CS376 Final Project

You Can't Fake Calm:

Designing and Evaluating Respiratory Regulating Interface for Calming Technology

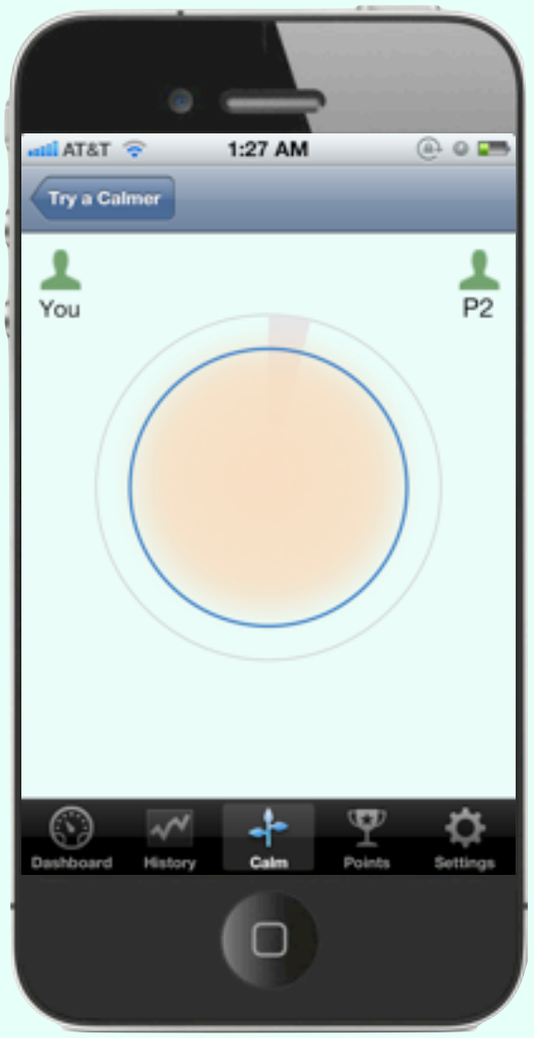
Kanit Wongsuphasawat
kanitw@stanford.edu

Alex Gamburg
agamburg@stanford.edu

STANFORD
CALMING
TECHNOLOGY
LABORATORY

Breathwear

Breathing Rate



How to design and evaluate user interface for respiratory regulation?

