
NAVIGATING THE VIRTUAL PLAYGROUND:

Exploring Online Safety in Roblox

Observations from a 30-Day Study on
sexual grooming and online solicitation of
minors on Roblox



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Abstract

Limited research currently exists regarding the risks or characteristics of video game platforms and how they facilitate sexual grooming and online sexual solicitation of children. This study aimed to examine this behavior on Roblox, a popular gaming platform played by millions daily. We identified six primary themes:

- 1. Automatic chat filtering is the primary method used to deter child exploitation on Roblox**
- 2. Experience content does not always align with designated age guidelines**
- 3. “All Genres” and “Town and City” genres are more likely to contain content unsafe for children**
- 4. Obscured external links are used to move conversations away from Roblox to other platforms**
- 5. Sexual content and communication *is* present on Roblox**
- 6. Condo games are the primary method used to play sexually explicit games on Roblox.**

These themes complement findings in adjacent works that suggest isolating victims is present in online grooming (Craven et al., 2006; Winters et al., 2020) and that a lack of parental guidance or controls can contribute to child victimization (Colozzi et al., 2020). Findings from this study highlight the need for additional research into video game platforms to identify if the observed trends are consistent across platforms, as well as additional studies on Roblox, including surveying player experiences.

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**Research
Introduction**

Background of the study

Since the widespread adoption of the Internet in the late 1990s, video games have allowed individuals to play together online, both with friends in the offline world and strangers in the online world. In a study done by Common Sense Media (2015), they identified that among tweens (8 to 12 years old), 52% of their respondents enjoyed playing video games “a lot”, and 39% enjoyed playing computer games “a lot” (p. 20). This was complemented by 14% of respondents saying they play computer games every day and 12% playing video games every day (p. 20). Similar studies have found that of teenagers in the United States (13 to 17 years old), 90% have access to desktop or laptop computers, and 80% have access to gaming consoles (Vogels et al., 2022). With many children and teenagers playing video games online, it is a topic that has been studied in various aspects throughout the last 25 years.

Many studies have been conducted on the effects of video games on children. These studies often focus on the addictive qualities of video games (Gentile, 2009; Milani et al., 2018), the correlation between violence and video games (DeLisi et al., 2013; Denniston et al., 2011), and the use of video games as an educational tool (Blanco-Herrera et al., 2019; Chuang & Chen, 2009). While it is helpful to understand video games' culture, effects, and influence on people, previous research did not include any themes or findings around sexual offenses against minors on video game platforms.

Purpose of the study

This qualitative study aims to fill this identified gap in previous research regarding sexual grooming and online solicitation through video games. Roblox was chosen due to the large number of daily users, at over 40 million, and the target audience being primarily children. Additionally, Roblox was selected based on the large number of media reports on potential child exploitation occurring on Roblox (Hassall, 2022; Murray, 2021; National Center on Sexual Exploitation, 2023; Pierson, 2022). Discord, as one of the primary methods for gamers to communicate online, was also included in this study, specifically servers dedicated to Roblox. Discord was not initially included, but after conducting some preliminary research before the observation period, we decided to evaluate its prevalence in the Roblox community.

Significance of the study

The present study will be one of the first qualitative analyses of sexual grooming and online solicitation of minors on a video game platform. Due to the high prevalence of internet use and playing video games in the cultural zeitgeist of the United States, it will provide opportunities to help identify education, prevention techniques, and opportunities for further research into child sexual abuse and video games. In a research report published by the National Center for Missing & Exploited Children, they listed numerous video game companies/publishers that made reports to them regarding child sexual exploitation. Roblox ranked second among video game platforms and

companies submitting reports, at 2,973 reports made, with only Sony Interactive Entertainment having more reports at 4,102 (National Center for Missing & Exploited Children, 2023).

Definition of terms

Many terms are used throughout the study that can be categorized as abuse terms or technical terms. The abuse terms consist of **sexual grooming** and **online sexual solicitation**. Many scholars have attempted to define sexual grooming, with Winters, Kaylor & Jeglic (2022) developing a concise definition from a review of previous definitions and studies. They defined sexual grooming as "The deceptive process used by sexual abusers to facilitate sexual contact with a minor while simultaneously avoiding detection" (p. 7). For the duration of the study, this characterization was used to define what sexual grooming looked like on Roblox. Online sexual solicitation, while similar to grooming, removes the methodical process that occurs within grooming and is strictly defined as encouraging a person online to discuss sex, share personal sexual information, or engage in sexual behavior (Greene-Colozze et al., 2020). In the context of this study, online sexual solicitation can be done to both adults and minors.

Since this study focused on online video games, many technical terms are used, particularly those used by and within Roblox. These consist of **Roblox**, **Robux**, **experiences**, **condo games**, **ABC**, and **Obby**. Roblox is a popular video game released in 2006 for Windows PC. It has since been released on multiple platforms and has over 40 million active daily users (BloggedTopics, 2019).

Robux is Roblox's in-game currency, which is purchased with legal currency and used to buy in-game outfits, animations, or special perks within experiences (Common Sense Media, 2022). Robux are sometimes used by individuals to bribe others into performing actions or favors for another player (Parkin, 2022). An *experience* in Roblox is the sandbox or game mode that a player chooses when playing the game. Roblox has hundreds of thousands of active experiences that players may play at any time and are categorized by age rating, genre, and number of players. *Condo games* are experiences on Roblox that go against the platform's terms of service and often contain graphic sexual or adult themes. These are advertised on social media platforms such as Reddit and Discord, often do not have age restrictions, and can be publicly accessed through a private link. *ABC* is slang in Roblox to acknowledge the acceptance of a roleplaying request by another player (Gatollari, 2021). *Obby* is a slang term for an obstacle course, a popular genre for experiences within Roblox (Fandom.com, 2023).

Research Questions

We aimed to answer the following questions throughout the duration of this study:

- Are there characteristics of Roblox that may allow children to become victimized?
- What efforts are currently in place to deter child exploitation that may occur on Roblox?

- Are there unique methods adults could employ to groom children while on Roblox?

Limitations

The present research employed a qualitative approach, over the duration of one month, via researcher experiences on Roblox and Discord servers to supplement the observational research. Only Windows devices were used during the data collection phase on Roblox, and no interactions were initiated with players on the platform. This was due to the sensitive nature of the research material and the potential of interacting with children online who could not consent to initiate contact. This was also done to protect the researcher's privacy and ensure the data collection's integrity was not compromised due to a lack of operational security.

Conversational data from Discord servers is limited due to the nature of the data collection and platform requirements that necessitate a custom Python script to collect the conversations. The researcher did not interact with, direct message, or collect identifiable information about the accounts on the Discord servers, unless necessary to report them to Discord. Due to the nature of online conversations and the general anonymity that people use, the reliability or accuracy of information written by individuals may be exaggerated or inaccurate.

Delimitations

To narrow the scope of the study, the following delimitations were put into place, age rating restrictions, persona requirements, personal information, platform restrictions, and interaction requirements. During the gathering of observational data from Roblox itself, experiences were only played with the age ratings of 'N/A', 'All Ages', or 'Ages 9+'. Since personas were used on Roblox, profiles were created from information generated about the accounts and were adhered to throughout the study; for example, if an account was a 9-year-old girl, the account reflected that age and avatar. No personal information about the researcher nor research goals were communicated during the observational period, and no contact with other players was initiated on the platform or through Discord. Finally, Roblox was only played on a Windows 10 and Windows 11 device, respectively, and data gathered from Discord was only collected on a Windows 10 platform. Roblox was not played on any other type of device or gaming platform.

Assumptions

While conducting the research, it was assumed that interactions with other players on Roblox were expected and that strangers talk to other players in experiences. It was also assumed that minors play Roblox and that strict controls were not present on all accounts used by minors.



**Research
Foundation**

Sexual grooming and online solicitation of minors is a topic that has been explored by many researchers over the last 40 years. However, the invention of the internet, social media, and online communications has made these criminal activities more prevalent and is a trend that has seen considerable research as well. In a report published by the National Center for Missing & Exploited Children (NCMEC) in 2022, they received over 31 million reports of online child exploitation from Electronic Service Providers (ESP), with the most common report being the possession, manufacture, or distribution of child pornography, followed by online enticement of children for sexual acts and unsolicited obscene material sent to a child (National Center for Missing & Exploited Children, 2023). Based on these numbers, it is apparent the issue of sexual grooming or solicitation of minors is a major problem in today's society. The majority of available research is split into the following themes: Defining sexual grooming and related terms of abuse, offender and victim characteristics that contribute to sexual grooming or exploitation, and child exploitation on social media and the internet.

Defining Sexual Grooming and Related Terms of Abuse

One of the most prominent difficulties that researchers have faced is regarding how to define sexual grooming and other terms that pertain to the abuse of a minor. Craven et al. (2006) acknowledged that while sexual grooming is prevalent in many cases of child sexual abuse, it is a phenomenon that is often neglected (p. 297). Bennett & O'Donohue (2014) note that grooming is generally

regarded as activities that occur to prepare a minor to be abused and are not illegal or abusive activities themselves (p. 959). They concluded that due to the concept of grooming being ambiguous and not based on reliable principles or methods, it is also something that should not be used in forensic settings (p. 974). However, the legality of child grooming actions has been classified as being a federal offense under 18 USCS § 2422, as well as numerous states such as Florida, explicitly calling out the use of using a computer service or device to seduce, solicit, lure, or entice a child or person believed to be a child as a punishable offense (Coercion and Enticement, 2006; Fla. Stat. § 847.0135, 2022). However, some offenders have opted to use the "fantasy defense", in which the communications or intentions of the offender are merely fantasy roleplay, and the offender never wanted to commit the suggested criminal act (EK, 2015). The definition developed by Winters et al. (2022), offers a robust definition, informed through a review of previous literature. Their definition of sexual grooming is "the deceptive process used by sexual abusers to facilitate sexual contact with a minor while simultaneously avoiding detection...the would-be sexual abuser may select a victim, gain access to and isolate the minor, develop trust with the minor and their guardians, community, and institutions and desensitize the minor to sexual content and physical content" (p. 7). This encapsulates not only the changes the term has seen since the beginning of the 1980s, as noted by Lanning (2018), but also provides an opportunity for

organizations and law enforcement to adopt the term to have an agreed-upon definition in the future (Winters et al., 2022; Lanning, 2018).

