Strategies for Digital Wellbeing

Shifting the Paradigm

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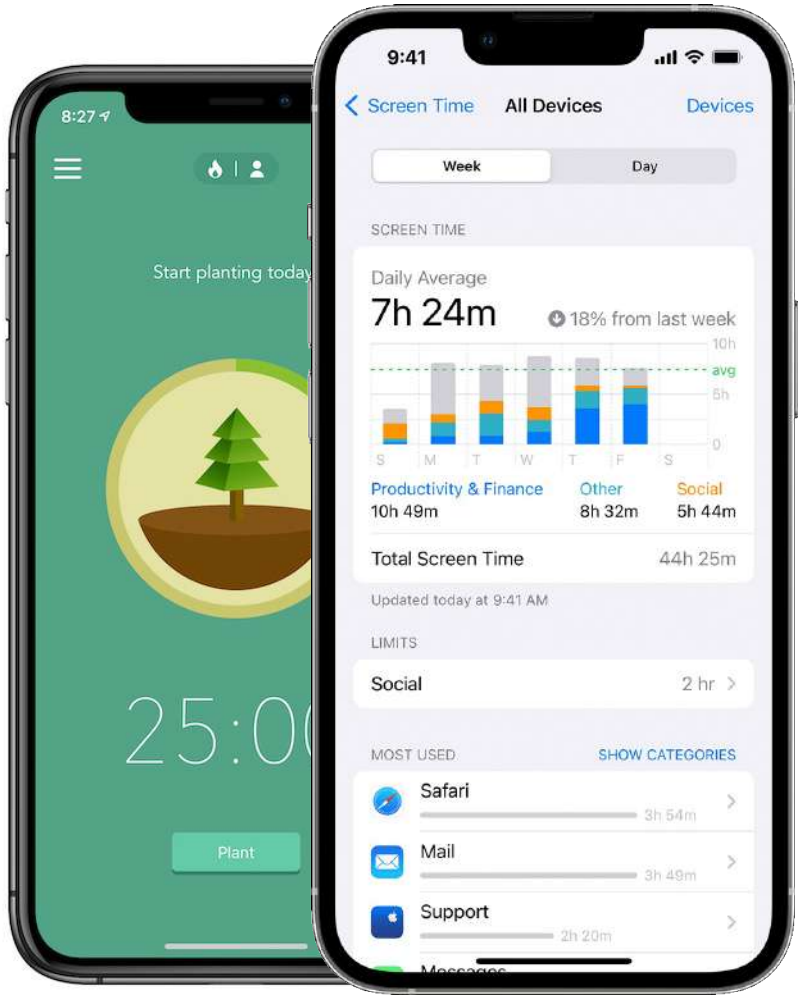
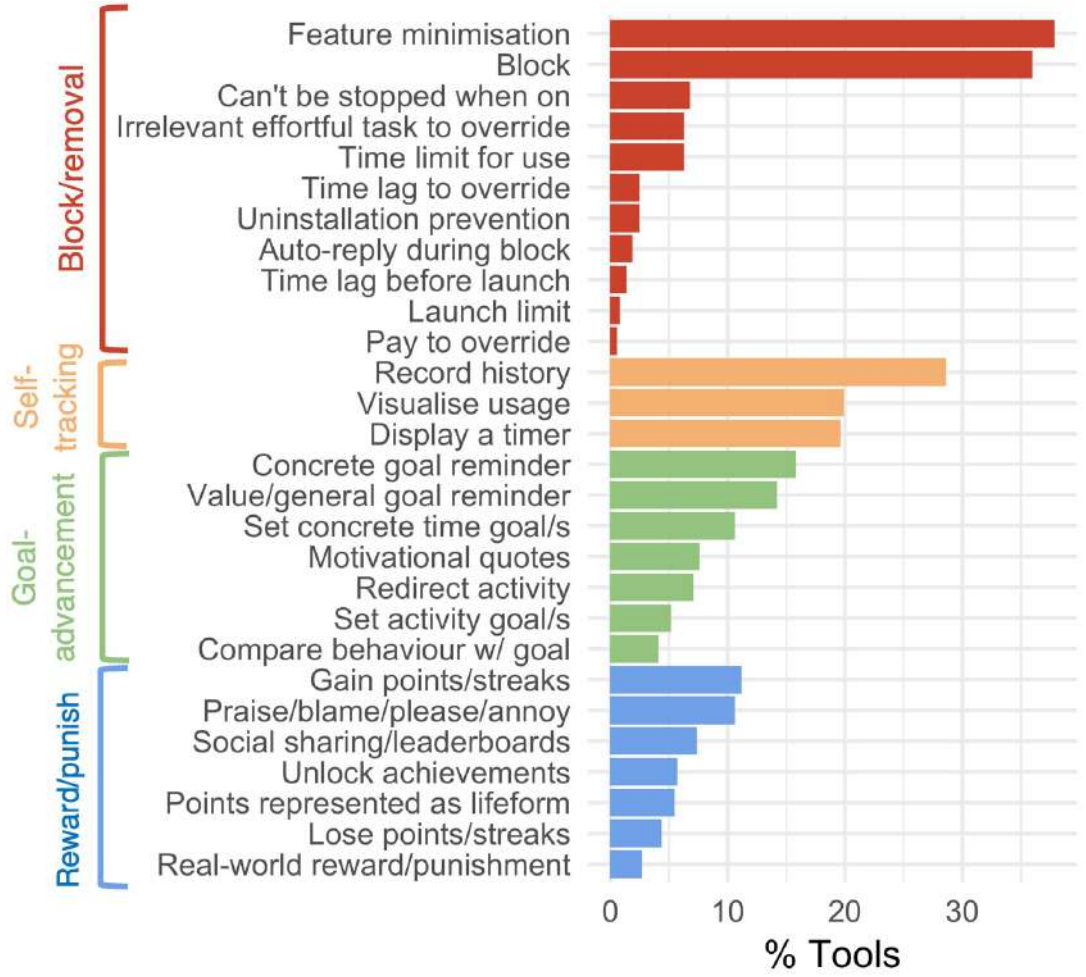
e-Lite

Outline

- The Leverage Points Framework
- Guidelines for Digital Wellbeing

Promoting Digital Wellbeing: the DSCT Approach



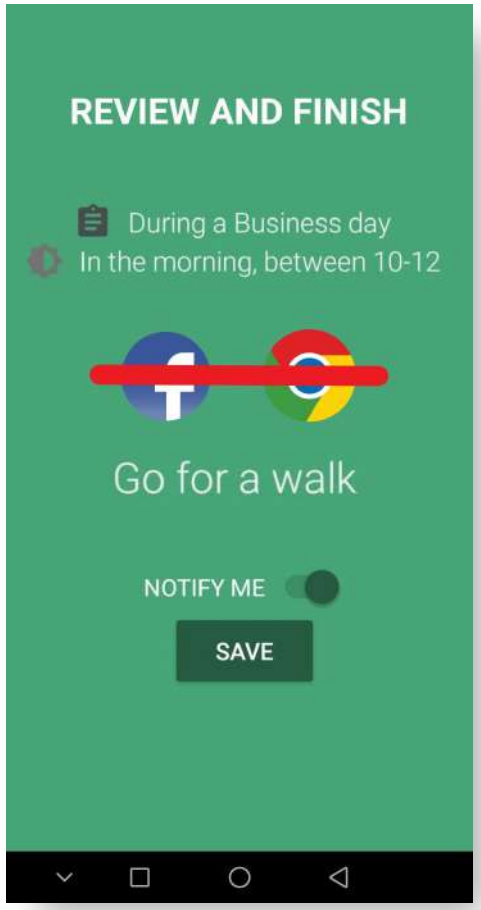


Lyngs et al., *Self-Control in Cyberspace: Applying Dual Systems Theory to a Review of Digital Self-Control Tools*, CHI 2019, https://arxiv.org/abs/1902.00157

Known Gaps in Contemporary DSCTs

1. **self-monitoring nature:** through contemporary DSCTs, people need to figure out for themselves the causes of their problems and possible solutions;
2. **short-term effectiveness:** contemporary DSCTs are not effective in the long term, as they do not promote the formation of new habits;
3. **focus on (single-device) screen-time:** is reducing screen time the right way to support people's digital wellbeing?
4. **theoretical gap:** DSCTs and the digital wellbeing research area are not sufficiently grounded in HCI and behavioral theories.

Known Gaps in Contemporary DSCTs



Having "smarter" and more proactive DSCTs does not resolve the **underlying contradictions** of these tools.

