



A research portfolio review

Xinyue Wang

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- I. A brief introduction about me
- II. Study 1: Does time fly faster when you tap to music? A tapping study
- III. Study 2: Are you your own best judge? A singer study
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A brief introduction about me

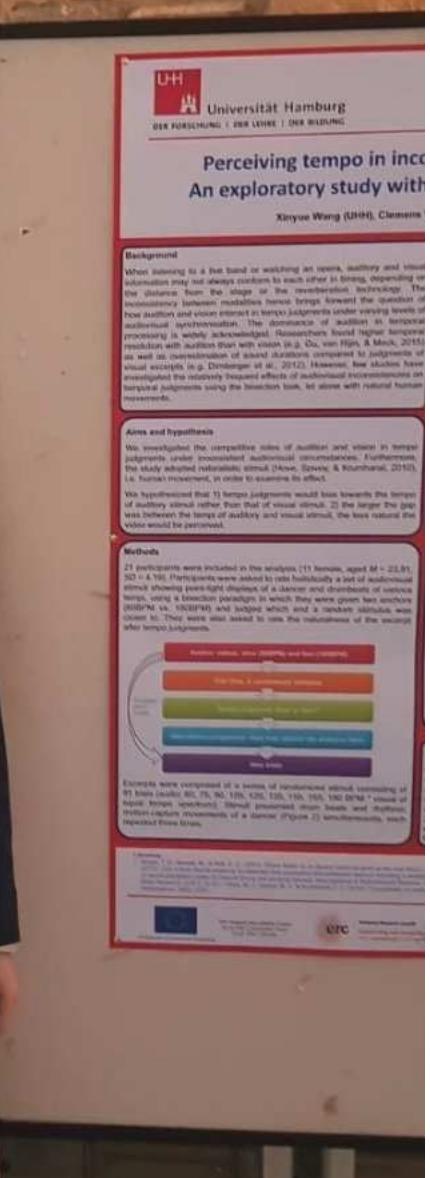
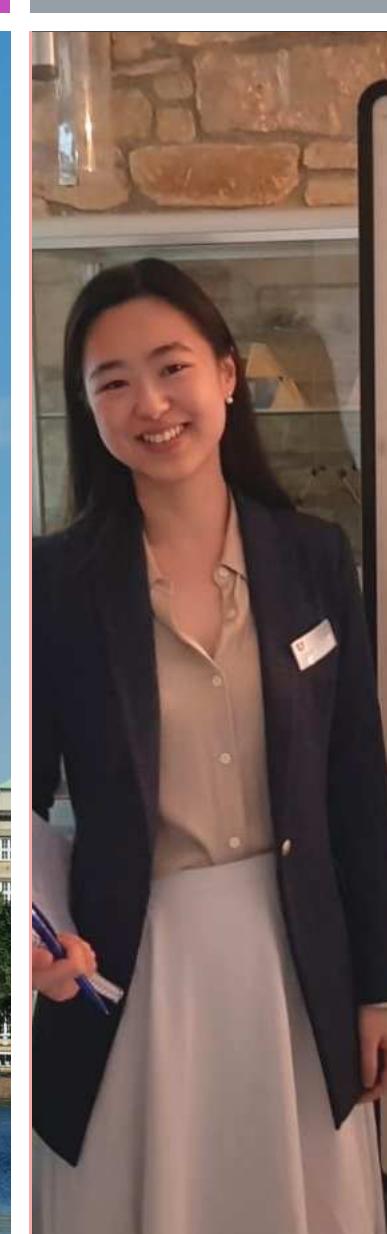


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Study 1. Does time fly faster when you tap to music?



Background



Methods



Results



Insights and impacts

Study 1. Does time fly faster when you tap to music?

Time passes faster when you tap to drumming performances, and it also feels shorter

Study 1. Background



- With increasing popularity of online experiments in the post-Covid era, I aim to find out a digital solution for the tapping paradigm, and how tapping to music affects our perception of time
- Objectives:
 - Time perception changes when tapping to music
 - The usability of an online tapping experiment

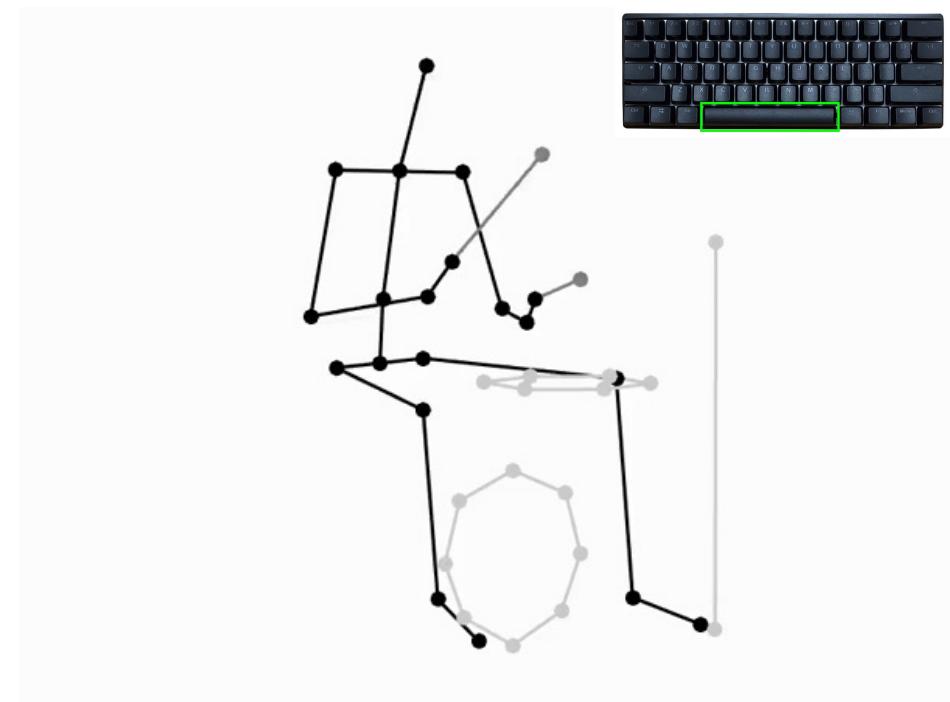
Study 1. Methods

- Procedure:

Online experiment where participants were asked to tap freely to the drumming performances, and rate 1) the duration and 2) how fast time passes

- Team:

- Leader: XW
 - Design: XW, CW, BB
 - Execution: XW
 - Data analysis: XW, BB
 - Presentation: XW
- Stakeholders: XW, CW (advisor), BB (colleague)



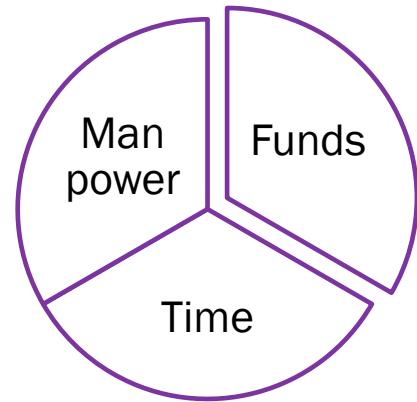
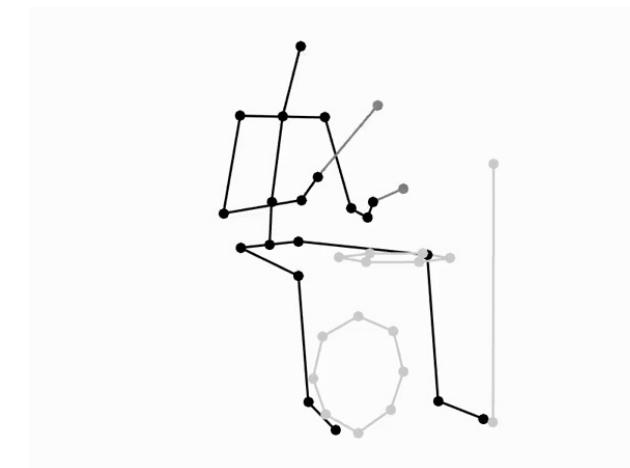
Study 1. Methods

Design: Different opinions and how I bridged the discrepancies

Plan A

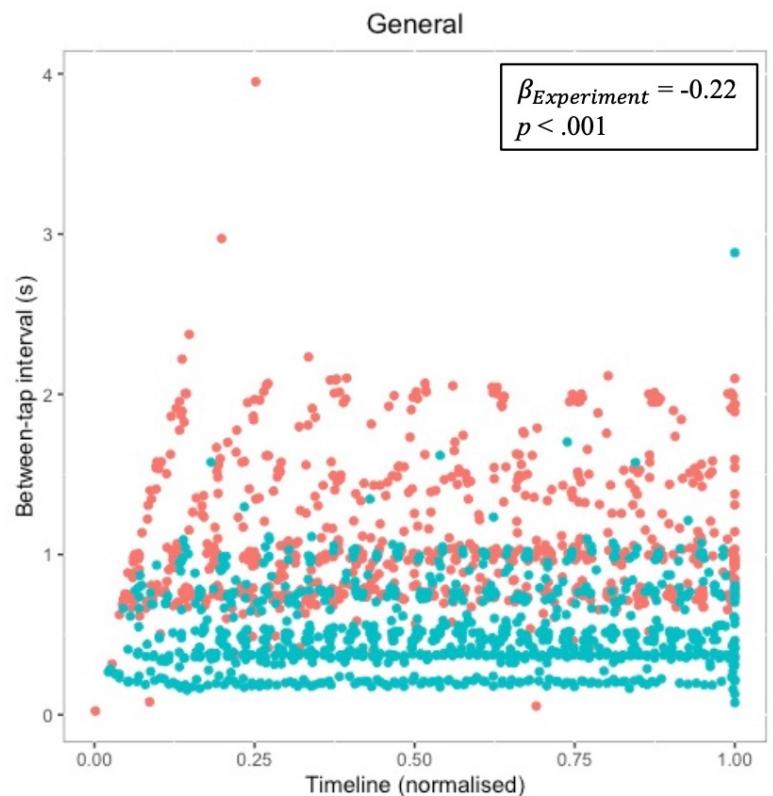


Plan B



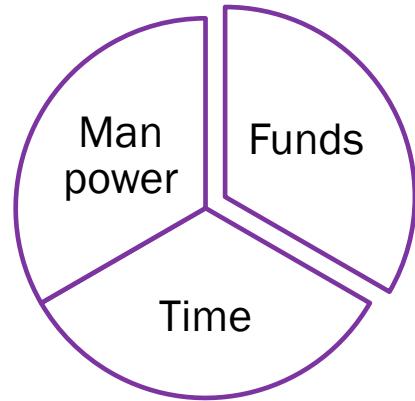
Study 1. Methods

Design: Different opinions and how I bridged the discrepancies



“I find version A not as easy to follow.
The dot flashes often disrupt my own
rhythms.”