Along with the definition of sexual grooming, numerous publications have been made regarding similar terms on the abuse of minors. Finkelhor et al. (2000) defined online sexual solicitation as requests to engage in sexual activities or sexual talk or give sexual information that is unwanted and made by an adult (p. 11). Greene-Colozzi et al. (2020), additionally detailed the differences between online sexual solicitation and sexual grooming and how these activities have affected individuals. They conducted a survey of undergraduate students at two universities. The results suggested a lack of online safety for many youth due to the number of reported grooming and sexual solicitations made during the study (p. 13). Additionally, Bennett & O'Donohue (2020) conducted a study that sought to determine whether individuals could determine if an activity was sexual grooming based on custom-made training or information learned from the internet. The experiment showed that those in the internet training group were found more likely to judge a non-grooming behavior as grooming (Bennett & O'Donohue, 2020, p. 141). All these findings together indicate that while many studies have investigated and analyzed the definitions and history of various terms, the average individual may misunderstand or misattribute sexual grooming or similar concepts, which could lead to activities being mislabeled.

Offender Characteristics That Contribute to Sexual Grooming or Exploitation

When it comes to identifying the behaviors and motivations behind criminal actions against minors, many researchers have attempted to identify the causes of the behavior and of the likelihood that they may occur. Numerous studies have investigated education level, race, or culture to determine whether those factors influenced an offender's decision to commit an offense against a child (Arbanas et al., 2020; Aslan & Edelman, 2014; Becerra-García et al., 2013). However, these studies are often limited due to the reliability of self-reporting, exaggeration, or biased samples. This issue is further complicated when looking at the differences between sexual offenders against children offline and those who commit offenses against children online. With the availability of the internet, many child sexual offenders found it easier to facilitate crimes against children (de Santisteban et al., 2018). It also allows offenders to effectively communicate with individuals online, especially when they struggle to communicate in face-to-face interactions or be more apprehensive about approaching a child (Quayle et al., 2014). This creates a dichotomy in the way that offenders may behave online or offline and influence whether they intend to commit an offline offense against a child, up to sexual intercourse, or use the child for online sexual solicitation or self-gratification.

While differences have been studied between offline and online offenders, researchers have also attempted to identify whether characteristic

differences exist between those that choose the internet as their environment to commit a crime. Tomak et al. (2009) researched the personality characteristics of internet sex offenders. The study utilized demographic information and the Minnesota Multiphasic Personality Inventory, 2nd edition (MMPI-2) on a group of 48 internet sex offenders at a private sex offender treatment facility in the United States against a control group of 104 non-internet sex offenders (Tomak et al., 2009, p. 142). The results showed that internet sex offenders are a heterogeneous group who possess considerable within-group differences (p. 144). Results further showed that internet sex offenders may be comprised of a number of individuals who may not share any overarching characteristic similarities, despite a limited sample size impacting participant geography. In contrast, Kloess et al. (2014) reviewed previous studies of online offender characteristics and noted differences and motivations within the group through a meta-analysis. They found that previous studies had identified internet sexual offenders as having interpersonal difficulties, using the internet to relieve negative emotional states, and lacking intimate relationships (Kloess et al., 2014, p. 135).

Along with the mental, physical, or other characteristics offenders may display, offender motivations have also been studied at length. During their study of internet sexual offenders, Kloess et al. (2014) identified that many cases of internet-based sexual offenses are either fantasy-driven or contact-driven (p. 135). This finding was derived from a study by Briggs et al. (2011), where a sample

was taken from 51 convicted chat-room sex offenders, and the motivations behind their criminal activities were examined (p. 5). While these findings may have been limited due to the sample size, as noted in the previous mentioned studies, the fantasy defense has been used to remove an offender from criminal liability (Evidence. Relevance and Prejudice, 2007). While the fantasy-driven motivations would be exclusive, not involve physical contact, and contain the exchange of child sexual abuse material, self-gratification, and sextortion, contact-driven motivations could result in the arranged meeting between an offender and a minor or attempts to meet them to conduct a sexual act.

Victim Characteristics That Contribute to Sexual Grooming or Exploitation

In contrast to the study of offender characteristics, the typology of victims is one that, while studied, has been less prevalent in the literature. This is because research typically happens after grooming, online solicitation, or exploitation takes place, and interviews or disclosures may occur years after the initial abuse. McElvaney's (2019) case study of an Irish man's experience being groomed throughout his childhood is one such example. The case study involved Tom, a young boy, and Mr. Y, a man who groomed Tom for over twenty years, and numerous themes were identified. This included that the facilitation of grooming was enabled by the abuser being a benefactor, the lack of parental authority which allowed the abuse to take that place, the abuser acting as a mind controller to influence the vulnerable child, and a facilitating

system that allowed the abuse to take place (p. 612). While this was limited to one individual's story of abuse, other factors have been attributed to victimization likelihood and risk.

Other research has been conducted to discover what traits may make a victim an easier target for a sex offender. Bower (2008) noted that children with histories of previous sexual abuse, depression, delinquency, or family problems may be more likely to be targeted by sexual predators. This is echoed in other works, such as Lalor & McElvaney (2010), in which they reviewed literature examining the connection between child sexual abuse and later sexual exploitation. They identified that victims of sexual abuse are more likely to be revictimized but also have effects that last into their adulthood (Lalor & McElvaney, 2010). In relation to how children are victimized in the digital era, Wolak et al. (2013) noted that minors who frequent chatrooms, talk online with strangers about sex, or engage in risky behaviors offline or online are more likely to be targets of online sexual solicitation (p. 5). Offenders can see this as an opportunity to build a relationship with their victims and allow them to commission their abuse. Another factor noted by Greene-Colozzi et al. (2020) is that a lack of parental awareness and education provided to minors contributed to their conversations with strangers online (p. 13). This study was retrospective from individuals over the last ten to twenty years, however since the retrospective time period, the amount of education regarding the dangers of

online sexual solicitations has increased and might not be as significant as it was.

Child Exploitation on Social Media and the Internet

While social media has been defined in various ways, one of the most simple and recent definitions is that it is an online resource designed to facilitate engagement between individuals (Aichner et al., 2021, p.5). This can include popular websites and applications such as Facebook, Instagram, Twitter (now known as X), TikTok, and websites like Reddit, Discord, and even gaming platforms such as Roblox. There has been an expansive look at the prevalence of child exploitation, grooming, or online solicitation on various social media platforms and the internet as a whole. One of the most popular types of behavior that has been explored is sexting or self-produced abuse material. Dowdell et al. (2011) noted that a 2008 survey found that over 20% of teenagers admitted to sending or posting nude or seminude photos of themselves (p. 28). Their survey also found that 31.3% of boys and 27% of girls reported posting personal information online, and 59 out of 404 students reported chatting with strangers online (Dowdell, Burgess & Flores, 2011, p. 31). In interviews conducted by York, MacKenzie & Purdy (2021), they observed that young people viewed sexting as normal behavior. However, while sexting is a behavior many minors perform, especially teenagers, the prevalence of crimes initiated by adults is just as present.

In a report published by NCMEC, they found that 98% of reported offenders of online solicitation of children on social media, were unknown to the child offline (National Center for Missing & Exploited Children, 2017). In a study by Green-Colozzi et al. (2020), they surveyed a group of college-aged students to determine the prevalence of grooming they experienced online. They identified that 23% of their surveyed population had online experiences with adult strangers while they were minors that suggested online sexual grooming, and 17% experienced online sexual solicitation from adult strangers while they were minors (p. 12). This is complemented by research that has been conducted by Thorn in which they identified that 54% of minors believe that online grooming is a common experience for minors and that 1 in 6, 9-12-year-olds have had romantic or sexual conversations with an online-only contact (Thorn, 2022). Social media has also been used in cases where the offenders knew their victims offline. In a study done by Sanderson & Weathers (2020), they examined the relationship between Snapchat and child sexual abuse in sports where coaches were the perpetrators. They identified that Snapchat allowed coach perpetrators to pursue victims more easily and allowed coaches to evaluate whether victims were open to sexual activity (p. 9). While their data looked at a very specific type of offender and offender-victim relationship, researchers identified that social media, especially Snapchat, helped facilitate the abuse.

Research has been conducted on the likelihood of whether a child will report online solicitations and grooming. In a follow-up report by Thorn, they identified that minors prefer blocking instead of reporting unwanted solicitation profiles, but they may have continued contact with offenders if they make new profiles to contact the victim (Thorn, 2023). Many social media companies have additionally added measures to detect child abuse or abusive contact on their platforms. Since 2018, platforms such as Facebook, Instagram, and YouTube have dramatically increased content removals, such as posts, photos and videos, and account takedowns on the grounds of containing child abuse material (Bischoff, 2021). This shows not only that sexual grooming, child abuse material and online solicitation via social media and the internet are prevalent, but that companies are aware of the issues that exist on their platforms.

