Why Johnny Spent Money on Roblox: Investigating the Roblox Monetization Ecosystem

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Abstract—**Roblox is a popular gaming and metaverse platform played predominantly by children. Anecdotal accounts have identified potentially problematic strategies employed by popular Roblox worlds to increase the chances of their young user base spending money. In this work, we empirically investigate the prevalence of different monetization strategies inside the Roblox ecosystem, by first crawling dozens of highly played worlds, and then both quantitatively and qualitatively analyzing the content inside those worlds. We find that Roblox monetization strategies range from undisclosed sponsored ad content to deceptive or coercive design, and more. We find that a vast majority of worlds investigated include at least one monetization strategy, and a majority include manipulative or deceptive monetization strategies. We propose future work to understand how the young user base interacts with these strategies in the wild, as well as the development of more robust and scalable measurement tools.**

I. INTRODUCTION

Roblox is a publicly traded gaming and "metaverse" [8] platform originally created for anyone – especially children – to design, play, and code their own games. Roblox has 70 million daily active global users (who spend an average of 2.4 hours playing per day), 30 million of whom are under the age of 13; one quarter of all users are under the age of 9. Roblox claims that its "GDP has grown to become as large as that of some countries" [7]. Roblox's financial intake relies on its virtual currency, called "Robux," which is purchased with the user's local currency (or by default USD), and users cannot earn Robux in any way besides purchasing them.

Over the last few years, anecdotal reports have emerged with criticisms of Roblox's and Roblox worlds' monetization strategies, which are of particular concern due to the company's very young user base. In 2022, the watchdog organization Truth in Advertising (TINA) sent a letter to the FTC [10] highlighting problematic and potentially deceptive monetization strategies throughout Roblox. The Children's Advertising Review Unit (CARU) also found Roblox to be in violation of their guidelines on advertising to children for both inadequate ad disclosures and worrisome child privacy issues [6]. Many news reports have also highlighted the negative impact of children engaging with Roblox's monetization ecosystem, with multiple stories about children running up high Roblox bills without their parents' awareness [1], [2], [5], [9]. In the research community, related work in CHI PLAY qualitatively investigated a single Roblox world and documented numerous deceptive design features around in-game purchases [3],

including what they call "predatory monetization" and "emotional interpersonal persuasion." Following public pressure, Roblox released a statement in late 2022 stating that it would block ads, sponsored worlds, and sponsored items for users under the age of 13 [4], [11], [12].

Watchdog actions and anecdotal data continue to raise concerns about Roblox's monetization strategies, and we hypothesize that Roblox's stated ad policy changes may not sufficiently protect its young user base. Therefore, the following questions motivate our research:

1) **RQ1 – Monetization Strategies:** Which monetization strategies do popular Roblox worlds use?
2) **RQ2 – Deceptive or Manipulative Patterns:** What are the types and prevalence of deceptive or manipulative design patterns used in these monetization strategies?

In this brief, we present preliminary findings in response to these questions, and propose follow-on research.

II. METHODS

Crawling Roblox Worlds. We measured the prevalence of monetization strategies in Roblox by creating a crawler that navigates through different carousels of worlds in Roblox (e.g., Popular, Top Earning, Most Engaging), opens each world, and takes a screenshot of the first view the user sees inside the world. By selecting worlds to crawl from carousels shown in the app (rather than through searching keywords, for example), we focus on highly played, extremely popular worlds. While the crawler runs, we also collect the network traffic, to analyze dynamically rendered advertisements.[1]

We ran our crawler for several days between January and April 2024. Our crawl surfaced 82 worlds, which have a collective total play count of 254 billion plays (as of April 18, 2024). The median number of plays for a world in our corpus was 845 million, with the least played at 5 million plays and the most played at 46.5 billion.

We used a fresh under-13 account for crawling: we selected a birthdate to make the account under 13, and we changed nothing else about the profile.

Finding Monetization Strategies. After collecting the screenshots, we used a qualitative coding process (with two in-

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[1]Through preliminary experiments, we found that when a world contains an "official" ad GUI, the collected network traffic contains a POST request to the https://apis.roblox.com/ads/v1/serve-ads endpoint in order to fetch the ad content to serve in the GUIs.

TABLE I
NUMBER OF ROBLOX WORLDS WE OBSERVED USING EACH
MONETIZATION STRATEGY IN OUR CRAWL OF 82 WORLDS.