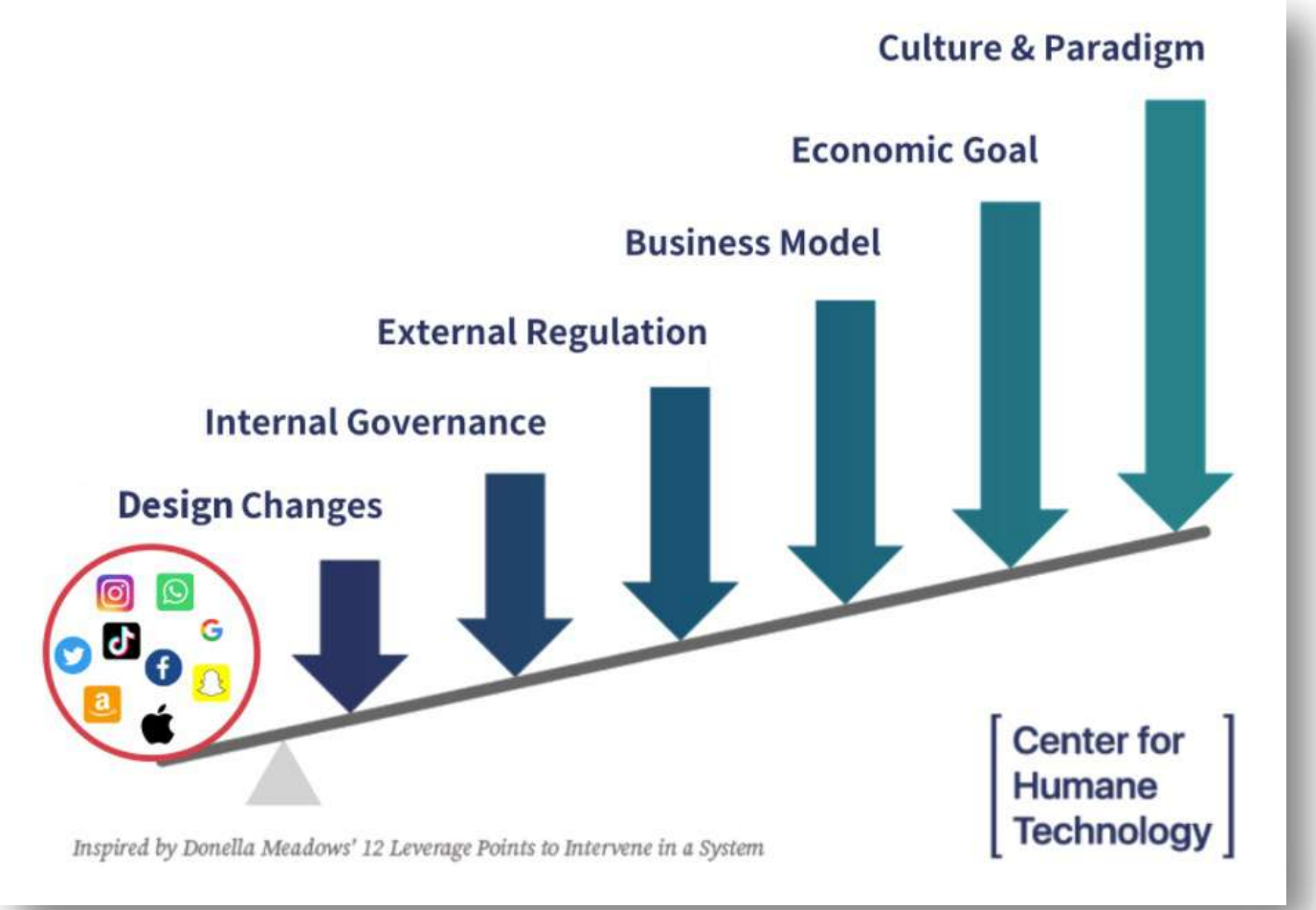
Going Beyond DSCTs

- A more radical change (business model, regulations and policies, ...) would undoubtedly offer benefits to users:
  - while technology companies are often blamed for not doing enough against problems such as violence and radicalization on social networks, achieving digital wellbeing has traditionally been seen as a responsibility that belongs to the user alone;
  - **promoting digital wellbeing is a responsibility of tech companies, too!**

Going Beyond DSCTs

- For example, a business model that focuses on the user's digital well-being (rather than attention):
  - may initially result in **lower user engagement and profitability** in the short term
  - it could increase **user loyalty** in the long term.

The Leverage Point Framework

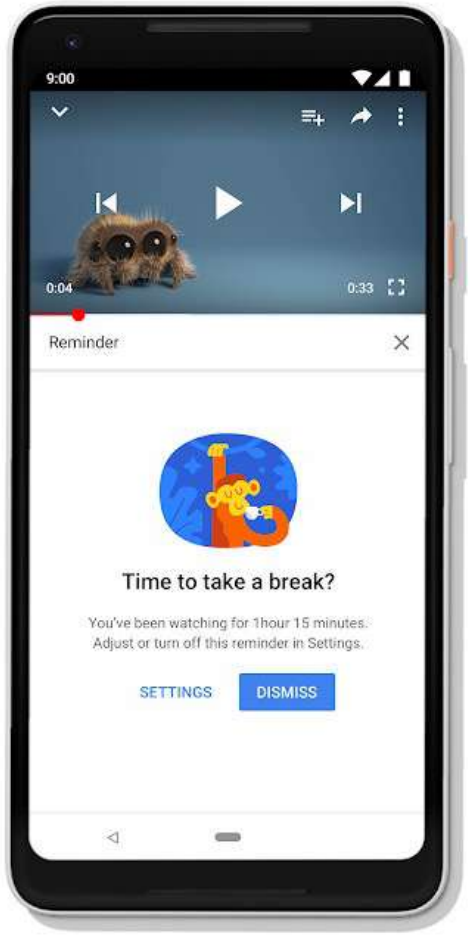


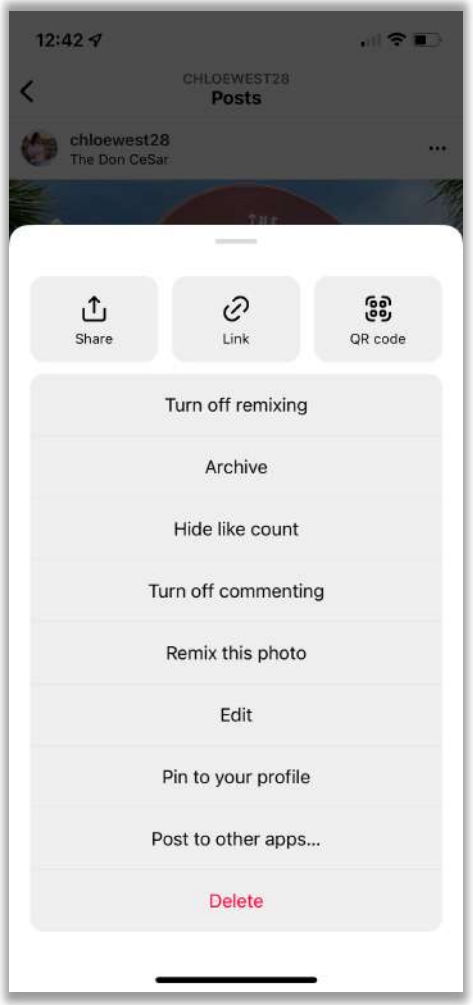
- How might we change the complex system surrounding addictive technology?
  - The **Leverage Points Framework** is a model for interveening in the tech ecosystem at different levels.
  - Change may happen at multiple **levels** with different degrees of **impact.**

Leverage points (LP) for intervening in the extractive tech ecosystem. https://www.humanetech.com/

The Leverage Point Framework: Design Changes

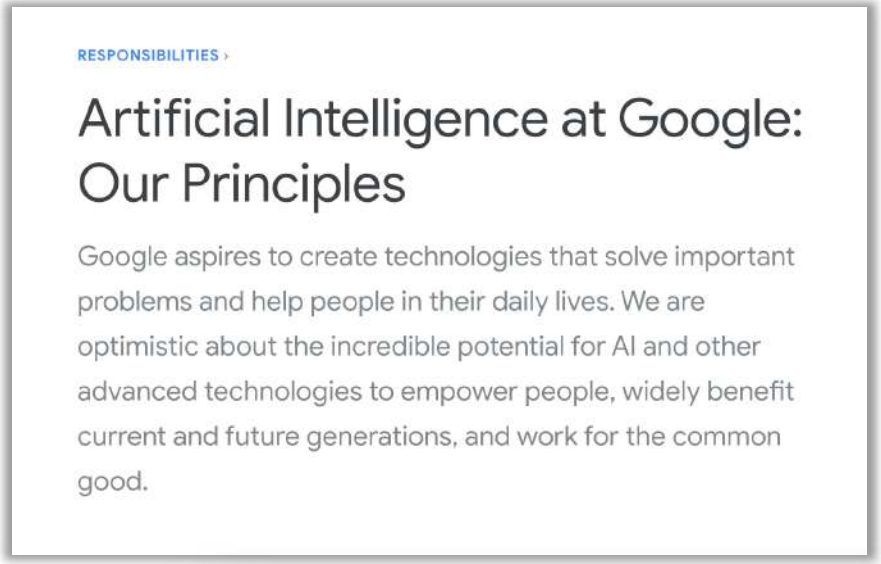
- Adjustments that technology companies themselves make in the visual design and user experience of their platforms:
  - they can have **material impact;**
  - they do not address **root-cause issues.**





The Leverage Point Framework: Internal Governance

- Implemented by decision-makers within platforms to shift how internal systems and structure operate. Examples:
  - creating **boards** to supervise the safety of desing features;
  - changing **employee bonuses** to reward actions that increase peolple's digital wellbeing.



RESPONSIBILITIES ›

Artificial Intelligence at Google: Our Principles

Google aspires to create technologies that solve important problems and help people in their daily lives. We are optimistic about the incredible potential for AI and other advanced technologies to empower people, widely benefit current and future generations, and work for the common good.

TECHNOLOGY

Google hired Timnit Gebru to be an outspoken critic of unethical AI. Then she was fired for it.

