动 APP 你们会用吗。 **Would you use the neck exercise APP?**

P1:有一个叫 keep 的 APP 那东西我下载的时候从来都没用过的，所以我也就觉得这个 APP 我可能下载了之后就以为自己已经治好了，也不会用。

(There is a fitness application named "Keep", it is well designed but I never used it after downloading it. So I think I might download the neck exercise app as well but probably I won't use it.)

J:你们呢？

P3:举个例子说，keep 这个事儿就是在我眼里边，倒不是说我愿不愿意用，而且就算我愿意用，比如 keep 那个软件，你健身的时候你肌肉用的对不对，你的动作到底做没做到位，就是没有告诉你你这样对了还是错了，对，也许你练的全是错的，还有伤害呢。(I also know "Keep". I heard many people tried to follow the movement in the app, but wrongly. There is no one pointing out the mistake for them. So many of them got injured. I'm afraid this may also happen to this neck exercise APP.)好多人在模仿可以模仿动作不对，最后什么膝盖劳损什么就是出了问题没有人告诉你，那就有麻烦了。

J:这样没有人给你纠错？

P3:对。

P1:而且这个挺难坚持，你不觉得吗？比如说可能这两天事没那么多。如果它提示你或怎么样的，你就做了当。但是比如说某一天特别忙，你就不想做了。但是我觉得大部分时间，比如说学生在学校，可能工作的人更严重，大部分人是没时间的。所以他用处不是特别大。And I can imagine it is hard to keep on doing that. I may use it for the first week, but I suppose I will forget it after.

P3:确实，我下一个冥想软件我都坚持不下去的，什么都不需要你做，听着然后在那呼吸就行了，我都坚持不下去。(True, I can't even continue doing the meditation exercise which simply ask you lying on the bed and breath)

P2:我觉得 APP 是给我的人生增加负担，对我手机内存已经满了。(I won't even download it. I think application is adding burden to my life. And there is no more storage in my phone)我真的那么多 APP 在那等着我用了，我每天这个戳一戳那个戳一戳，然后我要做个脖子还绑在这个手机上，我觉得很烦。

Part Five: Describe your ideal solution

J:行，我们看下一页。大家都画了一个自己脑中的最很理想的一个治疗仪。现在可不可以给大家 **present** 一下。讲一下你大概在什么场景会用到他，然后你为什么选那四个特征？**Can you describe your drawing and explain why you selected the four features and in what situation you may use it?**



P1:等一下我选的是 1234 好像显得我不太认真，但不是的，我这画的其实更像是一种体验，我想表达的意思就是它是一个很宽敞的一个椅子，我就往那一躺，他可能在我旁边在我工作的地方，我一感觉累了，我就往上一躺，就啥都不用我做，不用我操心，不用我担心，然后完了之后下来之后又回到自己原来工作里面。**(What I draw is a chair aside my table, whenever I feel neck pain, I can simply lie on it, do nothing. Then it start massage on me automatically.)**大概就这样，然后我选的 1234 就是第一个是 cheap，这个就很好理解，这是一切的基础，要是它太贵了，他就算再好我也买不起，然后 smart 有一点像他们刚才说的了，现在那些按摩椅它都是重复一套流程给你下来，他要是能 smart 点的话，就是可能个人化一点，或者说是它能反馈我的进步什么的。然后什么 easy to operate 对这个也是很重要，就像我说的这往那一躺就可以了，就很少需要操作，我觉得这个很重要。第四个就是 show progress 也是刚才提到一点的，每次完了之后，因为你要坚持一个东西，你肯定是要看到 progress 你才能坚持的。

J:但是你只是你累了一躺，他也要跟你 show progress 吗？**If you can simply lie on it doing nothing, does it still need to show you the progress to motivate you?**

P1:对,这样的话我觉得好像不太需要,因为他就已经很方便很舒服,然后我是因为进度这个东西它其实是去激励我继续坚持,但这种东西我觉得他不需要激励我,因为他看着就很舒服,看着他我就觉得很想去用,那我可能就一天用几十次这种都可能。If it is super comfortable, I don't need a trigger or motivation urging me to use it. I may use it many times a day because itself is attractive.

J:如果他自己是很舒服的,就不需要很意志力的东西,就不需要激励了是吗。

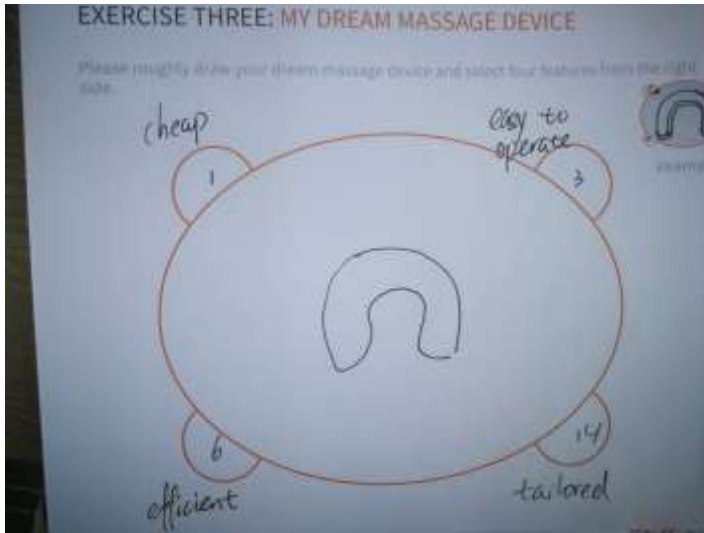
P1:对,他本身放那是一种吸引。

J:然后刚才你说 smart,我也有点想深入问一下,你觉得你脑中的智能他可以智能到什么程度? How smart is it in your mind?