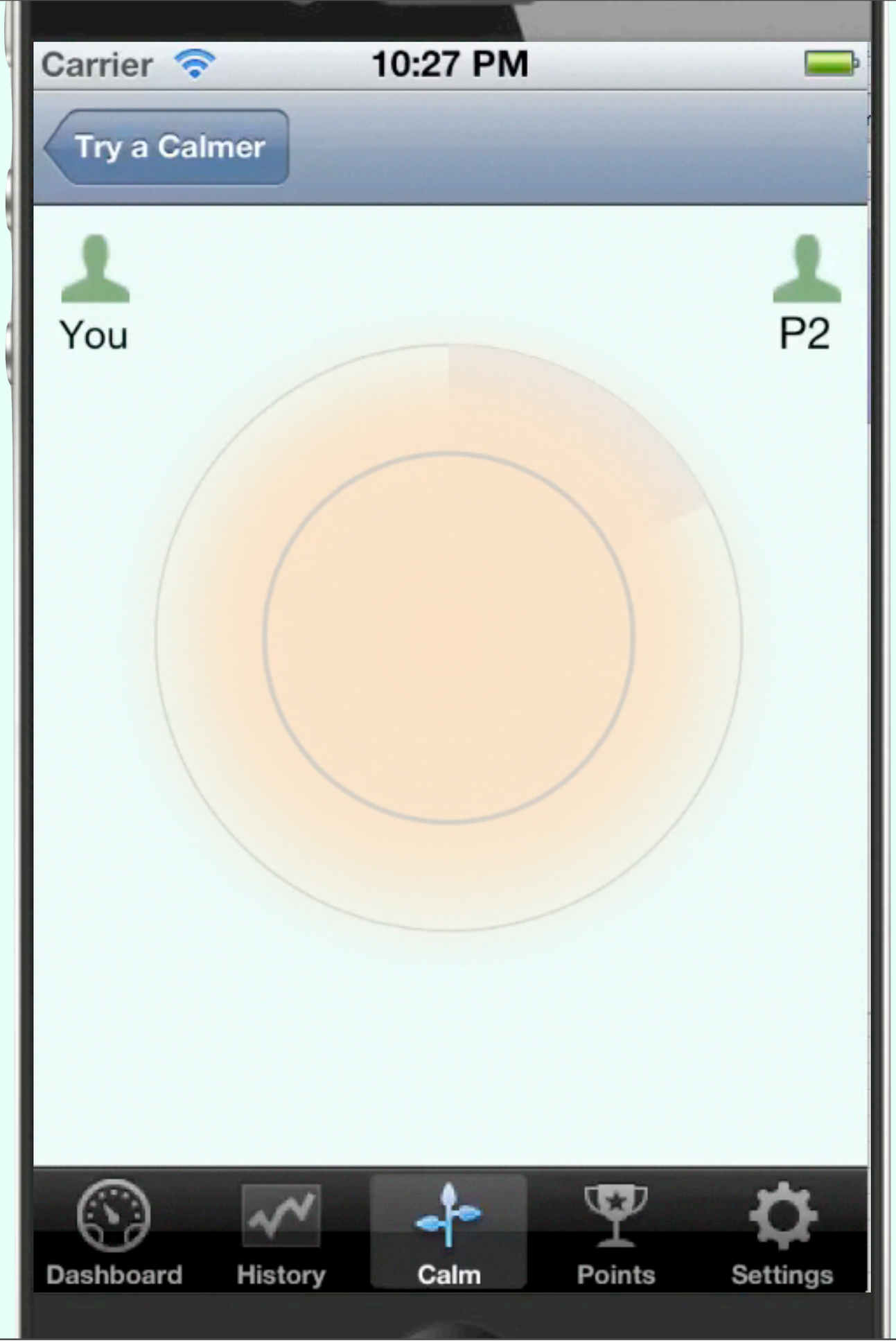
Two types of guide

Visual & Auditory

Visual Guide Design

= Guide

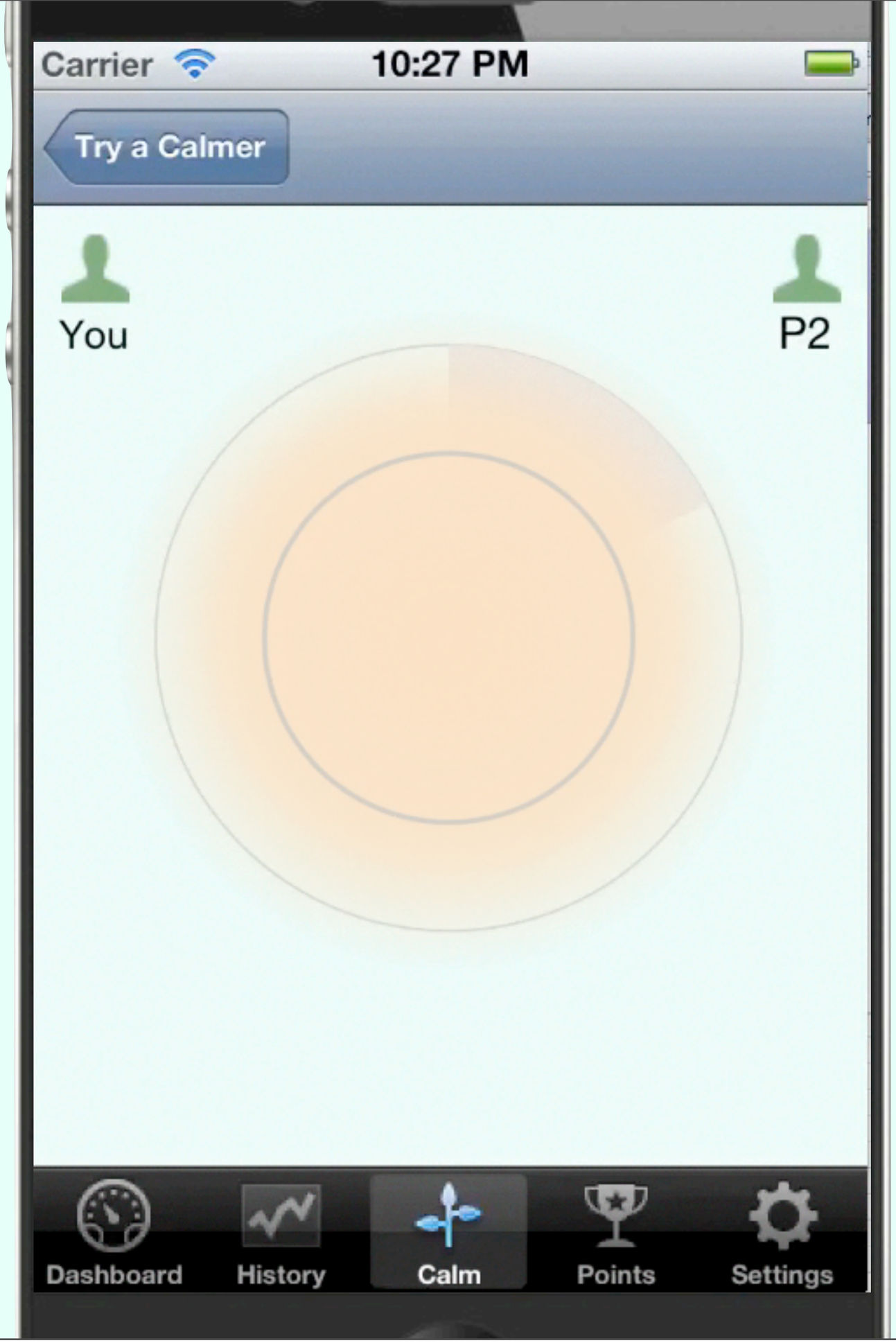