One of the more interesting avenues of research conducted is how grooming can be detected on the Internet using linguistics. Lorenzo-Dus, Kinzel & Di (2020) utilized data provided by the Perverted Justice website, a now-defunct website that captured conversations between volunteers acting as children and online predators. Through the analysis of over 600 chats on the website, they identified numerous word collocations that characterized the modus operandi of online child sexual groomers (Lorenzo-Dus, Kinzel, & Di, p. 21). This study was built upon previous studies on the characteristics of online grooming conversations, such as those discussed by Gunawan, Ashianti, &

Nobumasa (2018). The aforementioned study also utilized chat logs from the Perverted Justice website and identified 17 key characteristics of grooming conversations, which included the following: asking for profile, other methods of communication, asking for pictures, talking about a friend and relationship, giving compliments, discussing activities, asking questions to know the risk of the conversation, acknowledging wrongdoing, asking if the child is alone, building mutual trust, using the phrase falling-in-love, using a word for emotions, using a word for body parts or intimate parts, asking for hot pictures, introducing the sexual stage, the sexual stage and arranging for further contact and meeting (Gunawan et al., 2018, p. 1244). These categories, while broad, help establish potential indicators that a child may be groomed but could also be benign based on the context. Additional studies, such as the one conducted by Aitken et al. (2018), attempted to determine whether different themes existed when offenders communicated with male or female victims online. Using a similar data set from the Perverted Justice website, they identified no specific theme differences between genders, but identified five key themes in conversations: positivity, emotional connection, self-protection, sexual content, and arranging to meet for sexual purposes (Aitken et al., 2018, p. 1174). All three of these studies give insight into how offenders communicate and exploit children on the Internet, but a significant limitation presented itself when using the dataset from the Perverted Justice website. Since all of the "children" that

offenders corresponded with were adults, there could be differences in actual conversations between how adults talk like children and how children speak.

Gaps in the Previous Research

While examining the previous research on online grooming and online solicitation of minors via video game platforms, we observed a lack of research dedicated to the topic. However, there have been some mentions of the use of video games being used to exploit children. Brown (2022) notes that computer games, while playing a minor role in comparison to other platforms, have been the medium of abuse for 3,838 cases submitted to NCMEC between 1998 and 2017 (p. 58). Many offenders have also been observed using in-game currencies or game-based incentives to groom children into sending them sexual abuse material (Scott, 2023). These findings can be seemingly confirmed by criminal cases that have been filed against offenders in the United States that utilized Roblox as their medium of grooming children. In the last four years, numerous criminal cases were identified that resulted in a child being groomed, abused, or exploited by an offender where Roblox was the origin of abuse or the facilitator of the abusive relationship (USA v Baker, 2023; USA v Castillo, 2023; USA v Zeman, 2023; Florida v Borgesano, 2023; Florida v Dennis, 2019; California v Diaz, 2023; Florida v Gruwell, 2019). While, this sample size is relatively small compared to the thousands of cases of child exploitation that occur each year, it illustrates a growing trend of not only video games being used as a medium for abuse, but specifically Roblox as well.



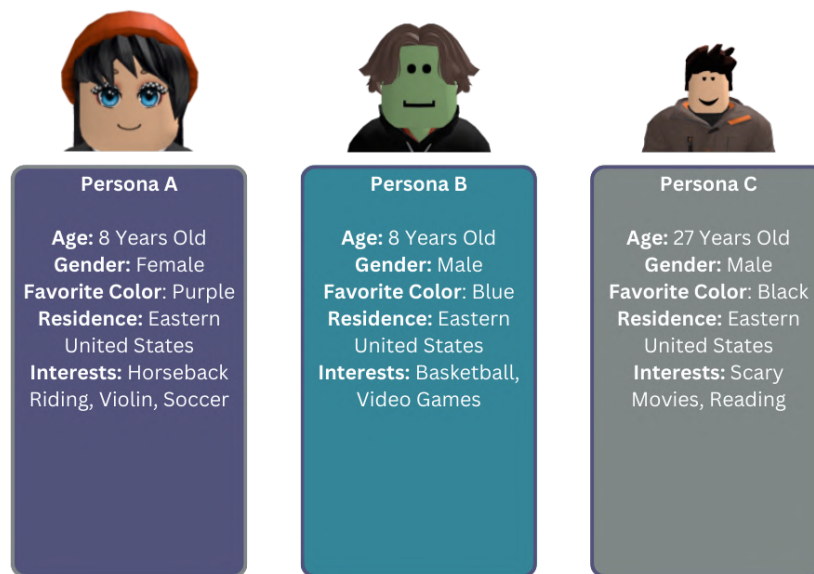


Methodology

Two primary data sets were used in order to supplement the findings of this paper.

Observational Data from Roblox

The first data set for the present study consists of transcripts generated by play sessions from Roblox. Three different persona accounts were used, one of an 8-year-old boy, one of an 8-year-old girl, and one of a 27-year-old man.



During the play sessions, the researcher did not initiate any conversations with players online and only responded if spoken to first. The identity of the researcher nor the nature of the observation was disclosed in any conversations. Transcripts are comprised of chat logs that occurred during each session and individual environment variables that the researcher noted as containing inappropriate themes for children. The data was collected over one

month (July 2023) and ended on July 30, 2023. The play sessions occurred on a Windows 10 Laptop and Windows 11 Desktop. This was done to limit the number of platforms needed to observe since Roblox is available on multiple platforms, including PC, MacOS, Xbox, and mobile platforms.

Discord Scraping

The second data set for the present study consists of chat logs from four Discord servers dedicated to disseminating Roblox condo games. As previously noted, condo games are adult-oriented games on Roblox that contain sexually explicit or adult themes against Roblox's terms of service. Only chat transcripts from these Discord servers are included in the data set and were collected over the period of one week in July 2023. The researcher did not contribute to any of the conversations nor reveal their role in joining the servers. If the researcher observed illegal content being shared or posted on the servers, it was promptly reported to Discord.

Collection

Observational Data from Roblox

The data was collected over a period of one month and consisted of 54 total play sessions, with each persona having 18 sessions. The researcher joined various experiences on the platform to ensure that a representative data set was obtained, as well as joining experiences ranging from the age rating of N/A to Ages 9+.

Discord Scraping

To collect the data from Discord, a custom Python script was developed to obtain the chat records that were being submitted on each server. The Python script used the Discord API to grab the most recent 50 messages and save them to a text file. This was configured with Windows Task Scheduler to run the task every five minutes to ensure that all recent messages were being captured. The data was then taken and, with another custom Python script, was parsed, transferred to a data frame, and saved to a CSV file containing the occurrence's chat content and timestamp. Both of these Python Scripts are included in Appendix I of this report. This was done for all four Discord servers. Any duplicate chat records were removed during collection to ensure an accurate dataset.

Analysis

To analyze the data, ATLAS.ti was used to code both the observational data and discord chat data. If the observational play session did not contain any chats or factors of note to the researcher, they were discarded for analysis. Each experience was inputted manually into ATLAS.ti and coded to determine the genre, age rating, interactions with the player, sexual content in the game, sexual content in communications, age-inappropriate content, hate speech, whether the experience was benign, whether a friend request was received, and whether adult and children communications were observed. For the Discord chat data, each CSV file containing the message content and timestamp was individually uploaded and analyzed to determine how often inappropriate

content was posted, the prevalence of Roblox experience URLs that contained adult content, and interactions regarding children in the chats. A total of 83,302 chat messages were analyzed after the duplicates were removed. After the analysis was complete, themes were extracted from the results and are provided in the following section.





**Key
Findings**

This research aimed to determine what themes were present in Roblox concerning child grooming and online sexual solicitation. The observational data from Roblox was categorized by the following indicators: sexual content in the game, sexual content in communications, age-inappropriate content, hate speech, whether the experience was benign, whether a friend request was received, and whether adult and children communications were observed. These experiences consisted of the following genre types: Adventure, Horror, Obby, All Genres, Town and City, Building, Comedy, Fighting, FPS, RPG, and Sports. The data from Discord was analyzed and categorized to indicate how often rooms were posted and the types of conversations on the platform, specifically whether pedophilia, child abuse, child grooming, or sexual solicitation occurred. The analysis of the collected data and subsequent themes were used to answer the following research questions:

- Q1: Are there characteristics of Roblox that may allow children to become victimized?
- Q2: What efforts are currently in place to deter child exploitation that may occur on Roblox?
- Q3: Are there unique methods adults could employ to groom children while on Roblox?

Six primary themes were identified, which were T1). Automatic Chat filtering is the primary method to deter child exploitation on Roblox, T2). Experience content does not always align with designated age guidelines, T3). “All Genres”

and “Town and City” genres are more likely to contain content unsafe for children, T4). Obscuring external links is used to take conversations off of Roblox, T5). Sexual Content or Communication by players is present on Roblox and T6). Condo Games are the primary method used to play sexually explicit experiences on Roblox. Figure 1 depicts what each theme was informed by, whether Roblox data or Discord data and what question is being answered.

Figure 1

Mapping identified themes to research questions

Theme	Data Used	Question Being Answered
T1	Roblox	Q2
T2	Roblox	Q1
T3	Roblox	Q1, Q2
T4	Roblox, Discord	Q1, Q3
T5	Roblox	Q1
T6	Roblox, Discord	Q1, Q2, Q3

In the following sections, each theme will be described with screenshots and excerpts of text that were encountered to inform the findings. For each excerpt, the following format will be used:

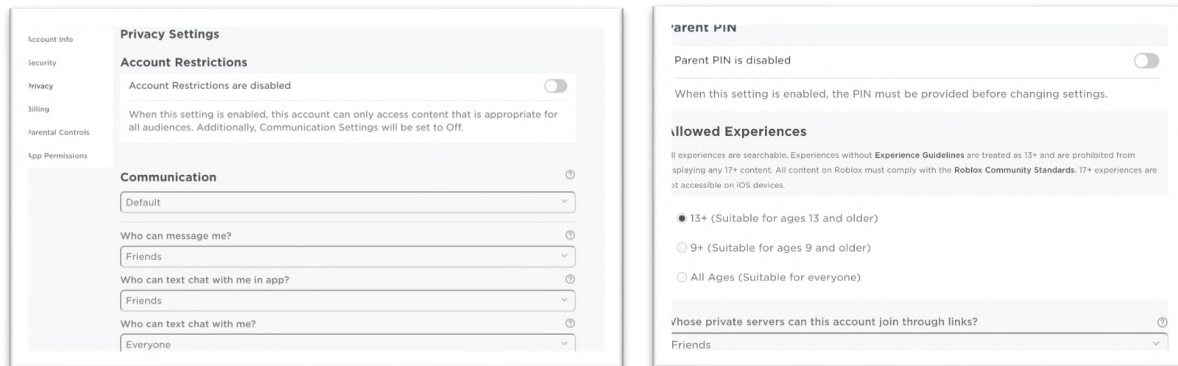
Excerpt from Collected Data (Roblox) (Experience Name) (Age Rating) or (Discord)

Automatic chat filtering is the primary method to deter child exploitation on Roblox

When a new player creates an account on Roblox, the account will automatically be given access to Ages 13+ rooms and below. This occurred on two of the persona accounts used for research that were set to 8 years old, as seen in Figure 2 below:

Figure 2

Screenshot of default Roblox safety settings on child account



Based on this default configuration, parental controls or age restrictions on experiences were not applied during the observational research. This means that all personas used could access all experiences, except for Ages 17+, which were not included in this study. Without parental controls enabled, the primary way that security features were enforced was by chat filtering that is in place in Roblox.