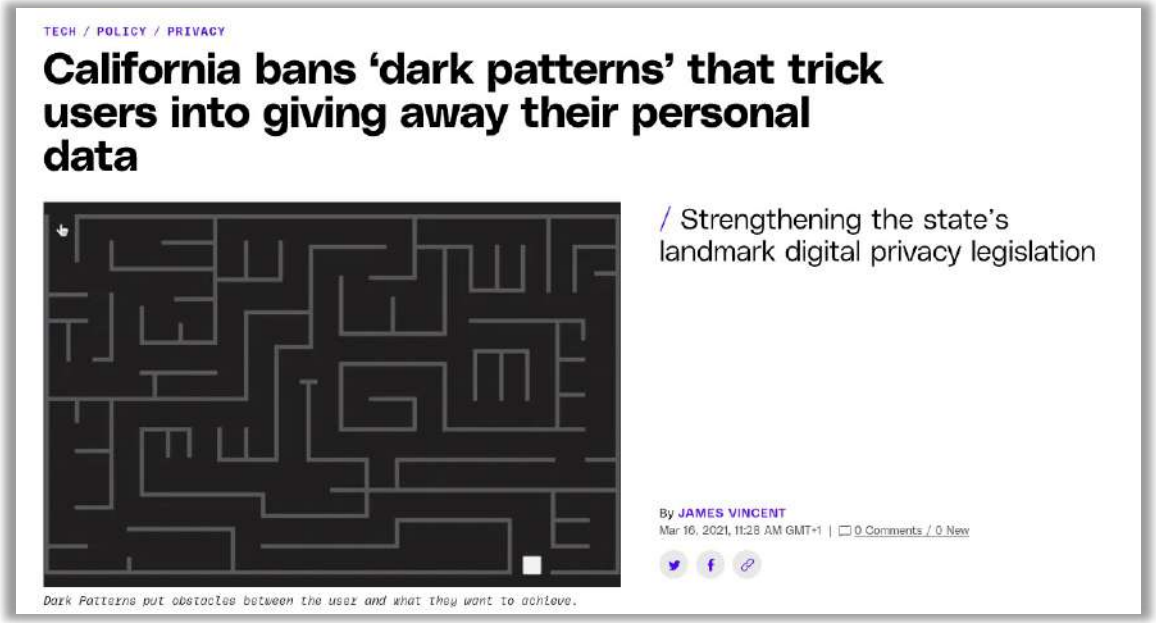
Gebru is one of the most high-profile Black women in her field and a powerful voice in the new field of ethical AI, which seeks to identify issues around bias, fairness, and responsibility.

By Nitasha Tiku

December 23, 2020 at 2:15 p.m. EST

The Leverage Point Framework: External Regulation

- Outside forces, such as legislators or regulators, that set up **boundaries** for tech companies and ban unsafe business practices:
  - take **longer** to enact;
  - more **enduring** and with a **higher** impact.


TECH / POLICY / PRIVACY

California bans 'dark patterns' that trick users into giving away their personal data

/ Strengthening the state's landmark digital privacy legislation

By JAMES VINCENT
Mar 16, 2021, 11:28 AM GMT+1 | 0 Comments / 0 New

Dark Patterns put obstacles between the user and what they want to achieve.

The Leverage Point Framework: Business Model

- Changes that shift the fundamental operations and profit structures of a firm:
  - a company that moves to a **subscription model** instead of exploiting ads, only;
  - solutions to **redirect flows of capital** from investors.

TECH

Apple is turning privacy into a business advantage, not just a marketing slogan

PUBLISHED MON, JUN 7 2021·6:52 PM EDT | UPDATED TUE, JUN 8 2021·12:30 AM EDT

Kif Leswing
@KIFLESWING

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The Leverage Point Framework: Economic Goal

- **Redefining economic success** can radically alter how systems behave:
  - this happens when economic systems reward new, more humane ways of creating value;
  - …or when they **penalize** harms that were previously ignored

The Leverage Point Framework: Culture & Paradigm

- Changes that are the highest leverage point and generally the most difficult to shift:
  - they need a widespread change in core beliefs, values, and operating norms;
  - they need a mass shift in consumer sentiment, such as with Big Tobacco and cigarettes.


Forbes

FORBES > INNOVATION > ENTERPRISE TECH

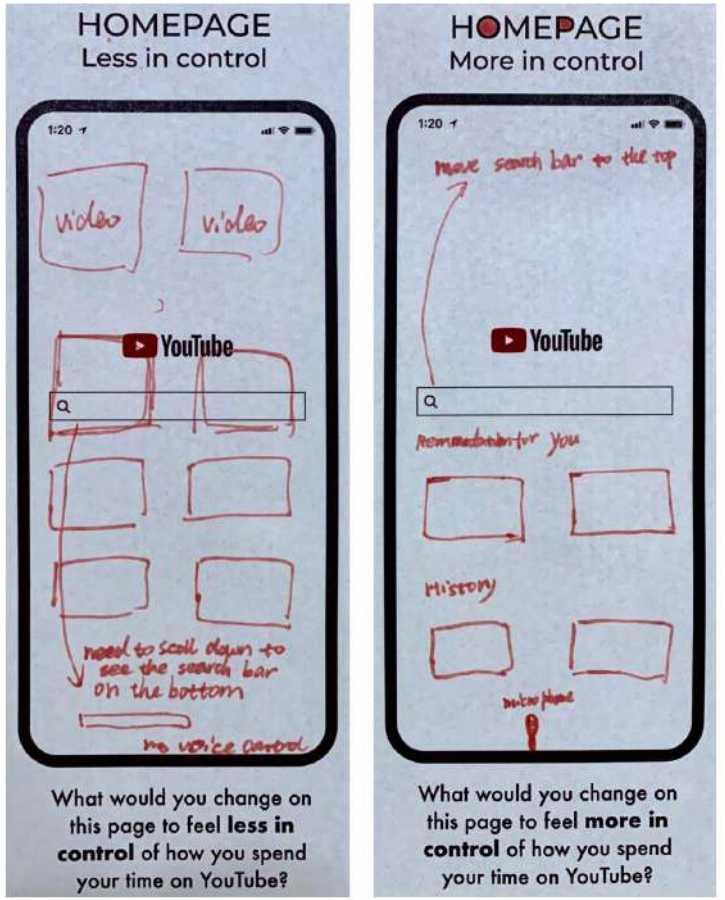
Digital Addiction: Should You Be Worried?

Bernard Marr Contributor

Jan 11, 2023, 01:58am EST

Towards Designing for Digital Wellbeing

- Instead of "blocking" possible interactions through DSCT, HCI researchers are trying to re-design the internal mechanisms used by digital platforms:
  - usage of **human-centered design processes;**
  - development and promotion of **guidelines** for designing/evaluating technologies that respect people's digital wellbeing.



How the Design of YouTube Influences User Sense of Agency
https://arxiv.org/abs/2101.11778

Towards Designing for Digital Wellbeing

8 principles to guide the development of new policies and regulations (Center for Human Technology, https://www.humanetech.com/policy-principles):

1. **Put people first:** privilege the rights and interests of people over corporations.
2. **Avoid «atomizing» solutions:** prioritize social and collective approaches over "atomizing" solutions.
3. **Confront power:** identify and correct power asymmetries and imbalances.
4. **Address root causes:** go beyond symptoms to address the root causes of the problem or challenge at hand.
5. **Presume harms:** presume that all technologies, and their applications, are capable of inflicting a variety of harms and seek to identify those harms.
6. **Compel caution:** require a precautionary approach to technology development and deployment.
7. **Embrace complexity:** reflect the complexity of a problem or challenge by advancing comprehensive and contextualized solutions.
8. **Seek sustainability:** privilege sustainable, regenerative solutions over self-terminating, quick-fixes.

Towards Designing for Digital Wellbeing

https://www.humanetech.com/course

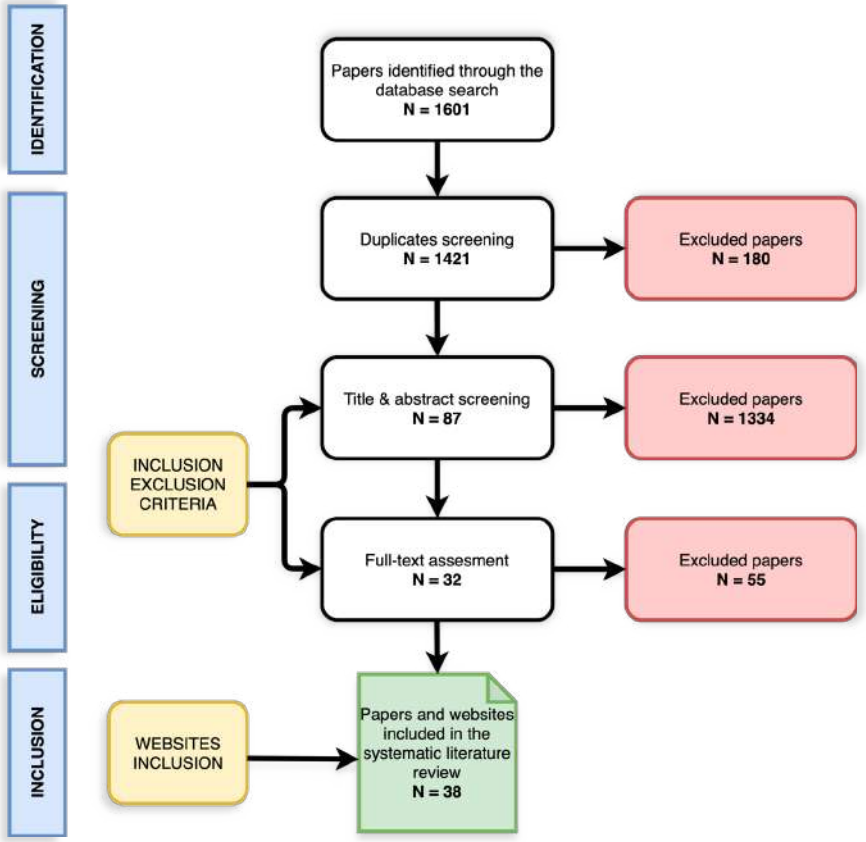
Old Extractive Technology Paradigm		New Humane Technology Paradigm
Give Users What They Want	→	Respect Human Vulnerabilities
All Tech Has Good & Bad	→	Minimize Harmful Externalities
Who Are We to Choose?	→	Consciously Center Values
Maximize Personalization	→	Create Shared Understanding
Technology is Neutral	→	Support Fairness and Justice
Obsess Over Metrics	→	Help People Thrive

Towards Designing for Digital Wellbeing

Table 2. The search queries used to search the electronic database of the ACM Guide to the Computing Literature. All the searches included manuscripts published from January 2000 to December 2021 whose "content type" was "Research Article."