= User



Visual Guide Design

= Guide

= User



Auditory Guide Design

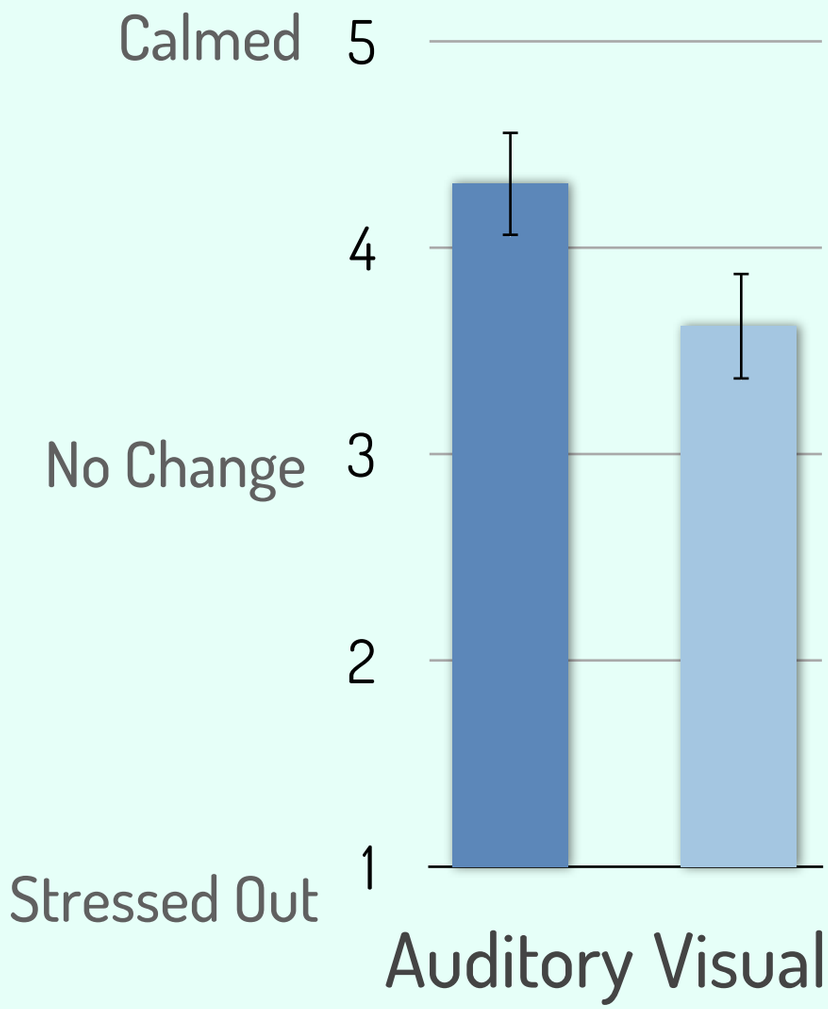
Auditory Guide Design

Results

