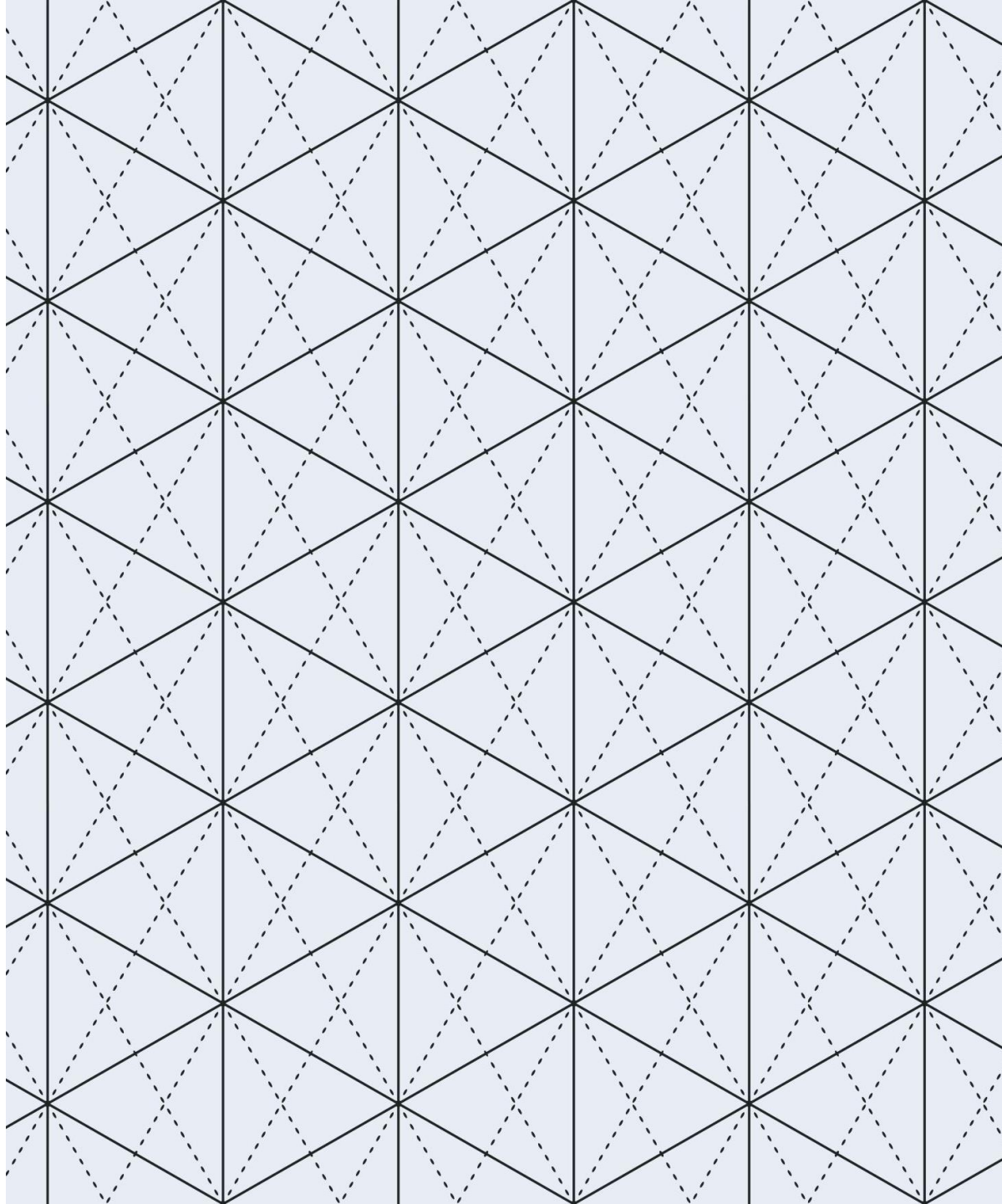
BEHAVIOURAL DESIGN IN GAMES

Max Birk | m.v.birk@tue.nl
Eindhoven University of Technology

Anouk Tuijnman | ATuijnman@trimbos.nl
Trimbos-instituut

VAD-conference 2023



I experimentally study the effects of video games on experience and behaviour.

Academic Background







Professional Experience













RESEARCH

Player Experience, Motivation, and Engagement

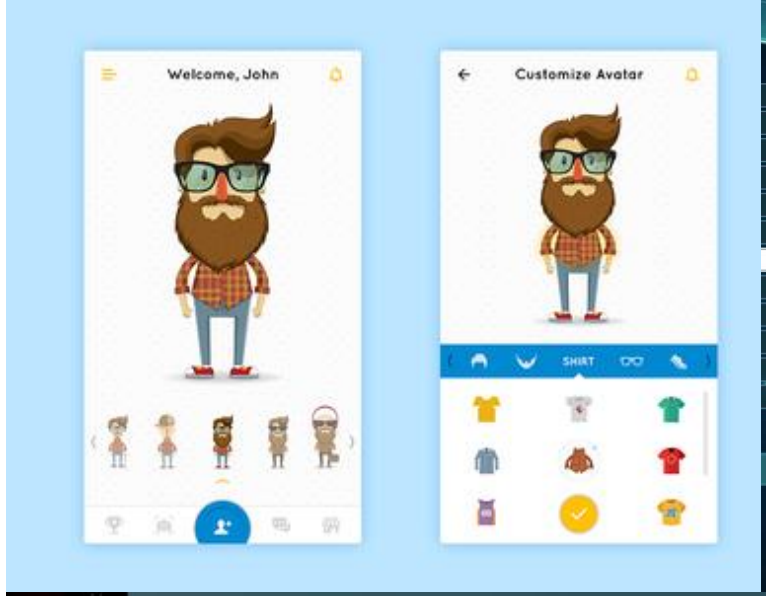
Game-based Digital Biomarkers



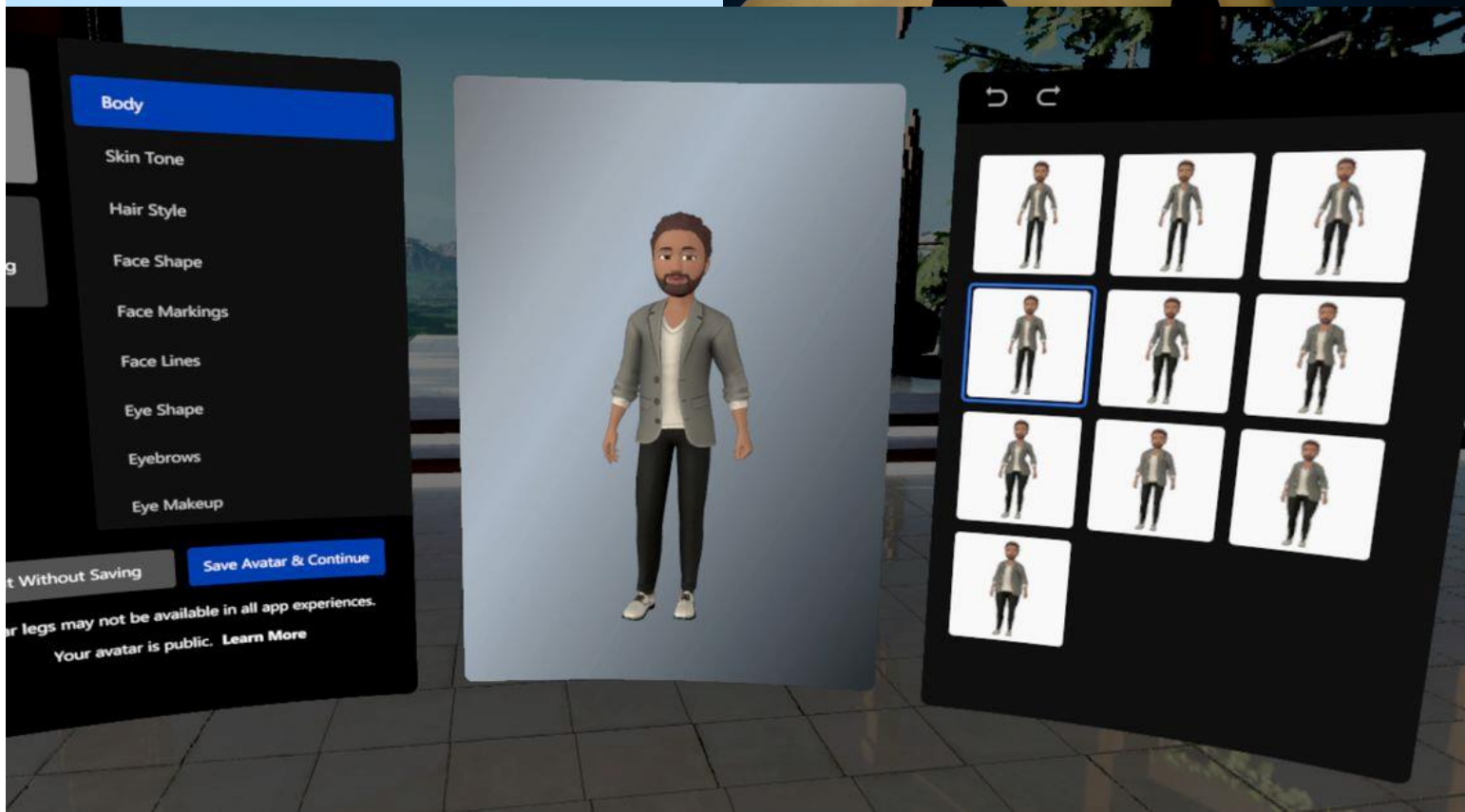
Games for Health

EXAMPLE #1: IDENTIFICATION AND ENGAGEMENT

Project Aim: Investigate the Effect of Identification on Experience and Time Played in a Single Play Session.