Roblox's chat filtering feature was designed to filter inappropriate content and personal information on accounts aged 12 and younger and is less

restrictive on accounts aged 13 and above (Roblox, 2023d). In the sample of 113 experiences played by all three personas, 77 of them had players interacting with each other over chat. The chat filtering feature was in place in every chat observed, actively filtering chats in real-time to the player.

- ***Your ### ## ## ## ## (Roblox)(Would you rather?)(All Ages)***
- ***Boy nb taking to you ## ## ## ## (Roblox)(Meepcity)(All Ages)***
- ***### NEVER GAVE ME MY MONEY (Roblox)(Fling Things and People)(Ages 9+)***

As seen in the above examples, filtered chats have the offending words and characters replaced with hash symbols. This prevents information such as swear words, external links, or personal information from being shared by or with other players on the platform. If a player wants to go around the filters, they often attempt to obscure the text to not be recognized, such as the following excerpts:

- ***GET YOU ASSI OUT OF HERE (Roblox)(Meepcity)(All Ages)***
- ***DIDDY P13NS (Roblox)(Brookhaven RP)(All Ages)***

Players obscured or altered the words to bypass the chat filters in these cases. This shows a fundamental flaw in that, if a player can use an alternative for a banned word or phrase, they may be able to initiate inappropriate communications with other players or reveal personal information. An additional finding regarding the chat filter is that it sometimes will block

communications that are benign or not intended to contain inappropriate content.

- ***#### (Roblox)(Reddcliff RP)(All Ages)***
- ****with(Roblox)(RedcliffRp)(All Ages)***
- ***##### (Roblox)(My Movie)(All Ages)***
- ***william aftOn (Roblox)(My Movie)(All Ages)***

In the above examples, a player attempted to type the word with, but it was automatically blocked the first time due to a misspelling that triggered the chat filters. In the second example, a player was discussing a character in a game, and since the first and last name of the character was used, Roblox censored the text. However, with one character being replaced, the player could circumvent the chat filters.

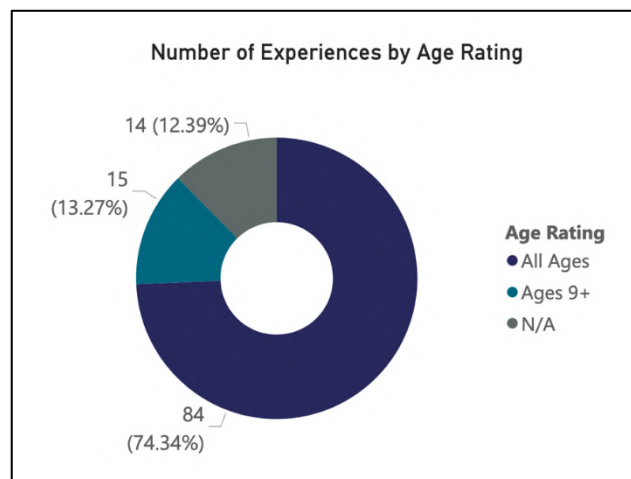
If chat filtering does not work as intended, the player can also report the player who is typing or showing inappropriate content. You can report a player for swearing, inappropriate username, bullying, scamming, dating, cheating/exploiting, personal questions, or offsite links. You can report an experience for containing inappropriate content as well. Once a player submits a report, the request is reviewed by a Roblox moderator to determine whether the actions or content violates the terms of service of Roblox (Roblox, 2023c). This safety feature would be used in the case of the filtering not working and is a secondary safety feature available for players.

Experience Content Does Not Always Align With Designated Age Guidelines

Only All Ages, Ages 9+, and N/A age ratings were explored in these results. Roblox defines All Ages experiences as those suitable for all ages and may contain infrequent mild violence and/or unrealistic blood and Ages 9+ experiences as generally suitable for ages 9 and up and may contain frequent mild violence, heavy unrealistic blood, and/or mild crude humor (Roblox, 2023b). Experiences with an N/A rating do not follow the experience guidelines but work as Ages 13+ experiences. Roblox states that they used global industry standards and consulted child development experts when making the guidelines for their experiences (Roblox, 2023b). However, these guidelines do not always accurately represent the actual experience that a player may encounter due to the behaviors or content submitted by other players.

Figure 3

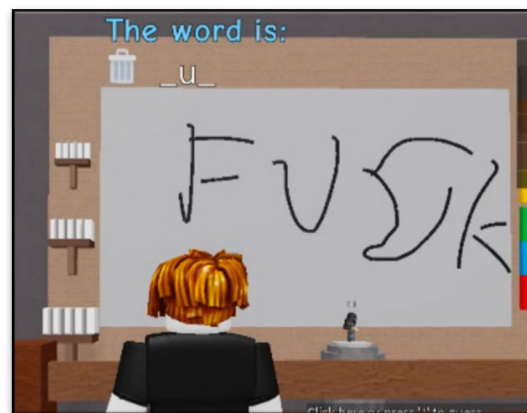
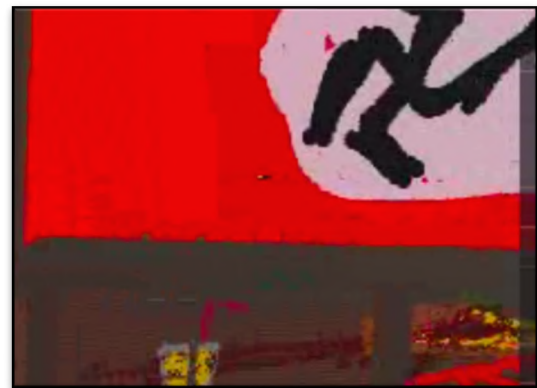
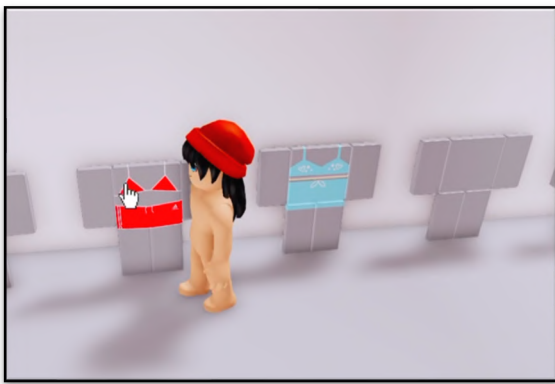
Number of Roblox experiences by Age Rating



In the examples shown in Figure 4, an experience was observed that allowed the player to skinny dip in the pool, an experience where swastikas were used, images about the 9/11 terrorist attacks in another, and players drew swear words in a word guessing experience.

Figure 4

From Clockwise: Skinny Dipping, Nazi Symbolology, Swear Word, image of 9/11



Since the age guidelines of Roblox are not dependent on interactions with other players nor actions that are against the terms of use, it makes the age guidelines difficult to assess. This could mean that a minor may play an experience that is

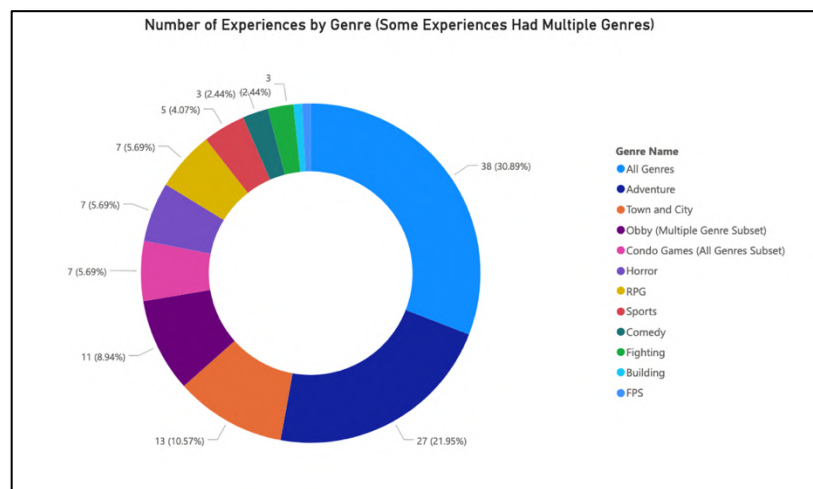
made for All Ages, but be exposed to violent, sexual, or crude content, even though that is not included in the guidelines.

“All Genres” and “Town and City” Genres Are More Likely to Contain Content Unsafe for Minors

We played 113 total experiences during the gameplay sessions on Roblox. Out of these experiences, 27 contained the Adventure genre, 38 contained the All Genres genre, 1 contained the Building genre, 3 contained the Comedy genre, 7 were Condo Games, a subset of the All Genres genre, 3 contained the Fighting genre, 1 contained the FPS genre, 7 contained the Horror genre, 11 contained the Obby genre, a subset of multiple other genres, 7 contained the RPG genre, 5 contained the Sports genre, and 13 contained the Town and City genre.