Study Result (N=14)

Study Result (N=14)

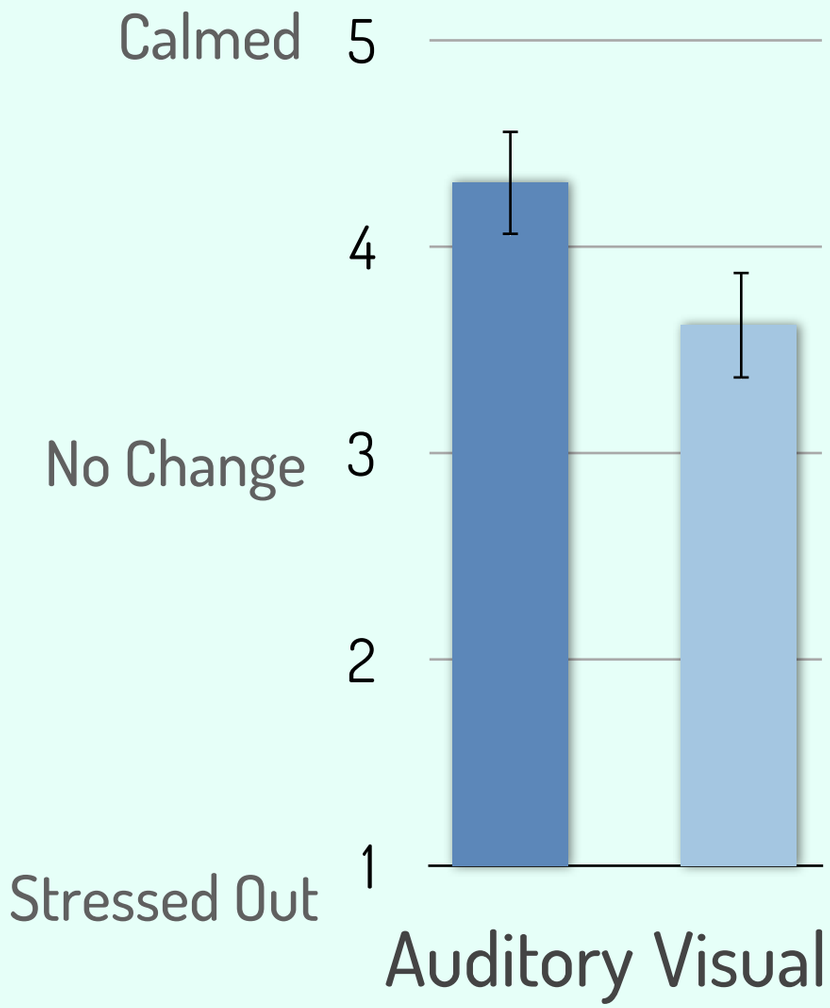
Self-reported Calming Effects



A > V (p=0.038)

Study Result (N=14)