Birk, Max V., Cheralyn Atkins, Jason T. Bowey, and Regan L. Mandryk. **"Fostering intrinsic motivation through avatar identification in digital games."** In *Proceedings of the 2016 CHI conference on human factors in computing systems*, pp. 2982-2995. 2016.

EXAMPLE #1: IDENTIFICATION AND ENGAGEMENT

Study: People were paid a fixed amount to play as long as they wanted.

Result: People who identified with their avatar played longer.



Birk, Max V., Cheralyn Atkins, Jason T. Bowey, and Regan L. Mandryk. **"Fostering intrinsic motivation through avatar identification in digital games."** In *Proceedings of the 2016 CHI conference on human factors in computing systems*, pp. 2982-2995. 2016.

EXAMPLE #1: IDENTIFICATION AND ENGAGEMENT

Take Away: Design matters. If we identify with a game character affects playtime. Hence, games optimize identification for their target audience.

Birk, Max V., Cheralyn Atkins, Jason T. Bowey, and Regan L. Mandryk. **"Fostering intrinsic motivation through avatar identification in digital games."** In *Proceedings of the 2016 CHI conference on human factors in computing systems*, pp. 2982-2995. 2016.



EXAMPLE #2: SNACKING, NOT FEASTING

Project Aim: Investigate the Effect of Design Pattern on Engagement over Multiple Days.

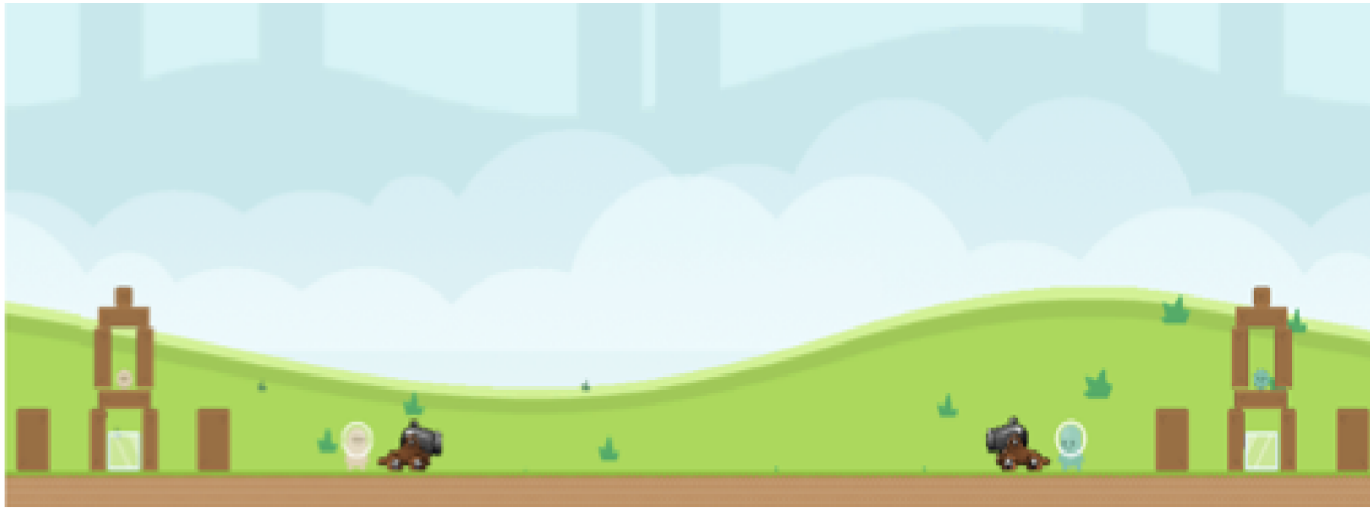


Alexandrovsky, Dmitry, Maximilian Achim Friehs, Max V. Birk, Rowan K. Yates, and Regan L. Mandryk. **"Game dynamics that support snacking, not feasting."** In *Proceedings of the Annual Symposium on Computer-Human Interaction in Play*, pp. 573-588. 2019.

EXAMPLE #2: SNACKING, NOT FEASTING

Study: Participants played using different design pattern* that provided incentives or prevented them from playing.

Results: We showed that introducing new content (Novelty) and creating in-game down time (Waiting), fostered more regular engagement.



Design Pattern
Instant Rewards
Novelty
Mission
Completion
Waiting (you can still play)
Blocking (you can not play anymore)

Alexandrovsky, Dmitry, Maximilian Achim Friehs, Max V. Birk, Rowan K. Yates, and Regan L. Mandryk. **"Game dynamics that support snacking, not feasting."** In *Proceedings of the Annual Symposium on Computer-Human Interaction in Play*, pp. 573-588. 2019.

EXAMPLE #2: SNACKING, NOT FEASTING

Take Away: Design pattern affect how frequently users engage over-time—if they play in spaced frequencies or if they feast and churn.





Alexandrovsky, Dmitry, Maximilian Achim Friehs, Max V. Birk, Rowan K. Yates, and Regan L. Mandryk. **"Game dynamics that support snacking, not feasting."** In *Proceedings of the Annual Symposium on Computer-Human Interaction in Play*, pp. 573-588. 2019.

PROJECT: BEHAVIORAL DESIGN



Trimbos instituut
Netherlands Institute of Mental Health and Addiction



Universiteit Leiden



TU/e

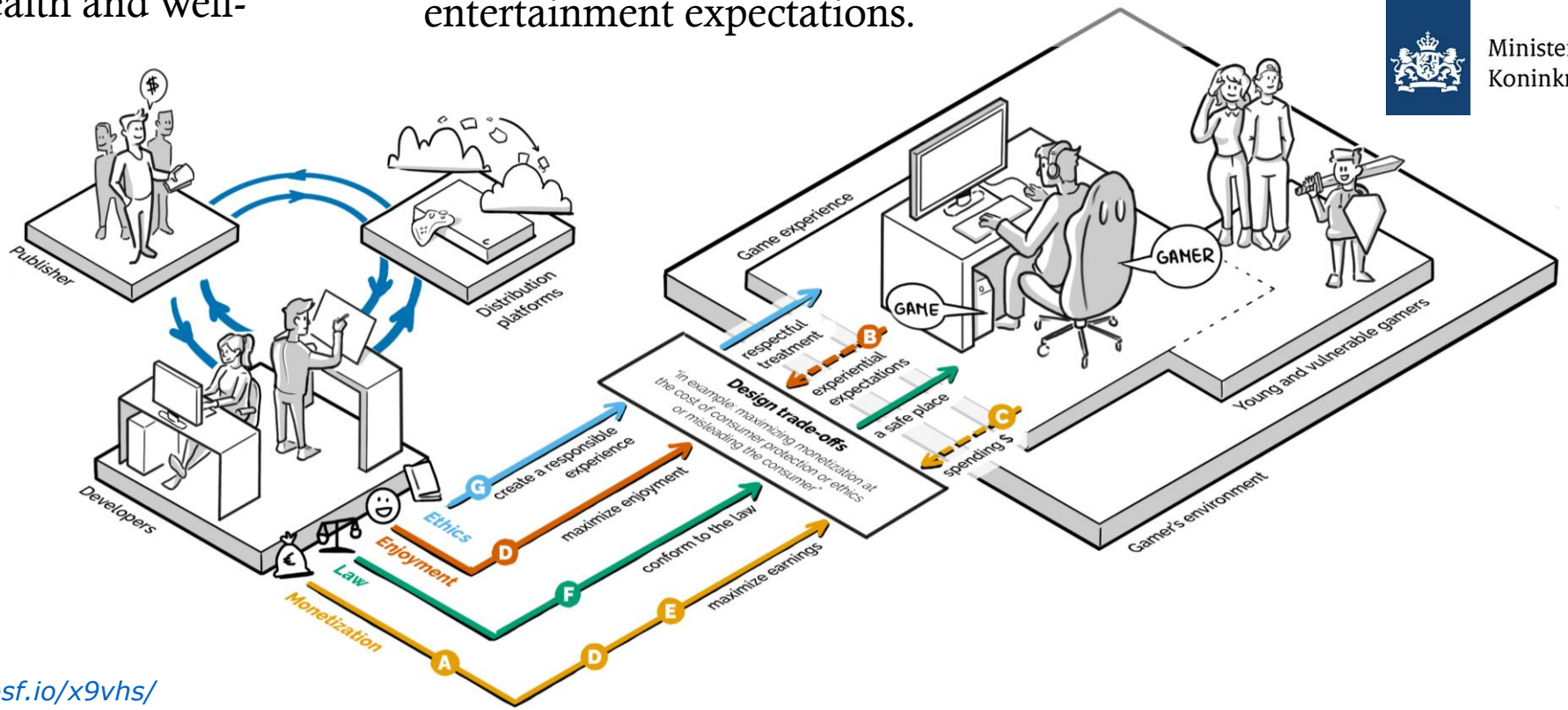
Antonius J. van Rooij **Simone van der Hof** **Max V. Birk**

A roadmap for ethical and responsible games that contribute to long-term consumer health and well-being.