P1:我是想让他至少能知道他现在按我我痛不痛,就是他每个人劲都使那么大,我觉得他可不可以根据我的身体或者我的什么记忆能知道我能承受多大的对力气,然后就是说根据我当天不同的状况来选择给我就是上哪一套操作的状况。比如说现在有的商场里面的就是我时间不够可以选五分钟十分钟 15 分钟,然后也有可能就是我今天其实脖子疼,但我明天是肩膀也疼,她能知道这些吗? At least it knows whether the massage is too hard or too soft. Maybe it can remember my preference. It will be even better if it can detect my symptom that day and adapt itself to fit my need. It can also let me chose how much time I have, 5 minutes or half an hour. Then it can propose a suitable plan for me.

J:就是你用告诉他们还是你躺在那他自己就知道?

P1:肯定就是我需要做的越少越好了,但是如果他就是有语音识别,我跟他说一句不费力气这种也行。The less effort I need to pay the better. But it is acceptable if it is controlled by voice.



P4:这种设备就类似于简单的能戴到脖子上就能用的这种，然后我选了 1 3 6 14。一首先是就别太贵.要值那个价吧？

J:你觉得多少钱比较能接受。 **How expensive do you think is acceptable?**

P4:几十欧元觉得就能接受。如果真的智能了效果很好了，两三百欧也行，四五百可能也能接受但是那它得特别强大了。再贵就不行了。 **I can accept around 80 Euros. But if it is very effective two to three hundred euros is also fine. If it is smart as she described, I can pay four to five hundred euros. That's the maximum I think.** 人呢，差不多吧。另一点我始终觉得，即便大家都知道这个东西对颈椎好，但是这个东西得特别复杂的流程，这个就很难做到，所以我觉得希望这个东西能一直 easy to operate。就是能让你比较轻松的就能达到你的效果。然后 6 是有效率一点。

J:你说的效率指是什么？ **What do you mean by efficient?**

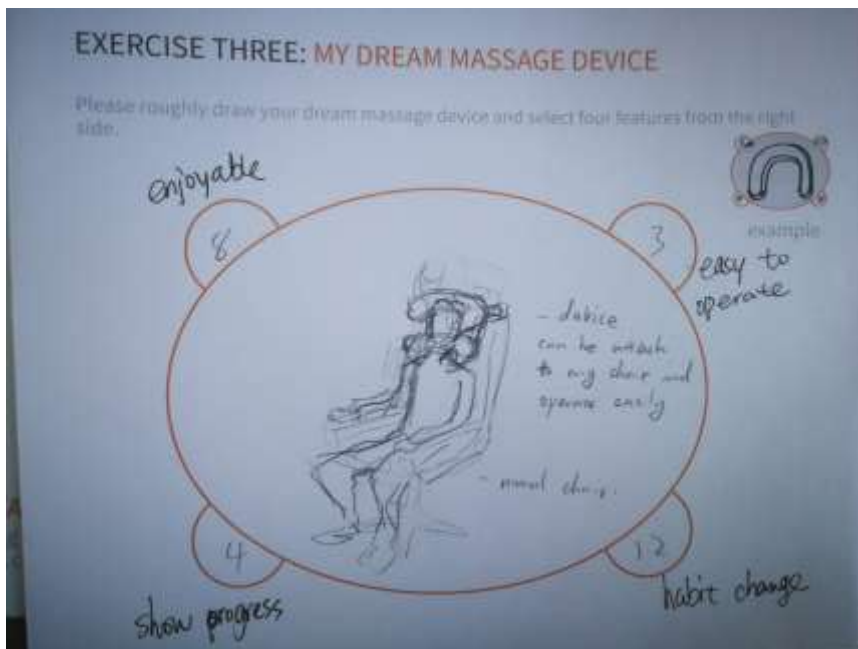
P4:也类似于 easy to operate 的，不用花太多时间精力，很快就做完了。可以每天占用你十分钟 20 分钟或者 15 分钟，但是比如说每天一个小时，这个就太难了。 **(I mean It doesn't take too much effort or time. It can be 20 minutes or so. One hour will be too much.)** 你觉得 20 分钟可以？对。然后 14 是 tailored。比如这个产品能稍稍的针对不同人不同的需要，做一些设计的话，我觉得还是挺有意义的。

J:你觉得不同人的需求差别大吗？ **Do you think the different between individuals are large?**

P4:它又还会有一点区别，因为你好比如说这个同学他就是颈椎的中间那个地方疼，我就是两边疼。然后有的人可能颈椎不疼，但是他肩膀疼。而且每个人可能身材会有不一样，可能有什么中号或者大号什么 (I think so. We feel pain at different places and our necks have different size)，就是可能他有比例的，比如说有一百个人，他有70个人是中号的这种，30个人是小号的这种什么，就类似这种。你可以量化一下。

