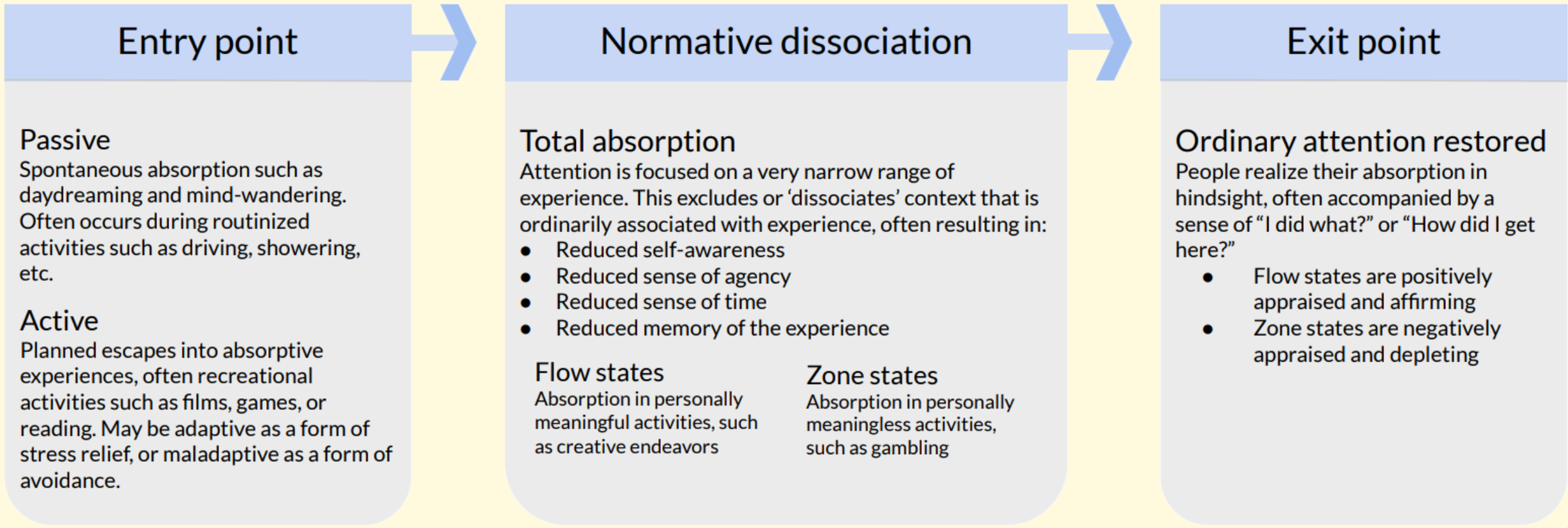# "I DON'T EVEN REMEMBER WHAT I READ" HOW DESIGN INFLUENCES NORMATIVE DISSOCIATION ON SOCIAL MEDIA

AMANDA BAUGHAN, MINGRUI "RAY" ZHANG, RAVEENA RAO, KAI LUKOFF, ANASTASIA SCHAADHARDT, LISA BUTLER, ALEXIS HINIKER
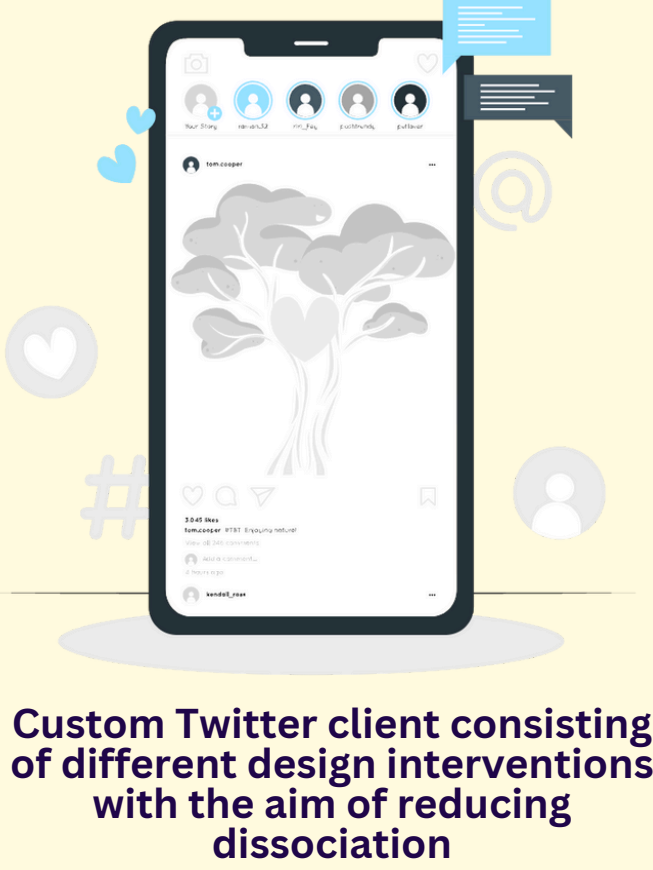
ABSTRACT