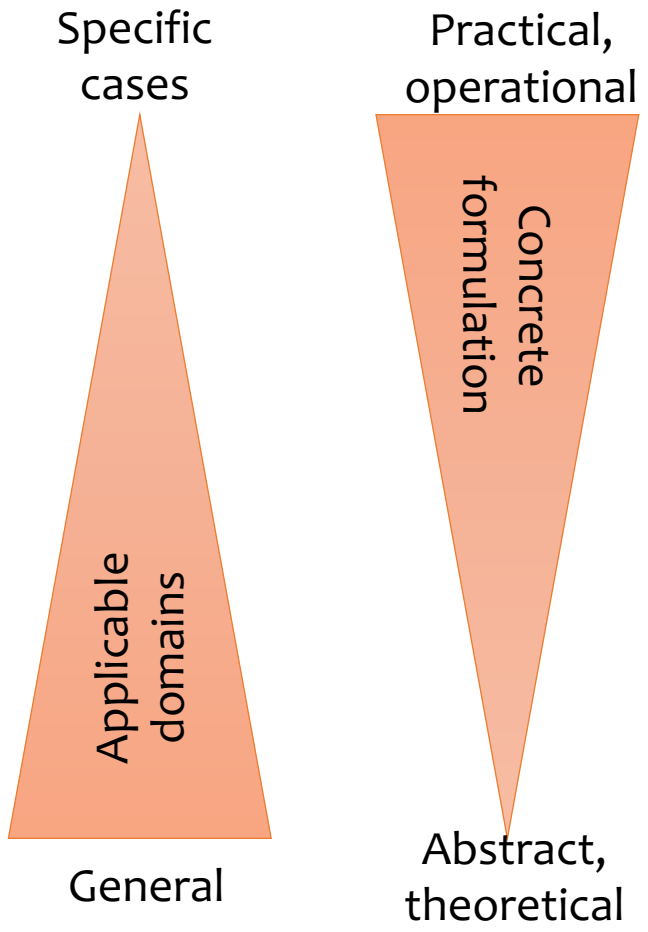
Search Query	# Results
("internet addiction" OR "smartphone addiction" OR "social media addiction" OR "technology addiction" OR "app addiction") AND ("design" OR "guideline" OR "principle")	571
("digital intervention" OR "digital nudge" OR "digital self-control) AND ("design" OR "guideline" OR "principle")	314
("attention economy" OR "attention-capture") AND ("design" OR "guideline" OR "principle")	230
"dark pattern" AND ("design" OR "guideline" OR "principle")	184
("digital wellbeing" OR "digital well-being") AND ("design" OR "guideline" OR "principle")	88
("digital overload" OR "digital overuse" OR "technology overload" OR "technology overuse") AND ("design" OR "guideline" OR "principle")	60
("smartphone overload" OR "smartphone overuse" OR "phone overload" OR "phone overuse") AND ("design" OR "guideline" OR "principle")	50
"digital distraction" AND ("design" OR "guideline" OR "principle")	36
("internet overload" OR "internet overuse") AND ("design" OR "guideline" OR "principle")	32
("unethical interface" OR "evil interface" OR "manipulative interface") AND ("design" OR "guideline" OR "principle")	20
("digital break" OR "digital diet") AND ("design" OR "guideline" OR "principle")	10
("social media overload" OR "social media overuse" OR "social networks overload" OR "social networks overuse") AND ("design" OR "guideline" OR "principle")	6

Digital Wellbeing Heuristics:
a Systematic Literature Review



Generating or Analyzing Design Solutions

- **Guidelines**: Low-level focused advice about good practices and cautions against dangers.
- **Principles/Heuristics**: general principles or rule of thumbs that can guide a design decision or be used to critique a decision that has already been made.
- **Theories**: High-level widely applicable frameworks to draw on during design and evaluation, as well as to support communication and teaching.



The Self-Determination Theory

- The Self-Determination Theory defines SDT defines three “basic psychological needs”:
  - **autonomy:** a sense of willingness/endorsement, acting in accordance with one’s goals and values;
  - **competence:** feeling able and effective;
  - **relatedness:** feeling connected to and involved with others.
- It has been applied to HCI within various domains and is distinctive for providing a foundational core – a minimum set of wellbeing requirements that can be applied to all technologies, regardless of context or activity.

The Self-Determination Theory

- All designers should, at minimum, ensure that three fundamental psychological needs are met within the user experience:
  - where a design frustrates these needs, there are likely to be negative impacts on wellbeing.
- We developed 8 digital wellbeing heuristics by categorizing them under a given need modeled by STD, i.e., autonomy, competence, and relatedness.

Support Autonomy (Heuristics #1, #2, #3, and # 4)

- Supporting autonomy means supporting people to act **willingly**, in ways they endorse and in accordance with their **goals** and **values**:
  - Users who can't influence an interface in alignment with their goals get frustrated, and their sense of autonomy is undermined.
- Autonomy lies at the heart of many usability guidelines.
- When people act autonomously, they are, above all, self-endorsing this action. Autonomy is linked to **goals** and **values** and connects a usage session to a **sense of meaning and purpose**.

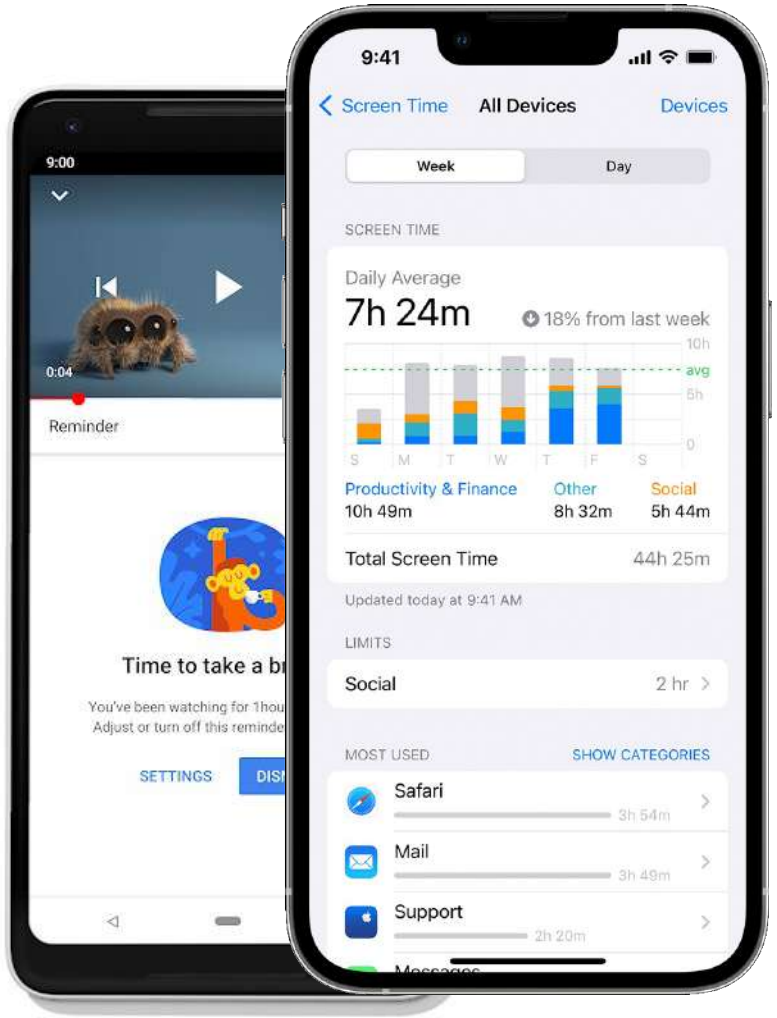
Heuristic #1

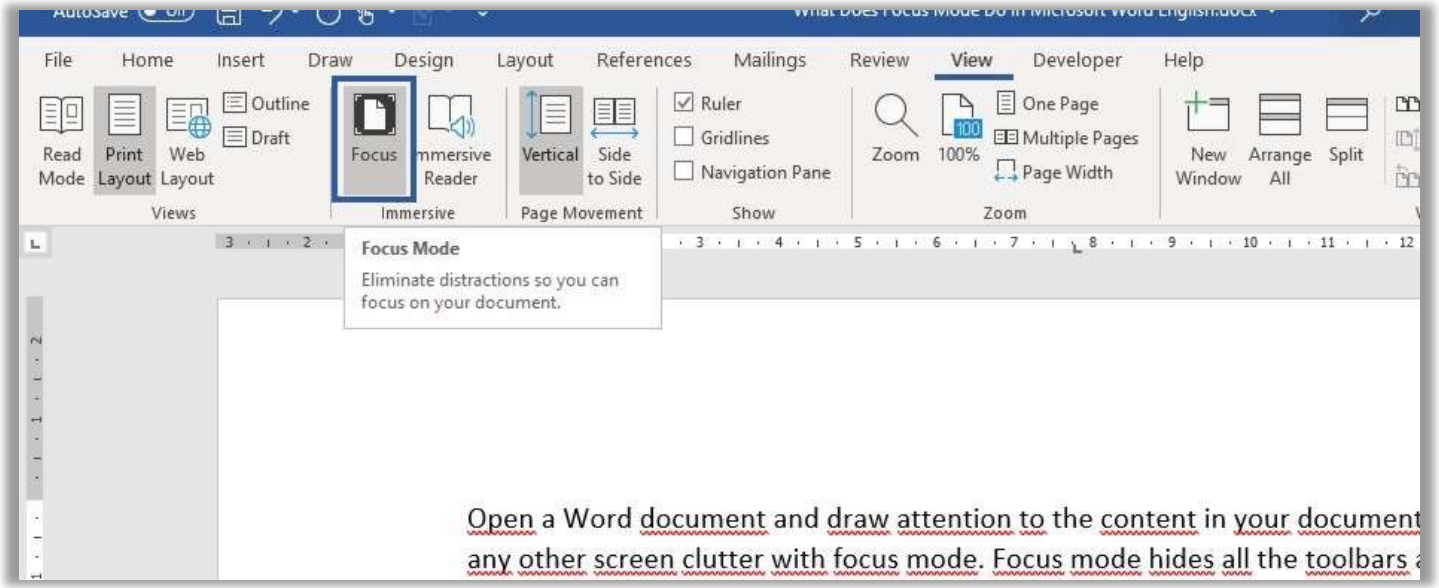
- **Support mindful attention and sense of agency**
- Design to support volitional experiences of focus, mindful awareness, and attention, breaking the link between users' time spent/interactions on the platform and profit.