J:你意思是那需要 tailor 的点，一个是他们的症状不一样，一个是他们的脖子大小不一样？

P4:yes



P3:我这个画的是希望有一个类似于前面按摩仪这样的一个东西，但它不是一个U型枕，你拿着U形枕，然后我脖子上一套，我希望一个它是一个 attachment，然后你那个东西，比如说这有个夹子，然后这有一个U型枕，你买一个这样的一个东西，你随便放到你办公室或者是哪里的椅子上，然后你平常你该干活就干活。然后你累了之后，你直接往后一靠，我要是在办公室我找不到床。用这个往后一靠它就给你按摩，然后舒缓一点 (What I draw is a massage pillow which can be attached to chairs. Whenever you feel pain, you can simply lean back then it can massage on you)，然后我选的是 show progress，这个我理解的，不是告诉你把你治好了多少，就是告诉你一个缓解进程，比如说五分钟是轻度缓解，然后半个小时午间休息，就是我这

一个 session 要做多长时间，然后可能会达到怎样一个效果。然后这样可能是五分钟的，他就是直接环节你颈部这一点，然后半小时他会把你一整片都做一个按摩，就是这种效果。easy to open 就往后一靠，然后你可能按一个按钮，或者手机 APP 上面有一个联动的操作，你自己选好你想干什么，然后他直接运作就好了。然后 enjoyable，对我来说，我感觉颈椎病这个事你让我舒服最重要的，我很痛苦的去治疗就不是很想用了。当然如果他很严重，我也可能愿意去平常的话就不会想要那么正式的去搞，我希望就是休息的时候顺带治疗一下。然后 habit changing 我是想以前会长时间的工作，按原来这种习惯，然后会就一直僵在那，这个东西可能会提醒你，比如说你工作一小时，你不是很舒服了，你就有一个借口，休息一下就会改变你长时间不动的习惯。我想象不到任何东西可以改变你的坐姿什么的，我说的习惯是指那种久坐不动。比如说我们画图一画就五六个小时除非出去吃个饭才会动，那样不太好，就是有这个东西之后我就可以偷懒你知道吗？就是画一会儿不想画了，我可以休息一下。

J:其实咱们学校有一个椅子，他是一个小时不动，他就开始震。图书馆的预约的房间里，你觉得这种椅子会对你有效果吗？

P3:看是什么事，如果是我要去复习复习的话，比如说我要考试，我要去复习这种事我就行。我要是真的是赶图，没有用。你还会嫌他烦。就 apple watch 那种 4 类似的功能是吗。对。

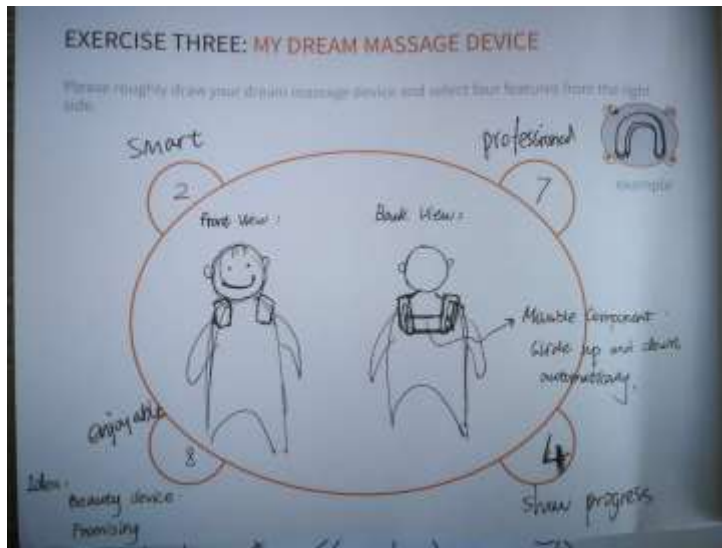
P3:你觉得对你有效的 habit change 是什么样？

P3:他要强制你把你弄起来的吗？他离我很近，他不是提醒你站起来，就是说你五分钟让你站起来要动一下，而是比如说提醒你让你往后靠一下，我就靠在这，还能接着做点工作，这种特别少的付出，然后给一个收益反馈的这样一个东西。(The habit change in my mind is not something remind you to do exercise. It will be something attractive like cigarette. For me I'm reluctant to go outside to take a walk. But I do go out to smoke. And I hope it requires less effort and gives you more benefit.)

J:你的 show progress，刚才我听你的解释是他会告诉你，他这样做完之后你会有什么样的收益或者效果是吗？

P3:我当时第一最早选的时候是一个比如说进度百分比。比如说这一次有这么长时间，还有多少时间，或者是一个大三是你最好一个月做完这一个，然后你每次看的时候就有一个 100%分之吉这样一个增加的，我是这么理解的，我想理解的不太对。

J:不你们的理解是就是正确的理解。



P2:我想的是这样一个东西，就是两分三个件，两个扣在我肩膀上，然后另一个就是一个横的，然后在上边可以上下滑，然后把它装上自己划就行了，可能说肩膀上还能没事在我肩膀上夹一夹动一动。但是我觉得我个人感觉比较期望的就是说他能给我具体定位到哪一个位置，因为每个人他都不一样，比如说可能说我这个位置疼，我就说你重点给我搞一下这里。(What I draw is something you wear on your shoulder, comprising three components. Two on your shoulder, one moves up and down to massage on your neck. At the same time, the components on your shoulder also clamp to relax your shoulder)

J:你自己跟他说？

P2:或者她自己感觉到这块肉需要松一松了也可以。其实让我舒服我就很开心了。感觉就很简单，他就是摁着就觉得你这太硬了，太僵了，就再按久一点，重一点。或者是他按着感觉你身体抽了一下，动了一下，可能你疼了，或者你这地方不对劲了，就再按一会儿，就很智能了。然后另外有两个想法就说第一是他给我一个比较正向的反馈。分两种，第一种是长期，第二种是短期。长期你天天用我，我会让你达到一个什么程度，就有点像美容院跟你说天天过来我们这打针，一个月就能把你脸打白。然后他如果给我这种反馈的话，我就会觉得说不错，我愿意做一下，然后短期的比如说今天我给你送了哪块肉，明天给你送动了哪块骨头这样。