Many people have experienced mindless scrolling on social media. This phenomenon can be understood through the concept of normative dissociation, cognitive absorption marked by reduced self-awareness and agency. A study with 43 US participants who used a custom Twitter client called Chirp included both experience sampling methods and participant interviews. The results revealed that while normative dissociation sometimes provided a mental break, it often led to passive scrolling, leaving users feeling they had wasted time. Design interventions helped reduce this dissociation, suggesting that normative dissociation may be a more appropriate way to frame social media overuse rather than calling it addiction.
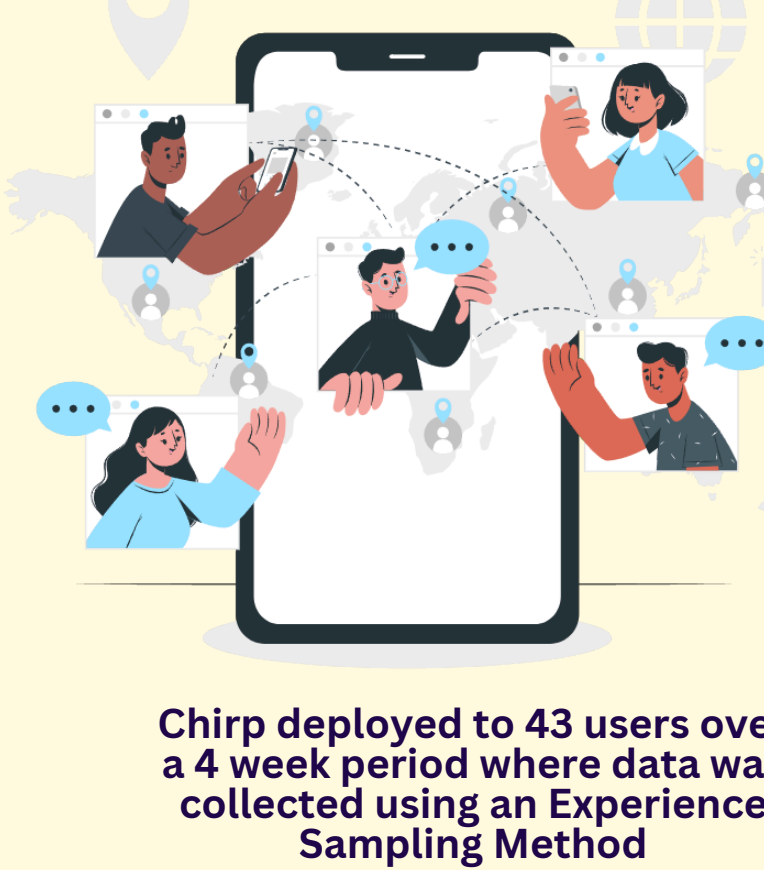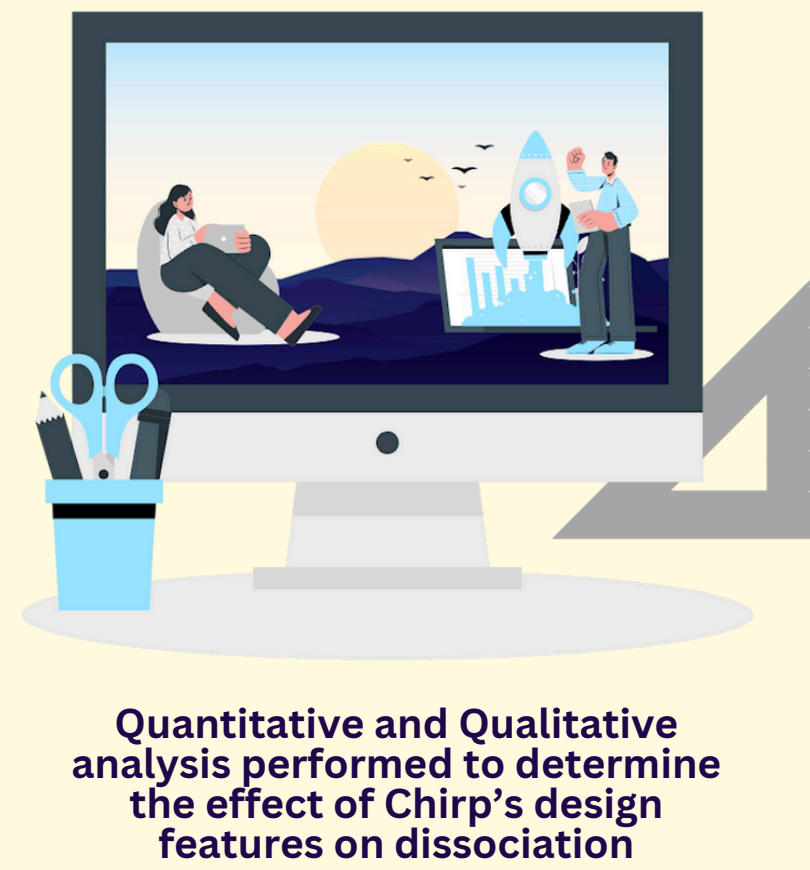
WHAT IS NORMATIVE DISSOCIATION?

Entry point → **Normative dissociation** → **Exit point**

Passive
Spontaneous absorption such as daydreaming and mind-wandering. Often occurs during routinized activities such as driving, showering, etc.

Active
Planned escapes into absorptive experiences, often recreational activities such as films, games, or reading. May be adaptive as a form of stress relief, or maladaptive as a form of avoidance.

Total absorption
Attention is focused on a very narrow range of experience. This excludes or 'dissociates' context that is ordinarily associated with experience, often resulting in:
- Reduced self-awareness
- Reduced sense of agency
- Reduced sense of time
- Reduced memory of the experience

Flow states
Absorption in personally meaningful activities, such as creative endeavors

Zone states
Absorption in personally meaningless activities, such as gambling

Ordinary attention restored
People realize their absorption in hindsight, often accompanied by a sense of "I did what?" or "How did I get here?"
- Flow states are positively appraised and affirming
- Zone states are negatively appraised and depleting

METHODOLOGY

CHIRP CLIENT

Custom Twitter client consisting of different design interventions with the aim of reducing dissociation

DEPLOYMENT

Chirp deployed to 43 users over a 4 week period where data was collected using an Experience Sampling Method

INTERVIEWS

Asked 11 interviewees if they experienced mindless scrolling or deep absorption on Chirp and other social media