Heuristic #1: Strategies

- Simplify the interface to support focus and avoid distractions that may disrupt attention.
- Minimize distractions and help people reclaim and retain autonomy over their attention.
- Provide users with tools for supporting self-regulation, e.g., usage dashboards, timers, and lock-out mechanisms.
- Use positive friction mechanisms like confirmation dialogs to help users reflect upon their usage behaviors, prevent errors, avoid unintentional actions, and promote critical thought and healthier digital habits.

Heuristic #1: Examples





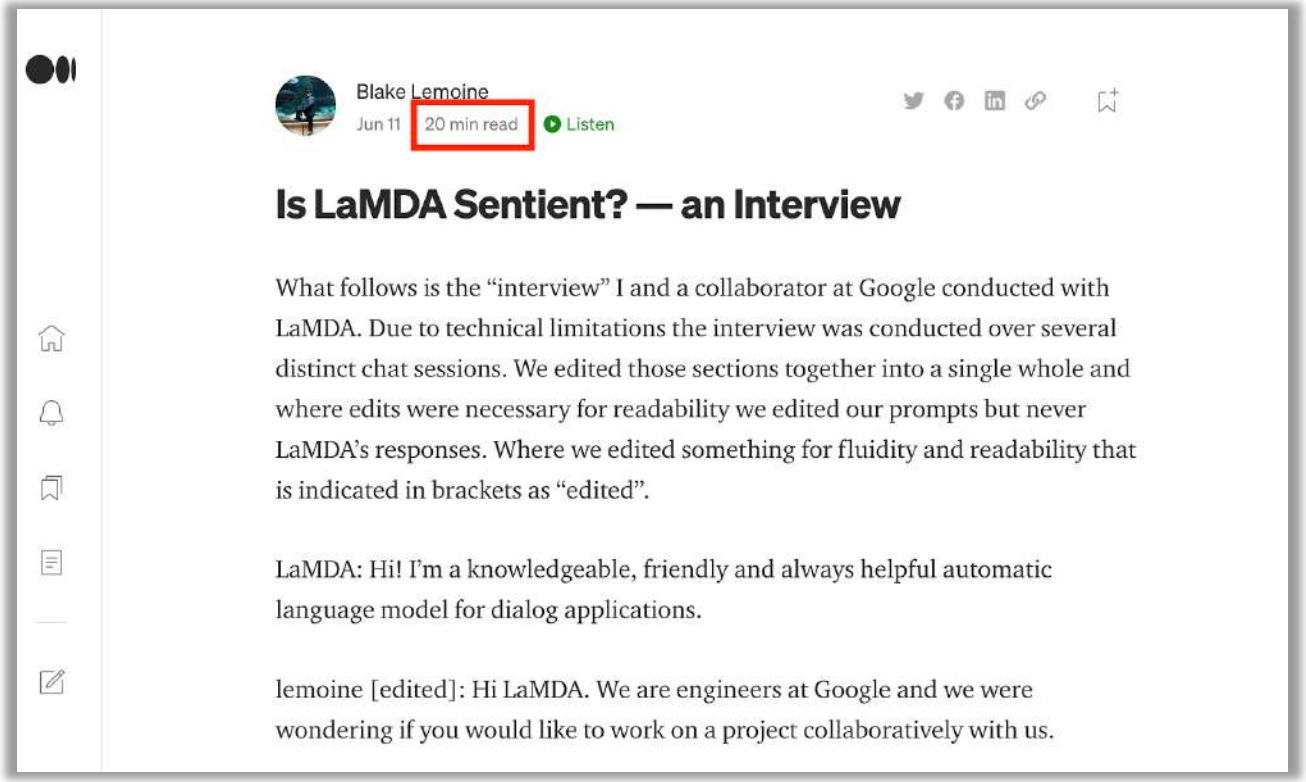
Heuristic #2

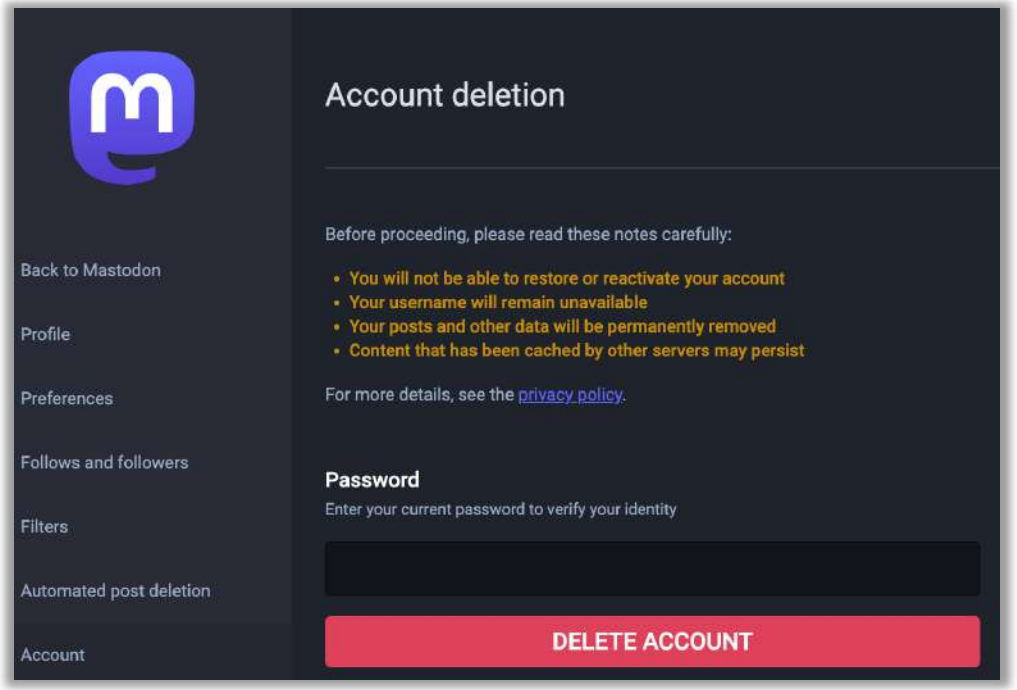
- **Support informed usage sessions**
- Provide the user with the information necessary for making choices for deciding whether it's worth starting or continuing a usage session, making sure to adopt a transparent design that is clear about intentions and honest in actions.

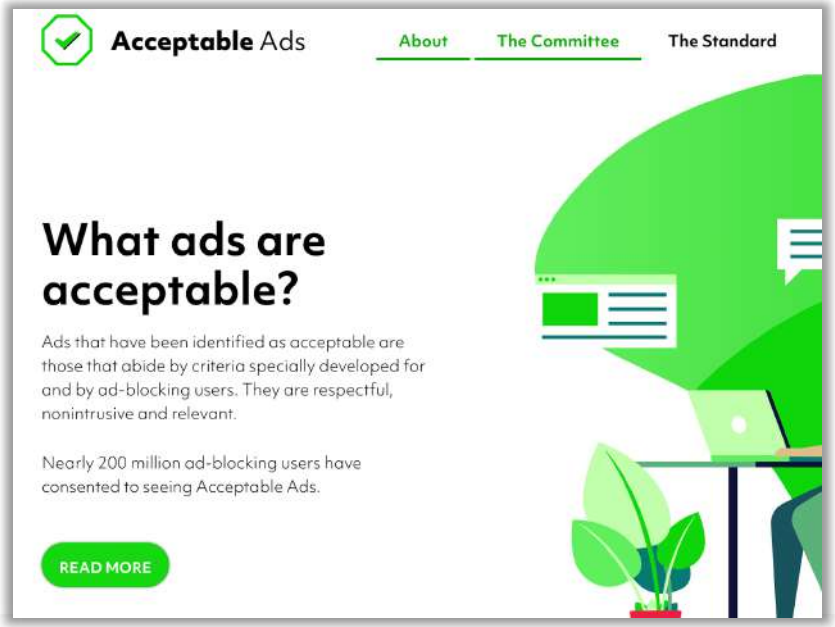
Heuristic #2: Strategies

- Provide a preview of the status of newly available content.
- Allow users to preview what would happen if they made a particular choice, confident that they can undo or change their mind without cost.
- Give an indication of how much time is needed to consume it so that users can avoid opening an app or a website if there is no new content or if they do not have enough time.
- Prevent redirection, e.g., by enabling users to read and manage the content of a notification directly from the notification itself without the need to open the app.
- Ensure that advertisements are relevant, transparent, and clearly distinguishable from other content.
- Ensure that users can easily find the option to log out, unsubscribe, or delete their account if they choose to do so.