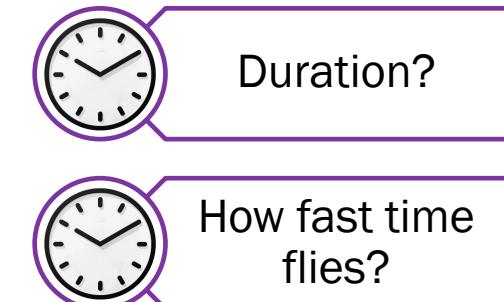
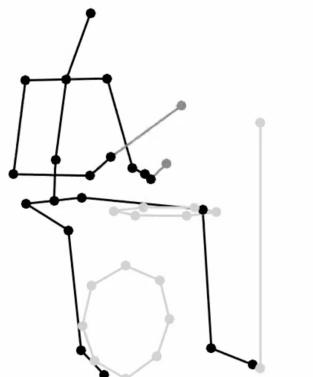
--- A pilot test participant



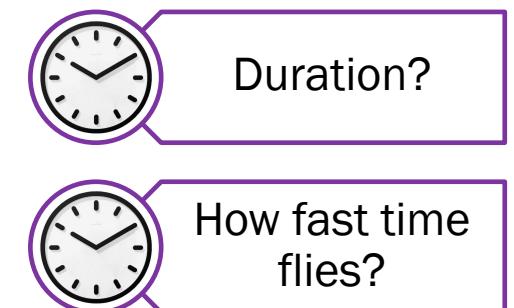
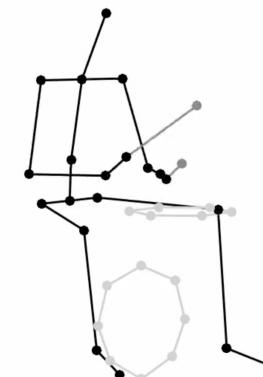
Study 1. Methods

Design: Finalised for the research objectives

No-tapping trials

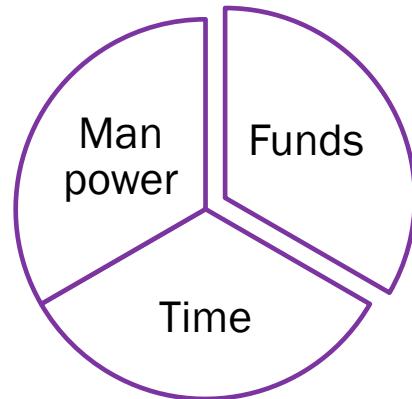


Tapping trials



Study 1. Methods

Design: The task was well received after A/B test and revision



“Personally i believe the tempo and my mind timing were going together so my timing was based on the tempo of the drummer rather than actual seconds.”

-- Anonymous participant A

“This was an amazing experience, I tried to have the same tempo when tapping the spacebar and that was super fun!”