DATA ANALYSIS

Quantitative and Qualitative analysis performed to determine the effect of Chirp's design features on dissociation
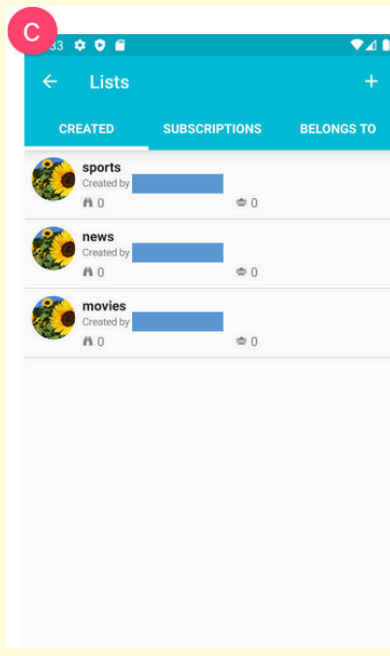
RESULTS

READING HISTORY LABELS (a) WERE ASSOCIATED WITH LESS DISSOCIATION
(β=-0.046, t=-4.158, p<0.001)
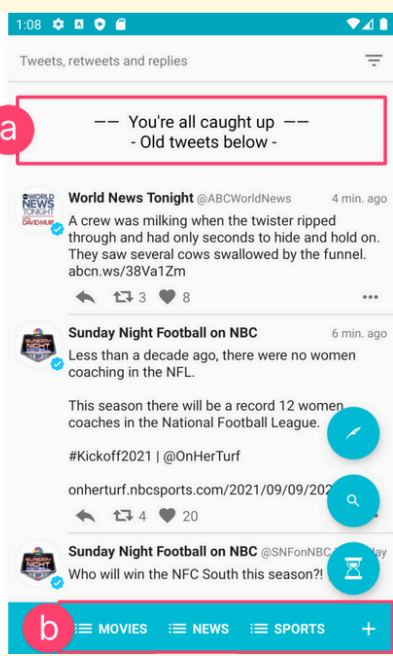
CUSTOM LISTS (b), (c) REDUCED DISSOCIATION
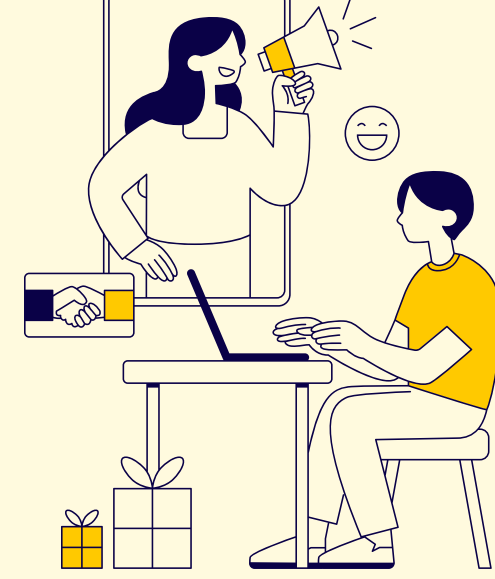(β=-0.027, t=-4.763, p<0.001)

USAGE STATISTICS PAGE (d) WAS ASSOCIATED WITH LESS DISSOCIATION
(β=-0.016, t=-2.898, p=0.004)
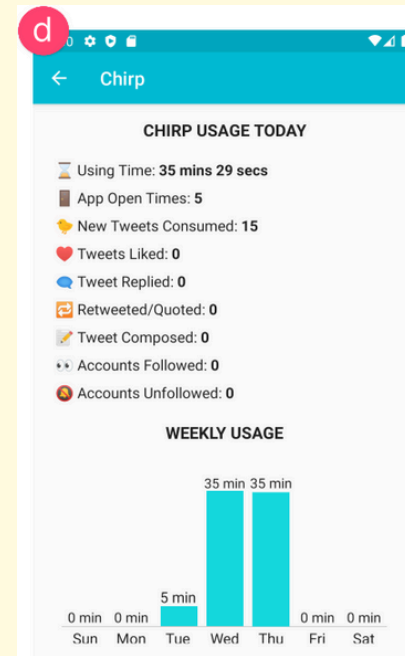
TIME LIMIT REMINDER (e) DISRUPTED BUT DID NOT REDUCE DISSOCIATION
(β=-0.172, t=2.616, p=0.009)
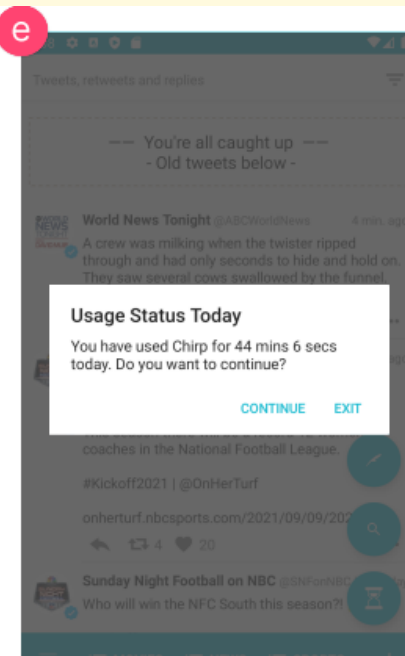
DISCUSSION

This study highlights how specific design features of social media platforms can influence dissociation both passive and active.

