

The Digital Attention Heuristics

Supporting the User's Attention By Design

Alberto Monge Roffarello, Luigi De Russis, Kai Lukoff



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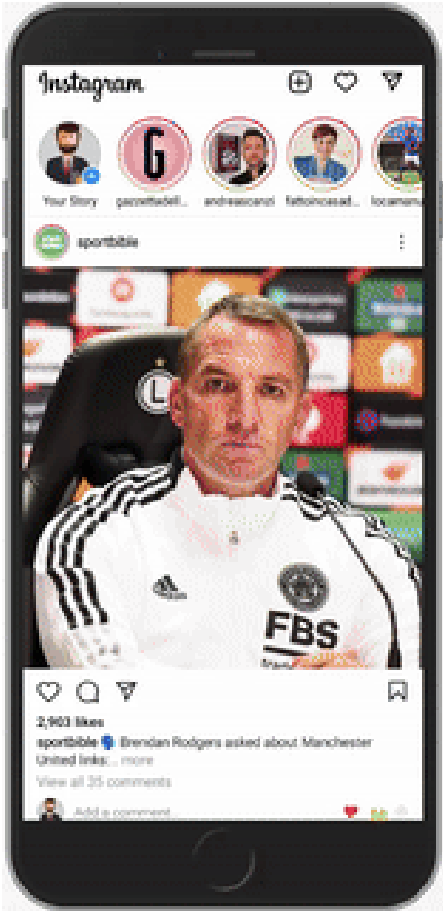


