Wruce Bayne

- Isa Abdul-Hamid, 816037392
- Zane Edwards, 816037008
- Andre Benjamin, 816036749

Capturing Cancer as Music

Cancer Mechanisms Expressed through Musification

Background

- Authors
  - Rostyslav Hnatyshyn
  - Jiayi Hong
  - Ross Maciejewski
  - Christopher Norby
  - Carlo C. Maley (Arizona Cancer Evolution Center)
- Affiliation: Arizona State University

Significance in the field

- Human Computer Interaction and cancer education intersection.
- Musification
  - The process of converting data into music.
  - It incorporates musical elements such as rhythm, harmony, and melody to organize and convey information.

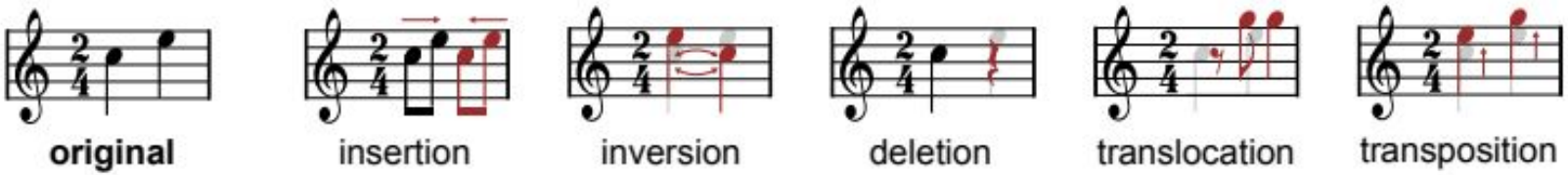
Abstract

- Problem
  - Cancer literature is too technical for the public to understand.
- Solution
  - To combat this, musification is used to enable the reader to get a better understanding of the development and treatment of cancer.

Methodology

- Start with a piece of music (e.g., Twinkle Twinkle Little Star).
- Cancer is symbolized by randomly selecting a part of the music near its beginning.
- The selected section becomes a cancer leitmotif, repeating endlessly.
- Each repetition symbolizes uncontrolled cell division.
- The leitmotif spawns "mutated" copies, representing cancer cell mutation during reproduction.

Possible mutations



Results

- Participants who experienced the musified cancer mechanisms with a text-based article showed higher cancer literacy compared to those who only read the text.
- This suggests that musification, when paired with traditional educational methods, is more effective at improving understanding.

Limitations

- Musification alone was not enough for participants to fully understand the cancer mechanisms.
- The approach relies heavily on auditory learning, which makes it inaccessible to individuals with hearing impairments.
- The paper did not use real-world cancer data for the musification. The model was seen as too abstract to be directly useful for researchers or professionals in the field.

Conclusion

- The paper intends to improve cancer literacy and understand cancer mechanisms.
- The research shows potential for application in healthcare education, making difficult concepts like cancer mechanisms more understandable to the general public.

References

- ACM SIGCHI. (2024, May 9). Capturing Cancer as Music: Cancer Mechanisms Expressed through Musification [Video]. YouTube. https://www.youtube.com/watch?v=uXsV06BSGCA
- Hnatyshyn, R., Hong, J., Maciejewski, R., Norby, C., & Maley, C. C. (2024). Capturing cancer as music: Cancer Mechanisms Expressed Through Musification. https://doi.org/10.1145/3613904.3642153
- Musification and view. (n.d.). https://musifier.com/index.php/tech/musification-and-view

Investigating Perceptual Biases in Icon Arrays

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Background

Authors

- Cindy Xiong, University of Massachusetts Amherst
- Ali Sarvghad, University of Massachusetts Amherst
- Çağatay Demiralp, Sigma Computing
- Jake M. Hofman, Microsoft Research
- Daniel G. Goldstein, Microsoft Research

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Background

Publication Information

- Conference on Human Factors in Computing Systems (CHI ’22)
- Publication Date: 28 April 2022