Heuristic #2: Examples







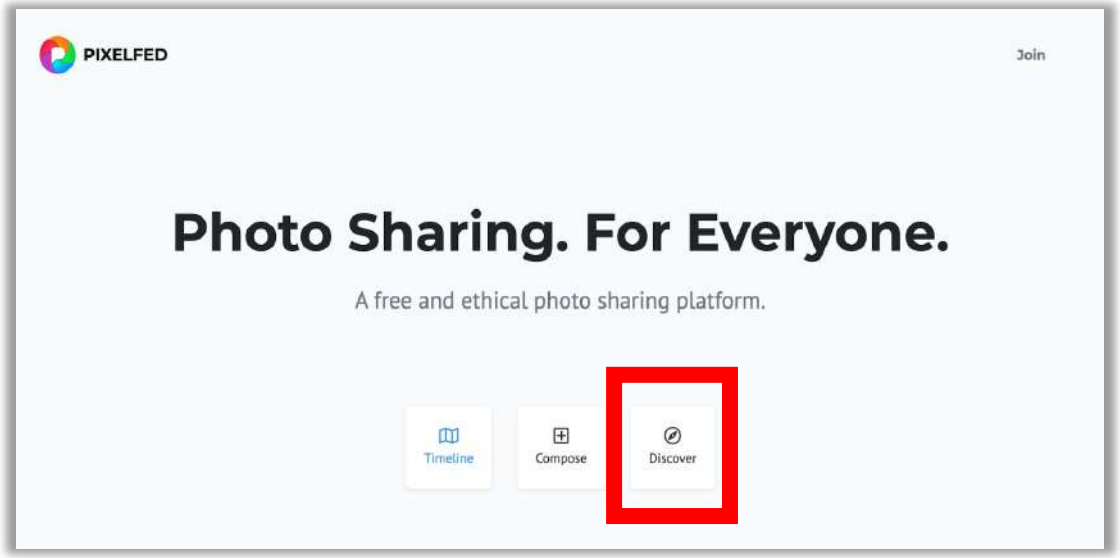
Heuristic #3

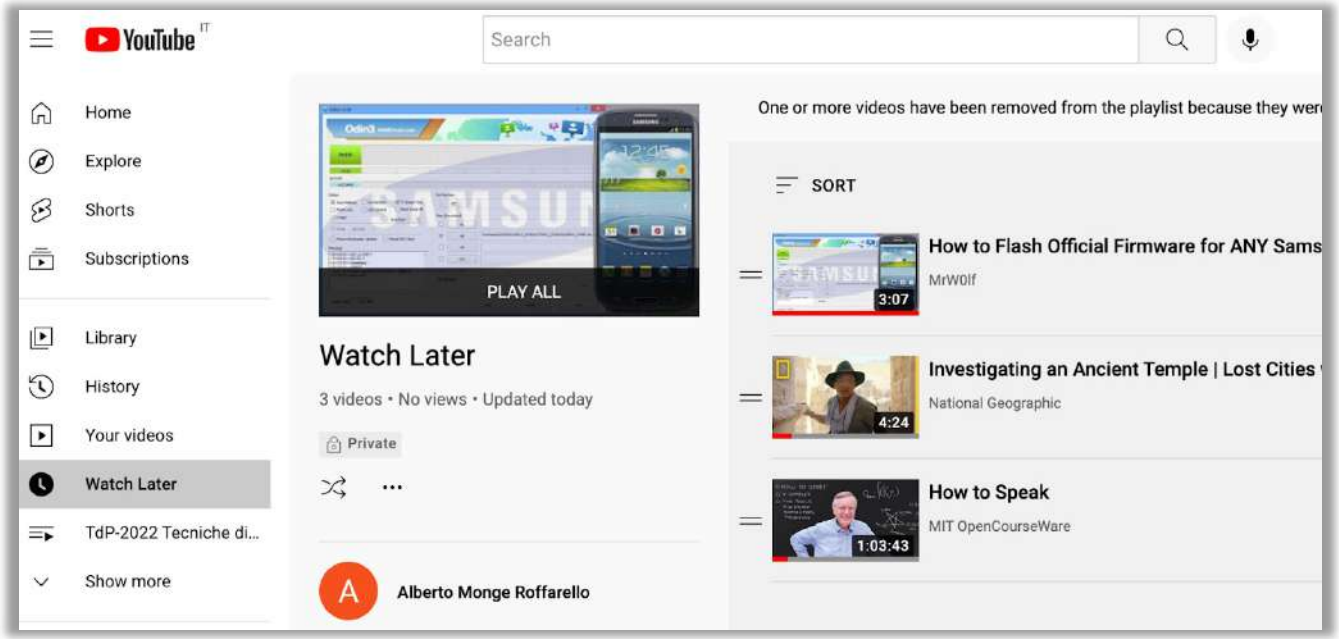
- **Promote content quality and instrumental use**
- Adopt designs that allow users to maximize the overall quality of time spent rather than the quantity by prioritizing instrumental use, i.e., goal-directed use to gratify informational needs, rather than ritualistic use, i.e., open-ended use to gratify diversionary needs.

Heuristic #3: Strategies

- Allow users to make lightweight plans that guide their usage behaviors, thus enabling them to make some kind of investment that persists beyond the isolated usage session.
- Let the user switch between low and high-control interfaces, e.g., switching between an Explore Mode and a Focus Mode.

Heuristic #3: Examples





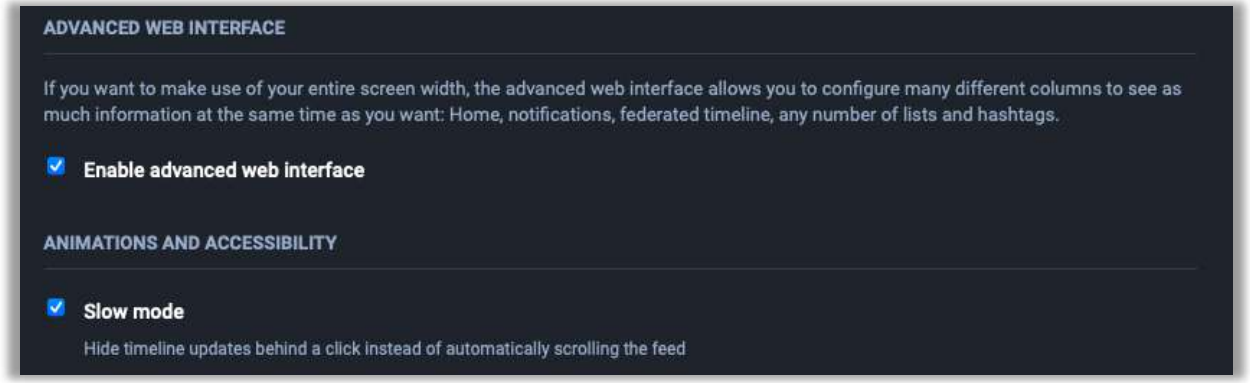
Heuristic #4

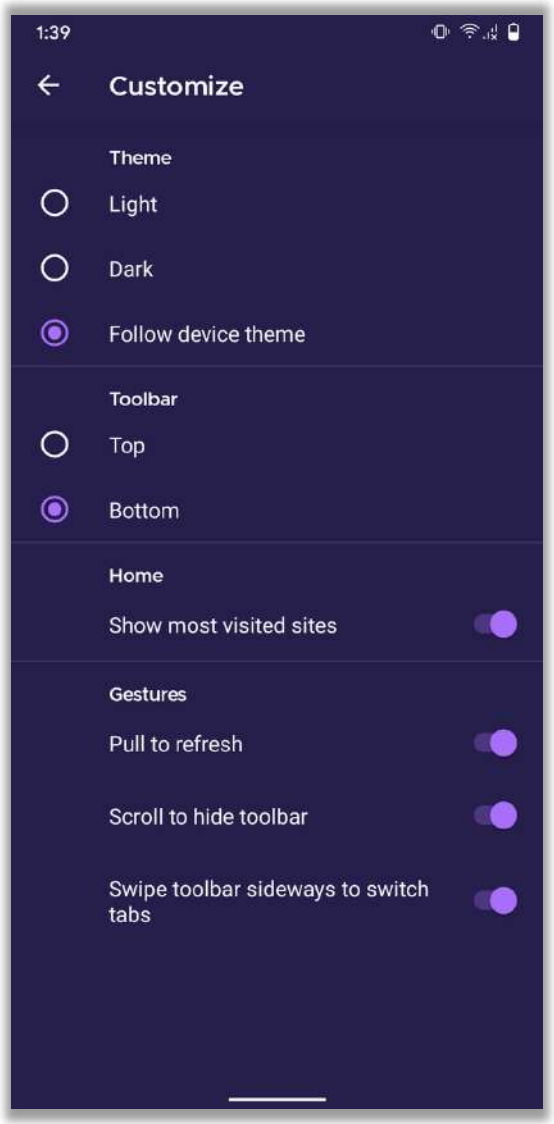
- **Support personalization**
- Ensure that users can understand and personalize the digital environment they are interacting with to better suit their goals, values, and digital wellbeing.

