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Assignment 5
Writing Reviews for Scientific Article

Part 1: Paper classification

(1) Contribution types

1. *Artifact contribution*
   In the paper, a new version of actuators to use on skin for a feedback action is introduced.

2. *Methodological contribution <Not agreeing with this point>*
   Uniform way of design and fabrication of interfaces with Springlets
3. *Empirical contribution*
   Authors ran experiments on the newly designed artifcat in order to provide "insights into the perception of Springlet-based tactile feedback across different parts of the body, and in different situational contexts"[1].

(2) Research approaches

Empirical science, because the aim of the study is to test three types of springlets on different parts of the body in different cases of using them and to observe their noticeability, discriminability, comfort, and reaction times.

(3) Criteria

1. Contribution
2. Novelty
3. Benefit
4. Validity
5. Applicability
6. Format

Part 2: Arguments

1. **P:** Authors presented a novel way of providing feedback.
2. **C:** Experiment's **internal validity** could be called in question as the time per participant was way too long and the authors didn't mention what they did to mitigate fatigue effect or clearly mention why it wouldn't have affected the results obtained.
   2.1 **E:** The authors mentioned that it took 120 minutes per participant (in the Evaluation section, under Design).
   2.2 **S:** Divide each participant's time with the experiment in smaller chunks and perform them in such a way that doesn't affect the results, like asking them to come on multiple days. However proper compensation should be given to the participants for their time.
3. **P:** Due to the ingenuity of this feedback device, the research community could really benefit from the information on how to design and fabricate these Springlets in an effective and low-cost fashion.
   3.1 **E:** Authors provided these under the "Design and Fabrication" section and they also mentioned about the effective price of creating one these(after the skin sticker layer description).
4. **C:** Authors suggest that the Springlets can be used in an unhindered way while that was true in comparison to already present similar devices, the claim is not entirely justified.

4.1 **E:** “The results demonstrate that Springlets are very comfortable to wear” (under Introduction on page 2, 2nd paragraph). Users do have to deal with the wiring on both ends of the Springlet which could be a problem depending upon the body location (see figure 9).
4.2 **S:** Since this device is one of it’s kind, suggesting any way to improve on the portability is not that easy, but maybe another type of circuit can be used which uses smaller batteries and can be placed alongside the device itself on the skin.

5. **P:** Authors take good care while conducting the study, they made sure participants just don’t report results based on the type of device.
   5.1 **E:** Authors asked participants to wear view-blocking glasses (see under Task and Procedure)which helps to establish the **internal validity** of the experiment.
6. **C:** Participants weren’t made entirely aware of what they are going to experience or how the device is going to work.
   6.1 **E:** One of the participants asked about why the experimenters incessantly asked about the heating effect of the device (under Discussion section p.9 the last paragraph).
   6.2 **S:** Authors should have been informed about the criticality of the experiment being performed on the participants when it involves any chance of being the participant getting harmed.
7. **P:** Good statistical visualization was given for all dependent variables like noticeability, discriminability, and comfortableness. However, for reaction time only the text description was provided.
   7.1 **E:** Provided ANOVA visualization for noticeability, discriminability, and comfortableness (see figures 6, 7, 8).
8. **C:** Experimenters chose young adults only, suggesting their stimuli detection mechanism was very sharp, which is a threat to the **external validity** of this experiment, results shown in this experiment could fall under jeopardy if a similar participant profile is not chosen.
   8.1 **E:** In the case of Preliminary study and actual study the participants had the mean age 26.5 years and 25.6 years respectively (see under Evaluation, 2nd paragraph and under participants).
   8.2 **S:** Use a more diverse profile for the participants like one from each 10-year interval from 15-65 years.
9. **C:** The dependent variable noticeability seems redundant and not really required when there a metric like the discriminability which already includes it.
   9.1 **E:** Discriminability means that whether the participants could distinguish between different stimuli and noticeability is just how easy it is to detect the stimulus. (see under Design, Evaluation section).
   9.2 **S:** Just use only the Discriminability metric.
10. **P:** Authors not only provided a new tool/device but also suggested some application areas where it could be used effectively.
    10.1 **E:** Authors provide 5 application scenarios (see the section Application Scenarios).
11. **C:** In the SMA specifications section they only provided guidelines not concrete examples.
    11.1 **E:** Under SMA specifications they provided general rules on how to select the SMA spring diameter (see under Actuation mechanism).
    11.2 **S:** It would be helpful for others to understand better with some set of examples like for this much dimension you’ll need this much bigger/smaller SMA spring.

Part 3: The Final Review

(1) Contribution summary

Presents a new sticker-based actuator device Springlets for providing tactile feedback on the user's skin via expressive actions. Due to the idea of using a shape memory, alloy mechanism, and such characteristics as lightness, soundlessness, and flexibility, designed interfaces become more natural to use on the human's body and provide a more comfortable way of communication. Provided study section highlights the perception of the device feedback on different parts of the body. The idea of using Springlets is generalized to the interfaces design approach, based it on available materials and linked to possible approaches

(2) The review

<Just adding some pointers from my side, just to help remove them after finishing the tasks>

Contribution<Just shorten the already written contribution summary>

Novelity< Describe about past works portion from the paper and then write nothing like this was seen before>

Benefit<How to make similar silent feedback devices of different shapes and sizes. Various application areas, maybe talk about how it can help in breathing and navigation >

Validity<Mention about the view-blocking glasses used to improve the internal validity>

Applicability <CHI is the right kind of audience for this type of contribution>

Format <Clearly guided process is given to design the springlets. And both types of pictures are provided schematic design and originals. Good visualization figures are used>

(3) Overall rating

4.0