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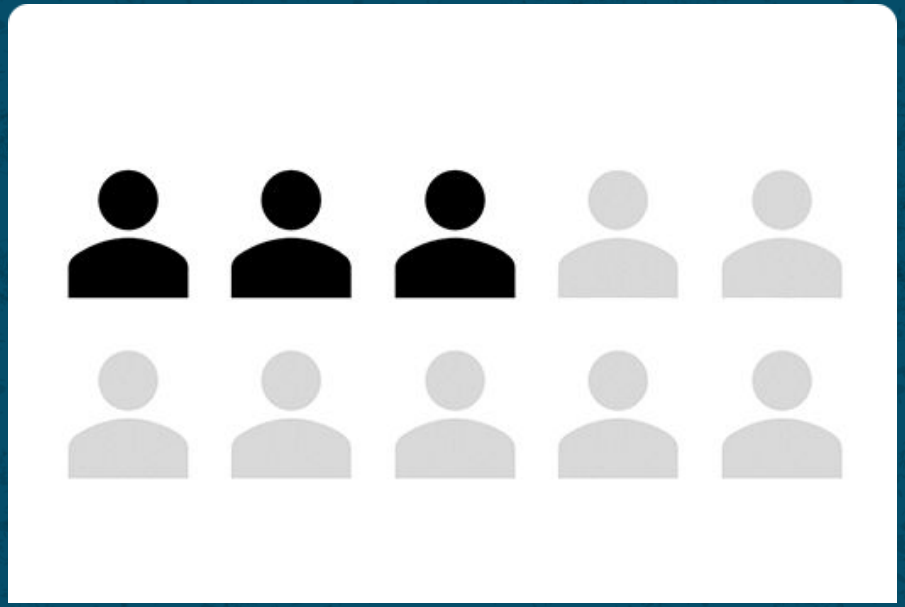
Background

What is an Icon Array?



Abstract

Objective

Determine the effect of spatial arrangement of icon arrays on a viewer's perception of probabilities.

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Abstract

Contributions & Findings

- Identified potential viewer biases.
- Icon arrangement affects viewer perception.
- Design recommendations to maintain accuracy.

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Methodology

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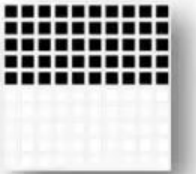
Top