Features like custom lists, reading history labels and usage statistics were shown to reduce normative dissociation by helping users stay mindful of their time and engagement. However, dissociation isn't inherently negative, users sometimes seek it as a form of mental relief. The challenge lies in balancing user control and mental health with the natural appeal of immersive content. Platforms must recognize that while dissociation can be enjoyable, it can also undermine users ability to manage their time effectively

CONCLUSION

The findings demonstrate that social media design can either encourage or mitigate dissociation, depending on how features are implemented. By incorporating tools that promote awareness and limit mindless scrolling, designers can support healthier online behaviors. This research emphasizes the need for HCI designers to create platforms that balance engagement with user well-being, allowing for both enjoyable and mindful social media experiences.
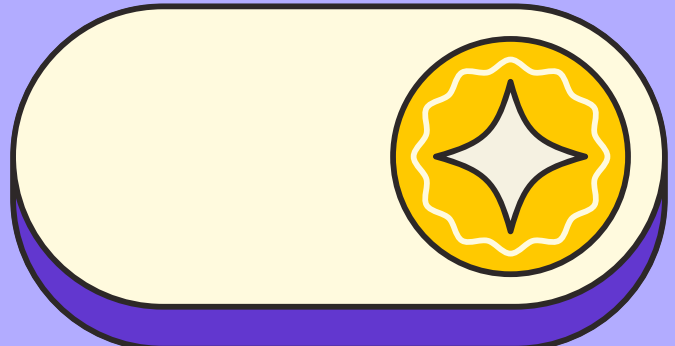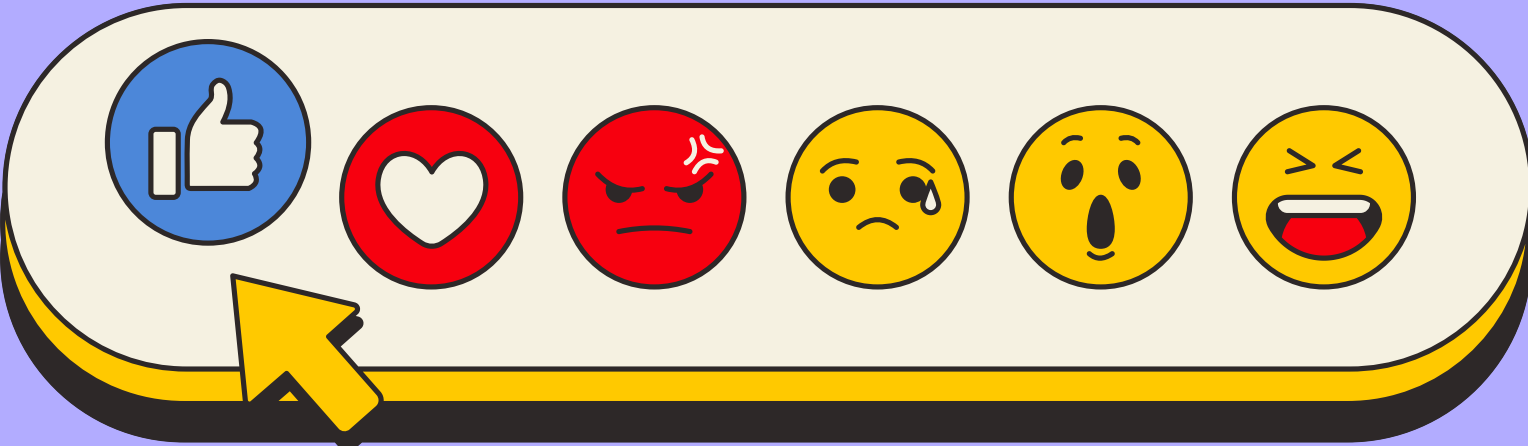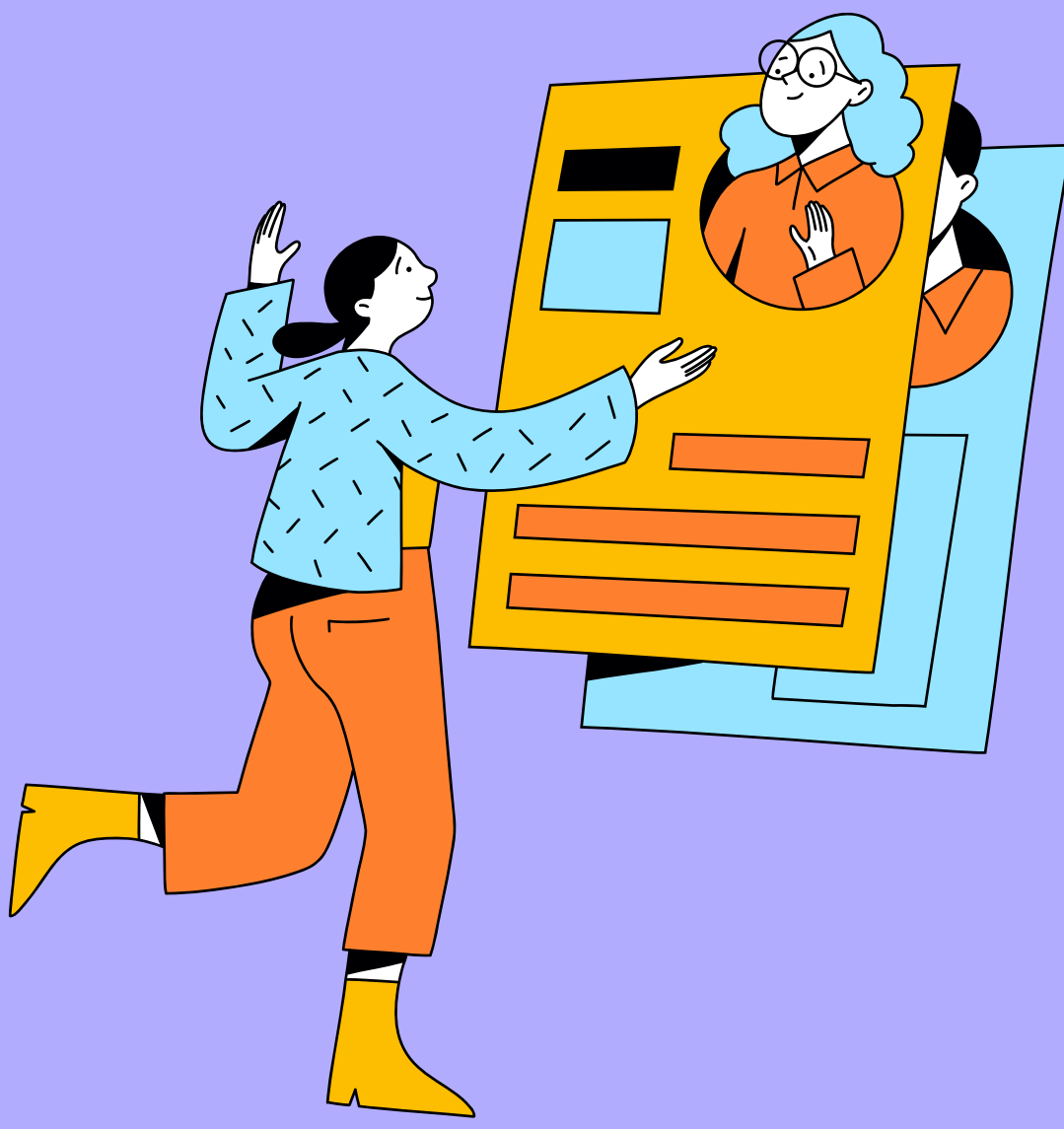
A11yBoard:
Making Digital Artboards Accessible to Blind and Low-Vision Users