Goal: Develop a shared language for policymakers to discuss the tension between publishers goals to monetize, applied design strategies, and gamers entertainment expectations.

Alliantie Digitaal Samenleven

Ministerie van Binnenlandse Zaken en Koninkrijksrelaties



Full report https://osf.io/x9vhs/

LEADING PRINCIPLES OF OUR WORK

Design impacts health… physical health, emotional health, and social health.

The impact of design is poorly understood… especially outside of media production and the games industry. What constitues ‘ethical’ and responsible design?

Behavioral design… impacts user’s behaviour. It can encompass both harmful and beneficial design of video games.

DESIGN IMPACTS HEALTH…

… physical health, emotional health, and social health.



THE IMPACT OF DESIGN IS POORLY UNDERSTOOD…

… especially outside of media production and the games industry. What constitues ‘ethical’ and responsible design?



BEHAVIORAL DESIGN…

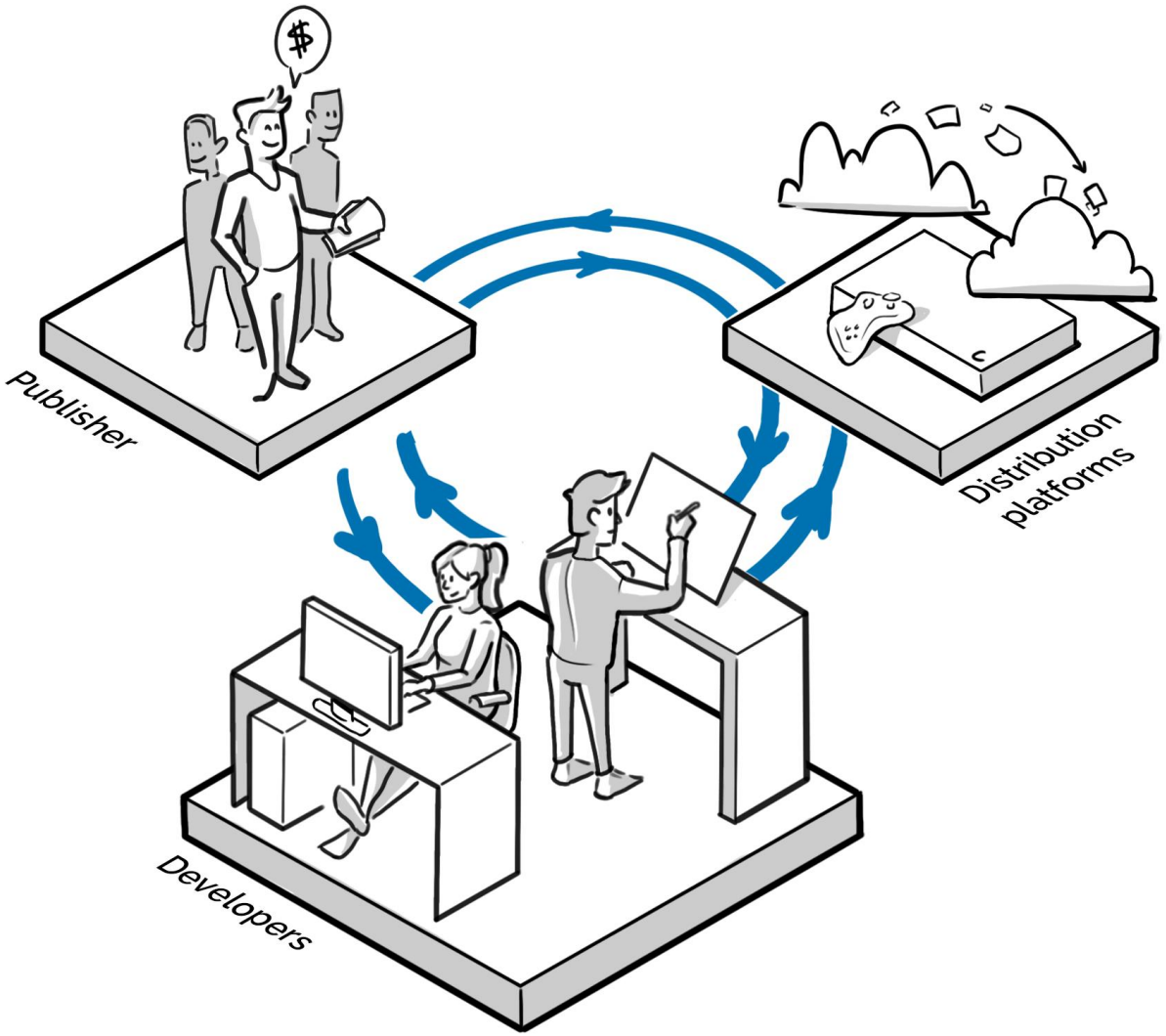
… impacts user's behaviour. It can encompass both harmful and beneficial design of video games.

https://www.media.mit.edu/projects/guardians/overview/



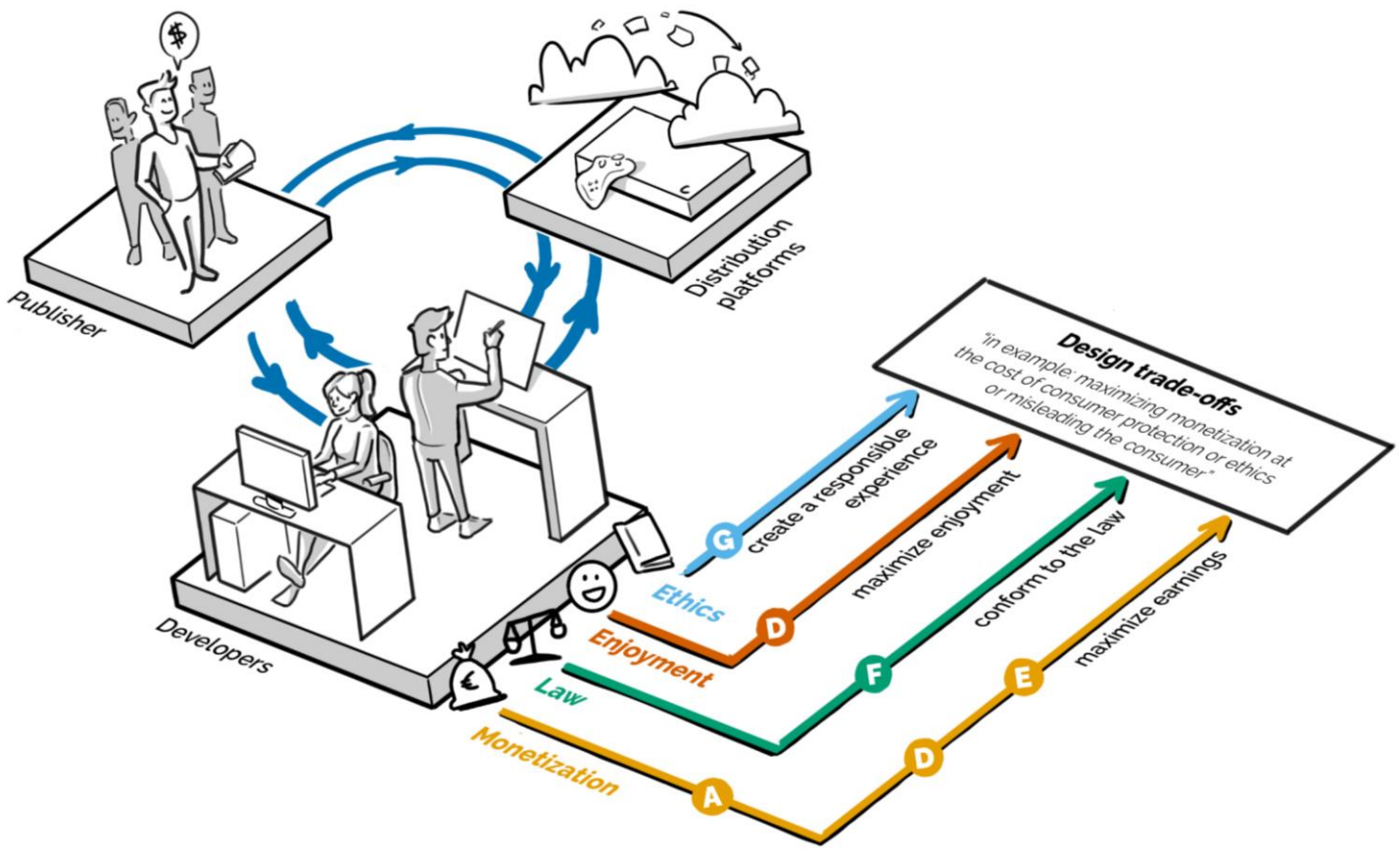
GAME CREATION

- The interaction between distribution platforms, publisher needs, and development.
- Platform conditions, publisher values, developer values, and implementation…