Monetization strategy	Prevelance
Official Ad GUIs	13/82 = 15.9%
TINA concerns:	
Advergames	2/82 = 2.47%
Undisclosed Branding	3/82 = 3.66%
King et al.'s "deceptive design" categories:	
Predatory Monetizaton	45/82 = 51.8%
Default to Purchase	33/82 = 40.7%
Emotional Interpersonal Persuasion	21/82 = 25.6%
Narrative Obligation	13/82 = 15.9%
UI Misdirection	4/82 = 4.94%
Physical Placement	2/82 = 2.47%
At least one deceptive design strategy	**59/82 = 71.9%**
Our additional category:	
Engagement Coercion	33/82 = 40.7%
At least one monetization strategy	**68/82 = 82.9%**

dependent coders) to analyze monetization strategies in the screenshots. We used six categories of deceptive design from previous work that studied a single Roblox world [3]:

1) **Predatory Monetization** (examples in Roblox include multiple in-game currencies, loot boxes, bulk-buying alternate currency or prompts to buy more than needed)
2) **Default to Purchase** (e.g., immediate purchase prompt, presence of storefront, or user is told to buy something)
3) **UI Misdirection** (e.g., exciting or overwhelming use of sound, color, animation)
4) **Emotional Interpersonal Persuasion** (e.g., sympathy, pity, guilt, fear of missing out)
5) **Physical Placement** (e.g., obscuring cheap items with expensive items)
6) **Narrative Obligation** (e.g., premium or rare items, purchase is part of the narrative)

Based on the Truth in Advertising report on Roblox advergames [10] and our own observations, we added:

7) **Official Advergames** (explicitly disclosed or developed by the associated company, e.g., Walmart)
8) **Undisclosed Branding** (i.e., branded assets that may suggest an underlying financial relationship)
9) **Engagement Coercion** (e.g., daily rewards or "gifts" to returning players, gift codes for "liking" the world)

III. PRELIMINARY FINDINGS

Our crawler traversed 82 unique worlds and took screenshots of both the world's information screen and the first view loaded inside the world.[2]

Few worlds contain the "official" ad GUIs which are impacted by the new Roblox ad policy. If the user is under 13, and thus subject to Roblox's no-ads policy, the Roblox

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[2]It is entirely possible that the worlds contain deceptive monetization strategies deeper into the world than the initial view, and thus our findings can be considered lower bounds.

app still makes the request to the serve-ads endpoint, but the response is null, and the ad GUI gets populated with an innocuous Roblox icon instead of a dynamically placed advertisement. Based on the network request traffic data, only 13 of 82 worlds (15.9%) contained official ad GUIs. These are the ads that Roblox has blocked for users under 13.

But most worlds contain other, non-blocked monetization strategies, including a majority with deceptive and/or manipulative design elements. In contrast to the "official" ads blocked by the new policy changes, we found that 68 of 82 worlds crawled (82.9%) contained other monetization strategies, as shown in Table I. Indeed, of the 13 worlds that had the "blocked" official ad GUIs, 10 still contained at least one other monetization strategy (which would still be visible to under-13 users under the Roblox ad policy changes).

Most concerning is that 59 out of 82 worlds crawled (71.9%) contained at least one monetization strategy matching a definition of deceptive design from [3]. The most common monetization strategy, dubbed by King et al. as "predatory monetization", appeared in over 50% of worlds crawled.

We include in our Appendix several other examples to illustrate these problematic monetization strategies.

IV. DISCUSSION AND PROPOSED FUTURE WORK

Our preliminary findings suggest that children under 13 are being exposed to deceptive or manipulative monetization strategies in a vast majority of popular Roblox worlds. This is particularly concerning given that Roblox has already been criticized by policy organizations for such strategies, and, in response, took some (we consider limited) action to block official ads. Our findings are also alarming due to Roblox's extremely young user base.

Our findings suggest changes that Roblox should make in terms of better clarity for its users (and/or their parents) surrounding monetization and engagement. We believe more policy-level auditing and enforcement of Roblox and its ecosystem of worlds is needed.

Our findings also suggest open research questions.

Proposed RQ3: Susceptibility of Children. For example, we propose future work to understand how players interact with and are affected by these monetization strategies in the wild. How do Roblox users – especially children – interact with and perceive these monetization strategies in the wild?

Proposed RQ4: Large-Scale Measurement and Auditing. Further, our findings represent only a snapshot in time, and are limited in scope (less than 100 worlds, and considering only the first view once a user enters the world). Future work should develop robust automated auditing frameworks for the Roblox ecosystem. Challenges include collecting data not only from screenshots but interactive movement around the world, and large-scale automated analysis of rich multi-modal content.

Looking ahead to a future of richer, interactive content in a potential "metaverse", the future of "web crawling" to audit privacy and content-related concerns will require new techniques, for which Roblox can serve as a testbed.

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V. APPENDIX

This appendix presents a few case studies that are emblematic of the monetization strategies we observed.

A. Predatory Monetization

The first monetization strategy we describe was created by the Roblox platform itself. When a world prompts the user to buy Robux, the user is shown a platform-designed popup such as that seen in Figure 1. In this dialog, the user is prompted to use Robux to buy an invented in-world currency, called "Money," symbolized by a stack of dollar bills. In this world, buying $10,000 of "Money" requires 10 Robux. This user has 0 Robux and so they must buy 10 to make this purchase. The Roblox popup GUI, however, upcharges the user by automatically suggesting they instead buy 80 Robux, and the "Buy" button is embedded with the 80 Robux prompt instead of the 10 Robux they actually need. There are no options for the user to buy a smaller number of Robux.