(The feedback in my mind can be both long term and short term. For long term, it tells you in how many days you will get cured. In short term it tells you what benefit you get from this treatment)

J:刚才你们也说了，你们每天精力都有限，即便她跟你说了，你长期用过就可以治好你你可以坚持吗。

P2:看情况，如果我不舒服了，我肯定会去找她用的。如果他每一次按都能让我觉得说我缓解了什么，我也会更容易坚持。

P3:我这个东西就能用来解决那个问题。把我办公桌那个椅子上一放，反正每天我都在这干活，我就是跟抽烟一样，你懂吗？不想干了吧，然后你得有个接口。你不想干了，我没一会儿就出去溜达一圈，别人就会说我懒。你比如说我抽烟这个事，我今天烟瘾犯了，多抽两根烟，你能说我啥？然后这个东西在这就是我不想干了，就说我脖子痛，不用借口我要去找个东西啥的。看你倒下了就觉得说这人脖子疼了。

J:我也大概想了一个 idea。我的意思是这个东西它是穿在身上的，然后上面有 sensor 什么的，我哪疼我自己拿手点一下。我点一下这，然后他这就开始针对我的症状治疗。就是他是半智能的，需要你自己点一下，然后让他知道哪里需要治疗。

P1:我觉得半智能才是最智能的，这是我自己的感悟吧。他全部都自己决定，他想干嘛就干嘛，你人一点都控制不了他，你还是觉得不太好的。

(I think half intelligent is the best, I need to give some indication. I don't like the feeling of losing control. I don't like it if the machine do all the decision for me.)

J:就是你不愿意把你所有的决定都交给他来做吗？

P1:对，最好是我跟机器我们能很好的交流，像我就轻轻拍一下，就是一个很简单的一个交流，他就能懂，我觉得挺好的。

J:你们觉得呢？把它带身上，他自己全都懂了，然后他自己开始干活。还有一种是它会需要你给一些提示，然后根据你的提示干不同的活。这两种你们更倾向哪种？

P3:我是不相信他自己就能懂。我觉得理疗师都不行，我要是啥都不跟他说，他也不太好判断。我是觉得必要的提醒是一定的。我觉得还是如果自己参与更放心一点。

(I don't think AI can understand my pain by itself. Even therapists still need to ask my questions. I think if I feel safer if I'm involved in the treatment.)

J:还有一个比较，我想问一下，一个是智能的机器给你定制治疗，另一个是远程有一个医生通过跟你交流，给你的机器下达指令？这两种。你们有心里有更倾向哪个吗。(Let's do a comparison. First, you have a long distance doctor controlling the device you use. Another one is a smart system that can understand you and give you tailored treatment. Which one do you prefer?)

P2:能结合就好了。

P3:在我眼里医生也只是根据他过往学习的经验，然后经过他自己的不断的尝试，然后试错总结经验，按照你提供特征。然后根据你的情况给你一个匹配，他可能还需要反馈。他可能不是说我给你一个信息，然后你就能一次判断。可能做的过程中，我还会给他说哪里感觉怎么样。那整个流程医生都要远程参与的话跟我就近找个理疗师做差别也不大了。但是整个思维逻辑来说，我感觉 A.I.在做的事情就是机器学习，收到反馈，然后调整，然后在试错。我觉得 AI 以后是有可能胜任理疗师这个角色的，如果有物理设施辅助的话。不过现阶段我可能更相信医生一点。

(I think the way doctor learn to treat neck pain is very similar to machine learning. So I belied, with the support of physical instruments, AI can totally take the job. But right now I trust doctors better.)

J:你刚才也提到一个就是你医生也会需要你持续的反馈。

P3:对，就是他一个方案定下来之后，不见得一定能猜准。他猜得准自然是最好的，但我觉得总会有偏差。所以他们会不停地边按边问你，这里痛不痛，那里痛不痛。它是需要一个过程去判断的。

(Even the doctor can't be sure for his treatment. He need to ask you questions continuously. I think it will be the same for AI)

J:有道理。但是如果智能的机器要一直在了解你的行为，因为可能要了解你很多的信息他才能做一个准确判断。你们有担心隐私问题之类的吗。

P3:不担心。就再多信息那也是关于你身体哪一块是僵的。他能用来做什么呢。

(I don't worry about my data. I think no matter how much data it collects, it's all about my neck pain. What can he do with it?)

P1:我觉得这些数据对我来说，不是什么就是特别不能泄露的东西。

P2:我上学期做了一个课题，就是说医院可以通过收集病人的数据来完成一些事情，就这个数据它是通过不同的医院大量收集，然后互相共享。然后这个数据会帮助医生，也会帮助病人。是因为医生得到了更多的数据，就以前可能这个病十个病例，他只接过这十个，但是其他的医院有一百个，他如果知道这 110 个的话，他新接病人就判断就会更好。那病人也会愿意把这个数据贡献出去，因为也会帮助其他病人，可能以后也在帮助他自己。这就是相当于一个大家互利的过程，这种方式会让人愿意共享数据出来。(If the patient know their data is helping others and others data is also helping him, he will be more willing to share his data.)

J: Okay, thank you very much for your insights. This is the end of this session.