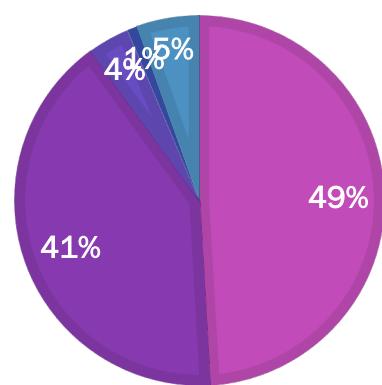
-- Anonymous participant B

Study 1. Methods

Demographics: 109 people recruited via a professional online survey platform

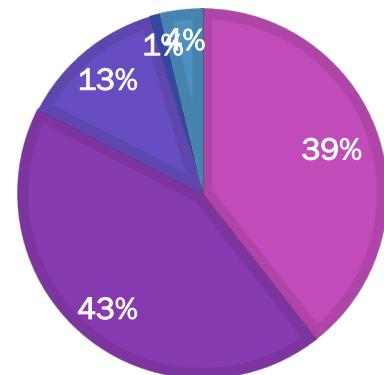
NATIONALITY

■ European ■ African ■ Asian ■ Australian ■ South America



EDUCATION

■ High school ■ Bachelor ■ Master ■ Doctoral ■ Vocational



Pros

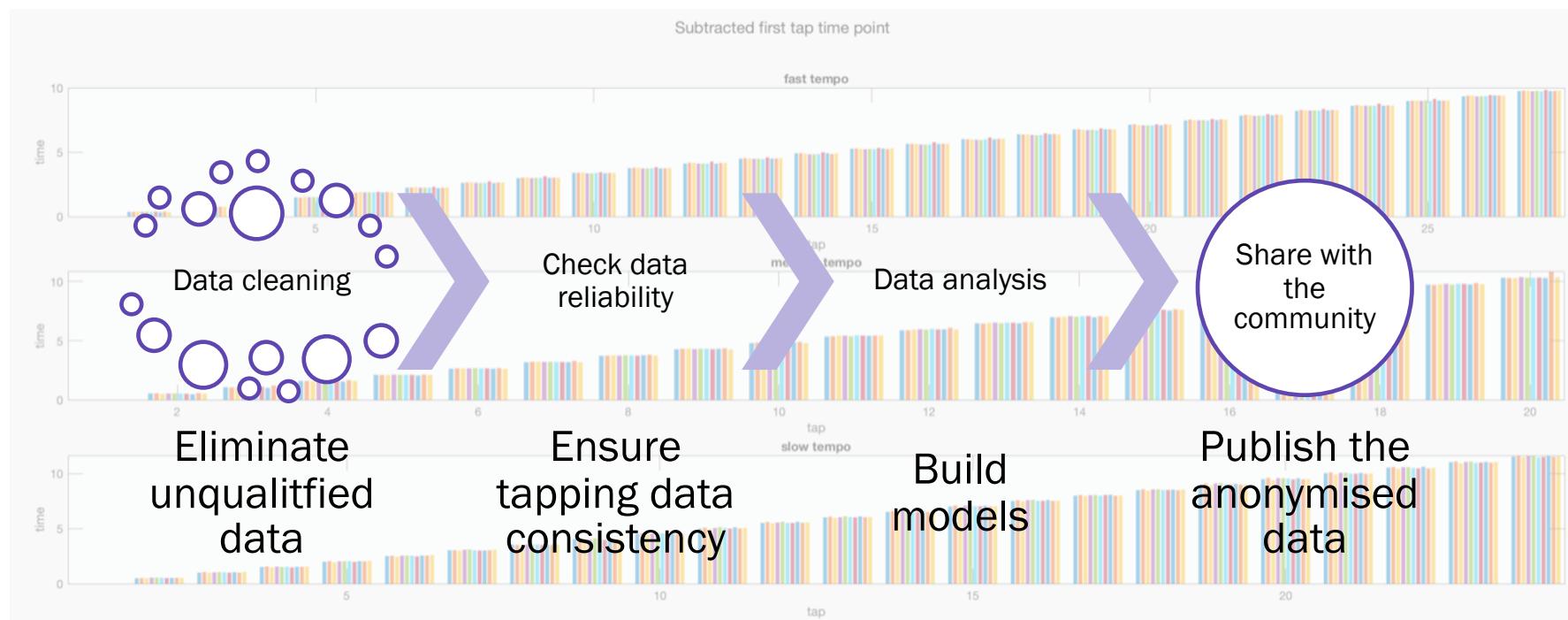
- Fast
- Diverse sampling

Cons

- High costs
- Potential bias

Study 1. Methods

Data processing: Once we have the data...



Study 1. Results

- + Participants underestimated the durations, and time passed faster for them when they tapped to drumming performances
- + Participants performed consistently and reliably with the online tapping paradigm
- ! However, some found it difficult to perform the task
 - i “This one was tricky , the keeping up with the tapping and the sound. All was good at the end.” --- One participant

Study 1. Insights and impacts

+ Time perception research

- Better understanding of time experience in concert, club, or daily music listening
- Possible applications: Move your users!

+ Online tapping paradigm

- A reliable alternative outside the lab for future media and music related studies
- A prototype for future testing

! Improve usability

- Create a more accomodating task environment
- Develop assisting instructions and visual or auditory signs for the participants

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Study 2. Are you your own best judge?



Background



Methods



Results



Insights and impacts

Study 2. Are you your own best judge?

Professional soprano singers can accurately judge the pitch accuracy of other singers, but not themselves

Study 2. Background

When you listen to the following performances, try to think about a question:

Who sings more in tune?

Singer A



Singer B



Study 2. Background



- Singers are the first judges of their own performances. However, performers' ability to correctly estimate their own ability to sing is under-explored.
- Objectives:
- Build a model of pitch accuracy
- Compare singer's judgement to that of the model

Study 2. Methods

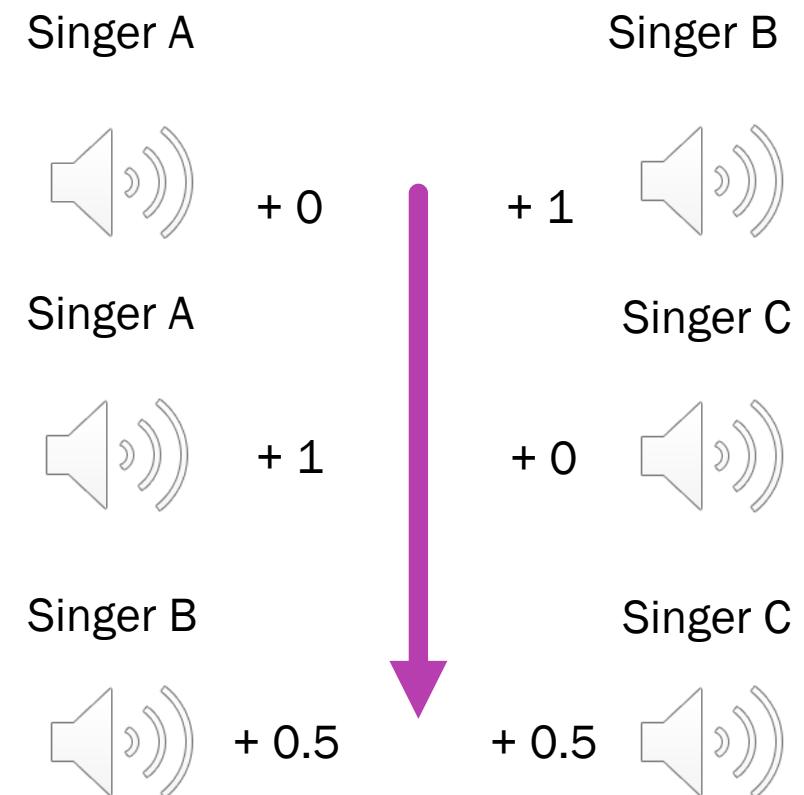
- Procedure:

Lab-based experiment where participants were asked to listen to “Happy Birthday” songs in pairs, and which one of the pair was more accurate

- Team:

- Leader: PL
- Design: PL, MR
- Execution: XW, PL
- Data analysis: XW
- Presentation: PL, XW

- Stakeholders: XW, PL (principal investigator), MR (colleague)



Study 2. Methods

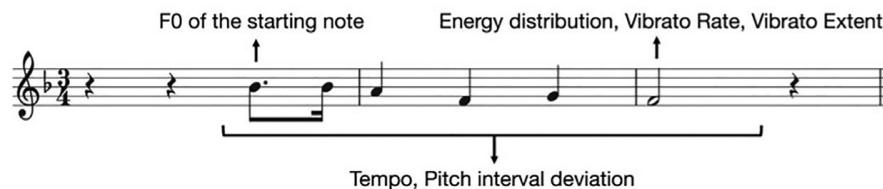
Participants:

- Number of professionally trained soprano singers who also performed for the experiment: **18**
- Age: 20 to 55 years old (*Mean = 33.11*)
- On average years of professional training: **15.53**



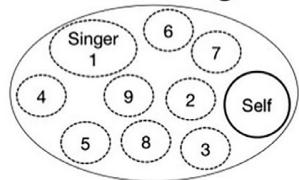
Study 2. Methods

A. Material and features



B. Procedure

Recordings

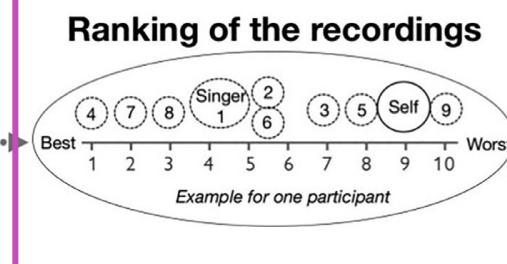


Pairwise comparison

Recording A Recording B

Computation of the scores

Recording selected: +1
Recording not selected: +0
Equal: +0.5 for both

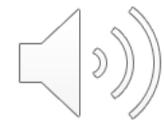


Singer A



+ 0

Singer B



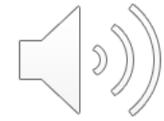
+ 1

Singer A



+ 1

Singer C



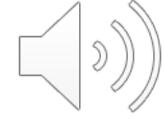
+ 0

Singer B



+ 0.5

Singer C

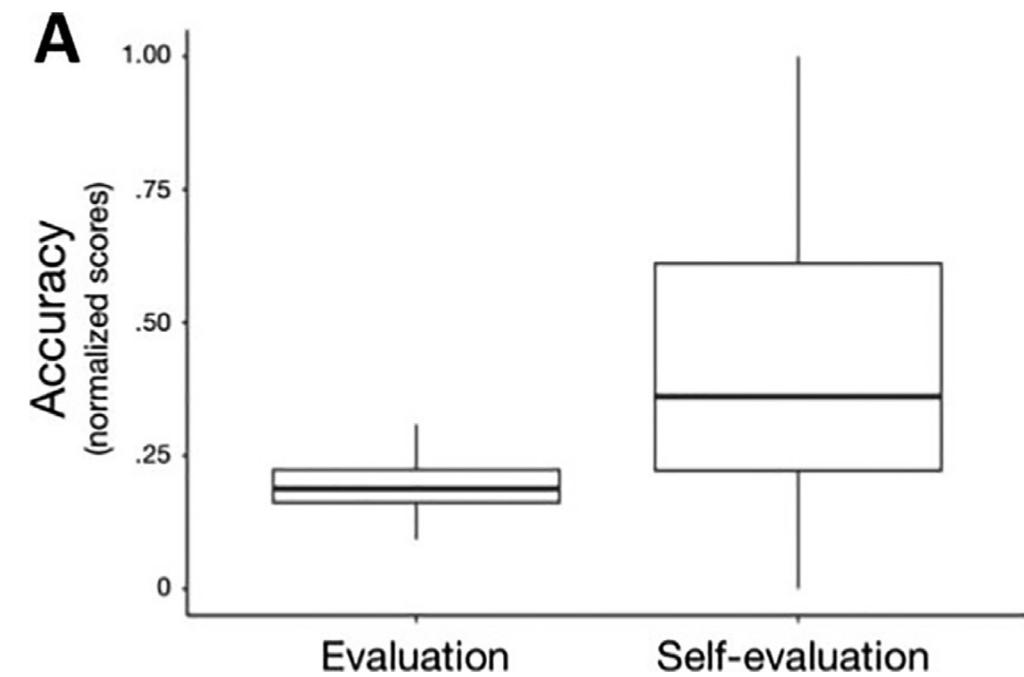


+ 0.5

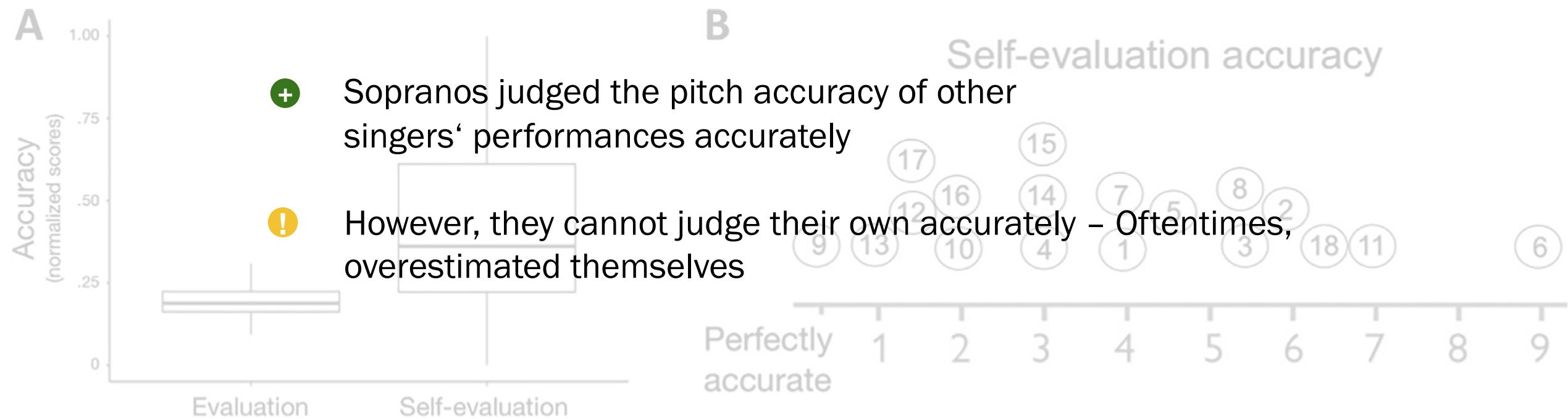
Study 2. Methods