Additionally, within Roblox worlds, we saw many examples of these multi-currency exchange rates. For example, in the all-ages world "Crush stuff and get rich," the object of the
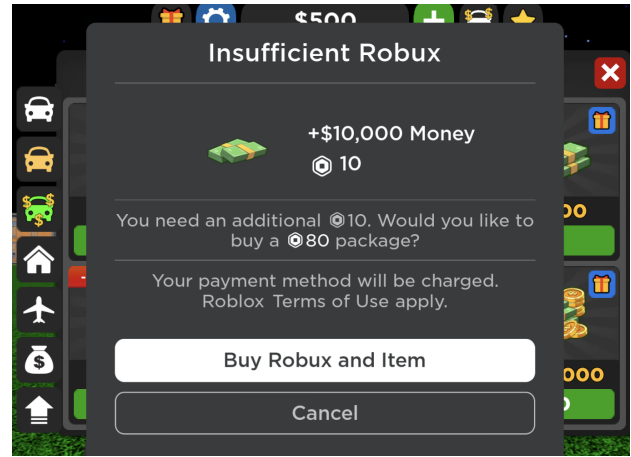

Fig. 1. *Predatory Monetization:* A prompt asking the user to purchase more Robux than they need by telling the user that, to buy 10,000 dollars in the currency "money", they need "an additional 10 Robux." It then asked the user if they "Would you like to buy an 80 Robux package?", which is given as the only purchase option (more than they need).
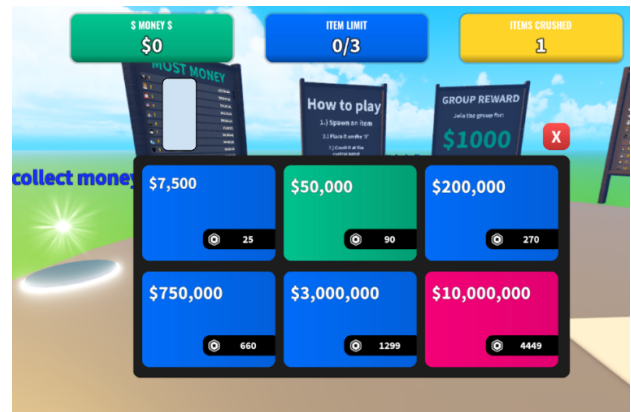

Fig. 2. *Predatory Monetization:* Exchange rates for a world's artificial currency "dollars" that are bought with Robux, and showing the leaderboards behind it to encourage spending.

game is to buy an invented, in-game currency called "dollars" (bought using Robux; Figure 2) and use those "dollars" to buy an item to "crush". Once you crush a certain number of items (e.g., 100), you can move up to increasingly exclusive crushers, which apparently leads to a crusher so exclusive that it ultimately awards you money for crushing an item in it. In short, the user spends USD on Robux, then spends Robux on "dollars," then spends "dollars" on items to crush, then is awarded some sort of currency for a certain number of items crushed. Keeping track of how much real money you have lost when you have to keep 4 exchange rates in mind is quite difficult!

B. Advergames

Our investigation confirms the existence of what the Truth In Advertising complaint [10] calls "advergames." *Advergames* are Roblox worlds either created by a company or a third party whose entire world design and objectives are based around

Fig. 3. *Advergames:* Screenshot from Vans World, where multiple billboards, meshes, and objects center around Vans (undisclosed) branding.

Fig. 4. *Advergames:* Maybelline NY Cosmetics advertisements (undisclosed) in a section of the Splash & Skate world.

advertising the company. These worlds run counter to much of the marketing for Roblox as a user-generated platform, made for and by kids. The TINA report describes advergames by Stranger Things/Netflix, Hot Wheels, Fruit Loops, Walmart, Nike, and Vans, among others.

In Figure 3, we see Vans product placement throughout Vans World with no disclosure of advertising content. Both the content within the world (meshes, textures, objects, NPCs) and the narrative arc of the world center around Vans and the acquisition of Vans products.

These branded objects also exist in organically created games, not only advergames. For example, the world "SPLASH [star emoji] Skate & Music" has at one point contained no brand partnerships, in its natural state, and at another point filled with branded partnerships. In it's "HALLOWEEN UPDATE!", the world was filled with objects, textures, mini games, and billboards, centered around Maybelline NY Cosmetics (Figure 4). While this is essentially an advergame, it instead takes the form of a seasonal partnership between a company (Maybelline NY) and a third-party developer (SplashDev) inside a world designed around skateboarding, not based around Maybelline. This partnership was announced as a "New Halloween Update," not an advertisement.

Advertisements of this form,instead of ads loaded via the official ad API, are much more difficult to detect, measure, and audit.

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