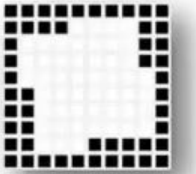


Row

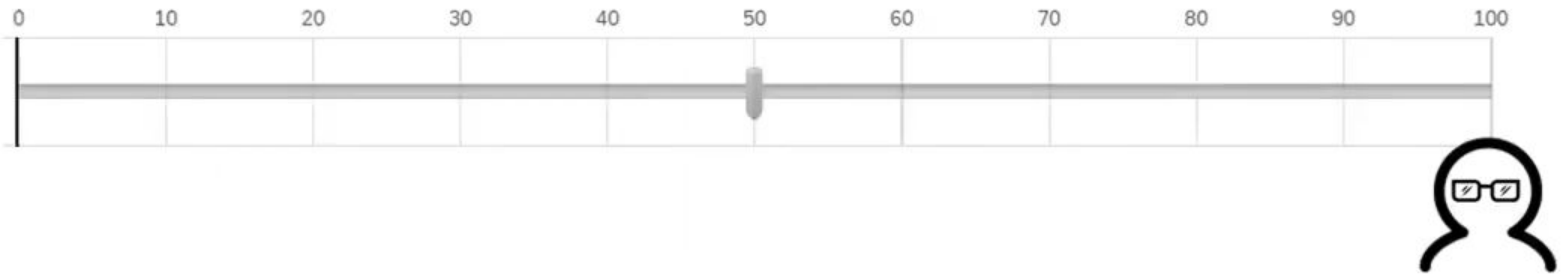
Diagonal

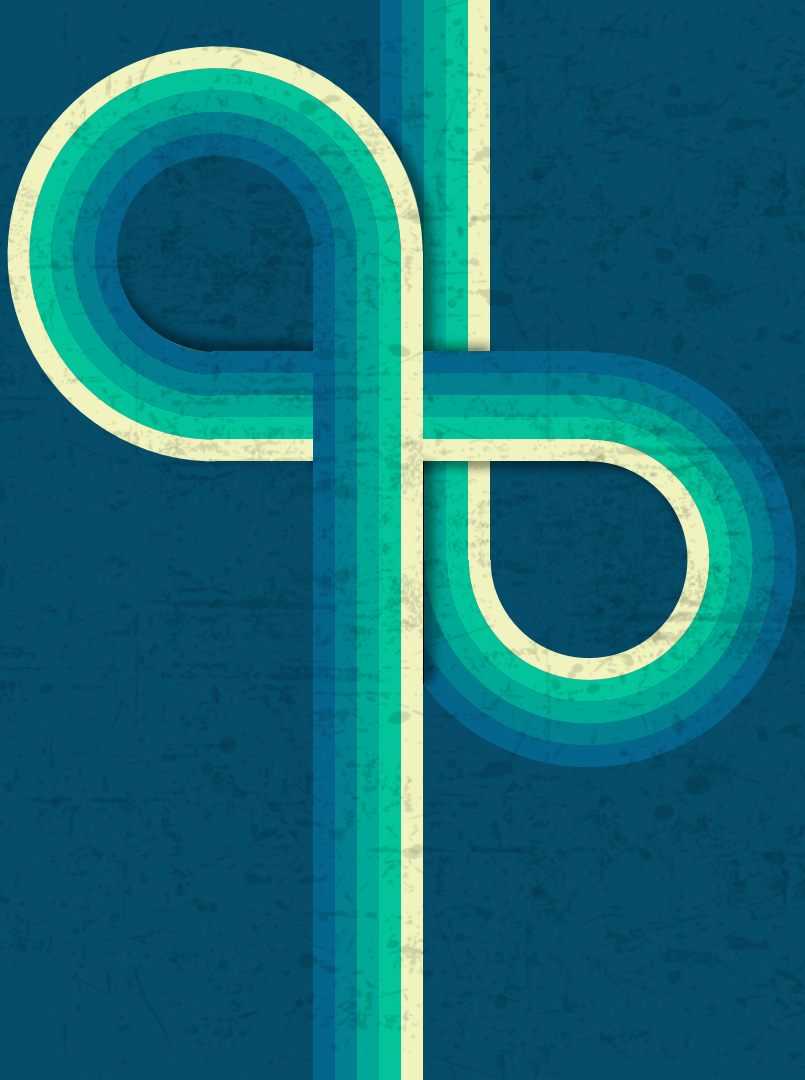
Central

Edge



Random





Results

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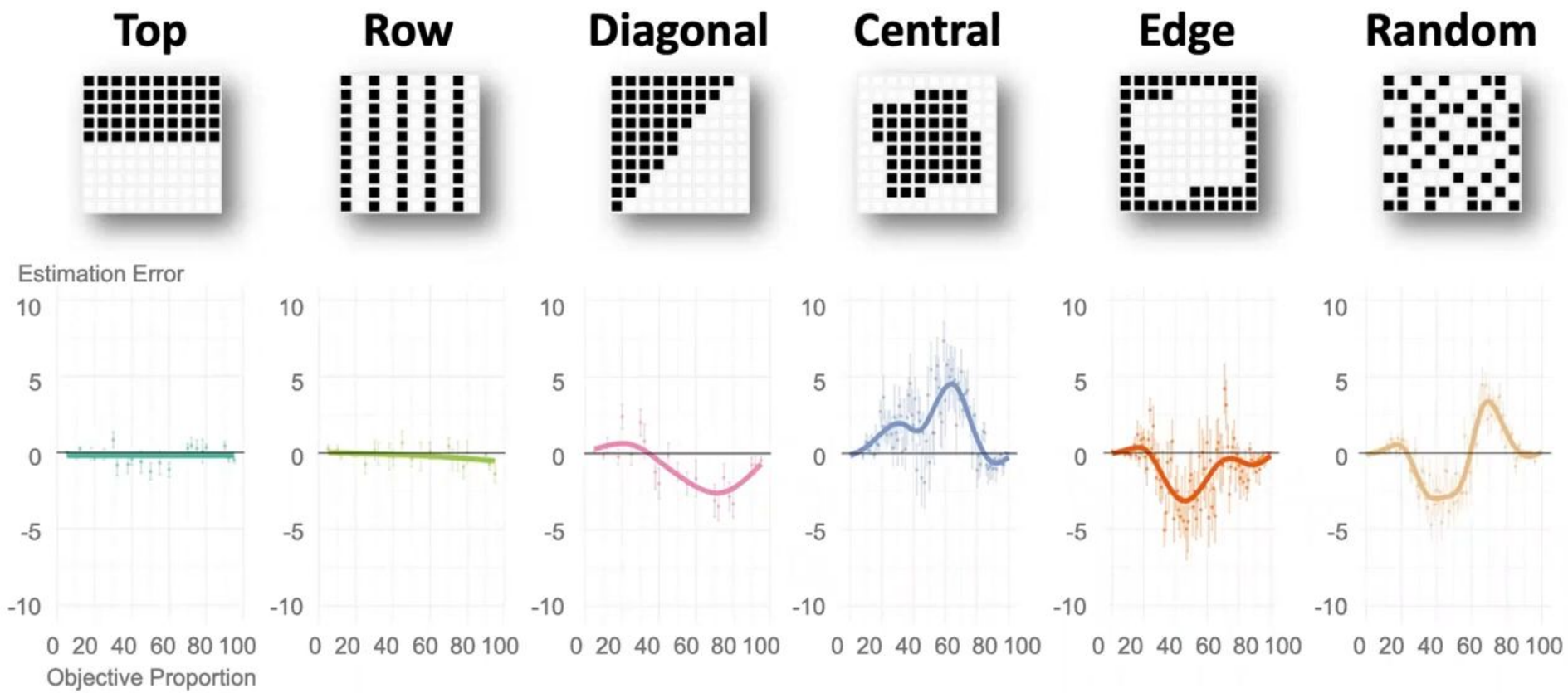