Appendix five: grouping insights from user study

Users think neck pain doesn't worth spending much will power.

I think it is hard to keep the habit. If it is really severe I will be willing to do something for it. But for me it's not that urgent, I can't spend too much willpower on it.

I keep study every day because I want to. But neck pain is not that important and I don't have that much will power.

you can attach other values to the treatment. For example, my shoulder is not straight which is not so beautiful. If the treatment can soften my trapezius, I will be more motivated to buy it and use it.

Users think keeping good habits is the best way to manage neck pain in long term.

I think doing sports will help. But I think the best way is still keeping a good posture. However, staying in a straight posture can be very tiring.

I think a sort of exercise regularly and change your habits. I know the importance of it but I never change my habit when I'm really stressed when working.

Users think massage doesn't have long term treatment effect.

I think massage can be effective instantly but it doesn't help in a long term.

Normally, when I decide to do massage, are the points when the pain is really disturbing. So I want to kill or release it. So I'm not looking for long term. And I know it's not for long term.

(The the effec of massage)in long term, the change is not obvious

Users think it's tiring to be in a straight posture

Staying in a straight posture can be very tiring.

Users think they are stressed when working so that can't pay attention to the posture

I think a sort of exercise regularly and change your habits. I know the importance of it but I never change my habit when I'm really stressed when working.

Users think instant pain relief is valuable for treating neck pain

If there is a massage chair beside me, whenever I feel neck pain I can have a instant relief, it's already good for me..

(Although I don't believe the long term effect of massage), I still do (massage). I think it shows me the result instantly although it doesn't sustain.

Normally, when I decide to do massage, are the points when the pain is really disturbing. So I want to kill or release it.

Usually when I make an appointment with the massager. It is for instant relief, when I really need that..

Users think it's very hard to cure neck pain completely

As far as I know, to cure the chronic disease, you need to take continuous treatment. But I don't have the perseverance to keep on taking actions

I don't think it(completely cure it) is possible. I know I can't completely change my lifestyle or habits. So I think I will just live with it.

Users think massage is needed on the painful areas

I massaged on those two points because she said she feel pain there.

Sometimes I think my painful points just need some more push.

Users think their emotion can be affected by their neck pain

It's a chronic disease, every time it occurs you feel annoyed.

When I have a ddl, suddenly I feel strong neck pain, the pain adds to my anxious.

Users think their perception of neck pain can be affected by emotion but not physically

It might be also related to emotion. Last semester I was not very happy, then I feel it was heavier.)

I don't think this emotion leads to physical change. Instead, your neck pain is always there, when you feel less happy you pay more attention to the neck pain.

Users think heat radiation helps the treatment.

I used a warm paste before, it feels good. But you can't use it for long time. Otherwise you might get burnt

I also used it before, it feels good if it is exactly on the painful points.

because when you apply some heat on a muscle that is has a lot of tension, this muscle will be more relaxed. If you your hands are not cold in the massaging area. It will probably help with this problem.

I feel better for warm pad myself.

Users think effective devices should look

- fit the shape of neck
- convey the working principle
- fashionable but not too simple
- not too rigid
- not vulnerable

This one looks effective because the shape is so special, looks like designed to fit the shape of neck.

I'm not sure for this one because it looks simple and fancy, I can't figure out the working principle of this one

The second one looks too "rigid", seems difficult to position the device at the right point.

Maybe the plastic makes it looks easy to break? And the patterns, the dots.

Users think continuous muscle relaxation has treatment effect

(I like the shared massage chair in the library, it is cheap and comfortable. Although it's not as professional as therapists, I think it also has treatment effect if you use it every day.)

Users think doctors are more trust worthy than AI at current stage

I think the way doctor learn to treat neck pain is very similar to machine learning. So I belied, with the support of physical instruments, AI can totally take the job. But right now I trust doctors better.

I think it would be nice like let's say somehow my friends or my doctor can, uh, control the machine and it's about this person is far from me. Then the machine make massage according to this information.

I liked her answer. She said her doctor manage the stuff and I trust the person and their real opinions.

Users think treating neck pain is in lower priority than work

I don't know which way is a more effective to avoid neck pain without affecting other works. And for instance, you have responsibility to work on projects. And you cannot on the bed to work.

I think that's the price I pay for living my ideal life, to be an architect

I want to use it during my work so that I don't need to use with my hand. It can just stay on my shoulder and I can keep on working.

I'm afraid I will lose my focus if someone massage on me while I'm working. So I don't want it.

Users think professional massage is costly

I didn't follow his suggestion because it feels like an endless investment.

If massage can be cheaper, I think it is the best way of treating neck pain.

Users think they will turn to doctors when the pain is severe.

if I have really hard pain, I will visit a doctor or physiotherapy or something. But if it's like a smaller pain, I'll take some measure to treat myself.

if it's really like strong neck pain, I mean I would go to a doctor instead of treating it myself.

Users think unprofessional massage also works

(I like the shared massage chair in the library, it is cheap and comfortable. Although it's not as professional as therapists, I think it also has treatment effect if you use it every day.)

as long as others touch you and massage on you, no matter it is professional or not, the tension can be treated a little bit. At least mentally.)

Sometimes the physiotherapy massage can hurt a little bit, but afterwards you feel very well, that is also kind of enjoyable for me, at the end.

Users think data safety is not something to worry about for treating neck pain.

I have every kind of social media. It's too late to worry about that.

I don't see evil masterminds using the data of my neck thing to do something. It's not something like it would be something so important to be used.