Data processing: Once we have the data...

Comparison	
Objective ranking	Subjective ranking
+ Singer B	- Singer D
+ Singer A	- Singer C
+ Singer D	- Singer A
+ Singer C	- Singer E
+ Singer E	- Singer B



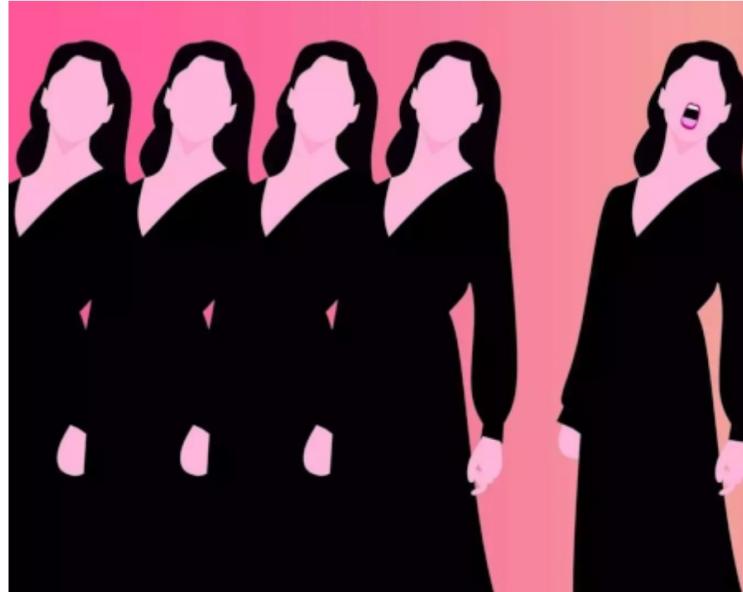
Study 2. Results



Study 2. Insights and impacts

Erstaunlich ungenau

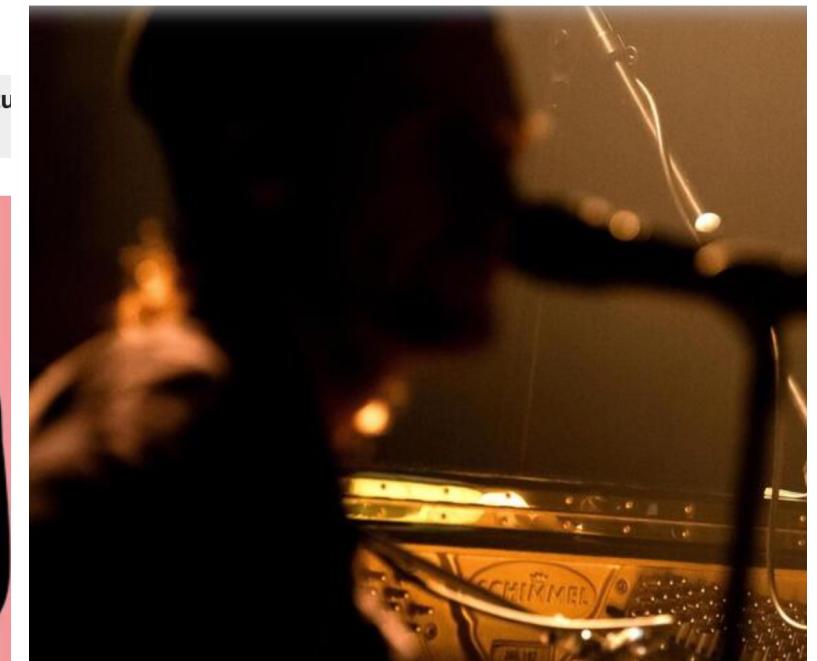
Selbsteinschätzung beim Singen: Auch Profi-Sängerinnen vertu
Bewertung ihrer eigenen Leistungen



© MPI für empirische Ästhetik

Wenn ihr singt, und die Milch wird sauer oder eure Mitmenschen halten Ohren zu, dann wisst ihr, dass ihr irgendwie schief lagt. Von solchen abgesehen, lässt sich der eigene Gesang nicht immer gut beurteilen hat ein Forschungsteam des Frankfurter Max-Planck-Instituts für empirische Ästhetik, York University und der Universität Hamburg in einer Studie mit professionellen Sängern herausgefunden. Die Forschenden waren der Frage nachgegangen, Sängerinnen ihr eigenes Können einschätzen können und welche Rolle bei der Ausbildung musikalischer Fähigkeiten spielt.