DEVELOPERS' DRIVERS

- Maximize earnings
- Conform to the law
- Maximize enjoyment
- Create responsible experiences



EXAMPLE OF PLATFORM IMPACT

- Effect of subscription models on game development
- Generate more overall value by diversifying the portfolio (everyone plays)
- Maximize time spent on product (by whales or sardines)



MONETIZATION AIMS TO MAXIMIZE TIME AND MONEY SPENT, NOT ALWAYS IN THE BEST INTEREST OF THE PLAYER

A: Common monetization models

- Pay to play
- Retail/Box revenue
- Subscription models, games as a service
- Free-to-play
- Out-of-game revenue models

D: Behavioral design patterns

- Positive behavioral design patterns
- Temporal dark patterns
- Monetary dark patterns
- Social capital-based dark patterns
- Psychological dark patterns

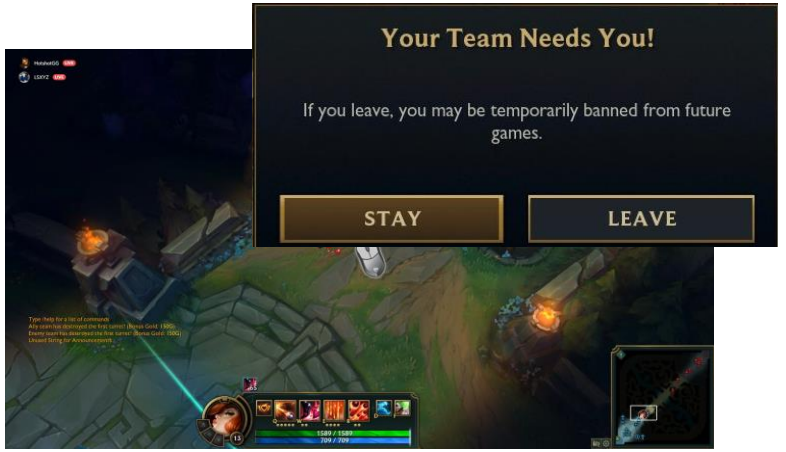
E: Basic behavioral change methods

- Reinforcement and punishment
- Nudging and facilitating
- Social techniques & modeling
- Complex feedback systems
- Guided practice
- Early/public commitment & goals
- Tailoring and individualization
- Forced 'snap' decisions
- Using imagery to relay value
- Anticipated regret
- Conditioning and cue altering

NEGATIVE DESIGN PATTERN

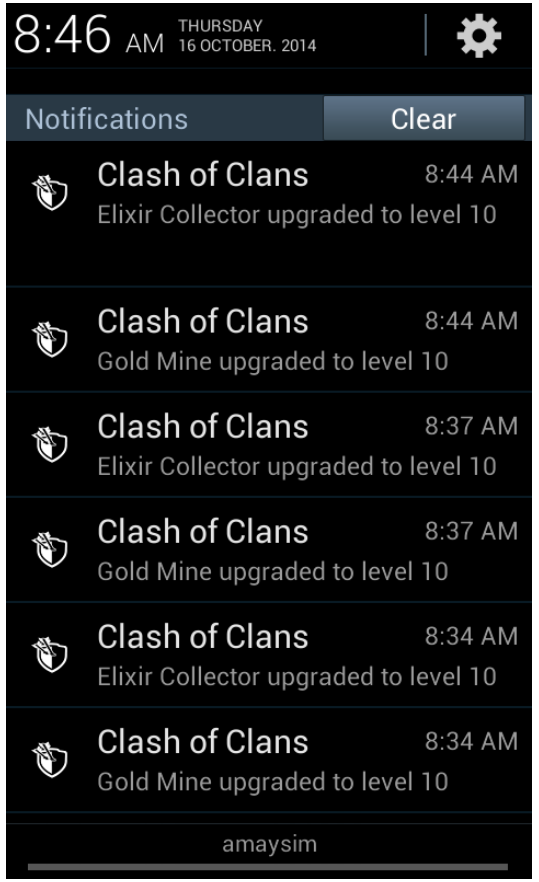


Gatcha Games & Grinding



Social Pressure

Notifications Spamming



POSITIVE DESIGN PATTERN

Examples:

- Providing incentives to disengage
- Creating friction
- Not forcing schedules
- Trusting in players to return



CURRENT CORRECTIVES

G: Principles for ethical and responsible behavioral design

- Leverage behavioral design for positives
- Prevent negative outcomes of design
- Actively avoid harmful and deceptive design in games
- Design is transparent and auditable
- Responsibility for design is attributed
- Automated decisions processes are incorruptible

F: Guiding legal principles in behavioral design

- Best interest of the child
- Avoid exploitative design
- Child-appropriate data protection
- Right to health(y gaming)
- Right to leisure and play
- Inclusive gaming

Audience frustration: Games should be enjoyable

A shameless money grab drives gamers away.

Legal compliance: current frameworks & potential future frameworks

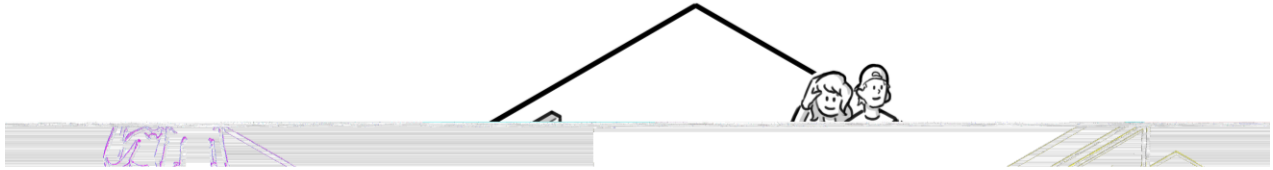
Consumer protection law, children's rights

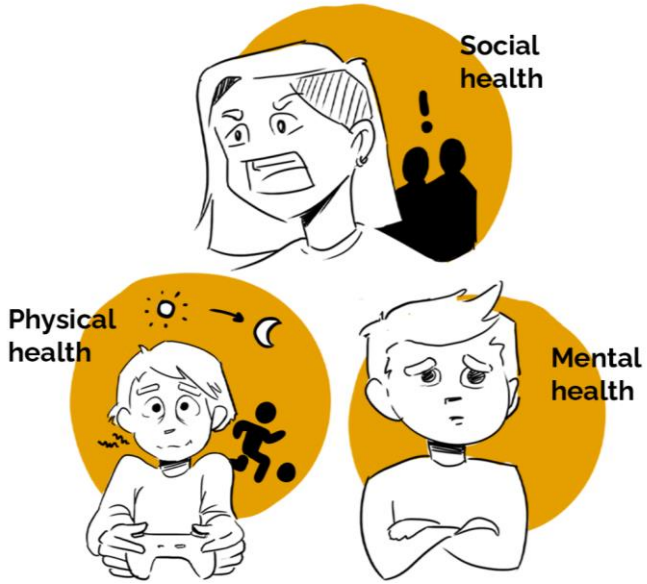
Creating an ethical and responsible experience / CSR

Currently this is mostly up to the 'company goodwill'.

Some companies DO experiment with positive design (!)