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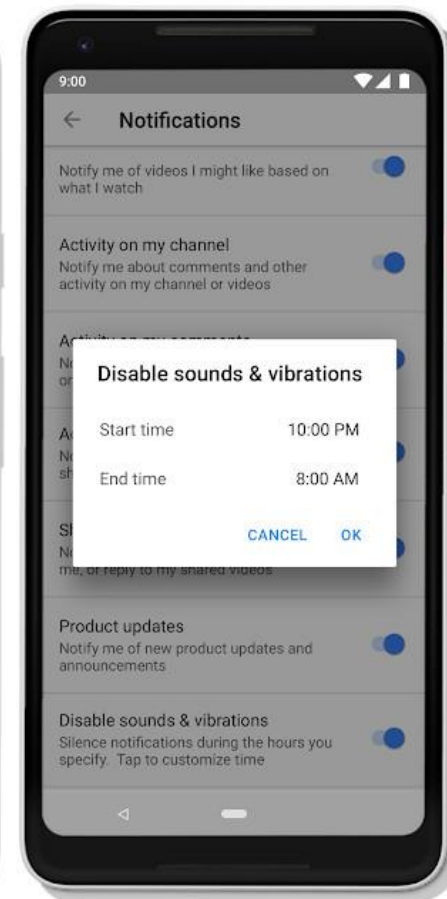
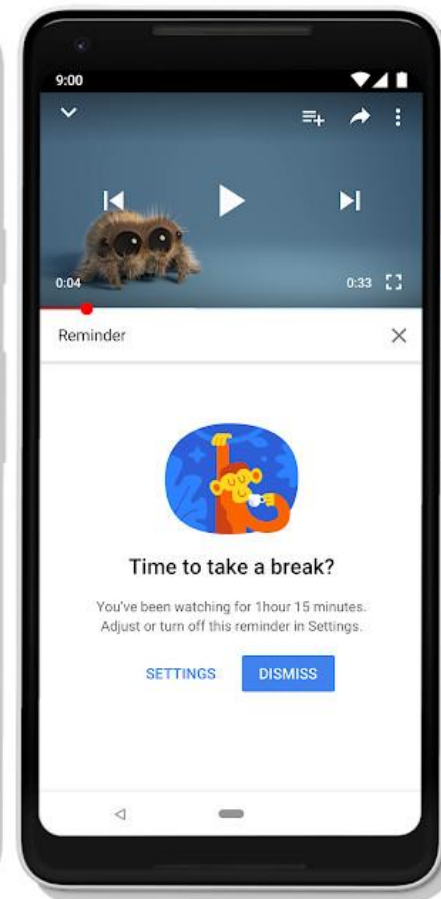
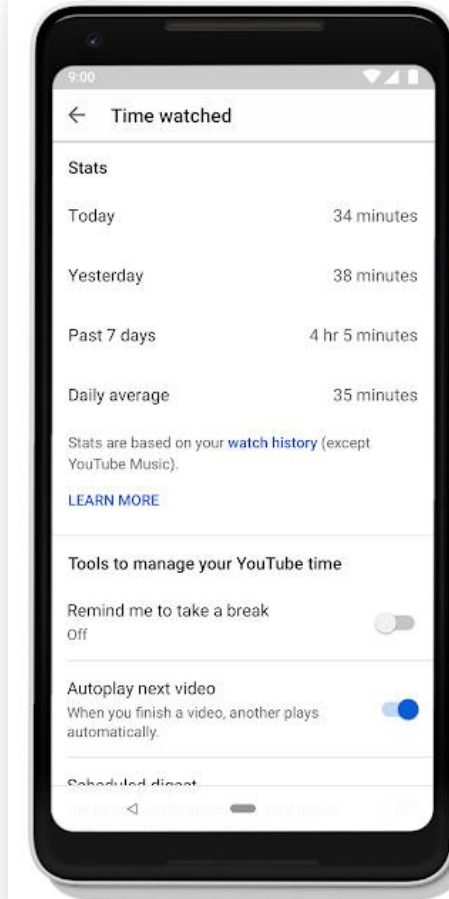
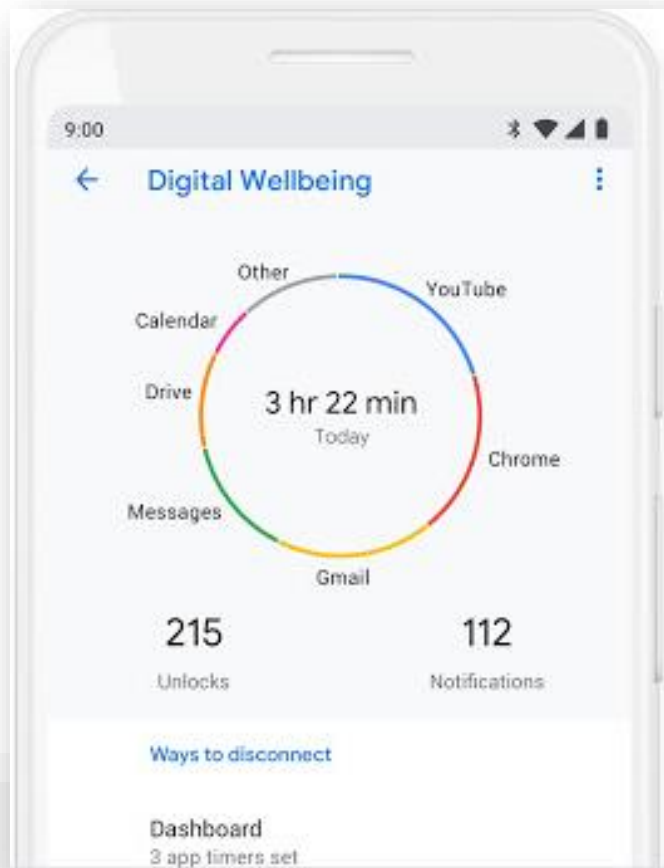




Attention-Capture Design Patterns



The Current Approach: Digital Self-Control



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Screen Time Focus

Primarily focus on reducing time, not improving quality of use



High Attrition

Users stop using them over time — not effective long term



External Nature

Cannot change the problematic patterns inside apps

Is the user really **solely responsible** for their own digital wellbeing?

The Current Approach: Digital Self-Control

Is the user the sole responsible for their own digital wellbeing?

**Using tech to
limit tech?**



**Design attention-
respecting tech!**

Our Approach

Eight reusable design heuristics grounded in Self-Determination Theory



Systematic Lit. Review

55 papers from
ACM Guide (2000–2023)
PRISMA guidelines



Self-Determination Theory

Autonomy
Competence
Relatedness



Practical Strategies

18 strategies with
real-world examples
from existing services

The 8 Digital Attention Heuristics

AUTONOMY

- H1** Promote user sense of agency
- H2** Informed usage sessions
- H3** Balance goal-directed & ritualistic uses
- H4** Customization

COMPETENCE

- H5** Align usage with user & context needs
- H6** Inform about digital wellbeing

RELATEDNESS

- H7** Meaningful connections
- H8** Support real-world connections

H1 Promote User Sense of Agency

N = 26 papers

S1: Self-regulation tools

Timers, dashboards, lock-out mechanisms integrated into apps — not as separate tools