Self-reported Calming Effects

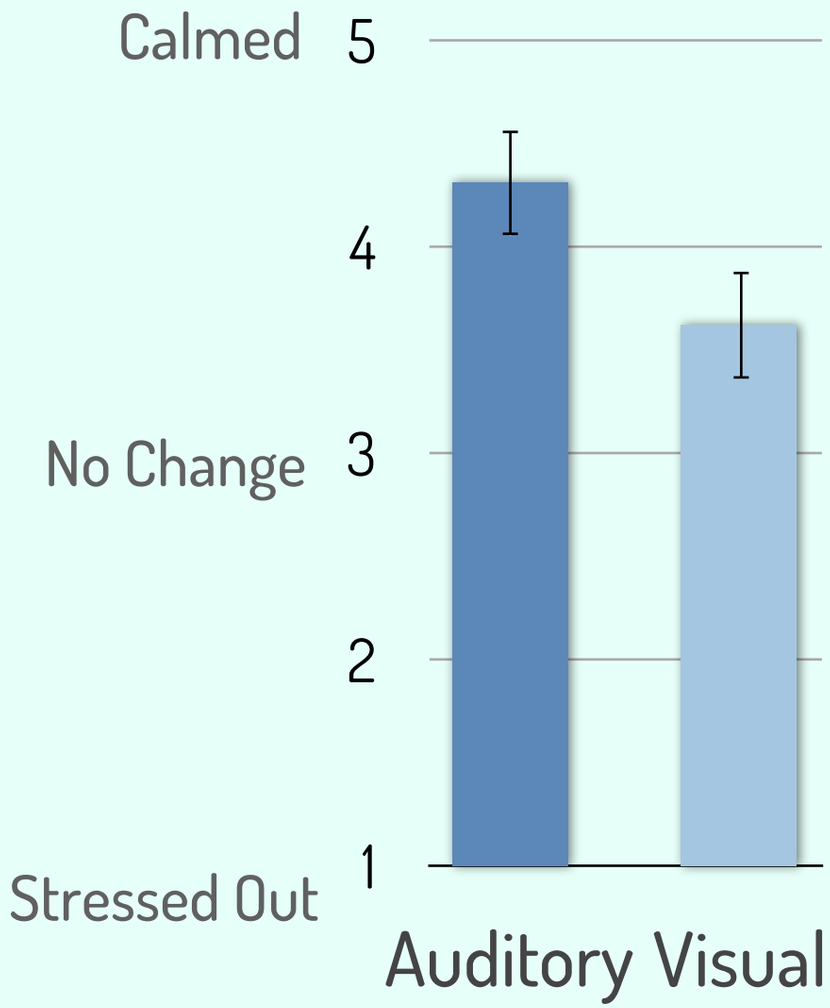


- Naturally Auditory

A > V (p=0.038)

Study Result (N=14)