GAMER EXPECTATIONS





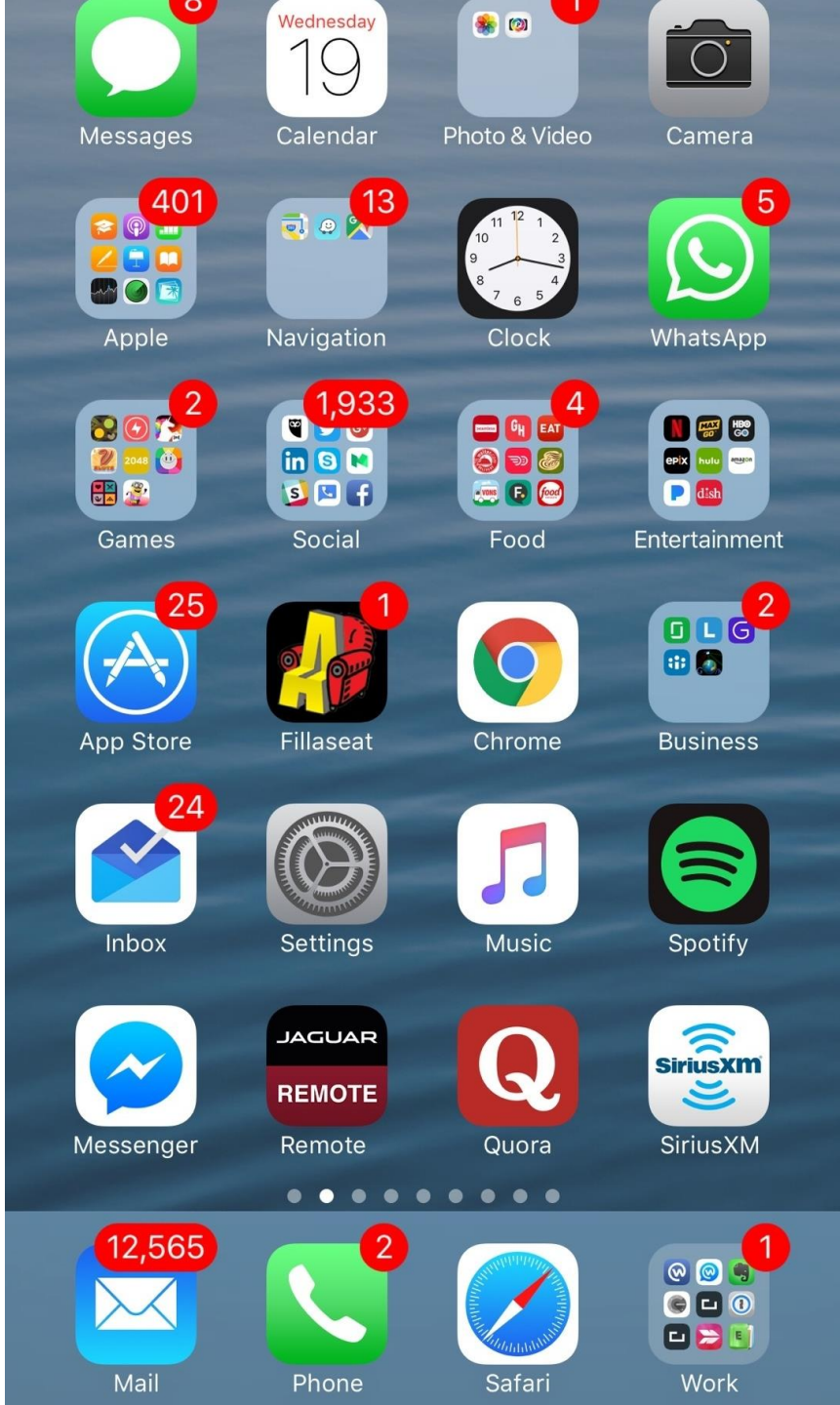
Getting value for money
An enjoyable game experience
A safe place to play, where are rights are respected
Respectful and honest treatment, mindful of long-term health

RESPONSIBLE DESIGN

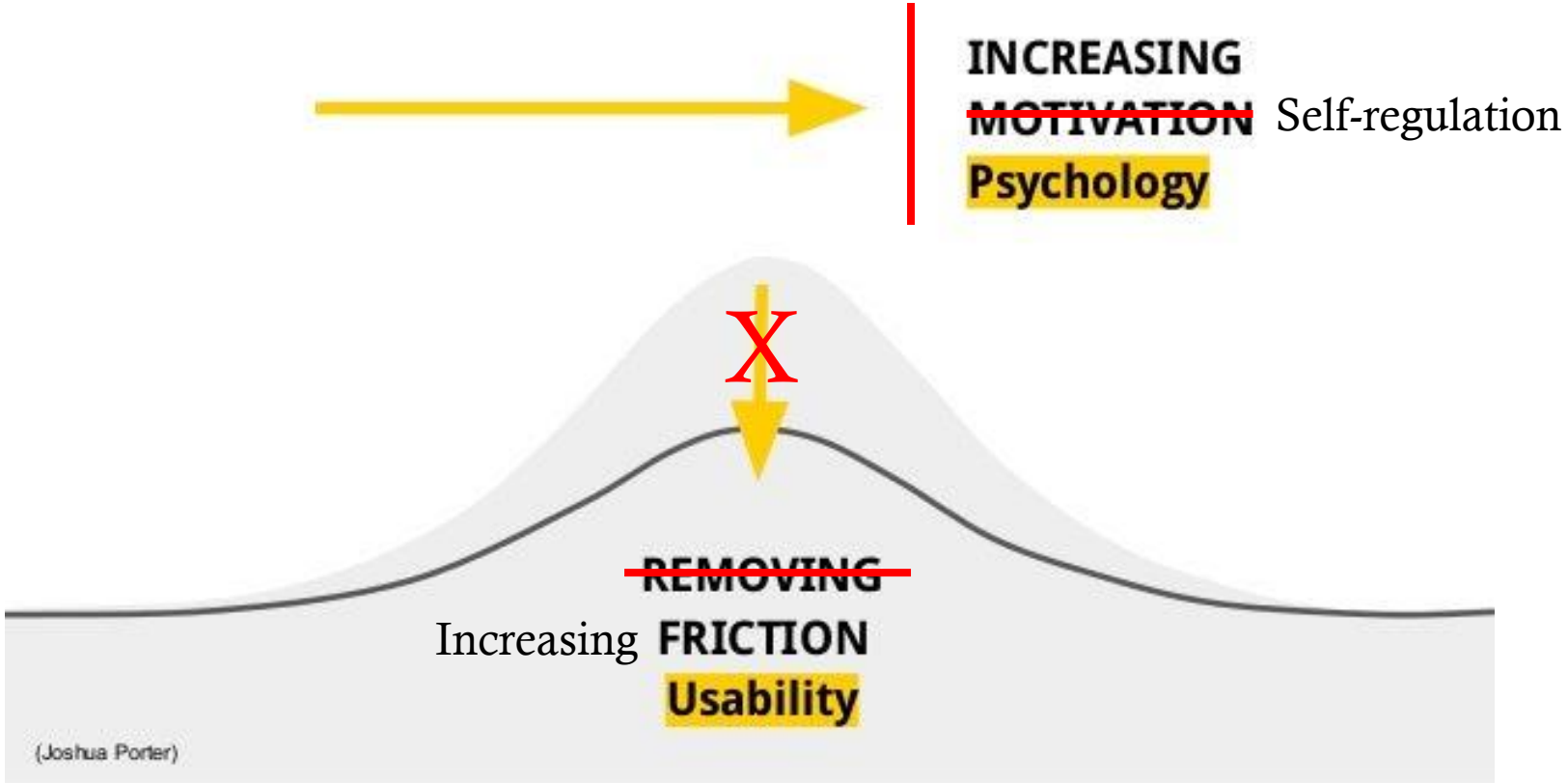
- Support disengagement
- Increase transparency to identify malpractice
- Facilitate healthy habits instead of flooding our attention

EXAMPLE 1: NOTIFICATIONS

- Ambiguous notifications require the same attention independent of the importance of the channel
- Providing notification that allow to easily discriminate helps to spent less attention on neglectable requests