Figure 5

Number of Experiences by Genre



In these experiences, the All Genres and Town and City genres were more likely to contain content unsuitable for minors. As seen in the figure below, All Genres (including the Condo Games category), included 20 occurrences of inappropriate interactions (sexual, experience, and hate speech), 1 occurrence of a Friend Request to our personas, and 2 occurrences of Adult interactions with a minor. Town and City was the second highest with 8 occurrences of inappropriate interactions (sexual, experience, and hate speech), 3 occurrences of Friend Requests, and 1 occurrence of Adult interactions with a minor. These findings are captured in Figure 6 as seen below.

Figure 6

Experience Type Analysis

Experience Type	Inappropriate Interaction (Sexual)	Inappropriate Interaction (Experience Content)	Inappropriate Interaction (Hate Speech)	Friend Requests	Adult Interactions
Adventure	0	1	1	1	0
All Genres	2	7	4	1	0
Building	0	0	0	0	0
Comedy	0	0	0	0	0
Condo Games (All Genres Subset)	6	0	1	0	2
Fighting	0	0	0	0	0
FPS	0	0	0	2	0
Horror	0	0	0	0	0
Obby (Multiple Genres Subset)	0	0	0	1	1
RPG	0	1	0	1	2
Sports	0	0	0	0	0
Town and City	3	2	3	3	1

This finding indicates that inappropriate content may be more prevalent in an experience based on the type of genre. For example, all 7 Condo Games were assigned the All Genres category. This *may* be an indication that if an experience contains content that goes against Roblox's terms of service, it may receive the All Genres categorization in order to obscure the problematic content within the experience or the expected player interactions. This data also shows that children may be more likely to receive friend requests or

interactions with adults, potentially leading to grooming or online sexual solicitation.

External Links Are Used to Take Conversations Off of Roblox

As a gaming platform, Roblox does not support sending pictures or videos in communication within experiences or private chats between players. As part of the aforementioned chat filtering feature, any detection of external links are also censored to ensure that conversations do not occur outside of the platform for the safety of its players. However, due to the limitations of the filters as mentioned previously, players are able to circumvent these filters to request and provide links to external chat services.

- ***Abc to send on snapppppppppppyyyy girls only (Roblox)(Sussy Hangout Vibe)(All Ages)***
- ***PRIV CHAT ME IF U HAVE SNAPPY(only horn % girls;] (Roblox)(Sussy Hangout Vibe)(All Ages)***
- ***Do you have Snap (Roblox)(Roblox High School 2)(All Ages)***
- ***Mine is Adelina (Roblox)(Roblox High School 2)(All Ages)***
- ***##### (Censored for Privacy) (Roblox)(Roblox High School 2)(All Ages)***
- ***Whats your username so I can add you (Roblox)(Livetopia)(All Ages)***
- ***U should add my disco (Roblox)(Rate My Avatar)(All Ages)***

The exchange of usernames, specific to Snapchat, Discord and other social media platforms was observed frequently, due to player's ability to exploit the wide variations in platform vernacular and the ability to creatively spell various terms that circumvented the chat filters. As noted by Winters, Jeglic, and Kaylor (2020), isolation is often used by sexual groomers to isolate their victims.

Moving communications from a monitored platform such as Roblox to a social media app such as Snapchat or Discord could allow a child to be isolated digitally from any safety measures that Roblox provides. This could facilitate the grooming process and allow Roblox to be the entry point for sexual grooming or online sexual solicitation to occur.

Once conversations are moved to a social media platform, assessing where the conversation could go is difficult. However, when observing the Discord data retrieved from Condo Game servers, various members traded Roblox usernames or requested others to add them.

- ***Add me it*****2 for rp on rblx or dm me to rp on cord (Discord)***
- ***whats ur rblx username so we can fuck (Discord)***

This could allow adults and children to interact with these Discord servers, as there is no age requirement to access them. As seen in the above examples, if the communication is taken offline, then usernames, requests or interactions are not censored and allow further communications within their platform of choice, instead of Roblox.

Sexual Content or Communication by Players is Present on Roblox

As noted previously, the age rating of an experience may not be indicative of the content within the experience itself, especially the interactions between players. During observations, many instances of virtual sex or sexual innuendos were observed, with all instances occurring in experiences categorized as All Ages.

Figure 7

Screenshot of Roblox players having virtual sex in All Ages experience



Figure 7 is an example of one scenario that was observed during a play session with the following transcript:

k ima slow down (Roblox)(Roblox High School 2)(All Ages)

oouuu (Roblox)(Roblox High School 2)(All Ages)

bae (Roblox)(Roblox High School 2)(All Ages)

BAEE (Roblox)(Roblox High School 2)(All Ages)

YES (Roblox)(Roblox High School 2)(All Ages)

SAY MY NAME (Roblox)(Roblox High School 2)(All Ages)

Mmmm (Roblox)(Roblox High School 2)(All Ages)

Broo (Roblox)(Roblox High School 2)(All Ages)

Ima go deeper (Roblox)(Roblox High School 2)(All Ages)

Sam speed (Roblox)(Roblox High School 2)(All Ages)

Bae I can't (Roblox)(Roblox High School 2)(All Ages)

Can you feel it in your stomach? (Roblox)(Roblox High School 2)(All Ages)

Yess (Roblox)(Roblox High School 2)(All Ages)

The experience this originated from was Roblox High School 2, which is a Town and City genre where players role-play being high school students. The experience itself did not have any sexual elements, but allowed each player to have their own dedicated home. It was in one of the player's homes, where the virtual sex was observed.

Another trend that was observed on Roblox is “smash or pass.” This is when players will rate other avatars based on their sex appeal. This was observed in two experiences: Rate My Avatar and White Room. Rate My Avatar is an experience in which players will rate each other's avatars based on the clothing items, faces, or other attributes of the avatar.

- ***Hey u! Smash ;)* (Roblox)(Rate My Avatar)(All Ages)**
- ***Smash (Roblox)(Rate My Avatar)(All Ages)***
- ***Ur making daddy angry (Roblox)(Rate My Avatar)(All Ages)***

White Room is another experience where this was observed; its purpose is a place for players to hang out and have conversations. In this instance, a new player joined the experience and started to walk up to avatars and rate their "smashability". In Figure 8, the player went up to the persona and made the following comment:

Figure 8

Screenshot from All Ages room of player making sexual comments to researcher



This conversation stems from the concept of "smash or pass", which is when someone rates somebody else on their willingness to hook up and/or have casual sex with that person (Dictionary.com, 2018). Since sex is implied in the conversations rather than the player using the term "sex" in their message, this bypasses the chat filters that are in place and allows players to make sexually suggestive comments to each other. During the observational period, no players specifically asked me if I was a child or an adult, and the

communications were made without initiation. As noted in the report by Thorn, children are more likely to block people rather than report on social media platforms (Thorn, 2023). On Roblox, both options were present, and when these accounts initiated conversations, the accounts were both reported and blocked after the observational period ended.

Along with communication that can occur on Roblox, user-generated content such as clothing items, or creations on an experience also contained sexual content or innuendos. An example of this was clothing items that were observed being worn by numerous avatars. In an All Ages room, two different avatars were observed wearing shirts that displayed "Mommy's Good Boy" and "I <3 Sluts".

Figure 9

Examples of inappropriate clothing items in All Ages room



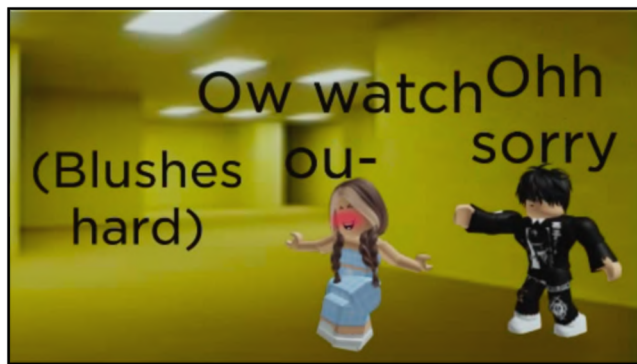
Because users can create their own clothing items and wear them, this feature allows users to display sexually suggestive content to underage players.

Custom-made clothing items go through a moderation process when uploading them to the Roblox marketplace (Roblox, 2023a). However, as seen in the cases observed, if moderation does not detect the inappropriate content, these items are only removed from the marketplace after they are reported to Roblox by another player for containing content against their terms of service.

Another example of this content was observed in an experience called “My Movie”. This room allowed players to create their own short movies using searchable pictures, sound files, and text. As seen in Figure 10, movies of romance and implied sexual encounters were observed between multiple persona accounts.

Figure 10

Examples of sexually themed content from My Movie experience



Condo Games are the Primary Method Used to Play Sexually Explicit Games on Roblox

While collecting data from Roblox, various Discord servers were joined that advertised Condo games on Roblox. As stated previously, these games contain content that goes against Roblox's terms of service and are banned if reported to the platform. Researchers did not locate any condo games by manually searching for, clicking on, or finding condo games within existing experiences on Roblox itself. Every condo game was joined from a Discord server that advertised them. From the four Discord servers that were scraped, 5,565 unique

URLs or solicitation messages for Roblox condo rooms were observed. These rooms would be live for anywhere from a few minutes to a few hours, with none of them being online for more than a day. The links to access the Condo rooms were private server or public server links. Private server links ensured that on the outside, the experience went to an innocent experience, while a public link, could have anyone join them from a search on Roblox. The private server condo games often lasted longer than the public game links.

Discord Chats

Figure 11 shows a word cloud of the most prominent concepts that were talked about in the four Discord servers.