S2: Positive friction

Nudges and micro-frictions that promote conscious choice: 'Are you still watching?' confirmation dialogues, guiding questions before posting

Example: Netflix's confirmation dialogue after 3 episodes or 90 min counters binge-watching

H2 Informed Usage Sessions

N = 13 papers

S1: Preview consequences

Show estimated time, reading progress, content previews before engagement

S2: Transparent ads

Ads clearly distinguishable from content, easy-to-find ad controls

S3: Easy exit

Simple log out, unsubscribe, and account deletion — counter 'Roach Motel' patterns

Example: Medium's read-time estimates guide informed sessions

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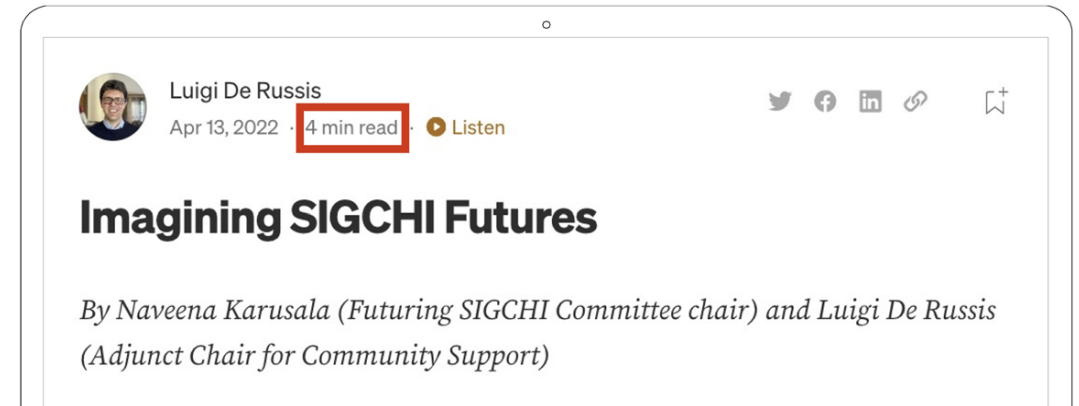
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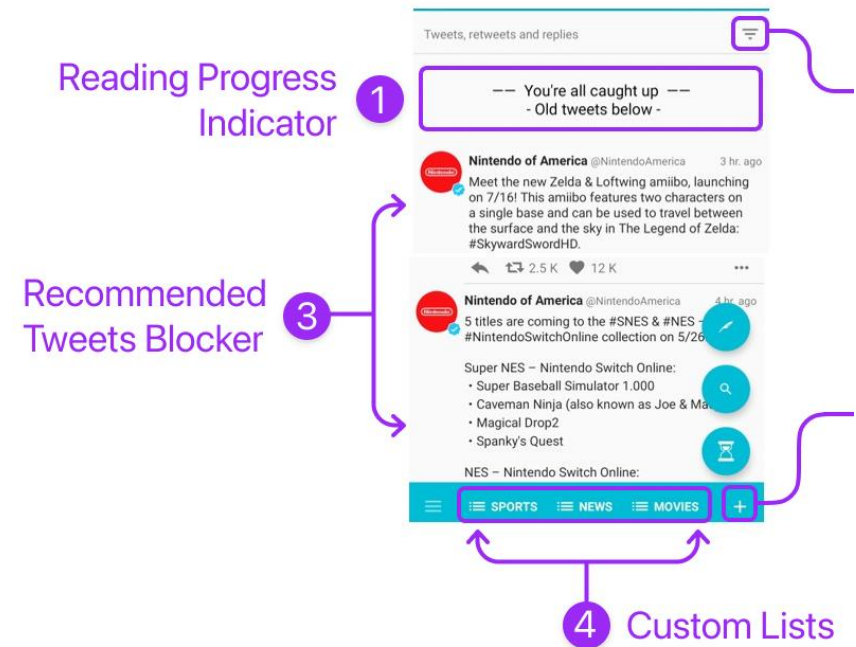
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H2 Informed Usage Sessions

N = 13 papers



Zhang et al., *Monitoring Screen Time or Redesigning It?*, CHI 2022

Example: Chirp Twitter Client

H3 Balance Goal-Directed & Ritualistic Uses

N = 23 papers

S1: Simplify & organize

Reduce variable rewards; minimize ACDPs like infinite scroll and autoplay; isolate content in tabs