Self-reported Calming Effects

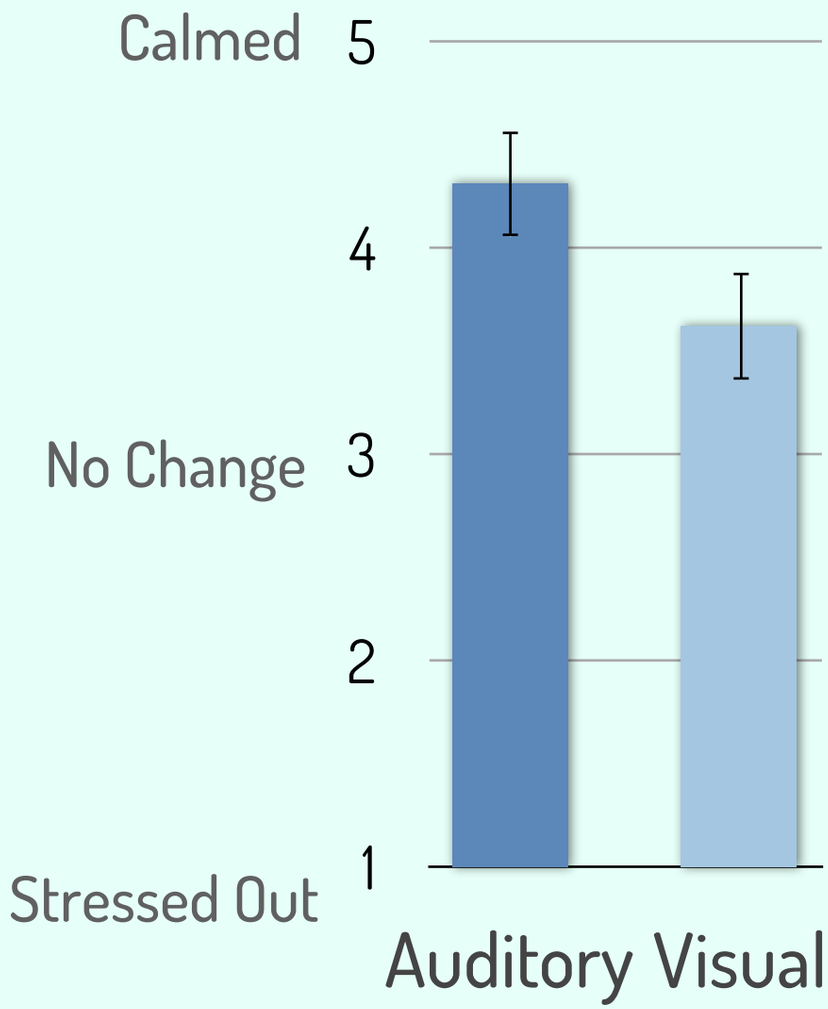


- Naturally Auditory
- Attention

A > V (p=0.038)

Study Result (N=14)

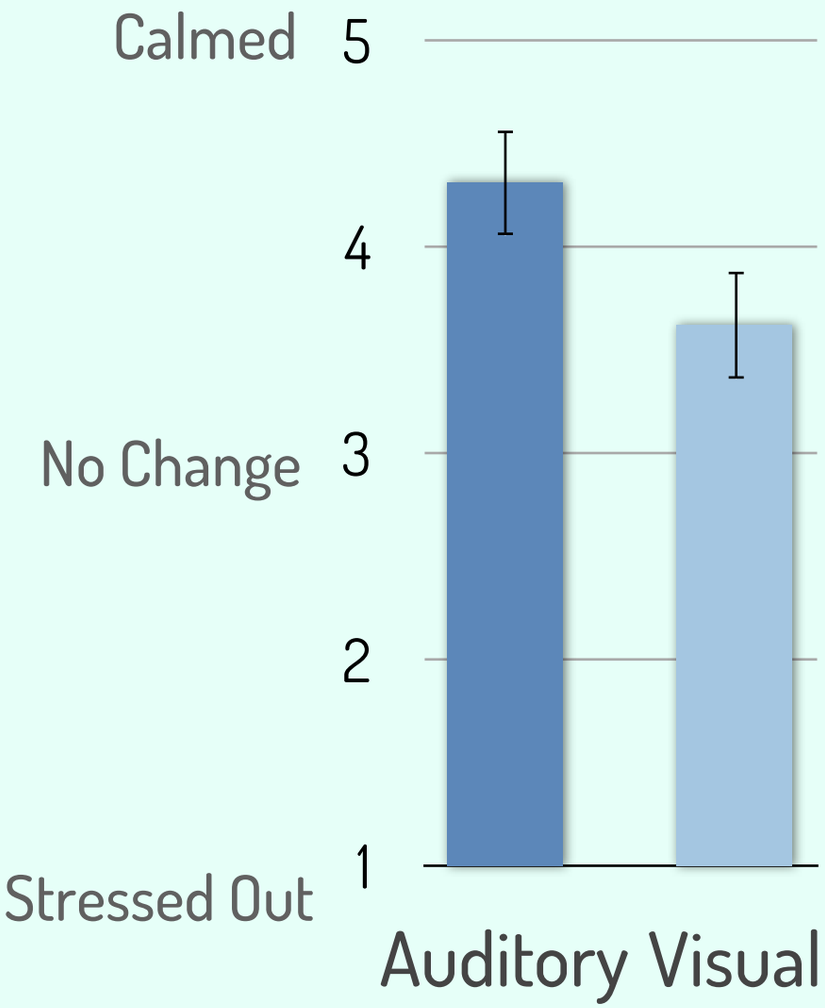
Self-reported Calming Effects



A > V (p=0.038)