Figure 11

Word Cloud of themes present in Discord server communications



Based on these concepts, it was surmised that most conversations contained sexually explicit content, racist content, or people posting links to various

Condo games. However, various instances of child abuse conversations were present in the data, as seen in the following excerpts:

- ***Youngest is the tightest (Discord)***
- ***What cops? The age of consent where I live is 13 and the stuff I have is above the age of consent. I wont get arrested nigga (Discord)***
- ***I want to fuck my 10 year old girl neighbor so bad let me rape her right now (Discord)***
- ***ayo im giving child porn who wants it (Discord)***
- ***i need minors in my life.....(im a pedofile) (Discord)***
- ***dm me for cp (Discord)***

All instances of conversations of child sexual abuse material were taken as being legitimate and reported to Discord upon discovery. During the research period we observed the following indications of activity referencing child abuse themes on the Discord servers as seen in Figure 12.

Figure 12

Discord Server activities involving child exploitation

Type	Total
Requests for Child Exploitation Material	29
Offers for Child Exploitation Material	47
Conversations Regarding Child Exploitation	322

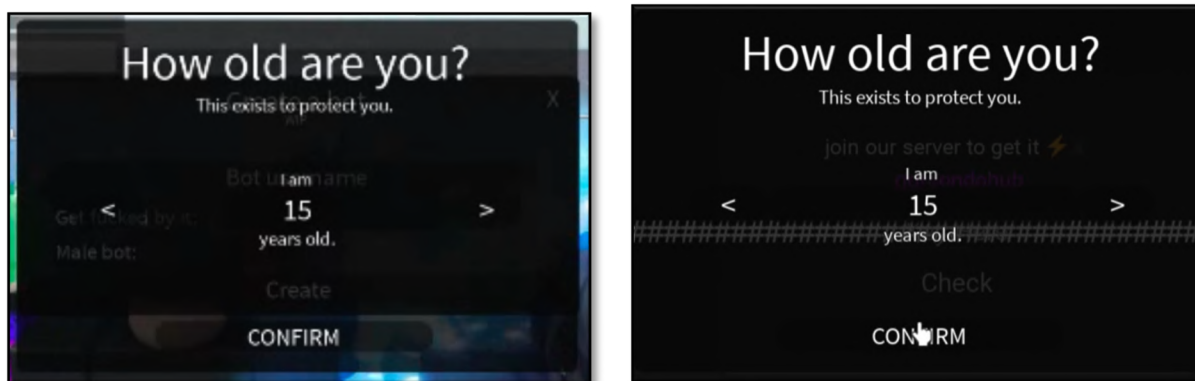
No distribution of illegal material was observed on any of the Discord servers. It is possible that children were present on these servers, as some users claimed that they were below 18 years of age and there were no age requirements on the servers. While unable to verify the legitimacy of these claims, it was assumed that these cases were possible and taken into account of minors accessing Condo games.

Game Experience

Six different Condo games were observed during the observational period. As seen below, most of these contained an age gate when entering the Condo game.

Figure 13

Age gates experienced in Condo Games



The age gate allowed a player to enter at an age as low as 13. If an age lower than 13 were selected, the player would be banned from the Condo game. However, this means that any minors from 13 to 17 were able to pass the age gate and play the Condo game if given their actual age. However, there is no authentication

mechanism in place to verify the players' actual age, thus they could enter any age they wanted to bypass the gate. While playing the games, the majority of them contained performing various sex acts with other players. This would involve initiating the acts and the player would have to accept them to be consensual. These would often be themed around concepts such as the Backrooms, an Internet urban legend location, or a beach house. Many of the players would also engage in the chat for the rooms, as the text filters were disabled on these rooms.

- ***Who wants gay sex (Roblox)(Suborbital)(N/A)***
- ***U CAN RUN BUT U CANT HIDE (Roblox)(PET SIMULATOR X!)(N/A)***
- ***I need a mommy (Roblox)(PET SIMULATOR X!)(N/A)***
- ***I'd smash (Roblox)(veOk's Place)(N/A)***
- ***Can we fuck? (Roblox)(Tix Funeral)(N/A)***

Some of these conversations also included discussing minors on the Condo game at that time.

- ***Brooke is still a minor (Roblox)(Tix Funeral)(N/A)***
- ***Don't fuck brook its illegal (Roblox)(Tix Funeral)(N/A)***
- ***12 year olds (Roblox)(Tix Funeral)(N/A)***

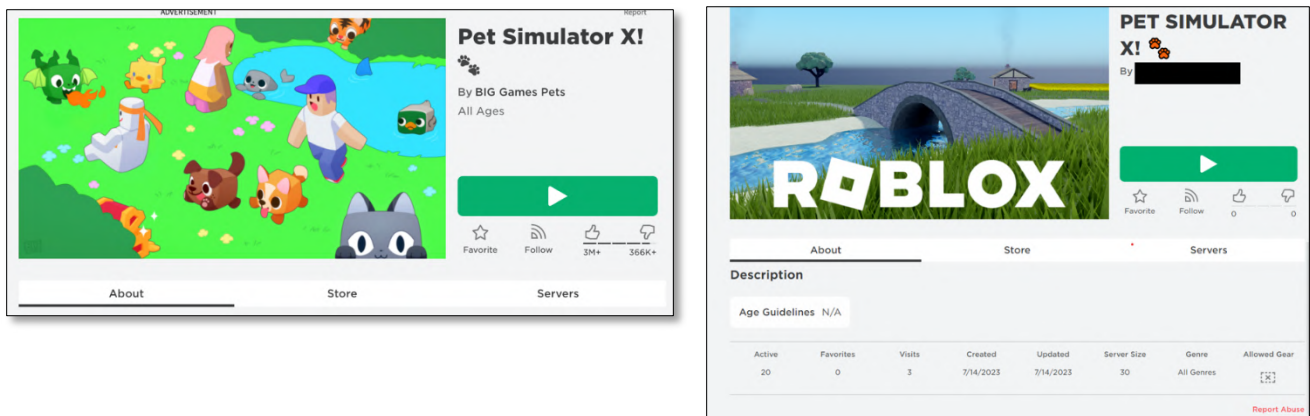
While this showed that many people were not happy that minors were in the Condo game, this was something that was self-reported by the player. If kept hidden, adults could have virtual sex on Condo games with minors, along with other adults. As previously mentioned, Kloess et al. (2014) described many cases

of Internet-based sexual offenses are either fantasy-driven or contact-driven. Condo games could allow these offenders to live out fantasy sex lives with other individuals, including minors, due to the lack of controls on these games and the type of content they display.

One additional trend that was observed within condo games was the prevalence of naming the experiences after other popular experiences. An example of this is seen below, where the condo game in question named itself *PET SIMULATOR X!*, which is a copy of a very popular Roblox experience also called *Pet Simulator X!*.

Figure 14

Real Roblox Experience vs. Condo Game



There could be multiple reasons for this type of naming, with the primary reasoning being that it can hinder moderation efforts in place by Roblox. However, since the condo game does share a similar name as other popular Roblox experiences, it is possible that a child could accidentally stumble upon

these condo games while looking for a legitimate Roblox experience. When condo games were named similarly, we attempted to find the games through the Roblox native search feature but did not locate any during the duration of the study.

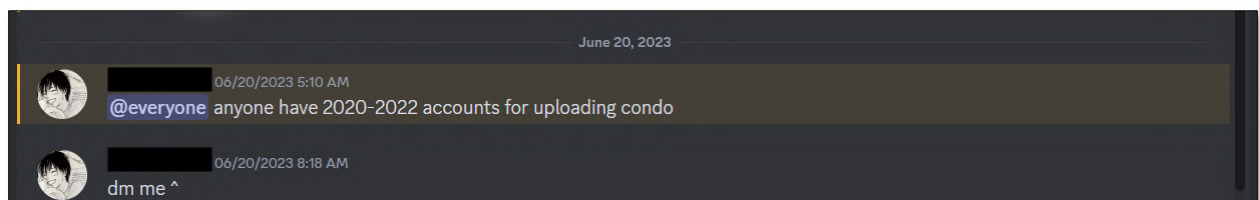
Miscellaneous Findings

Use of Hacked or Sold Roblox Accounts

While exploring Discord servers dedicated to Condo Rooms on Roblox, we observed moderators asking people for old Roblox accounts or access to stolen accounts. We believe this was done in order to keep games active longer as if a created Condo Game originated from an account active for over five years, it would be less suspicious than an account created within the last month. It shows that there may be potential markets for stolen Roblox accounts in order to create Condo Games on the platform.