EXAMPLE 2: CREATE FRICTION



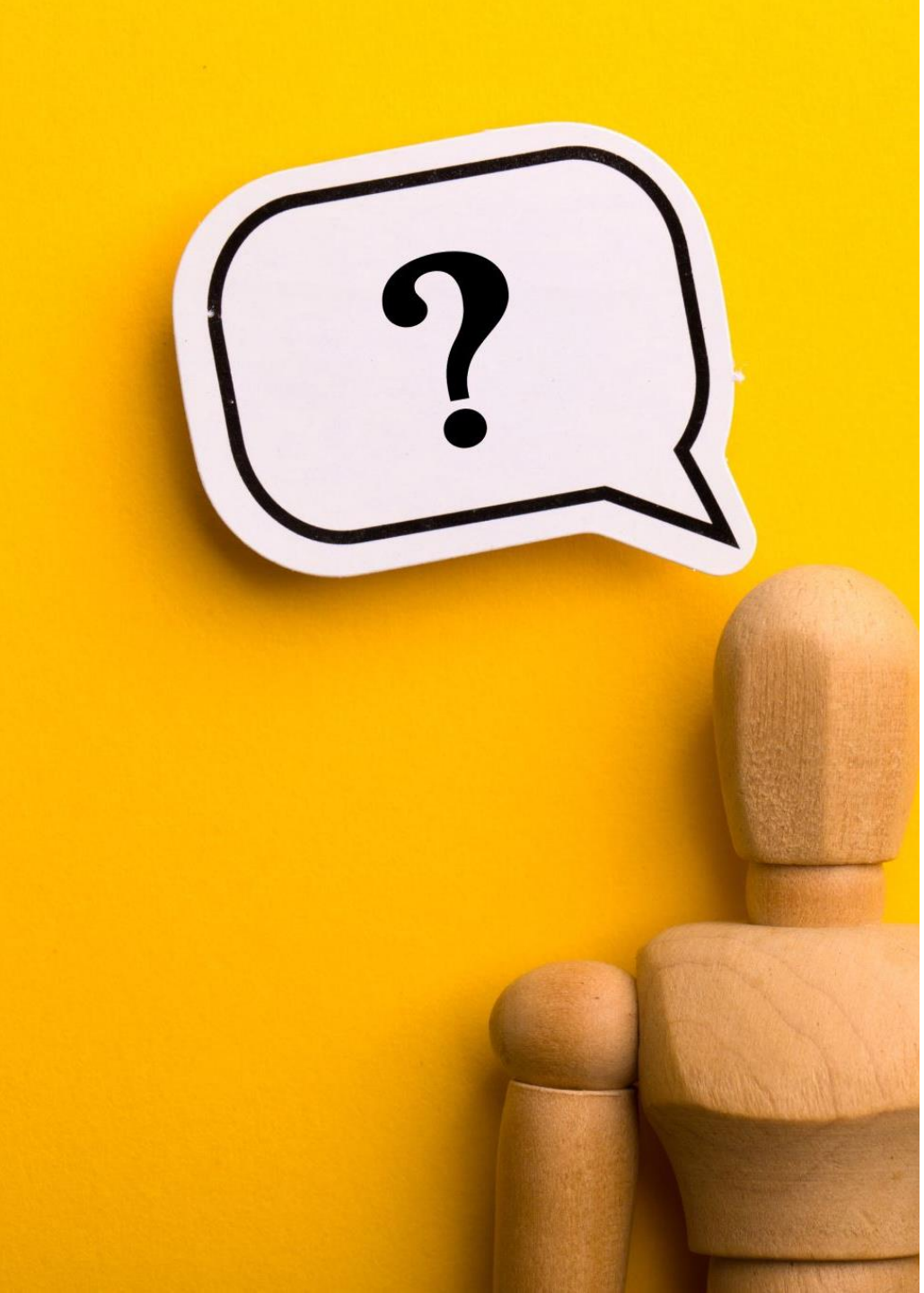
EXAMPLE 2: CREATE FRICTION



EXAMPLE 3: TRANSPARENCY & INFORMATION

- Games use algorithm to match player
- While this might be obvious for experienced player or people from the industry
- It is not obvious for everyone

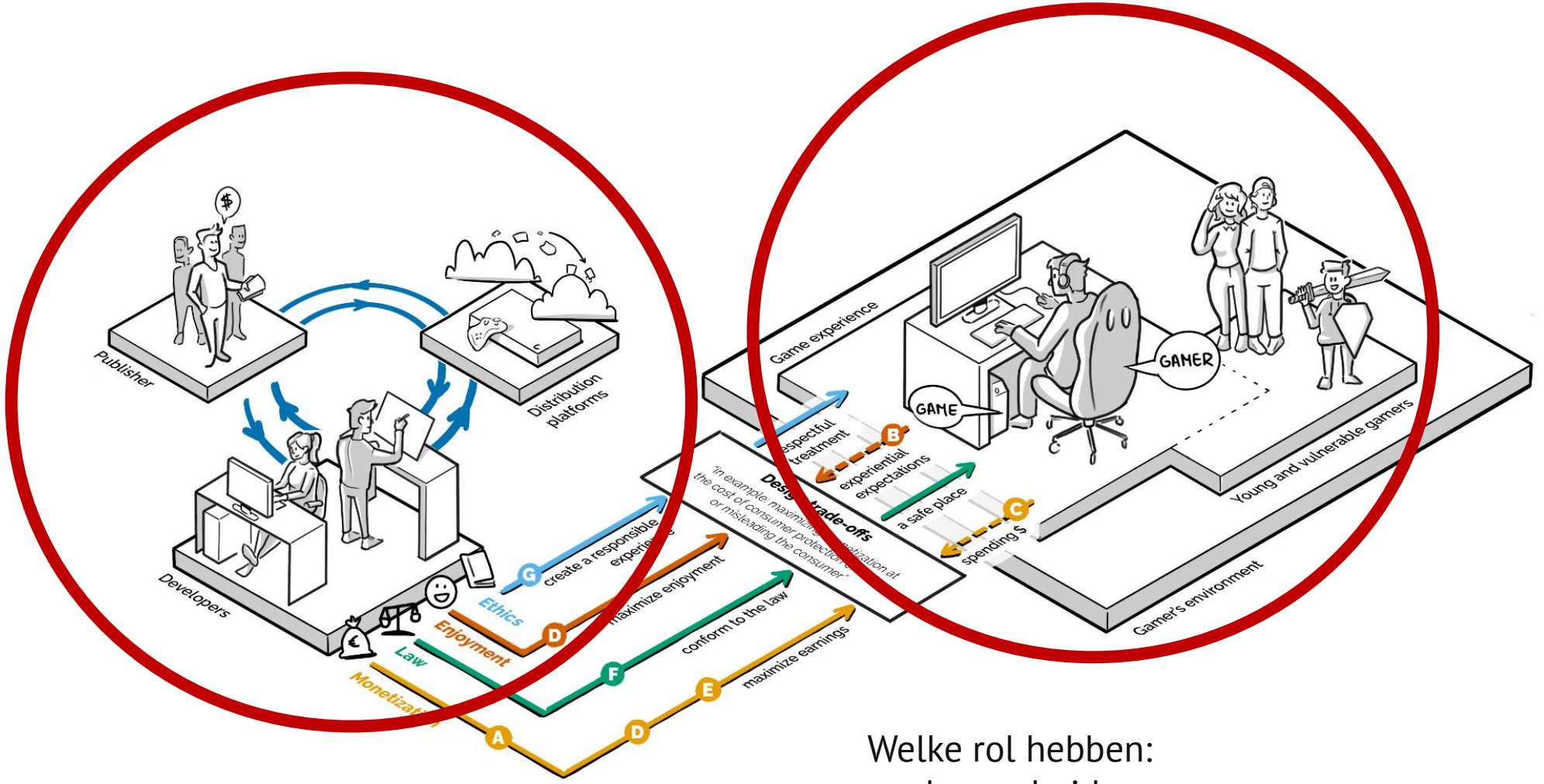




WHAT CAN WE DO?

- Encouraging research into design practices
- Taking attention manipulation and manipulation of experience seriously
- Promoting responsible design practices, while establishing bounderies on negative design
- Establishing trust relationships with independent researchers...

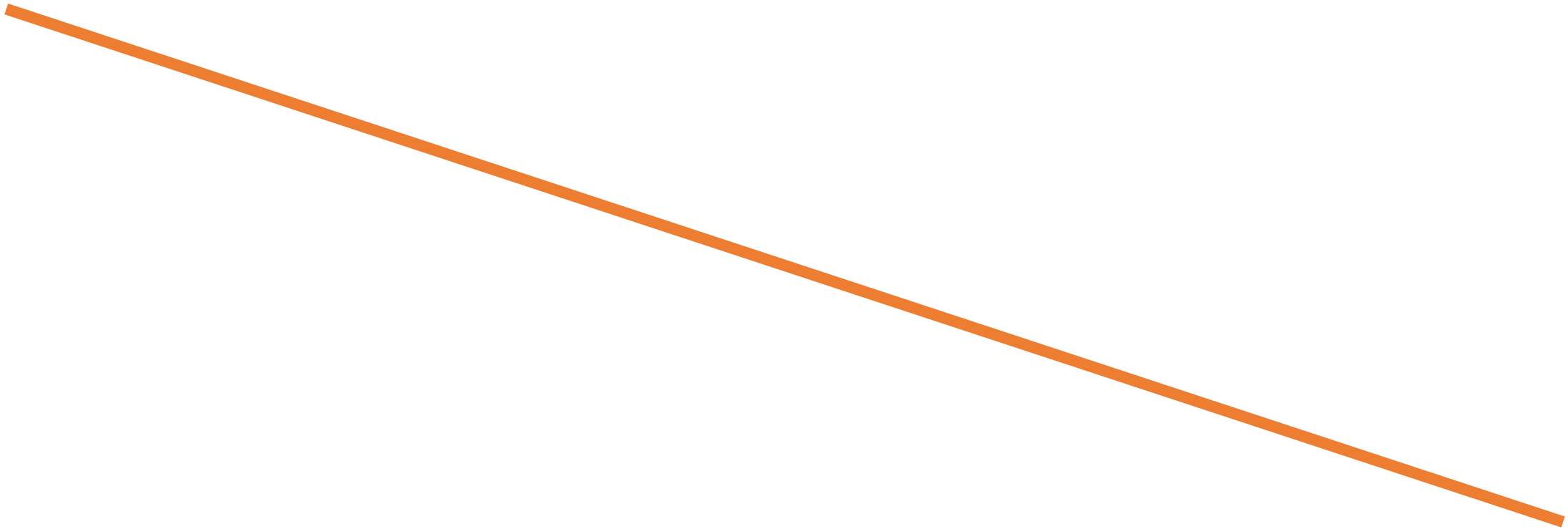
Wat kunnen we doen?