Top
Row
Diagonal
Central
Edge
Random
Estimation Error
10
5
0
-5
-10
0 20 40 60 80 100
Objective Proportion

Discussion

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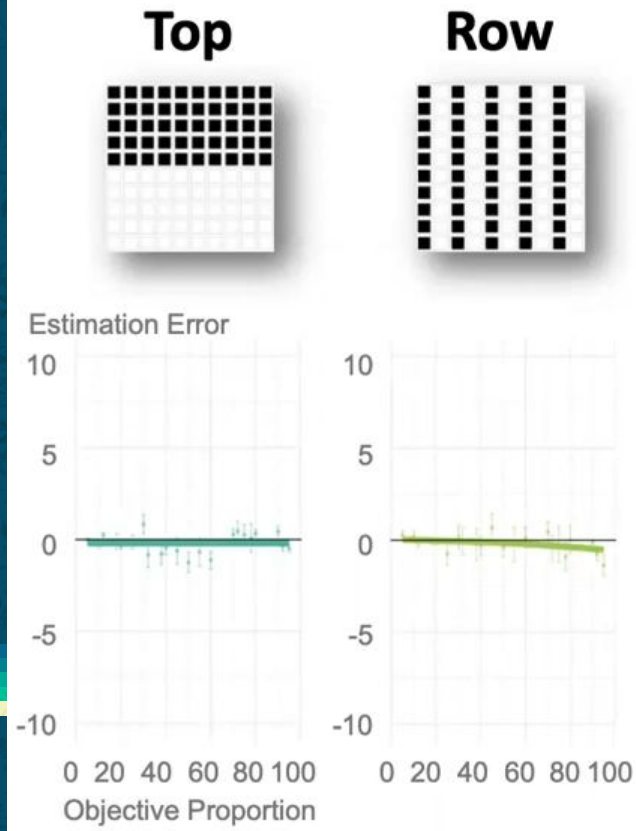
The Findings

Top & Row Arrangements

- Most accurate.