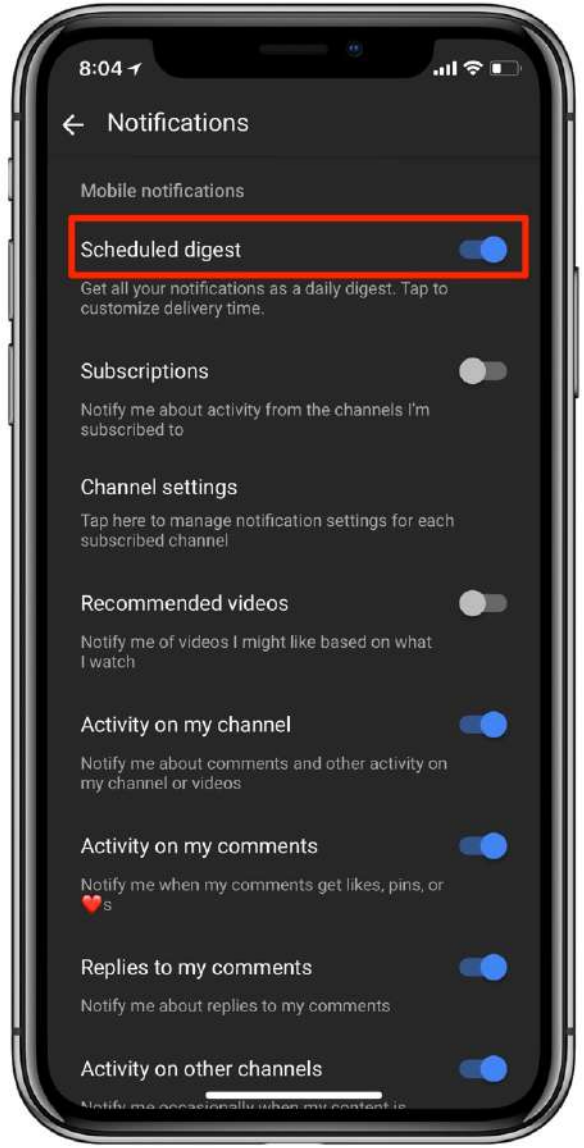
Heuristic #4: Strategies

- Offer options for users to personalize or disable a design or functionality which may be perceived as distractive or attention-capture.
- Give users tools for giving feedback on attention-capture content, strategies, and interaction modalities adopted by the digital platform.

Heuristic #4: Examples







Support Competence (Heuristics #5 and # 6)

- Competence is defined as feeling **capable** and **effective** and involves the intrinsic drive for self-efficacy, growth, learning, and mastery:
  - "feelings of competence come about when people have opportunities to apply skills and effort to tasks that are moderately difficult, allowing them to experience efficacy and success and thus to derive feelings of mastery and competence." (Ryan & Deci, 2017, p. 513).
- Supporting competence means providing **optimal challenge, positive feedback, and opportunities for learning**:
  - even when someone is not engaged in learning, competence frustrations emerge when they feel incapable or ineffective.

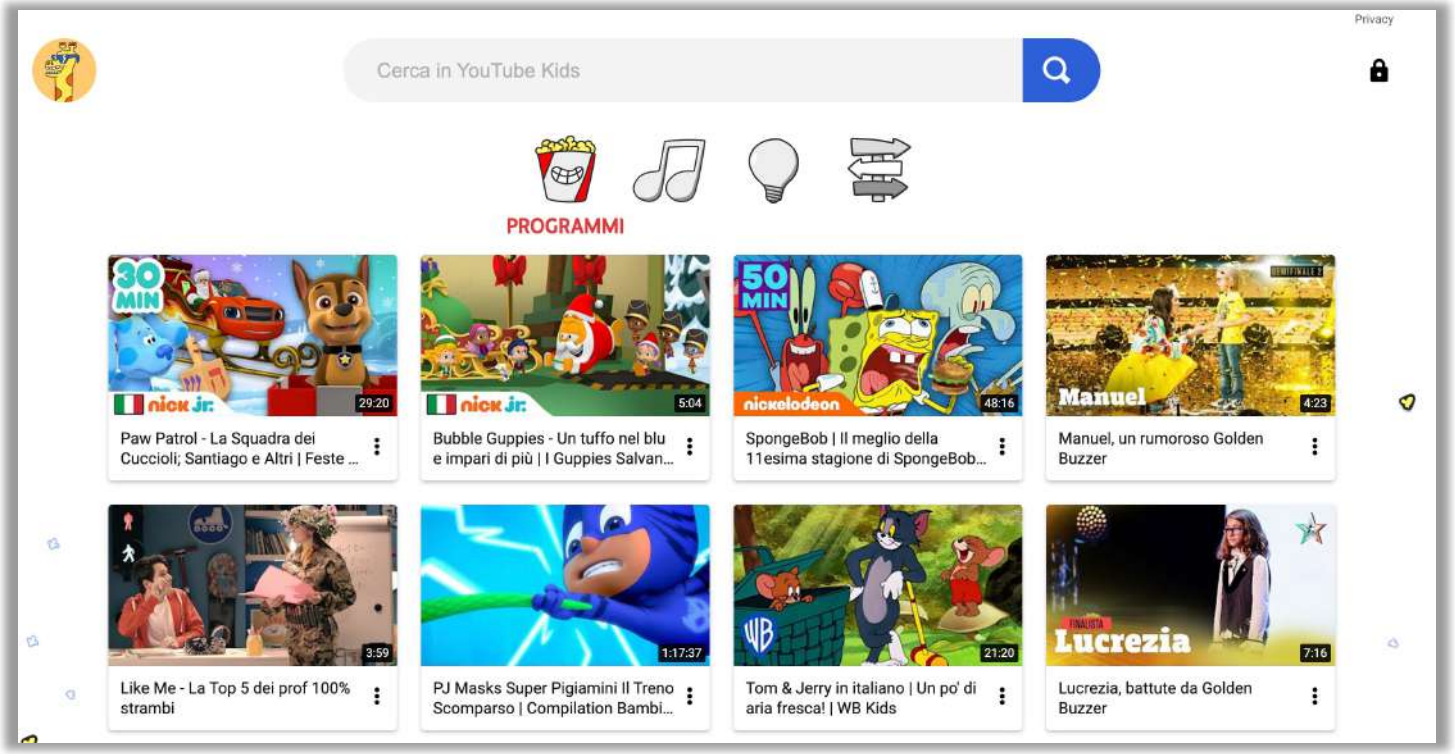
Heuristic #5

- **Tailor usage to users and contexts**
- Ensure the level of complexity or challenge required to start, perform, or end a usage session with a digital service is appropriate for the user and context.

Heuristic #5: Strategies

- Offer different levels of control for ritualized and instrumental use, e.g., by providing users with higher-control mechanisms when they have a specific intention in mind and lower-control ones when they have a non-specific intention.
- Change the user interface based on a personalized prediction model, e.g., present a search-only interface and hide all recommendations for instrumental use.
- Break down big tasks into manageable parts - In education, this is called “chunking” or “segmenting,” and in behavior change, it has sometimes been framed as breaking behaviors down into “tiny” habits.

Heuristic #5: Examples



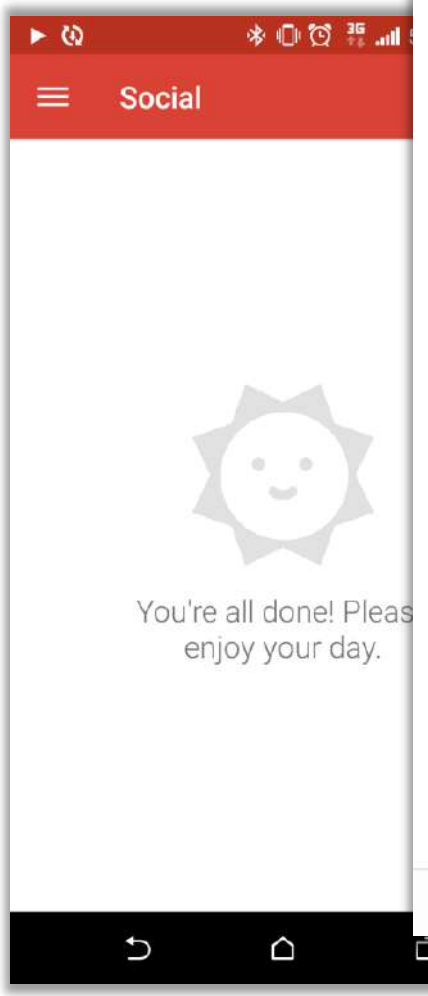
Heuristic #6

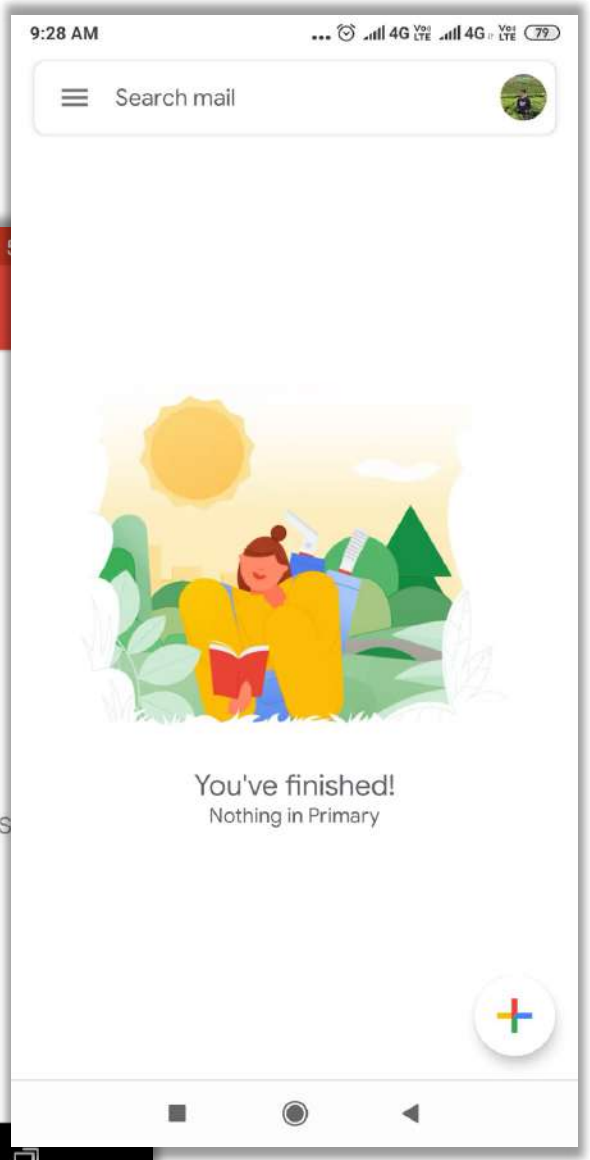
- **Offer effectance-relevant digital-wellbeing feedback**
- Provide feedback that informs a pathway to improvement toward digital wellbeing and a more sustainable technology use, by informing users about their negative behaviors as well as their progress and achievements.