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2023 CHI Conference on Human Factors in Computing Systems

Background

Blind and low-vision (BLV) users face significant challenges when navigating 2D content. They experience a high cognitive load, struggle to understand object relationships, and often face uncertainty regarding task success. These challenges stem from the limitations of conventional screen readers, which are designed for linear, one-dimensional text streams. In contrast, digital artboards like Microsoft PowerPoint and Google Slides present rich, inherently two-dimensional spaces.

Objective

To develop a multimodal system for interpreting and manipulating digital artboards. The main goal is to empower BLV users to actively create content rather than solely consume it.

Design

Consists of a web-based artboard, built on an open-source drawing tool called DrawerJS, displayed on a desktop or laptop, with a mobile touch screen for interaction and a keyboard for input commands (see figure 1).
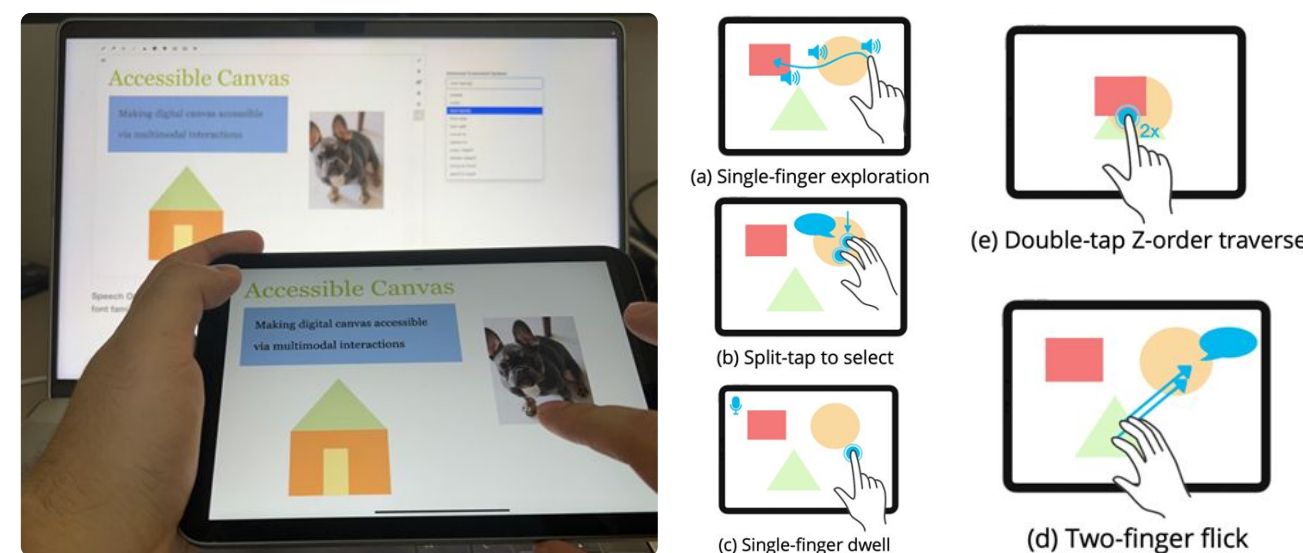

Figure 1: Multimodal, Multi-Device Design and Gesture-Based Interaction Overview of A11yBoard

(a) Single-finger exploration
(b) Split-tap to select
(c) Single-finger dwell
(d) Two-finger flick
(e) Double-tap Z-order traverse

Key Features

1. Touch and gesture for risk-free exploration.
2. Audio and speech commands for access and modification.
3. Intelligent keyboard search for complex commands.