S2: Lightweight planning

Help users form intentions before sessions — playlists, prompts, reflection tools

S3: Connect to life goals

Usage that persists beyond the session — learning, creating, growing

Example: *Pixelfed* — ads-free, chronological feed; X's 'Following' tab isolates friends' content

H4 Customization

N = 16 papers

S1: Personalize or disable

Let users toggle off distracting features: autoplay sliders, pull-to-refresh, slow mode for feeds

S2: Feedback on ACDPs

Tools for users to flag attention-capture strategies; explicit rating of recommendations

Example: *SwitchTube* — Explore vs Focus Mode for YouTube. Mastodon's 'Slow Mode' hides feed updates behind a click

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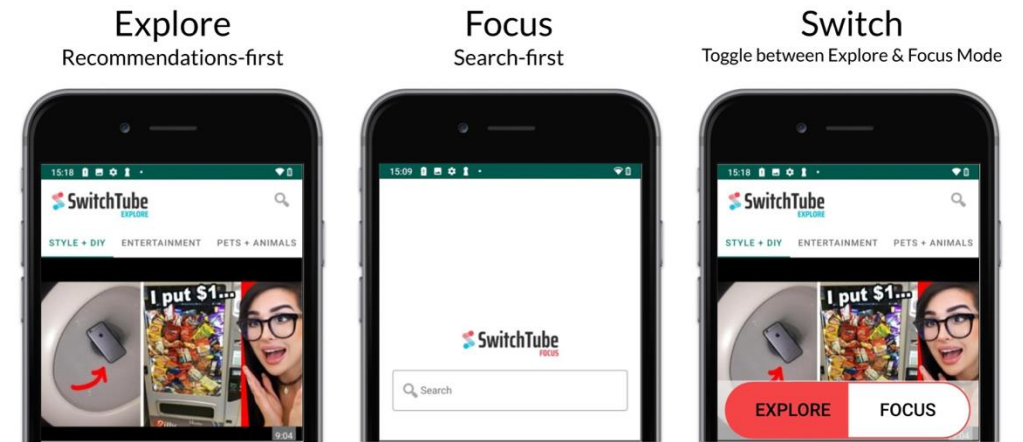
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Lukoff et al., *SwitchTube: A Proof-of-Concept System Introducing "Adaptable Commitment Interfaces" as a Tool for Digital Wellbeing*, CHI 2023

Example: *SwitchTube* — Explore vs Focus Mode for YouTube. Mastodon's 'Slow Mode' hides feed updates behind a click

H5 Align Usage with User & Context Needs

N = 16 papers

S1: Adapt for users

Different settings for teens vs. adults; context-aware notifications; reduce rewards for vulnerable users

S2: Adaptive control levels

Automatically switch between high/low-control modes based on predicted user intent

Example: *YouTube Kids adapts for age; TikTok's new family features for teens*

H6 Inform About Digital Wellbeing

N = 12 papers

S1: Proactive improvement

Encourage moving on when goals are met; redirect to alternative activities; personalized wellbeing advice

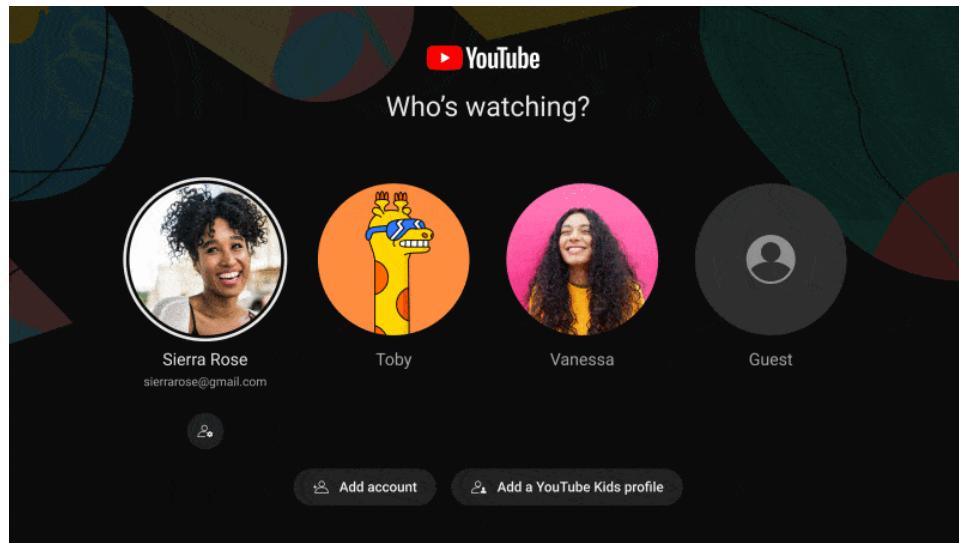
S2: Constructive feedback

Positive, non-evaluative feedback on progress; weekly usage reports; granular and sustained feedback