RHEINPFALZ



n richtigen Ton zu treffen? Gar nicht so einfach!



Informationsdienst Wissenschaft

Montag, 21. Juni 2021 - 18:00 Uhr

Wer gern unter der Dusche singt, weiß, dass nicht immer jeder zustimmt. Doch wie sieht es mit professionellen Sängern aus? Wie schätzen sie ihr eigenes Können ein?

Study 2. Insights and impacts

+ Singing research

- Exploration of the mechanisms for lack of accurate self-judgment

+ Singing contest and media

- A revelation of the relativity in the professional judgments by musicians

! Lack of insights on laymen

- Explore tasks and experiments for untrained participants

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Summary

■ Study 1

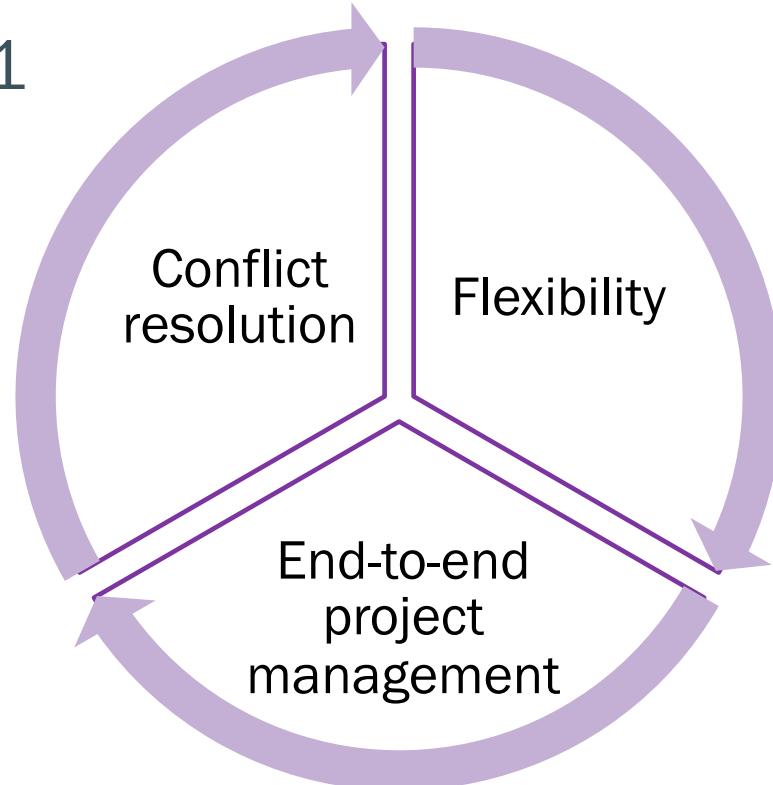
- Better understanding of time experience in concert, club, or daily music listening
- A reliable alternative outside the lab for future media and music related studies

■ Study 2

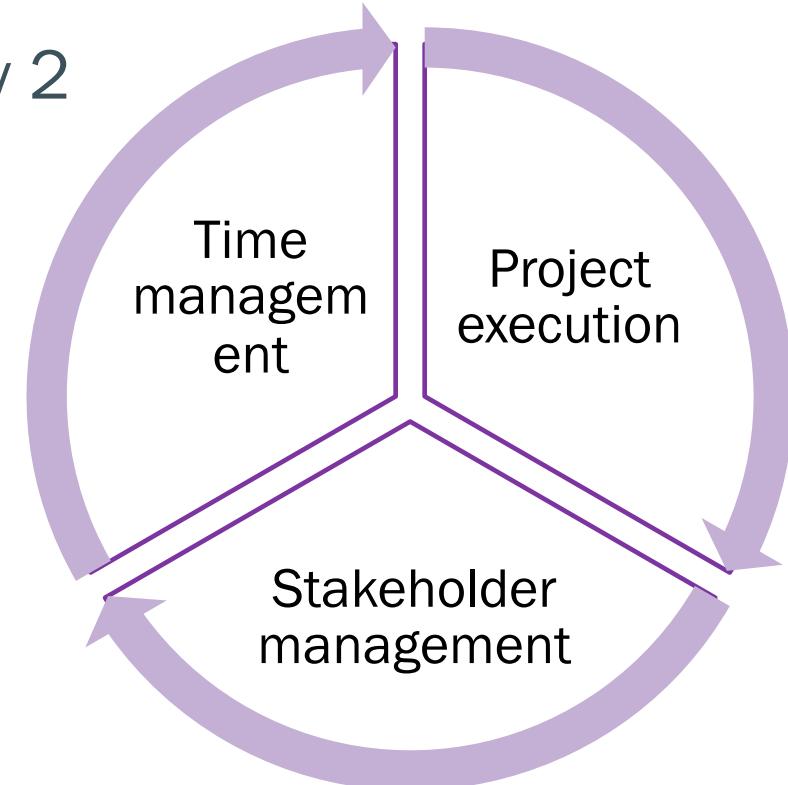
- Revealations of the relativity in the “objective” judgements from professional musicians
- It raises questions whether the lack of objectivity when it comes to laymen