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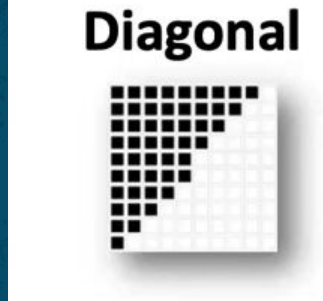
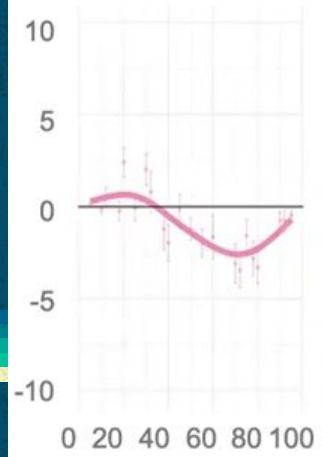
The Findings

Diagonal Arrangement

- Can achieve similar results, but less perceptual accuracy.





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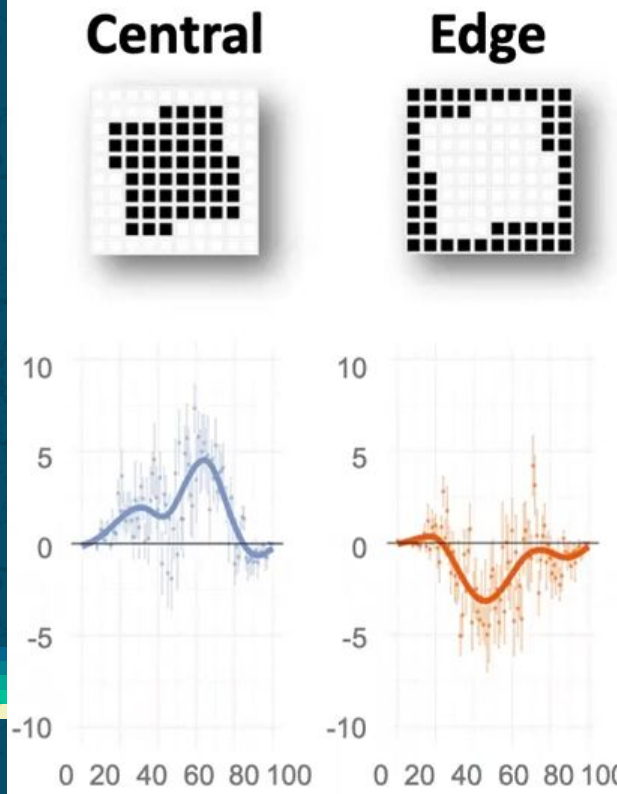
The Findings

Central Arrangement

- Overestimation

Edge Arrangement

- Underestimation



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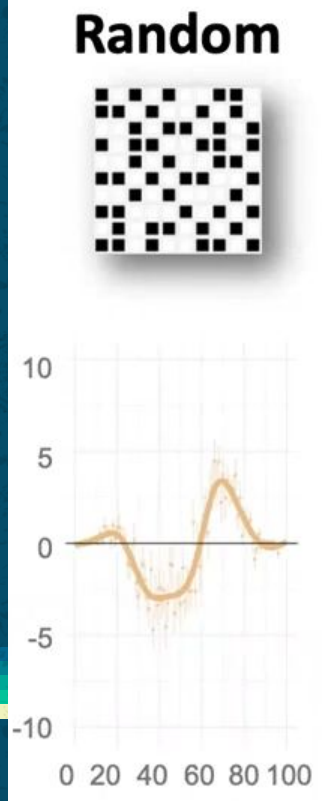
The Findings

Random Arrangement

- Persons tend to underestimate large proportions and overestimate smaller proportions.
    - Aligns with general principles of Steven's Power Law.
- Participants seem to use 0% and 60% as reference points for estimations.



