

# From Immersion to Manipulation: Exploring the Prevalence of Dark Patterns in Mixed Reality

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## Abstract

The continuing advances in Mixed Reality (MR) technology have finally brought MR experiences to the consumers. However, the growing number of experiences merging the physical and virtual worlds has also increased the use of Dark Patterns and manipulative design tactics intended to deceive or coerce users into actions they might not otherwise take. This preliminary research investigates the mechanisms and prevalence of Dark Patterns in MR environments, providing a first glimpse into manipulative practices. Analyzing 80 MR applications across various MR platforms, we identified five primary Dark Patterns: Hidden Costs, Misinformation, Button Camouflage, Forced Continuity, and Disguised Ads. Our ongoing analysis highlights the impact of these patterns on user trust and decision-making.

## Research Question

- How prevalent are dark patterns in Mixed Reality applications across major platforms?
- Which specific manipulative techniques are most commonly employed to influence user behavior?

## Method

### Systematic, User-Centric Approach:

Applications were installed and explored from the perspective of a regular user.

### Application Selection Criteria:

Focused on four major platforms, e.g., Play Store, App Store, Horizon Store, and Microsoft Store.

### Scope of Analysis:

A total of 80 free, trending MR applications were installed and analyzed.

## Preliminary Findings

### Disguised Ads (most prominent):

Advertisements are designed like regular content.

### Hidden Costs:

Unexpected charges were revealed during use.

### Misinformation:

Presentation of false or misleading information.

### Button Camouflage:

Tricking users into clicking more prominent buttons.

### Forced Continuity:

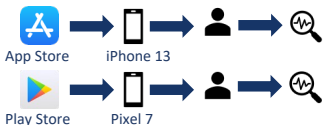
Lack of options to cancel subscriptions.

### Platform Variations:

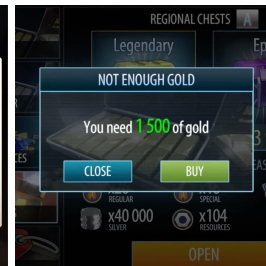
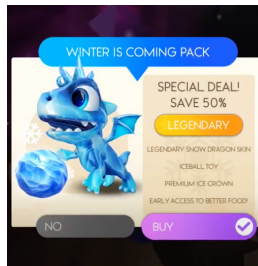
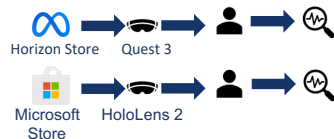
Horizon Store: High prevalence of Forced Continuity and Disguised Ads.

Play Store: Frequent Hidden Costs and Button Camouflage.

## Handheld Mixed Reality



## Head-worn Mixed Reality



Find the paper for  
more information



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