Example: *Gmail's 'You've finished!' zero-inbox message; Apple Screen Time weekly reports*

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H7 Meaningful Connections

N = 11 papers

S1: Prioritize close ties

Give more weight to posts from friends and family over strangers, brands, celebrities. Chronological feeds, opt-in newsfeeds

S2: Reduce social comparison

Let users hide likes/follower counts; opt-in newsfeeds that start empty

Example: Instagram & Mastodon allow hiding likes. Chirp prioritizes close contacts

H8 Support Real-World Connections

N = 13 papers

S1: Facilitate transitions

Help users transition from digital to physical interactions; suggest offline alternatives; promote social awareness of device usage

S2: Enhance co-located interaction

Technology that enriches face-to-face moments rather than replacing them

Example: WHISPER — an audio box that detects conversational lulls and suggests topics to restart face-to-face dialogue

RELATEDNESS

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Genç et al., *Mind the Whisper: Enriching Collocated Social Interactions in Public Places through Audio Narratives*, DIS 2022

Example: WHISPER — an audio box that detects conversational lulls and suggests topics to restart face-to-face dialogue

Pathways for Impact

Designers

Heuristic evaluations, early-stage integration

End Users

Technology that respects attention → reduced need for DSCTs

Regulators

Bridge the gap: EU DSA Article 25 already bans manipulative design

Society

Post-growth HCI: conscious use = less energy, more sustainability

Pathways for Impact

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Digital Attention Heuristics Evaluator

Evaluate any digital interface against 8 research-backed heuristics for respecting user attention and supporting digital wellbeing.

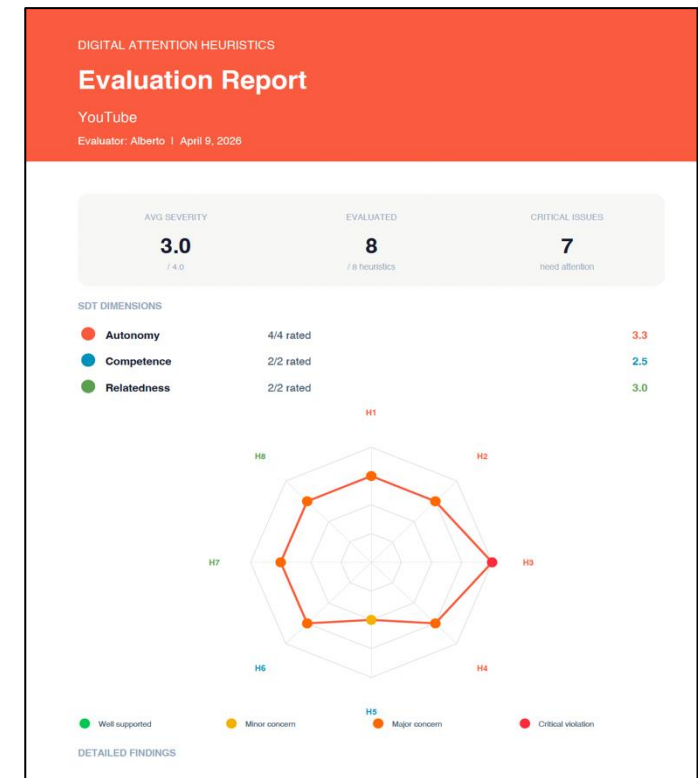
Autonomy Competence Relatedness

INTERFACE / APP BEING EVALUATED
e.g., Instagram, TikTok, YouTube...

EVALUATOR NAME (OPTIONAL)
Your name

Start Evaluation →

Based on Mungo Roffredo et al. — "The Digital Attention Heuristics: Supporting the User's Attention by Design" (ACM TOCHI 2025)



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Digital wellbeing should be a design responsibility, not just a user responsibility:
What if platforms had to **optimize for wellbeing** instead of attention?



Scan to try the evaluator

lys.polito.it/digital-attention-heuristics