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Limitations

- Limited number of arrangements tested.
- Other visual factors can impact perception.
  - Simplified to test spatial arrangement.
- Response gathering.
  - Using numerical values to record visual features can introduce bias.

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Conclusion

Best Arrangements

Top and row arrangements.

Spatial Arrangement

Does affect perceptual accuracy of icon arrays.

Perceptual Accuracy

Designers must pay attention to if the perceived accuracy reflects the actual.

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References

Xiong, C., Sarvghad, A., Goldstein, D. G., Hofman, J. M., & Demiralp, Ç. (2022).

Investigating perceptual biases in icon arrays. *CHI Conference on Human Factors in Computing Systems*.

https://doi.org/10.1145/3491102.3501874

ACM SIGCHI. (2022, April 3). Investigating perceptual biases in icon arrays [Video]. YouTube.

https://www.youtube.com/watch?v=S7kEZwHv4os

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“I Don’t Even Remember What I Read”

How Design Influences Dissociation on Social Media

Background

Authors:

- Amanda Baughan - University of Washington School of Computer Science & Engineering
- Mingrui “Ray” Zhang - University of Washington Information School
- Raveena Rao - University of Washington Information School
- Kai Lukoff - University of Washington Human Centered Design & Engineering
- Anastasia Schaadhardt - University of Washington Information School
- Lisa Butler - University of Buffalo School of Social Work
- Alexis Hiniker - University of Washington Information School

Abstract

This study investigated social media use through the lens of *normative dissociation*.

Researchers developed a custom Android Twitter client, Chirp, which allowed them to test alternate design features to determine their impact on normative dissociation when using social media.

It was found that the design of social media platforms can play a major role in encouraging or discouraging normative dissociation, depending on the goals and incentives of the designers.

Methodology

Each version of Chirp contained a combination of external or internal supports to reduce dissociation.

Over the course of four weeks, each participant would use all four versions (one each week).

Participants were surveyed at regular intervals within the app while they used it (ESM), and interviews were conducted with 11 participants after the four weeks.