Methodology

Approach
User-centered design, refined through pilot studies and formal usability evaluations.
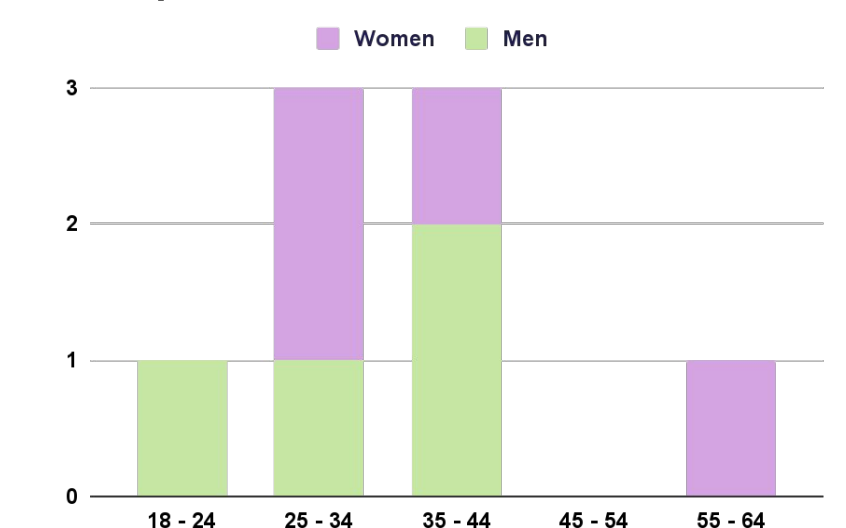
Data Collection
Usability testing to assess impact on artboard interpretation and generation.

Participants
8 total (7 blind, 1 low-vision), ages 18-64, equal gender distribution (see figure 2).

Figure 2: Age and Gender Distribution of Participants

Results

Interpretive Tasks

100% of interpretive tasks were at least partially successful, with 88.7% fully completed without hints (see figure 3).

Participants reported relatively low perceived workload and effort.

Participants experienced minimal frustration and low mental, physical, and temporal demands, all contributing to high task performance (see figure 4).

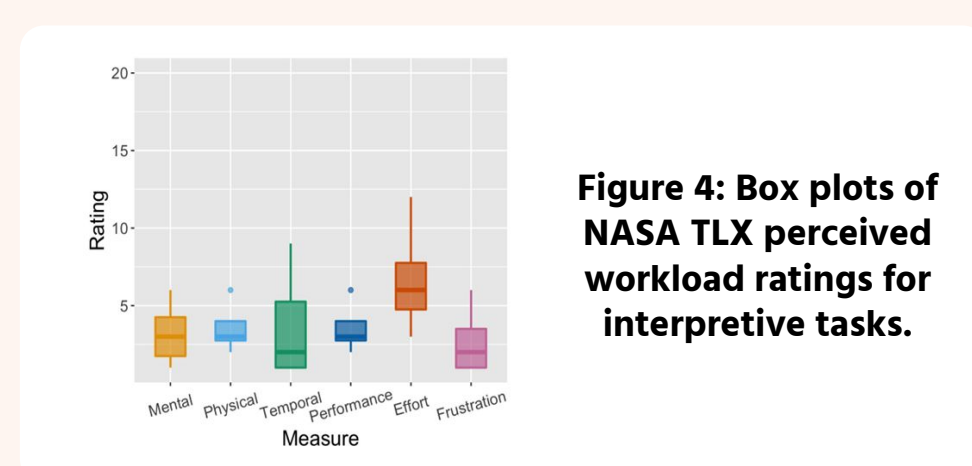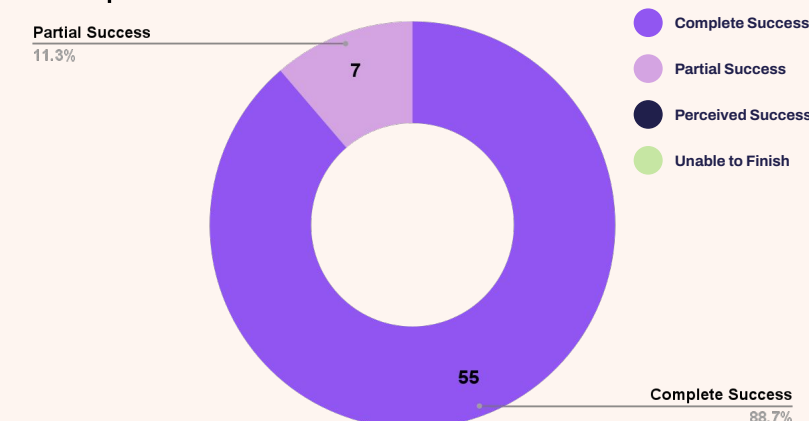Figure 3: Interpretive Task Completion Outcomes for BLV Participants

Partial Success 11.3% — 7
Complete Success 88.7% — 55

Complete Success / Partial Success / Perceived Success / Unable to Finish

Figure 4: Box plots of NASA TLX perceived workload ratings for interpretive tasks.

Generative Tasks

96% of generative tasks were at least partially successful, with 87.8% fully completed without hints (see figure 5).

Participants reported relatively low perceived workload and effort.

Participants experienced minimal frustration, low mental and physical demand, and relatively low temporal demand, leading to high task performance (see figure 6).