Welke rol hebben:
- de overheid,
- de wetenschap, en
- zorg en onderwijs?

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Problematisch gamen



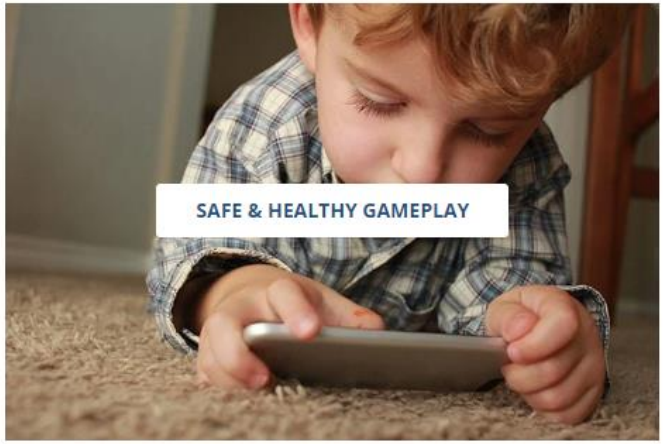
Individuele kwetsbaarheid



Verantwoordelijkheid industrie en overheid





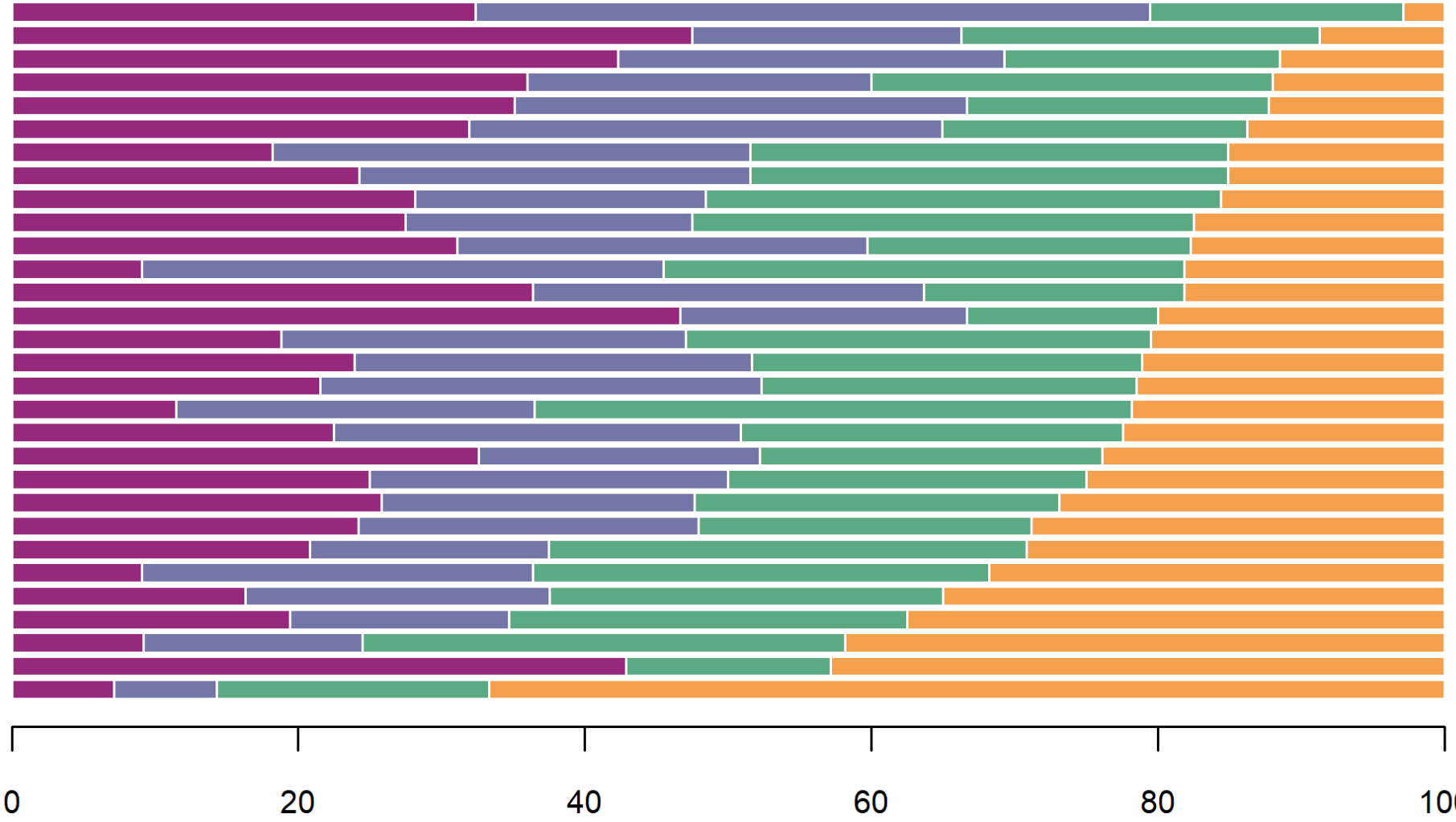






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Forza
Sims
Clash of Clans
Zelda
Farming Simulator



Fortnite
Brawl stars
League of Legends
Among Us
World of Warcraft

Gaming problems reported/High reported gaming problems

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Rol industrie: voorbeeld uit thema gokken





Dutch (source):
Wat kost gokken jou? Stop op tijd. 18+

English:
What will gambling cost you? Quit in time. 18+

German:
Was verlierst du durchs Zocken? Hör rechtzeitig auf. 18+

Arabic:
ماذا يكلفك القمار؟ توقف في الوقت. 18+

Turkish:
Kumar sana neye mâl oluyor? Zamanında bırak. 18+

Polish:
A co Ciebie kosztuje hazard? Skończ z nim na czas. 18+

Chinese (simplified):
赌博让你付出多少代价？及时停手。18+

Tuijnman, A., & Van Rooij, A. J. (2021). *Waarschuwende tekst kansspelen*. Trimbos - instituut i/o ministerie van Justitie en Veiligheid. https://www.trimbos.nl/aanbod/webwinkel/product/af1946-waarschuwende-tekst-kansspelen

Tuijman, A., & Van Rooij, A. J. (2022). *Six translations of Dutch gambling warning text “Wat kost gokken jou? Stop op tijd. 18+”: English, German, Polish, Arabic, Turkish and Chinese*. Trimbos-instituut. https://www.trimbos.nl/aanbod/webwinkel/af2014-six-translations-of-dutch-gambling-warning-text/





Maandag 21 november 2022 | Het laatste nieuws het eerst op NU.nl

5 °C › 18 km (3) › 710,87 › TV gids › 0 live ›



- Lokale media: Tientallen doden en honderden zwaargewond na aardbeving Java
- BNNVARA twijfelt aan spijtbetuiging Van Nieuwkerk en gaat met hem in gesprek
- Viruswaarheid-voorman Willem Engel voor de rechter wegens opruiing
- Asielzoekers en statushouders moeten te lang wachten op BSN
- Dit jaar extra veel kerstpakketten met lekkers voor het hele gezin
- Van Gaal kan tegen Senegal Oranje-bondscoach worden met meeste zeges ooit
- Iran probeert demonstraties Koerdische regio met geweld de kop in te drukken
- Video - Waarom Noppert als 'atypische Van Gaal-keeper' speelt tegen Senegal
- Groningen opnieuw uitgeroepen tot gezondste stad van Nederland

Meer Algemeen ›

Als eerste op de hoogte van groot nieuws?
We sturen alleen meldingen als nieuws echt belangrijk is.

Nee, bedankt | Ja, graag

Net binnen

11:17 Rangers ontslaat trainer Van Bronckhorst na een jaar vanwege…
11:00 Viruswaarheid-voorman Willem Engel voor de rechter wegens opruiing
10:59 Video - Taylor Swift heeft moeite om al haar trofeeën vast te houden na…
10:57 Podcast De Boordradio - 'Pérez had in deze Red Bull makkelijk tweede…



10:49 Van der Poel maakt rentree in veldrijden bij wereldbekerwedstrijd…
10:22 Video - Kermisbezoekers slingeren uit attractie in Thailand
10:21 Philips ontdekt nieuwe problemen bij beademingsapparaten
10:20 KNVB laat Van Dijk OneLove-band toch niet dragen omdat FIFA met gel…



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Maar ook los van het problematisch gamen zijn er zorgen over risico's...





Hoeveel uur per dag mag een kind gamen?

