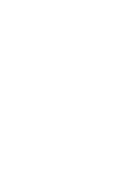




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Game design has an impact on health and well-being. Due to their evolving capacities, young people and children are especially sensitive to the negative and positive impacts of media design choices. To protect vulnerable people, ethical and responsible game design practices are necessary. But what constitutes “ethical” and responsible game design?

Defining “behavioral design” as video game design decisions that elicit, either accidentally or purposefully, self-negative or self-beneficial behavior in the gamer, we draw from expertise in public health, game design, and legal scholarship to analyze current game design practices. Our work illustrates the centrality of changing business models with game design and the resulting tension within games. In practice, monetization strategies regularly guide decision-making in game design, facilitating risks for gamer welfare and finances.

CCS Concepts: • **Human-centered computing** → **HCI theory, concepts and models**;

Additional Key Words and Phrases: Video games, behavioural design, dark pattern

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1 Introduction

Historically, video games have followed two business models: either people played games like Pac-Man or Street Fighter in the arcades, using coins, or they purchased entire games on CDs, cartridges, or floppy disks in boxes that included the game. These boxes did not come with additional hidden costs, in-game aftersales, or complicated attempts to manipulate our daily schedule for maximum customer retention. They also generally did not come with positive effects such as online communities or potential jobs in e-sports.

While studios and publishers have acted out of commercial interest in the past, the introduction of microtransaction models has fundamentally changed video game monetization strategies and led to a shift in design values for many studios [1]. The appeal of developing an end-to-end experienceable story or creating gameplay that inherently resulted in desired play experiences is

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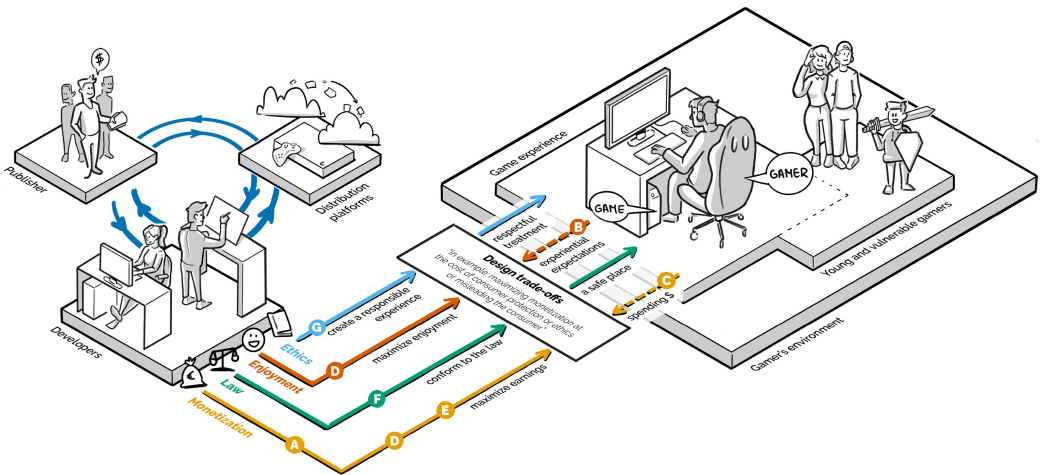


Fig. 1. Trade-offs between game-developer and consumer needs. (<https://osf.io/x9vhs/>).

now often combined with monetization strategies that target different player behaviours, aiming to facilitate spending.

Rapidly developing monetization models result in financial gains while exposing children and vulnerable people to potential harm. The positive side of behavioral design has also rapidly developed: The behavioral impact that games have can be leveraged to achieve intended or unintended social, mental, or physical health gains. We recognize that some of these methods are increasingly criticized by both gamers themselves and in the wider public debate, as well as in the scientific debate.

2 Monetization and Behavioral Design

External transparency about design decisions and user manipulation is very limited. Moreover, manipulative design choices are not always fair—especially concerning vulnerable groups—given the harm they may cause. Conversely, beneficial, health-supportive game design is somewhat underused and receives limited attention in the current commercial space.

Different design motives compete within games (see Figure 1; see <https://osf.io/x9vhs/>): legal compliance requirements, commercial and monetization objectives, and providing enjoyment for the gamer. To protect and strengthen the gamer’s physical, social, mental, and financial health, these motives should be expanded with an ethical-responsible motive. A visualized taxonomy illustrates these motives and their impact on the companies, the gamers and vulnerable subgroups of gamers themselves, and the gamer’s environment.

Current business models require that designers pursue multiple goals simultaneously in their live product environments (online games). These games act as live services that juggle multiple goals: They monetize via microtransactions, subscriptions, or temporary pre-commitment (e.g., battle passes); they should be (1) enjoyable to attract and retain customers, even those “free-to-play” customers that provide volume for the game’s community, and (2) regular new content or (3) regular events are required to keep the game fresh and interesting. Tensions can arise between these goals. Advertisement and/or user-data driven business models require additional direct triggers to increase ad views and clicks (e.g., “obtain x coins for watching this advertisement” or “skip this or that timer for watching an ad”) or opportunities for product placement.

When behavioral design becomes hidden or predatory, the term *dark pattern* comes into play [2]. Similar to dark patterns in webshops, video games can utilize manipulative interface design to increase the spending likelihood of players. Video games add new dimensions to designing dark patterns because of their interactive, social, and dynamic nature of gameplay.

Designers of video games can experience conflict between creating the most enjoyable game and implementing game mechanics to support monetization strategies. While game designers might aim for the best player experience, business requirements lead to design decisions that might interrupt gameplay (e.g., Clash of Clans), add secondary behavior to gameplay (e.g., Fortnite dances), or add social layers to gameplay to drive sales strategies (e.g., skin sales during timed events).

The motives impact both the designers of games and gamers themselves. Gamers indicate why they engage with video games and which purchase motivations they have when purchasing within games. Business incentives drive design choices that constitute either negative design (manipulation of player's time, psychology, money, or social capital) or positive design by contributing to the gamer's health and wellbeing.

3 Conclusion

We think a more fundamental discussion should be held on both the governmental policy side and within the games industry itself about behavioral design in games in general: It has the potential for positive contributions but can also be used in ways that cause harm. Even where that harm is not yet fully supported by conclusive evidence, a precautionary better-safe-than-sorry approach may be necessary to protect vulnerable gamers. In either case, the limits of experimentation with behavioral design should probably not be up to individual companies doing "what feels like the right thing to do." In the current situation, accountability and transparency are often lacking or unclear. To have this discussion, a common framework of understanding and a common departure point is required to avoid miscommunication.

Moving forward, we suggest a two-pronged approach: (1) Addressing effective governmental and self-regulatory policy efforts, including actual guidance about responsible design, via best practices and principles, and (2) further investigating the impact of behavioral design through research on the gamer, the game industry, and the relationship between game mechanics and health outcomes.

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