Figure 15

Excerpt From Condo Game Discord Server

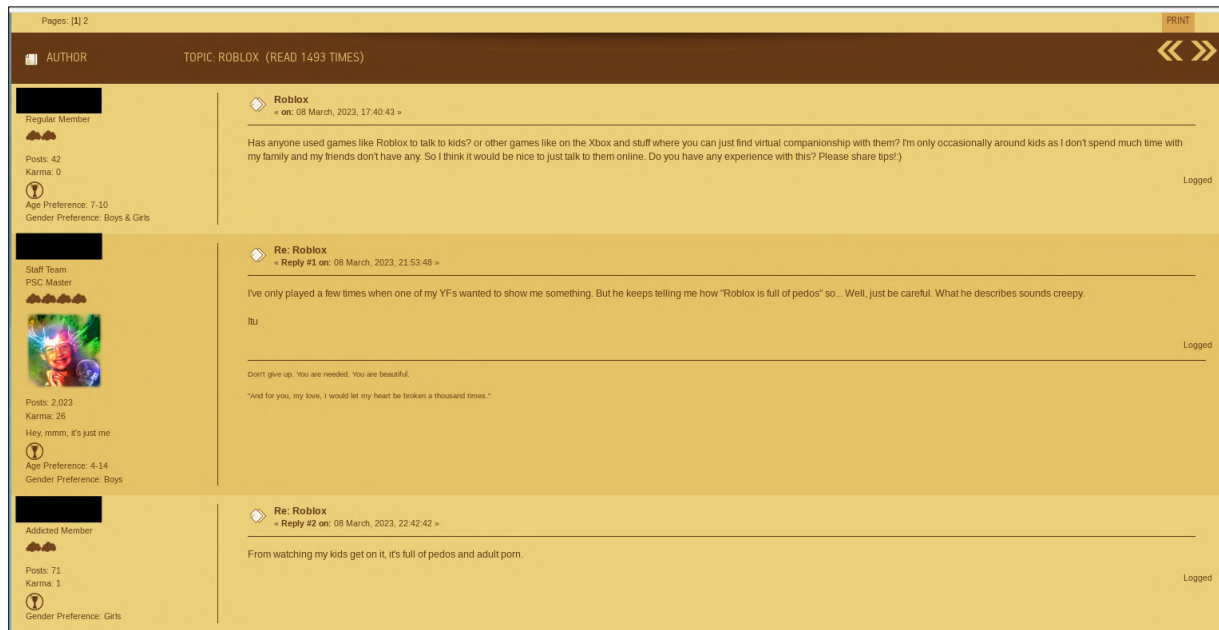


Roblox on Dark Web Forums

During preliminary research for this paper, dark web forums were also explored to identify if known pedophile groups referenced Roblox. We identified a number of threads on a popular pedophile support forum that referenced members talking about Roblox and using it to interact with minors. Figure 16 shows an excerpt from those conversations.

Figure 16

Conversation Around Roblox on Popular Pedophile Dark Web Forum



The screenshot shows a forum thread with the following content:

TOPIC: ROBLOX (READ 1493 TIMES)

Post 1: Regular Member
Has anyone used games like Roblox to talk to kids? or other games like on the Xbox and stuff where you can just find virtual companionship with them? I'm only occasionally around kids as I don't spend much time with my family and my friends don't have any. So I think it would be nice to just talk to them online. Do you have any experience with this? Please share tips! Logged

Post 2: Staff Team PSC Master
I've only played a few times when one of my YF's wanted to show me something. But he keeps telling me how "Roblox is full of pedos" so... Well, just be careful. What he describes sounds creepy.
Itu
Don't give up. You are needed. You are beautiful.
"And for you, my love, I would let my heart be broken a thousand times." Logged

Post 3: Addicted Member
From watching my kids get on it, it's full of pedos and adult porn. Logged



Discussion

Roblox's mission is to bring the world together through play. This is done by allowing people of all ages to play in various experiences that allow them to interact with other players. However, as described in the key findings, some attributes of Roblox could endanger minors that are playing on the platform. While protections can be placed on accounts, the unpredictable nature of online interactions and user-generated experiences can lead to inaccurate age guidelines, inappropriate communications, or harmful interactions between adults and children.

Comparison with Previous Research

Two primary comparisons with previous research can be made from these findings. The first is that the use of taking communication off of Roblox is a form of isolation for a victim that has been noted in previous studies (Craven et al., 2006; Winters et al., 2020). While those studies referred specifically to isolating the victim from family and friends, taking communication off of Roblox to another platform, such as Snapchat or Discord, isolates a person from the safety provided by chat filtering features, moderation, and public communication. This isolation could facilitate abuse by allowing an individual to directly message a minor on a platform that has less restrictive permissions and gain exclusive access to that victim. During the observational period, the researcher observed chats between other users (not in direct contact with the researcher) during which a player would suggest leaving Roblox to chat via

another platform to another player on a couple of occasions. This could be indicative that the player suggesting the chat be moved to another platform is doing so as a means of attempted grooming; however, there is no way to be certain as the conversation was no longer observable. The assertion of the changing of platforms as a method of isolative grooming is simply based on previous research where this technique was leveraged during studies examining isolation behaviors in grooming. (USA v Baker, 2023; USA v Castillo, 2023; USA v Zeman, 2023; Florida v Borgesano, 2023; Florida v Dennis, 2019; California v Diaz, 2023; Florida v Gruwell, 2019). In these cases, the communications that occurred between the adults and children started on Roblox but moved to platforms such as Discord or Twitter to facilitate the abuse and led to offline meetings between the adults and minors.

The second comparison concerns the role that parental guidance and oversight plays in children's safety online. This study confirms the findings of Greene-Colozzi et al. (2020) in that the lack of parental guidance and controls *may* make children more vulnerable to online solicitation from strangers. As previously mentioned in the key findings, the default security settings allow any profile to access content ranging from All Ages to Ages 13+, as well as having the parent pin disabled and allowing all players to communicate with other players. If new Roblox accounts required a parent to sign them up for an account and the experience ratings, parent pin, and communication settings were stricter by default, this could lead to lower instances of minors being contacted by

strangers online. However, this would require active engagement from parents to know what their children are playing and the specific security settings that are not in place by default. Additionally, we acknowledge the requirement for parental sign off for new account establishment would likely cause friction as adult users would need a way to bypass this feature.

Implications on research and body of knowledge

The researcher hopes findings from this study will add to the existing body of knowledge on video games, and open a new category of research into child grooming, online sexual solicitation, or exploitation that occurs on video game platforms. These findings provide a new perspective that can help assist the law enforcement community and provide opportunities for further research on video game platforms.

Limitations

This was a qualitative study encompassing over one hundred experiences on Roblox. The time of day Roblox was played, the genre of rooms that were selected, and the specific servers that were joined could have impacted the collected data. Since research into the risks of video game platforms requires further exploration, it is not suggested that these results can be generalized across all experiences or accounts on Roblox or any other video game platform. The researcher also utilized accounts in the United States and solely joined experiences from United States-based servers. Differences may exist in communications or experiences in different geographical regions. As

interactions on the platform occurred online and players' identities could not be identified or corroborated, honest representation of information given by players or users may have resulted in differences between accounts or experiences.

Recommendations for Future Research

This study's focus was narrowed to allow research to be conducted on Roblox and solely accessing the platform from a Windows device. Like other social media platforms, online predators may use multiple types of video games to groom or solicit minors online, which is confirmed in reports submitted to National Center for Missing & Exploited Children (2023). Additional research could be focused on other gaming platforms such as Microsoft's Xbox Network, Sony's PlayStation Network, or other online games such as Minecraft, Call of Duty, or Fortnite. If a video game or platform is advertised towards children, there are opportunities to research the risks that these platforms pose to minors and what features are in place to prevent this type of activity from occurring. Additionally, more research could be conducted on Roblox, including interviewing players on the platform. These experiences could be quantified to assess the percentage and likelihood that a player on Roblox will receive solicitations from adults or have solicitations as a minor and what occurred during these interactions.

Conclusion


To our knowledge, the present study is the first to offer insights into the characteristics and behaviors of a video game platform and sexual grooming, and the online solicitation of minors. While the overall frequency of inappropriate communications was low, there were enough instances experienced that suggest that minors could be at risk when playing Roblox. Although previous studies have been conducted to evaluate the frequency this occurs on other social media platforms, video games have been challenging to research. From the findings, the researcher believes it is valuable to evaluate the risks that video game platforms have on minors regarding sexualized content and whether additional measures or education are needed to keep children safe in these virtual worlds. We want these findings to allow future research studies to be conducted on Roblox and other video game platforms that can help explain and visualize the trends or threats these platforms may pose to children. Further studies will also aid the law enforcement community in explaining how the platform works, the type of experiences that may need to be monitored more frequently, and how conversations are taken off of Roblox to other platforms. Roblox may be a virtual playground that allows children to explore new worlds and express creativity, but just like in the real world, without parental supervision or the right safeguards in place, predators could be lurking in the digital shadows.



Appendix

Appendix I: Python Scripts

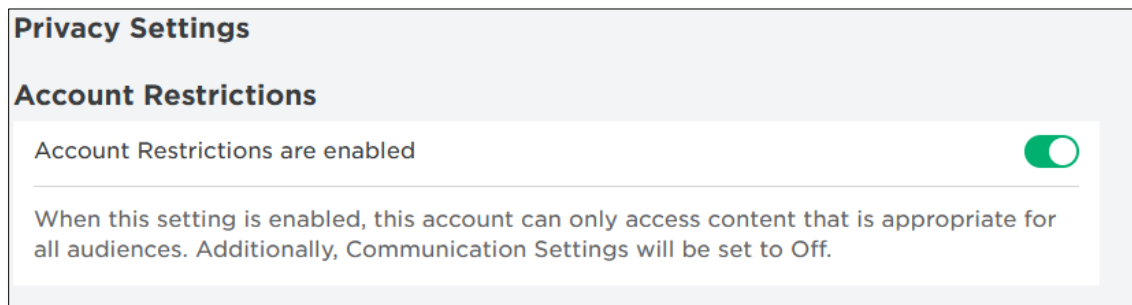
<https://github.com/invirtuteDei/Clicksafe-Intelligence-Python-Scripts>



Appendix II: Top Tips for Parents

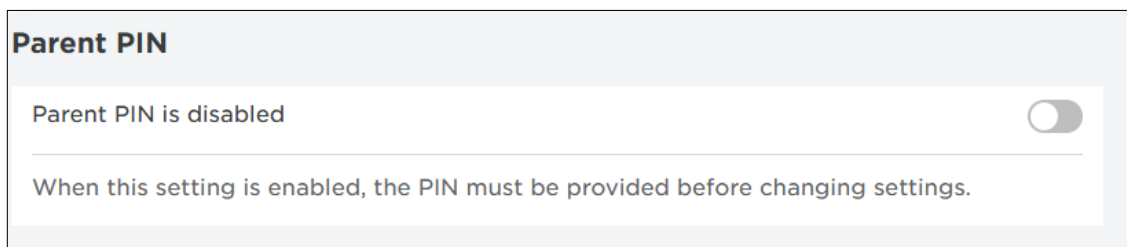
Roblox, like most video games, has a large player base of children. As observed throughout our research, we found that while not present in every experience, there is still a chance that a child can stumble upon inappropriate content, inappropriate communications or make friends with people who may have sinister intentions. The following tips are to help parents understand some of the security settings of Roblox, how to set them up in a way that you are comfortable with for your child and how to keep them safe, while having fun on the platform.