I don't worry about my data. I think no matter how much data it collects, it's all about my neck pain. What can he do with it?.

Users think continues communication is needed during the treatment.

Even the doctor can't be sure for his treatment. He need to ask you questions continuously. I think it will be the same for AI.

I don't worry about my data. I think no matter how much data it collects, it's all about my neck pain. What can he do with it?.

If the patient know their data is helping others and others data is also helping him, he will be more willing to share his data?

There is communication between the therapist and patients during the treatment. The therapists can tell you what they are doing and why is that. After hearing about that you trust it more.

Users think searching for trigger points feels professional

(One difference between my massage and professional massage is)they search for some muscles or some areas or nerves. They know where are those points. And for example, if I say this part is hurting and they find something from here(pointing) and some other place and massage there to treat the pain.

Users think massage doesn't work on distorted spine.

I'm so afraid that my spine is not straight but I don't think massage can help that.

Users want no extra application for neck pain.

I won't even download it. I think application is adding burden to my life. And there is no more storage in my phone

Users want more trust worthy instruction resource for neck pain exercise.

I was thinking that maybe checking neck exercise on YouTube may help, but they are not something trustable. Then I wouldn't trust them totally. Doing sports more is more efficient I suppose.

Users want to be involved in decision making process of a smart system

I don't think AI can understand my pain by itself. Even therapists still need to ask my questions. I think if I feel safer if I'm involved in the treatment.

I think half intelligent is the best, I need to give some indication. I don't like the feeling of losing control. I don't like it if the machine do all the decision for me.

Users want the device automatically adjust force level.

At least it knows whether the massage is too hard or too soft.

I wouldn't apply like a lot of pressure in someone without knowing what are you doing. And therapists usually do that and but they can do it on the way that doesn't hurt you at all.

Users want the device adapt treatment according to how much time the users have.

I hope it can also let me chose how much time I have, 5 minutes or half an hour. Then it can propose a suitable plan for me.

Users want to get massage at multiple points.

What I draw is something your wear on your shoulder, comprising three components. Two on your shoulder, one moves up and down to massage on your neck. At the same time, the components on your shoulder also clamps to relax your shoulder

But it can only work one the side of my neck. I also want it to work on the middle of my neck and my shoulders.

Users want to be fully relaxed during massage

I don't like the third one because I'm not fully relaxed when I'm doing things manually.

I have no support. I have to stay stable as well, so I'm using my muscle, so I'm not fully relaxed..

Users want less friction on their skin

I tried not do a lot of friction against the skin because this can be a little bit uncomfortable if you don't have a cream or something to.

Users want to feel safe when having massage.

I liked it, I feel really safe under her hands.

Users want to do the least operation when using the device.

What I draw is a chair aside my table, whenever I feel neck pain, I can simply lie on it, do nothing. Then it start massage on me automatically.

The less effort I need to pay the better. But it is acceptable if it is controlled by voice.

sometimes I do massage for myself, but I find it tiring. I need something to help me do that. And I can't push with enough force.

Users want to spend the least time on treating neck pain.

I mean It doesn't take too much effort or time. It can be 20 minutes or so. One hour will be too much..

Users want the treatment of neckpain be enjoyable.

If it is super comfortable, I don't need a trigger or motivation urging me to use it. I may use it many times a day because itself is attractive.

The habit change in my mind is not something remind you to do exercise. It will be something attractive like cigarette. For me I'm reluctant to go outside to take a walk. But I do go out to smoke. And I hope it requires less effort and gives you more benefit. .

You can chose to do your favorite sport. that will be easier to keep.)

Sometimes the physiotherapy massage can hurt a little bit, but afterwards you feel very well, that is also kind of enjoyable for me, at the end.

(I like the shared massage chair in the library, it is cheap and comfortable. Although it's not as professional as therapists, I think it also has treatment effect if you use it every day.)

I gave it high score because it looks enjoyable and it's so common to see.

I think the massage in spa also helps. It makes you more relaxed..

Users want to avoid being addictedo/ dependent on the treatment

If I'm addicted to a device and I don't have it sometimes for example when I'm travelling, how can I fix my neck pain then? So I think habit change would be good for me, If the device can guide me to form a better habit.

Now since I the scheduled regular massage treatment, I feel more secured..

I liked some therapists so much. But it's not always on your choice, you can't always get their massage, that feels bad..

Users want someone correct his movement when doing the neck exercise

I also know "Keep". I heard many people tried to follow the movement in the app, but wrongly. There is no one pointing out the mistake for them. So many of them got injured. I'm afraid this may also happen to this neck exercise APP.

Users want to be motivated to keep on doing neck exercise

True, I can't even continue doing the meditation exercise which simply ask you lying on the bed and breath

There is a fitness application named "Keep", it is well designed but I never used it after downloading it. So I think I might download the neck exercise app as well but probably I won't use it.

And I can imagine it is hard to keep on doing that. I may use it for the first week, but I suppose I will forget it after.

Users want the of treatment to be easy to reach

If there is a massage chair beside me, whenever I feel neck pain I can have a instant relief, it's already good for me..

I like those two because I can use them everywhere. If it's effective, it will be perfect

What I draw is a chair aside my table, whenever I feel neck pain, I can simply lie on it, do nothing. Then it start massage on me automatically.

What I draw is a massage pillow which can be attached to chairs. Whenever you feel pain, you can simply lean back then it can massage on you).

Users want cheaper solution

I would like to buy one massage chair but it is too expensive and occupies too much places.