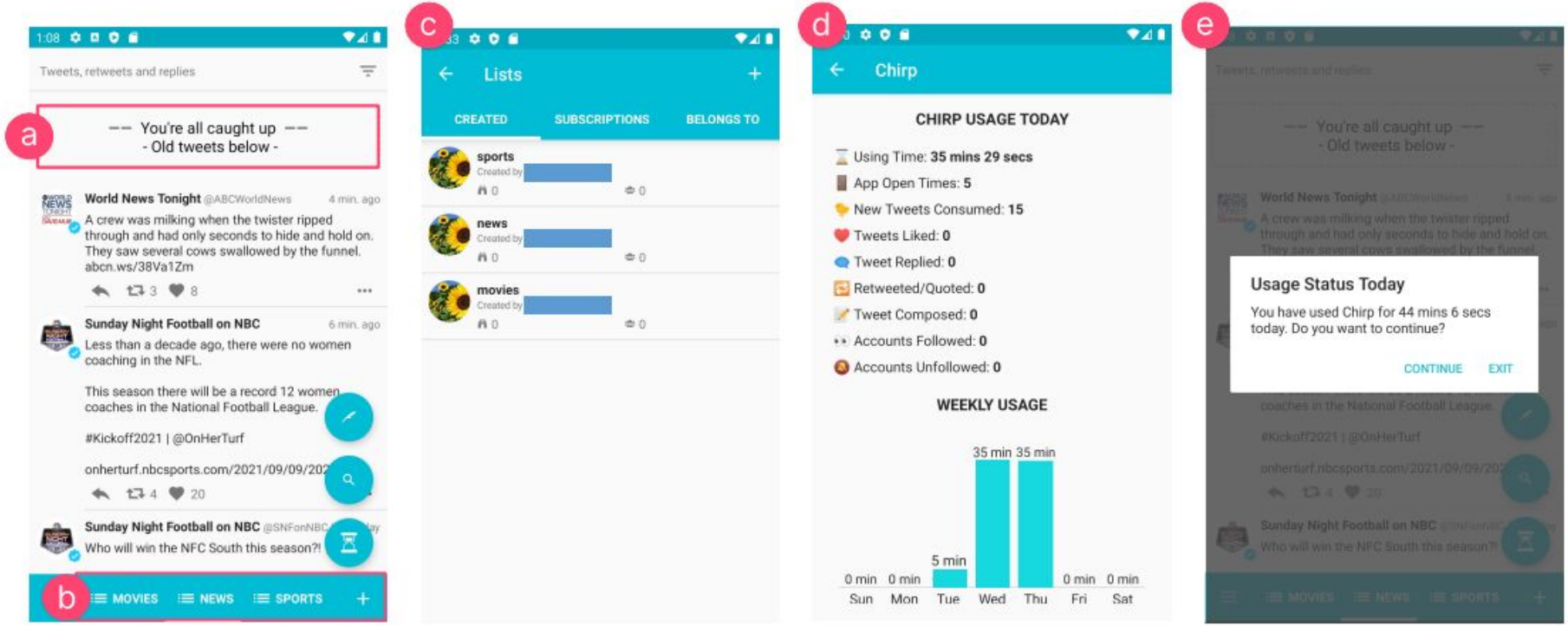

Figure: Examples of the design interventions employed in the study

Results

Does using social media lead to normative dissociation?

- Yes
- Seven of the 11 interviewees described (unknowingly) an experience of normative dissociation while using the app
- 18 of the 43 participants responded positively to an ESM question guaging normative dissociation at least once

Results

How do people feel about their experience of normative dissociation while using social media?

- Negative feelings
- A waste of time
- But also inevitable

Results

Can design interventions disrupt or reduce normative dissociation?

- Yes

	β	std. err.	t	p
(Intercept)	0.566	0.117	4.857	<0.001
Lists (categorical)	**-0.027**	**0.006**	**-4.763**	**<0.001**
Time spent reading (hours)	-0.053	0.082	-0.642	0.521

Figure: Sample statistical summary of the relationship between the intervention of lists and normative dissociation

...and here's how

Discussion

What have we learned?

Normative dissociation is a more useful descriptor of this behaviour than “internet addiction”

Design choices of social media apps and platforms can encourage or mitigate normative dissociation

Designing to reduce normative dissociation

On their own, users are seldom able to break out of normative dissociation, since this experience inherently leads to a loss of volition and self-awareness.

Design elements that encourage self-awareness and self reflection can mitigate normative dissociation. Suggestions include reducing content portion sizes and adding in-app meta commentary about usage.

Limitations

This study did not investigate the effect the type of content may have on normative dissociation.

The platform investigated, Twitter, may have unique factors that limit the application of these findings to other types of platforms.

The methodology of administering ESM questions may have affected how participants engaged with the platform.

Conclusion

Social media use fits the normative dissociation model.

Without conscious design choices, users tend to be unsatisfied as a result of their normative dissociation while using social media.

References

Amanda Baughan, Mingrui “Ray” Zhang, Raveena Rao, Kai Lukoff, Anastasia Schaadhardt, Lisa Butler, and Alexis Hiniker. 2022. “I Don’t Even Remember What I Read”: How Design Influences Dissociation on Social Media. In *CHI Conference on Human Factors in Computing Systems (CHI ’22), April 29-May 5, 2022, New Orleans, LA, USA. ACM, New York, NY, USA.* 13 pages. https://doi.org/10.1145/3491102.3501899

ending a presentation with "so uh yeah"