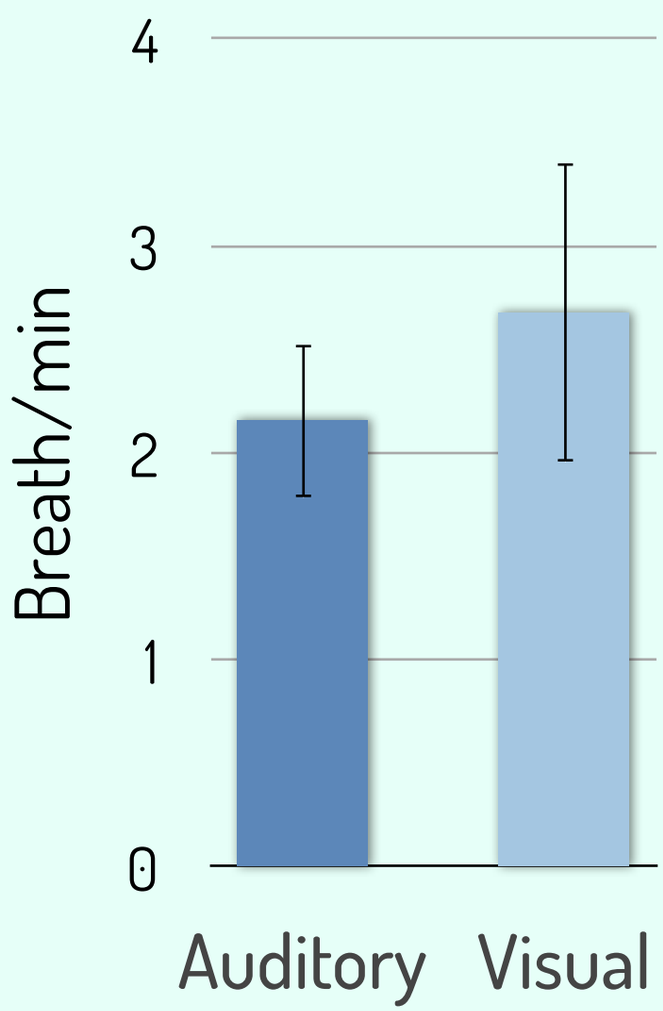
Study Result (N=14)

Self-reported Calming Effects



A > V (p=0.038)

Breathing Rate Reduced



A < V (p>0.05)

Summary

How to design and evaluate user interfaces for respiratory regulation?