Summary: How the studies shaped my skills

- Study 1



- Study 2



Thanks for listening! Any questions? 😊

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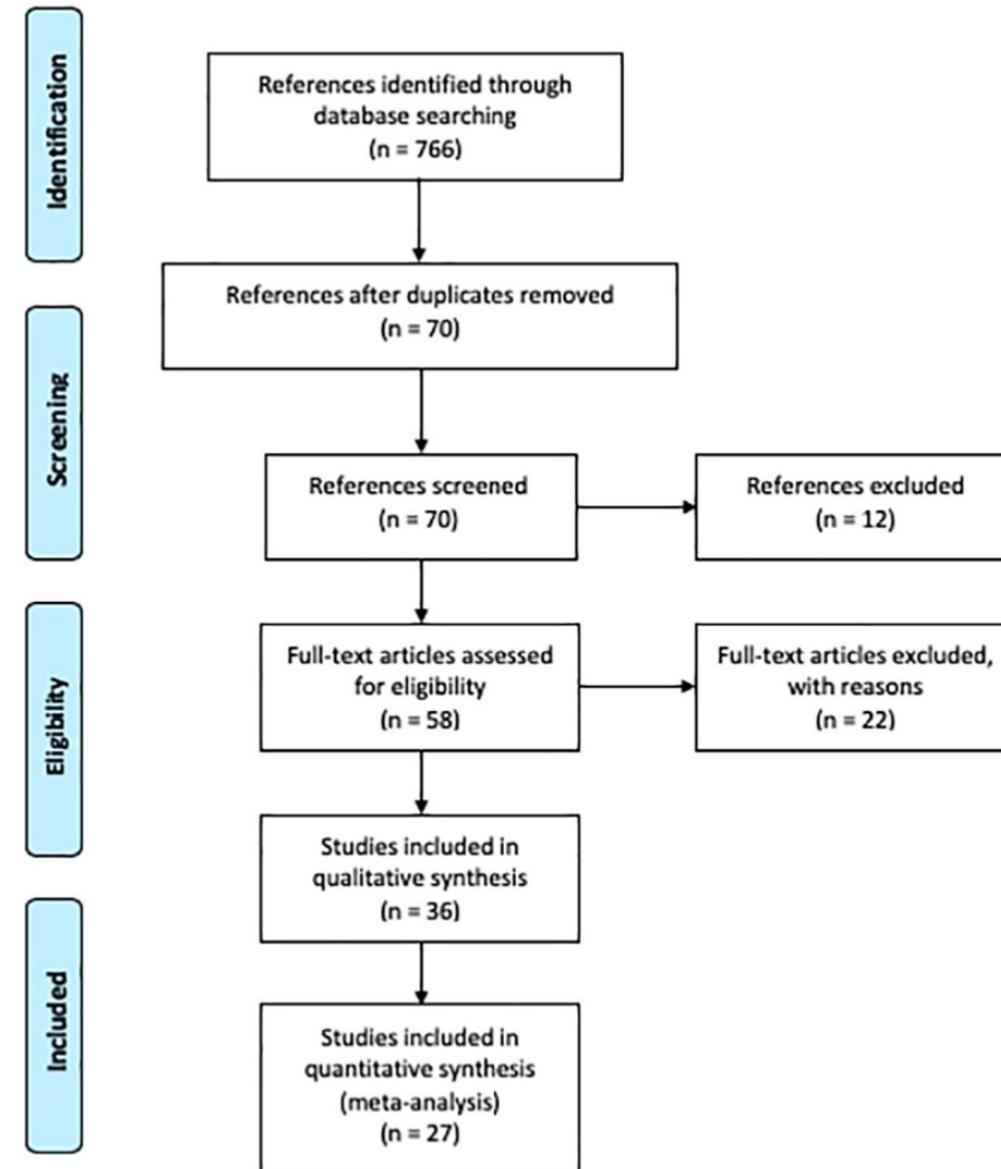


APPENDIX

Additional data, graphs, and references



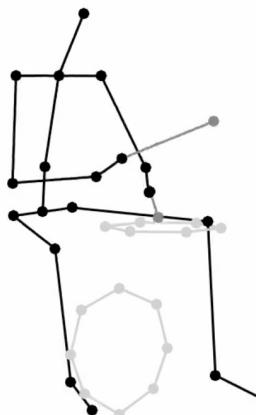
- A Qualitative Study:
Time perception in
children and adolescents
with ADHD
- **1620** Children and adolescents with ADHD compared with **1249** healthy controls showed higher tendency to overestimate durations.



REFERENCES

- Wang, X., Burger, B., & Wöllner, C. (2022, January). Tapping to drumbeats in an online experiment changes our perception of time [Conference presentation]. Deutsche Gesellschaft für Musikpsychologie-B4H, online.
- Larrouy-Maestri, P., Wang, X., Vairo Nunes, R. & Poeppel, D. (2021). Are you your own best judge? On self-evaluation of singing. *Journal of Voice*. <https://doi.org/10.1016/j.jvoice.2021.03.028>
- Zheng, Q., Wang, X., Chiu, K.Y., & Shum, K.K. (2020). Time Perception Deficits in Children and Adolescents with ADHD: A Meta-Analysis. *Journal of Attention Disorder*, 1087054720978557.
<https://doi.org/10.1177/1087054720978557>

20% completed



How long was the performance?

Please write down your estimated duration in seconds (for example, 3).

Seconds



How fast did time pass for you during the performance?

Note that this is not about how fast or slowly the performer played the percussion, but how you personally feel time had passed. Please move your cursor on the scale below and click to select.

Extremely slow

Extremely fast

How expressive was the performance?

Please move your cursor on the scale to indicate the expressiveness of this performance.

Not at all

Very much