Heuristic #6: Strategies

- Use rich feedback mechanisms to inform users about their "digital wellbeing" progresses (see the three type of rich feedback mechanisms proposed by Rigby and Ryan in 2011 - granular, sustained, and cumulative).
- Promote instrumental use and reduce temptations to prolong usage sessions, e.g., by encouraging users to move on when their original purpose is achieved or by proposing alternative behaviors.

Heuristic #6: Examples





SCREEN TIME 7m ago

Weekly Report Available

Your screen time was down 41% last week, for an average of 1 hour, 15 minutes a day.

Support Relatedness (Heuristics #7 and # 8)

- Relatedness is described as a sense of **belonging** and **connectedness** to others and is central across wellbeing theories.
- Technologies increasingly support social connection. However, not all social interaction (technologically-mediated or otherwise) helps us feel a greater sense of connectedness.

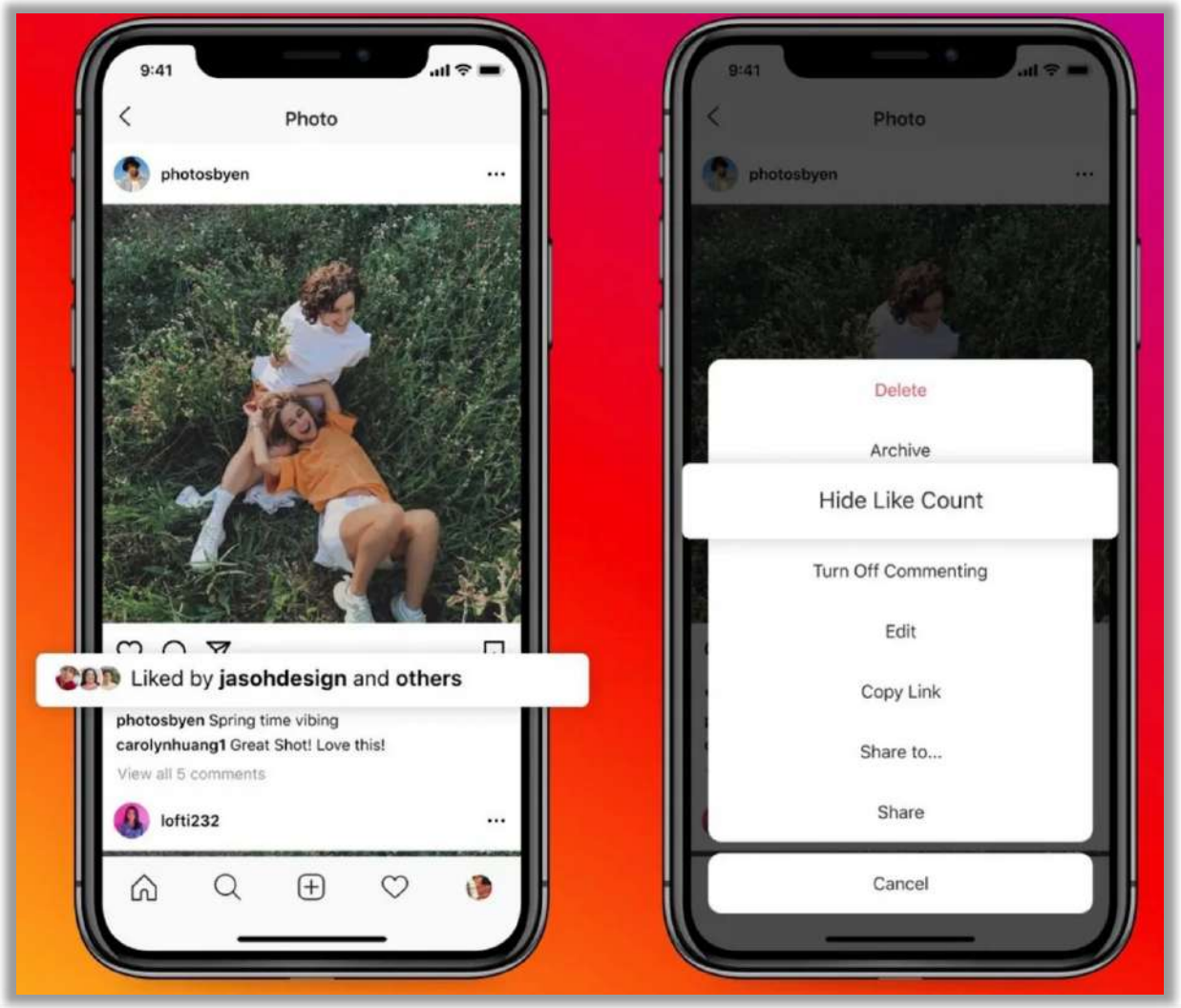
Heuristic #7

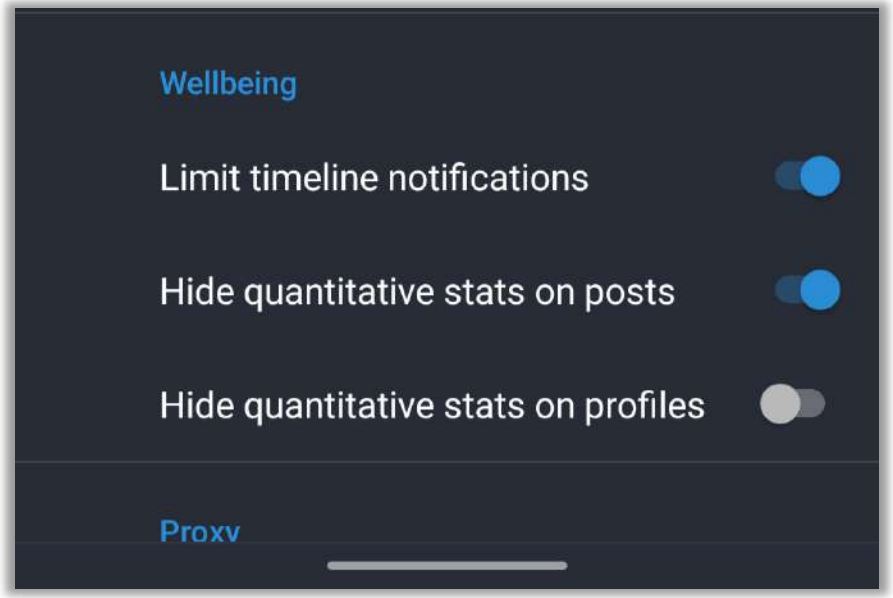
- **Support meaningful connections**
- Support experiences of meaningful and fair connection to others, respecting one's preferences and vulnerabilities and those of others.

Heuristic #7: Strategies

- Focus feedback on intrinsic vs extrinsic relatedness goals: for example, pushing users to increase followers, likes, or other status symbols is unlikely to support relatedness as effectively as supporting goals to, for example, help others or connect more deeply.
- Ensure that users have the possibility to avoid social comparison with others.

Heuristic #7: Examples





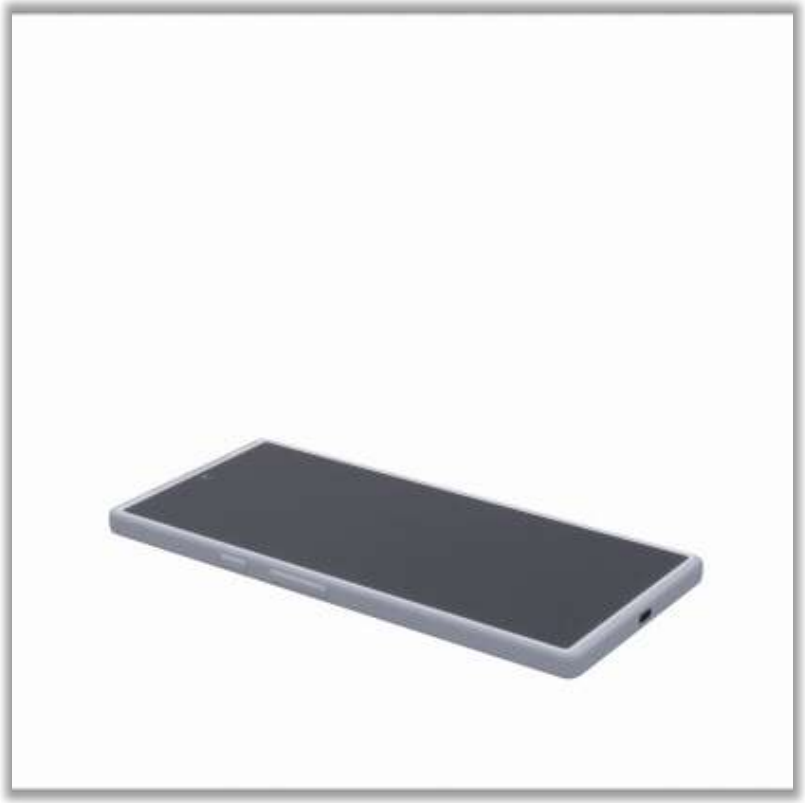
Heuristic #8

- **Support real-world connections**
- Provide tools that facilitate real-world experiences and connections that go or may go "beyond the screen."

Heuristic #8: Strategies

- Disrupt social engagement as minimally as possible and facilitate smooth, intuitive, and responsive social experiences.
- Ensure that users can keep their attention in the “real world” and avoid social problems like phubbing, e.g., by facilitating the organization of in-person (nonvirtual) meet-ups and activities.
- Give more importance to posts, comments, and interactions from close ties.

Heuristic #8: Examples



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