I can accept around 80 Euros. But if it is very effective two to three hundred euros is also fine. If it is smart as she described, I can pay four to five hundred euros. That's the maximum I think..

Users want to see tangible evidence of treatment.

especially when they show you some evidence (I trust them more) . Something you don't feel when not taking the treatment.

Users want tailored massage.

Current products are nor tailored for me. so that's why I can't trust all of them. Because they are mass produced, and if I pushed the wrong points, it will hurt me more.

if there is an automatic process for everybody, for example, it does the same thing to you, to me, and it doesn't make sense because they have different pain. But if somehow, it's changed the massage thing according to our pain. Uh, maybe its still doctor doing this or there is the artificial intelligence behind it. Then it is more trustable.

(I think everyone is different. We feel pain at different places and our necks have different size.

I think compared with therapists none of those products is trustable. Because therapists learnt about the disease. The understand the reason of your symptom and know what to do with it

The massage chair never know what's wrong with you, how sever your neck pain is. It always do the same thing to you. If the process adapts to your situation, you trust it more.

Users want to see the progress of treating this chronic disease:

If it tells me in what way I'm treated I will mentally feel better and I'm likely to continue using it..

The feedback in my mind can by both long term and short term. For long term, it tells you in how many days you will get cured. In short term it tells you what benefit you get from this treatment

Users want positive feedback after each treatment

To feel less annoyed, the device can give a positive feedback saying you are better now, in which way the treatment helped you.

Users want to be supported during massage.

Since he was seating with no support, so I tried to don't put too much pressure.

I have no support. I have to stay stable was well, so I'm using my muscle, so I'm not fully relaxed.

Users complain neck pain is always there.

I didn't experience the repetition. In my case it never stop. Sometime it does feel better for several days, but it goes back very soon)

I have neck pain since childhood. Sometimes better sometimes worse. But it is always there)

I feel no emotion because I always have it, I'm used to it.)

Users complain neck pain is severer when people are working

To be honest, I don't have neck pain at all during holidays.

Me neither, If I don't need to work, there is no problem.

Users complain they have different pain treshhold.

(Maybe my neck has too much problem, it is painful as soon as someone pressed on it. So I only feel the pain when he massaged on me.

I can take harder push during massage

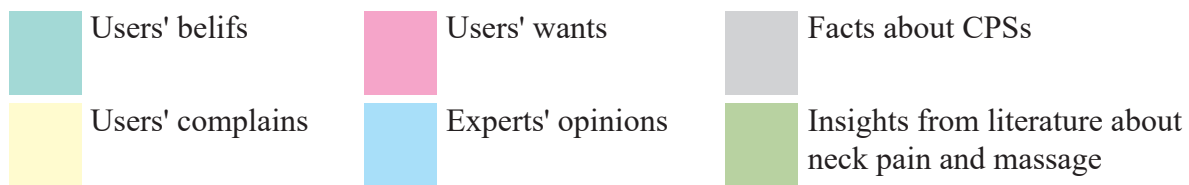
Users complain there are too many massage device on the market, it is hard to chose.

You can chose to do your favorite sport. that will be easier to keep.)

Appendix six- analysis of insights from reasearch

Introduction

The insights from each part of each part of reserach are put together to be analyzed. The starting point of the analysis was uers' needs. Some of the needs were considered as essencial, by clustering them with insights from other areas, a list of requirements was made. The rest of users' needs were put in the list of wishes which may be used in later phases of development. Apart from that, users and experts expressed their apinion about neck pain management during the research, those opinions gave the product a clear position. Basing on the requirements, a list of questions in form of "how to" is generated. Colors are used to distinguish the source of the insights as expalined below:



Position of the product

Users complain neck pain is always there.

Users worry about their spine and other severe issues.

Users think massage doesn't work on distorted spine.

Users think professional massage is costly

Users think they will turn to doctors when the pain is severe.

Users think it's very hard to cure neck pain completely

For people with mild neck pain, continuously coming for treatment is a waste of resource.

Therapists can do more than clinical massage, they combine it with other techniques.

Some patients tend to overemphasize their neck pain. Even though their pain is gone or very light, they still think there is something wrong with their neck and always want to have a treatment.

Position: Encourage and facilitate users with mild neck pain manage their neck pain on their own while leaving severe issues for proffessional therapists

List of requirements

Users want professional and tailored massage to treat their neck problems.

Patients' health status in general affect the treatment of neck pain.

If people have other diseases, that disease might be the cause of neck pain.

If people have other diseases, that disease may limit the techniques to be used.

I find out the cause of their neck pain by asking questions, palpation and letting them perform certain tasks.

The device should be able to assess whether the patients have other diseases or severe issues.

Neck pain can be caused by muscular disorder in other parts of body.

When agonist muscles have problem, the antagonist muscle also needs to be treated.

It's very common that neck pain occurs together with pain in arms and shoulders because it's a whole system.

Users think massage is needed on the painful areas.

What are concerned with in clinical massage is persistently shortened tissues.

The part must also be seen in the context of the whole.

there are some points or some areas on the muscle that act like a button. When you massage on them, the muscle is released. Those areas are not always the same area where the pain occurs, but when those areas are treated the painful area is also released.

Users think searching for trigger points feels professional

1G-CPSs can respond to dynamic operational conditions.

The device should give massage on the painful areas but not only on painful areas. It should also work on the trigger points, antagonist muscles and pain sources.