Audio > Visual

Conformity ≠ Self-rated Score

Thanks

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Method

- N=14
- Four Design

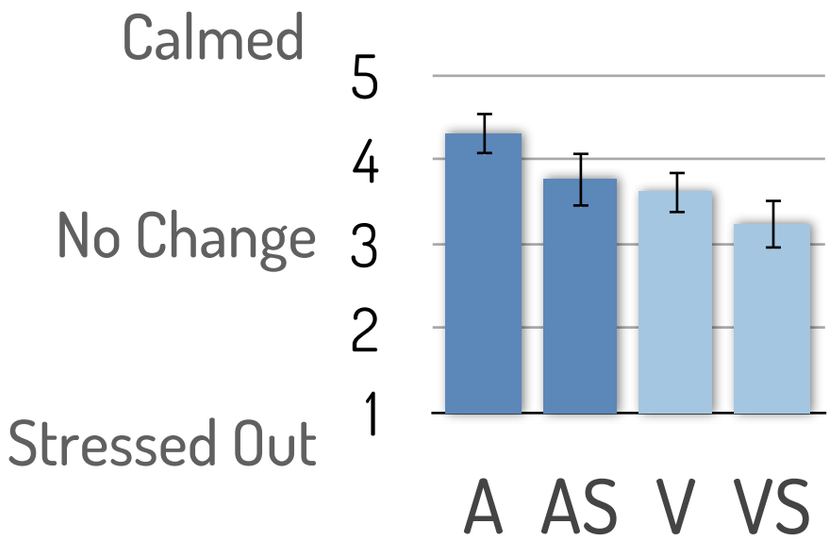
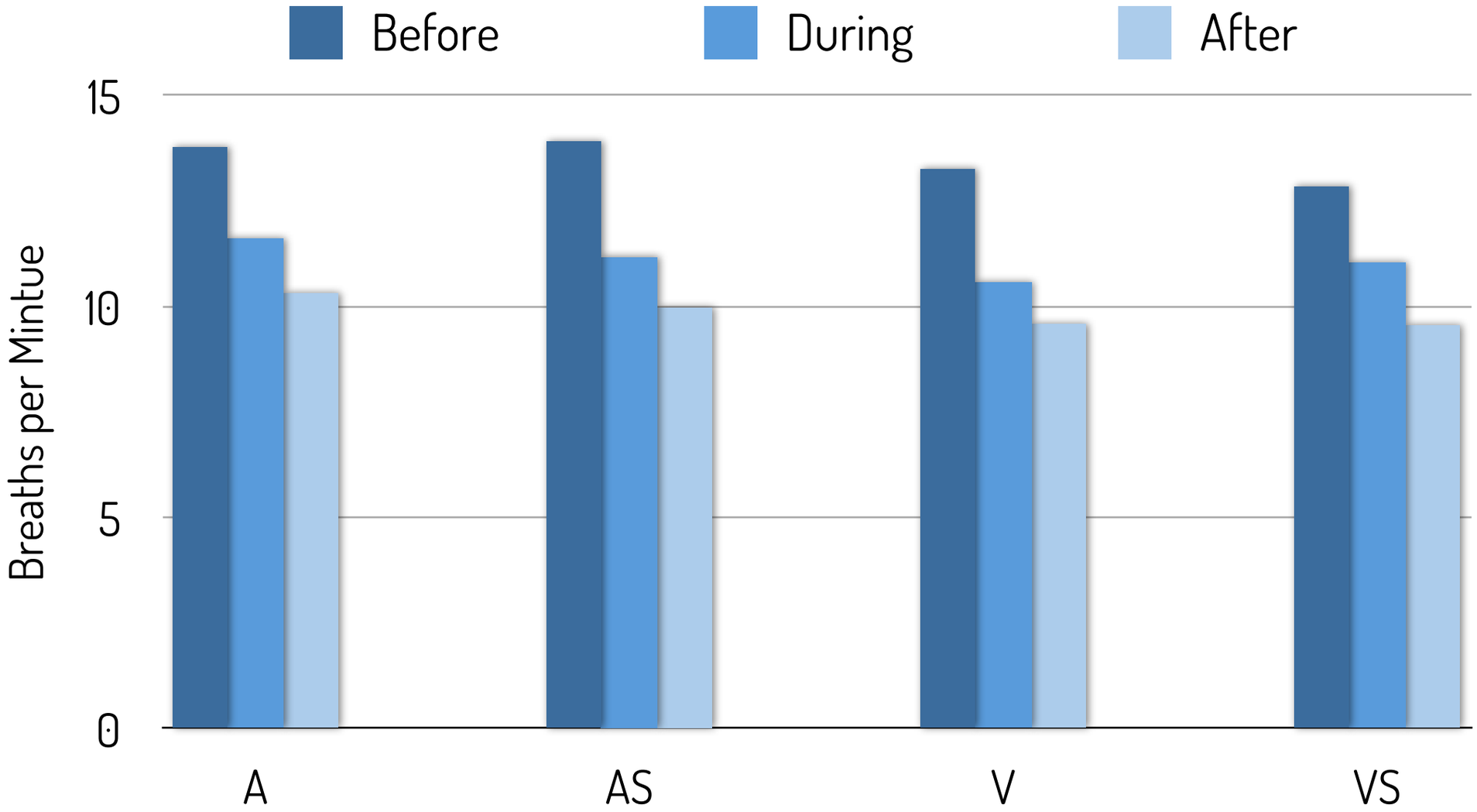
Design Spaces

Device	Specialty Device	Smart Phone	Desktop
User Attention	Full Attention	Semi Attention	
Practice Duration	1-5 mins	5-20 mins	> 20 mins
Stimulus	Continuous	Rhythmic	
Type of Guidance	Auditory	Visual	Physical Contact
Evaluation	Self-report Score	Breathing Rate	
Social Interaction	None	Asynchronous	Synchronous

Future work

((Graphs for Paper))

Self-reported Calming Effects



((Graphs for Paper))