1. Enable Account Restrictions

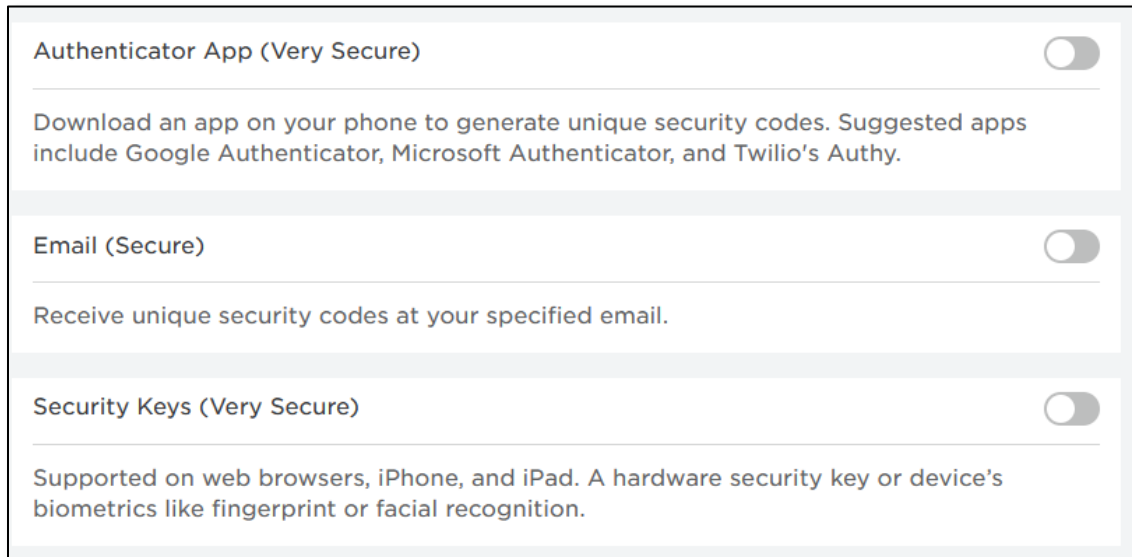


If account restrictions are enabled, this forces only All Ages experiences to be played and blocks all communication settings on the account. This is recommended for those with young children who play Roblox.

2. Enable Parent PIN



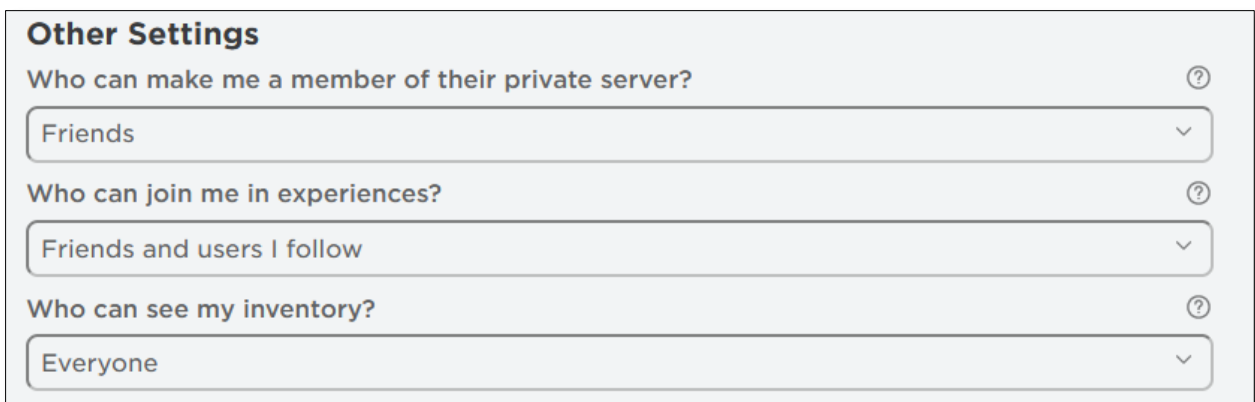
3. Turn on 2-Step Verification to Parental Device



A screenshot of a settings menu for 2-Step Verification. It features three toggle switches, all of which are currently turned off. The first option is 'Authenticator App (Very Secure)', with a subtext: 'Download an app on your phone to generate unique security codes. Suggested apps include Google Authenticator, Microsoft Authenticator, and Twilio's Authy.' The second option is 'Email (Secure)', with a subtext: 'Receive unique security codes at your specified email.' The third option is 'Security Keys (Very Secure)', with a subtext: 'Supported on web browsers, iPhone, and iPad. A hardware security key or device's biometrics like fingerprint or facial recognition.'

As with other types of accounts that you use for emails, banking and work, we recommend enabling 2-Step verification on your child's account. In the case that your child provides their username or password to a stranger online, a friend or gets their account hacked, there will be an additional protection in place to protect the account from becoming compromised.

4. Adjust Other Settings



A screenshot of the 'Other Settings' section. It contains three dropdown menus, each with a question mark icon to its right. The first dropdown is titled 'Who can make me a member of their private server?' and is set to 'Friends'. The second dropdown is titled 'Who can join me in experiences?' and is set to 'Friends and users I follow'. The third dropdown is titled 'Who can see my inventory?' and is set to 'Everyone'.

We recommend adjusting the area for Other Settings, based on the preferences of your child and what you are comfortable allowing. An example, is that you can have the **Who can make me a member of their private server?** Option be set to *Everyone* or *Friends*, as an example. Setting it to *Everyone* could potentially expose your child to unwanted invitations to a private server, while *Friends* will limit it to people that they are friends with on Roblox.

5. Adjust Allowed Experiences

Allowed Experiences

All experiences are searchable. Experiences without Experience Guidelines are treated as 13+ and are prohibited from displaying any 17+ content. All content on Roblox must comply with the Roblox Community Standards.

- 17+ (Suitable for ages 17 and older)
- 13+ (Suitable for ages 13 and older)
- 9+ (Suitable for ages 9 and older)
- All Ages (Suitable for everyone)

If account restrictions are *not* enabled on a Roblox account, the user can choose what experiences they play from the entirety of the library of content. We recommend only selecting experiences that are within the age of your child, but note that each experience may not always be accurately depicted by its age rating.

6. Review Friends on children's Roblox Account

We recommend reviewing the friends that are on your child's Roblox account on a regular basis. This is to ensure that you are aware of who your child is interacting with on Roblox and are able to remove them if you are concerned they pose a risk to your child.

7. Create Roblox Account to monitor content within experiences

We recommend that parents also create Roblox accounts to get familiar with the platform, language that is used, including slang and the experiences that your child may be playing. Having an understanding and awareness of what your child is doing online is crucial to ensuring they are practicing safe habits online.

8. Set Device Restrictions on devices where Roblox is played

We recommend setting device restrictions on the platforms where your children play Roblox. This includes devices such as a computer, Xbox or mobile phone. This could include setting screen time limitations or limiting the installation of applications such as Discord, where a stranger may attempt to shift online conversations. While the applications themselves are not malicious, as observed, many offenders attempt to move conversations off of the Roblox platform and the best way to prevent this is to make it difficult for the switch to these applications to happen.

About ClickSafe Intelligence

ClickSafe Intelligence, a 501c3 non-profit founded in 2022, was born out of an identified gap in current publicly available education regarding the identification and prevention of predatory exploitation. After working several child exploitation cases, in partnership with law enforcement, President Jessica Smith, began researching available educational materials for parents/guardians and children covering red flags, indicators of abuse, prevention measures and response tactics regarding hands-on and online child sexual abuse, in an effort to benchmark the current educational market and determine gaps. Results indicated that while educational materials *are* present and available, the majority of offerings are not comprehensively illustrative of the idiosyncratic nature of predatory offending, and it does not always reflect the quickly changing nature of online exploitation. ClickSafe Intelligence seeks to fill these gaps by creating educational material that is evidence-driven, providing material focused on varied age groups, gender identities, developmental ability levels and a variety of other varied client characteristics. Additionally, educational content will be consistently updated, leveraging research findings from dark web and predator-victim chat conversations, to teach only the most relevant and timely material that provide trends, patterns, anomalies, and general findings that are directly representative of real-time predatory behaviors toward children.


About the author

Elliot Jerge is a seasoned cyber security professional, who recently graduated from Mercyhurst University, with a Masters in Applied Intelligence. His daytime job involves running the security operations department of a managed service provider and keeping his customers safe from cyber-attacks. Having a desire to make a difference in people's lives, his current research efforts focus on child exploitation and online child sexual abuse on video game platforms and on the dark web. Through this work he hopes to be able to spread awareness for trends on child predation on video game platforms, but also have a positive impact on making children safe by providing educational resources to parents, law enforcement and organizations.

Message from ClickSafe Intelligence

Research of this nature, while essential to the safety of online platform users, is complicated to execute. ClickSafe Intelligence would like to take a moment and acknowledge that the development of covert personas does violate the terms of service designated by Roblox. Beyond the need for circumvention of identity requirements, every effort was made to ensure research methodology was developed and executed with the highest level of integrity.

Additionally, ClickSafe Intelligence would like to express our admiration for how hard both Discord and Roblox work to protect their users. We understand that predatory individuals will do whatever they deem necessary to exploit intended victims and very simply, no platform will ever be perfectly safe and free of danger. We thank Discord and Roblox for their continued commitment to user safety, particularly the wellbeing of their youngest and most vulnerable users.





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The logo features a stylized shield with a white outline and a white 'S' shape inside, positioned between the words 'CLICK' and 'SAFE'.

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