Base on the symptom and my experience, I know which muscle has the problem. The points locate on certain part of the muscle according to their structures.

you still need to feel with your hands to find the right point because the muscle system is not in a single layer, there are many overlaps among different sets of muscles.

If you use electronic devices to detect those points, you can see slightly difference at those points.

It feels tender when pressed. It can be treated by placing the muscle into a passively shortened position until it relaxes and the tender point dissipates. (James H. Clay, 2008)

When you press at the muscle, you feel some points are harder..

Users think doctors are more trust worthy then AI at current stage

1G-CPSs has no capabilities for a predictive or an adaptive behavior.

Traditioal real-time performance is inadequate for spatially and large CPSs. (Nilanjan, 2018)

The palpation is too subtle and complex tast that current affordable technologies are not capable to perform. This should be done by users or experts.

I deal with the trigger points by simply keep pressing at it with thumb, about 30 – 50 times..

Top 3 most frequently used techniques are pressing with thumb, gliding with thumb and holding the neck with two hands together.

Users do massage intuitively with their thumbs.

Chinese "One Figure Massage" is proved to be effective for treating neck pain.

The actuators should be able to simulate the movement of thumbs, pressing and gliding.

Users think effective devices should look

- fit the shape of neck
- convey the working principle
- fashionable but not too simple
- not too rigid
- not vulnerable

Users think it's more effective if the working principle is understandable.

Users think it's more effective if the treatment is customized.

Users think their perception of neck pain can be affected by emotion but not physically

Users think their emotion can be affected by their neck pain

Users think continuous muscle relaxation has treatment effect

Users think heat radiation helps the treatment.

Research suggests that electroacupuncture, strain-counterstrain, relaxation massage, and some passive physical modalities (heat, cold, diathermy, hydrotherapy, and ultrasound) are not effective and should not be used to manage neck pain (Jessica, 2016).

While being truly effective, the product should also aim to make people believe it is effective

Users want the device automatically adjust force level.

CPSs are able to memorize and learn from history.

Users complain they have different pain threshold.

The device should smartly apply proper force level on different users.

Users want to do the least operation when using the device.

Due to the limitation of cost, the solution can't be smarter than 1G-CPSs, nor more automatic than level one of automation.

In a system with level 1 of automation, humans are system assisted task performers.

Users think data privacy is not something to worry about for treating neck pain.

If users hold up their arms to operate massage devices, extra tension is built up on the muscle.

Users want to be fully relaxed during massage

The manual operation should be minimized and intuitive, avoiding awkward postures.

Users want the treatment of neckpain be enjoyable.

Users think instant pain relief is valuable

Therapists think the relaxation before treatment is an important process.

The treatment of facia helpful for treating muscles as it warms and stimulates the tissue.

Users think if the treatment is enjoyable enough, they don't need a lot motivation.

The relaxation should be part of treatment, which adds to comfort level and effectiveness at the same time. It can be in form of simulating holding neck with hands and using heating components.

Users want the treatment more accessible.

Users complain neck pain is gone when they are not working

Users think treating neck pain is in lower priority than work

Users don't want to lose focus during work .

The solution should be related to the workplace but not disturbing.

Users think keeping good habits is the best way to manage neck pain in long term.

Therapists think exercise and better habits are the best ways to manage neck pain.

I don't want patients to be dependent on treatment. The best way of managing neck pain is to be more active and keep a good habit.

Users think massage doesn't have long term treatment effect.

Research suggests that and clinical massage are effective interventions for the management of neck pain (Jessica, 2016). But there is only evidence for short term effect (Glenn M. Hymel, 2014).

Therapists think continuous massage can alleviate people's neck pain and mobilize their neck, but it's not the way to cure it.

Research shows that and clinical massage are effective interventions for the management of neck pain (Jessica, 2016). But there is only evidence for short term effect (Glenn M. Hymel, 2014).

Users complain they don't have trust worthy instruction for neck pain exercise.

To have long term effect, the product should facilitate and trigger neck pain related habits.

Users think it's tiring to be in a straight posture

Users need to be motivated to do neck pain exercise

When people are visiting physiotherapy, they are more aware of their neck pain and pay more attention to manage their neck pain.

Users think if value of massage is combined with other values such as improve their body shape. they are more motivated

Users think neck pain doesn't worth spending much will power.

Users want to spend the least time on treating neck pain.

Users think it's tiring to be in a straight posture

The new habits should not require too much effort. Aided habits include leaving the work place for a break, do simple stretch exercises, and correct the posture.

Users want cheap solution:

A participant didn't purchase a service which costs 400 Euros because it's expensive.

Current personal neck pain management devices are below 200 Euros.

The price of the solution should be lower than 350 Euros.

List of wishes

Users want to be involved in decision making process of a smart system

Users want to see the progress of treatment.

Users want to know the principle of the treatment.

Users want the device adapt treatment according to how much time the users have.

Users want no extra APP on mobile phones for treating neck pain.

Users want to get massage at multiple points.

Users want to feel safe when having massage.

Users want less friction on their skin

Users want someone correct his movement when doing the neck exercise

Users want the device fit their body.

Therapists sometimes uses a simple massage device to assist the treatment.

A device that can be used on the whole body, suitable for both large areas and small areas is wanted.

List of "How to"

1. How to precisely do the assesment?
2. How to simulate the movement of thumbs?
3. How to simulate the movement of holding the with hands?
4. How to locate actuators on the proper positions?
5. How to control the force level smartly?
6. How to change habits without requiring extra will power?
7. How to relate neck pain treatment to the work place?