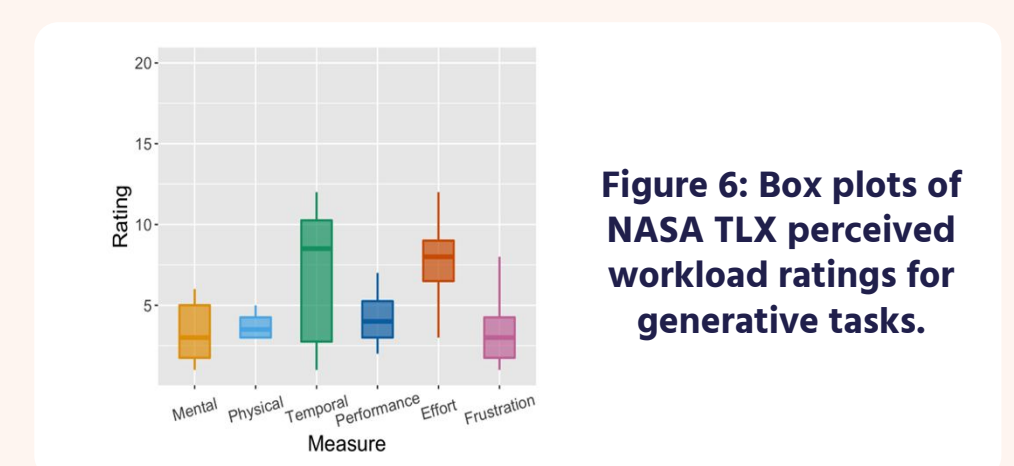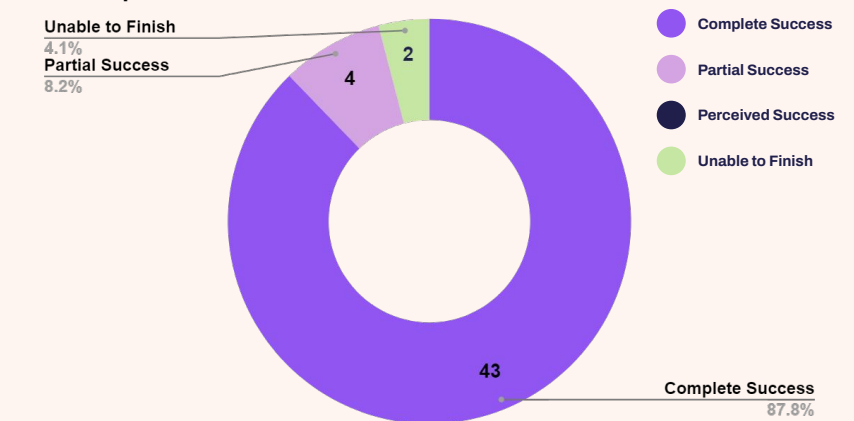Figure 5: Generative Task Completion Outcomes for BLV Participants

Unable to Finish 4.1% — 2
Partial Success 8.2% — 4
Complete Success 87.8% — 43

Complete Success / Partial Success / Perceived Success / Unable to Finish

Figure 6: Box plots of NASA TLX perceived workload ratings for generative tasks.

Discussion

Key Outcomes
- Intuitive Spatial Reasoning
- Eyes-Free Creation
- Multimodal Access

Significance
A11yBoard bridges critical gaps in visual content creation for BLV users and sets the stage for integrating accessibility into mainstream artboard tools like PowerPoint and Google Slides.

Limitations
The study involved a *small participant pool*, limiting the diversity of feedback and potential generalizability of results.

A11yBoard has a *limited toolset* compared to mature platforms like PowerPoint, offering a narrow range of shapes, text styles, and keystroke support.

The *controlled study environment* limits the ability to fully replicate the complexity of real-world creative tasks, reducing the generalizability of the results.

Conclusion

A11yBoard significantly improves accessibility for BLV users by leveraging multimodal interactions (touch, audio, speech). This study is a vital step forward in HCI for inclusivity and accessibility.

Links

- Research Article
- Full Publication PDF
- Research Presentation Video

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CHEAT CODES AS EXTERNAL SUPPORT FOR PLAYERS NAVIGATING FEAR OF FAILURE AND SELF-REGULATION CHALLENGES IN DIGITAL GAMES

Sameer Ali

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All of these authors have research backgrounds in Human-Computer Interaction (HCI), specifically in gaming, player experience, and emotional self-regulation in stressful situations.

01 ABSTRACT

- The paper investigates how cheat codes can act as external support for players, particularly those who struggle with emotional self-regulation in digital games.
- The study focuses on differences between state-oriented players, who tend to have difficulty managing stress and failure, and action-oriented players, who are better at handling these challenges.
- The researchers aimed to understand how cheat codes might alleviate pressure for state-oriented players without negatively impacting their gaming experience.

02 METHODOLOGY

- The study involved 88 novice players who participated in a lab experiment using the game Anno 1404, a city-management game designed to present challenging situations.
- Participants were randomly assigned to either a high-risk condition, where they faced possible financial failure, or a stable condition, where they had more resources and less risk.
- During gameplay, participants were given the option to use a money-generating cheat code to ease their financial troubles, and the researchers collected data on cheat usage, self-regulation, and player experience.

03 RESULTS

- The results showed that state-oriented players were significantly more likely to use the cheat code compared to action-oriented players, using it as a way to cope with in-game stress.
- For players who used the cheat code, their experience of in-game pressure was greatly reduced, helping them manage stress more effectively without any negative impact on their motivation or enjoyment of the game.
- Interestingly, the study found no detrimental effects on performance or player engagement among those who used cheat codes, highlighting that external support mechanisms like these can enhance, rather than detract from, the player experience.

04 DISCUSSION

- These findings suggest that cheat codes or similar support features can play a valuable role in helping certain players navigate stress in single-player games.
- By challenging the traditional view that cheats are harmful, the study shows that for state-oriented players, cheat codes can actually improve emotional regulation and overall game enjoyment.
- This repositions cheat codes as a potential tool in game design to better accommodate players with varying emotional and self-regulation needs.