Schermtijdlimieten instellen voor uw kind

Van toepassing: Microsoft-account

Als u schermtijdlimieten wilt instellen voor uw kind op Xbox One- en Windows 10-apparaten, gaat u naar uw gezinsgroep en meldt u zich aan bij uw Microsoft-account. Daarna:

1. Zoek de naam van uw kind op en selecteer **Schermtijd**.

Leeftijd: 13-16 jaar

Categorie: Tijdsbesteding , Verslaving

Trefwoorden: ps3, xbox, pc

Mijn zoon wil alleen nog maar gamen. Wat nu? (15 jr)

Mijn zoon van 15 heeft een game-probleem. Op school gaat het niet goed. Spijbelen enzo. Hij wil alleen nog maar gamen (online, op de PS3). Hoeveel uur per dag is normaal? En in de weekends, mag het dan langer?

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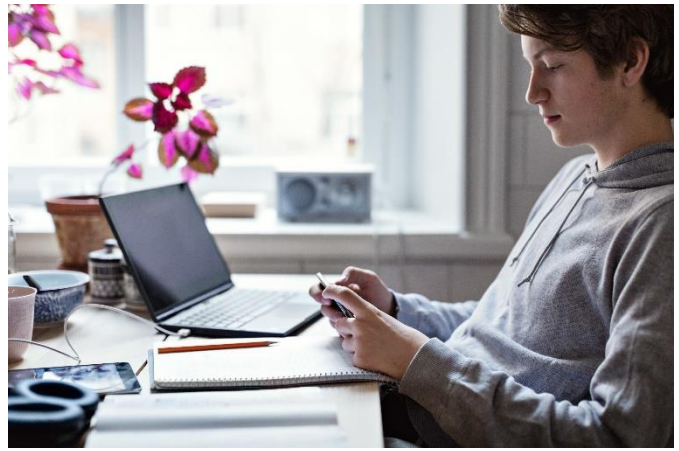
… maar ook voordelen.



Digitale media zijn onderdeel van ons leven.













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Netwerk Mediawijsheid

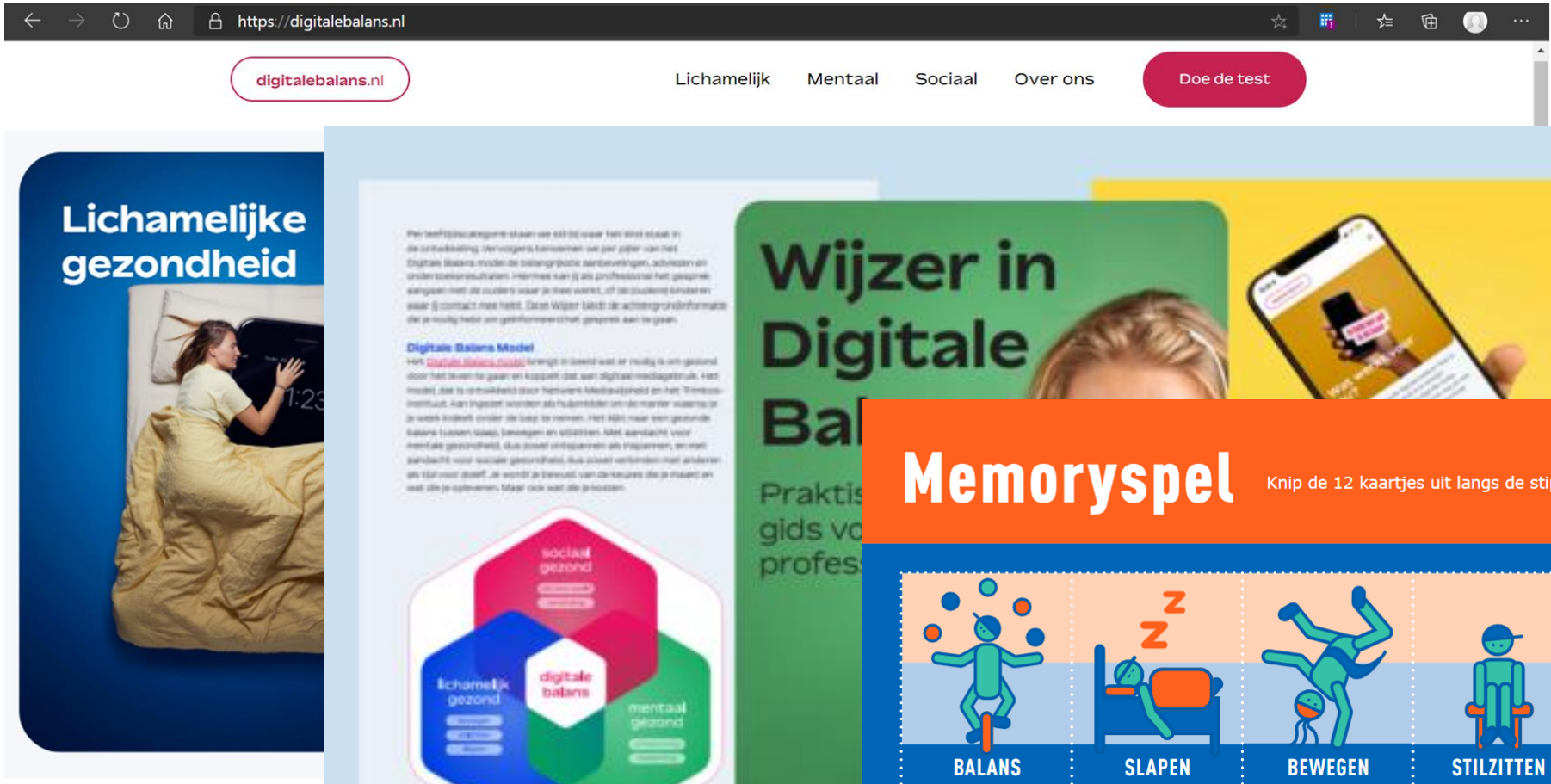
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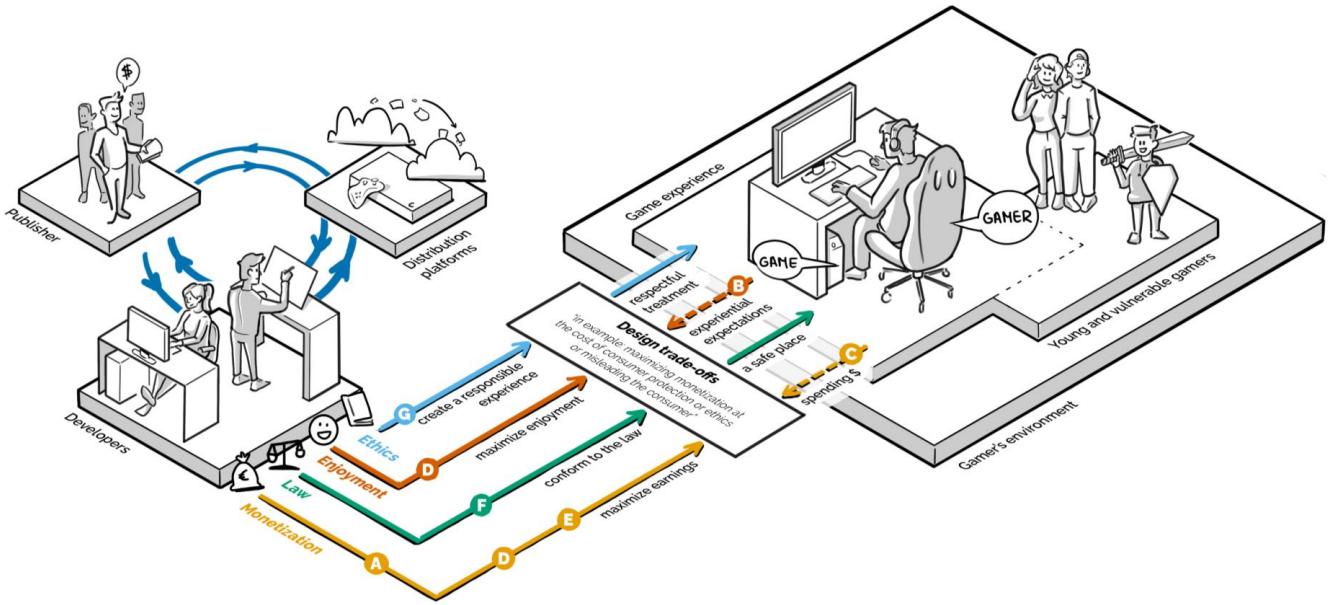
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Conclusie


Publisher
Distribution platforms
Developers
Game experience
GAME
GAMER
Young and vulnerable gamers
Gamer's environment
Design trade-offs
respectful treatment
experiential expectations
a safe place
spending $
create a responsible experience
maximize enjoyment
conform to the law
maximize earnings
Ethics
Enjoyment
Law
Monetization
A
B
C
D
E
F
G


sociaal gezond
tijd voor jezelf
verbinding
digitale balans
lichamelijk gezond
bewegen
stilzitten
slapen
mentaal gezond
ontspanning
inspanning
eigen keuzes maken



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Netherlands Institute of Mental Health and Addiction

www.trimbos.nl

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Eindhoven University of Technology