	Used Cheat					Did Not Use Cheat				
	N	Min	Max	Mean	SD	N	Min	Max	Mean	SD
IMI: Pressure	55	1.20	3.80	2.52	0.68	32	1.20	4.40	2.59	0.91
IMI: Enjoyment	55	1.00	4.43	2.29	0.82	32	1.29	4.43	2.93	0.98
IMI: Competence	55	1.00	3.50	2.32	0.62	32	1.00	3.83	2.35	0.71
PENS: Competence	55	1.00	3.67	2.01	0.85	32	1.00	3.67	2.00	0.83
PENS: Autonomy	55	1.00	4.67	2.81	1.03	32	1.00	4.33	2.88	1.08
PENS: Intuitive Control	55	1.00	4.67	2.63	0.97	32	1.00	5.00	2.90	1.10
PENS: Presence	55	1.00	3.67	2.17	0.79	32	1.00	3.56	2.17	0.81
Flow: Fluency	55	1.00	5.33	2.86	1.22	32	1.00	6.17	3.13	1.44
Flow: Absorption	55	1.00	6.75	3.74	1.58	32	1.00	6.75	3.58	1.75
Action-State Orientation	55	0	12	3.85	3.00	32	0	12	5.28	3.22
Performance before cheat	55	-643	-158	-482	111	32	-584	14	-475	139
Performance at game end	55	-1230	246	-393	275	32	-1027	742	-276	331

Table 1: Descriptive statistics split by whether or not participants used the cheat codes. Range of possible values: intrinsic motivation inventory (IMI) and player experience needs satisfaction (PENS): 1—5, fow: 1—7, action-state orientation: 0—12.Higher values indicate more of the construct (e.g., more absorption) and higher values for action-state orientation indicate greater action orientation.
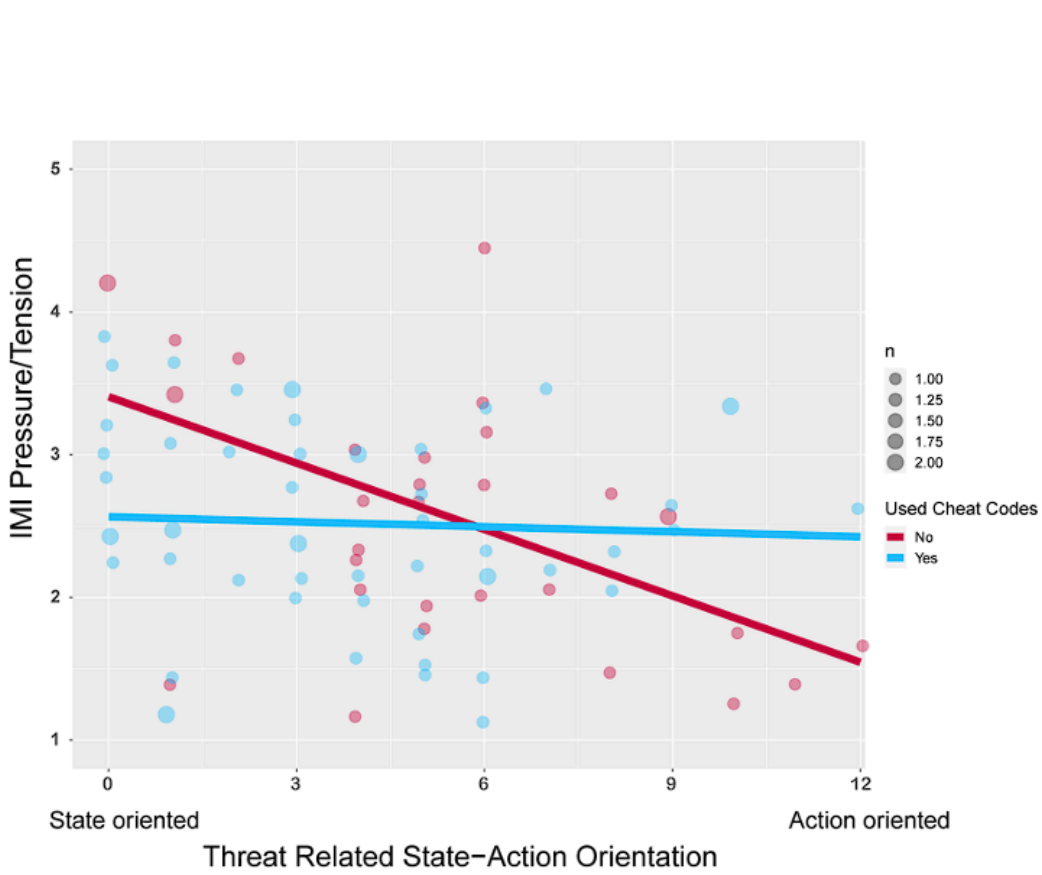

Figure 1: Efects of action-state orientation on IMI Pressure/Tension with colour indicating those who used the cheat code (blue) and those who did not (red). The size of the circle in the scatter plot indicates the frequency of the answer and coloured based on whether they used cheat codes. Using the external prompt (cheat code) mitigated the efect of threat-related state-action orientation on experienced pressure. The orientation is expressed on the X-axis ranging from 0 (= mainly state-oriented) up to 12 (=mainly action-oriented). The colored lines in the scatter plot visualize the overall trend for both conditions (Did not use cheat = red; Used cheat = blue).

05 CONCLUSION

- The data also revealed that using cheat codes did not lower the intrinsic motivation or performance of players. Cheat users reported similar levels of game satisfaction and competence as those who did not use cheats.
- The absence of negative consequences for cheat usage suggests that game designers could incorporate external support mechanisms without fearing a reduction in gameplay quality.
- For players who typically struggle with self-regulation, cheats could provide a means to stay engaged and enjoy challenging games without the frustration that often leads to quitting.

06 KEY TAKEAWAYS

- Cheat codes can act as an effective tool for players struggling with self-regulation, helping them manage in-game pressure without negative effects on performance or enjoyment.
- Game designers should consider incorporating external support mechanisms for players with different emotional needs, creating more inclusive gaming experiences.
- This research challenges the traditional view that cheat codes are harmful, demonstrating that for certain players, they can enhance the gaming experience.
- Future research could explore how these findings apply to other game genres and more experienced players, broadening the understanding of how to support diverse player types.

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