

Adopting Healthier Gaming Habits Through Proposed Tools

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Executive Summary

Modern gaming offers a lot of things these days such as entertainment, social connection, and stress relief. Excessive gaming can disrupt mental, emotional, and physical well-being including lack of sleep,

stress, and mental fatigue. My capstone project addresses this issue of gaming addiction and ways to help solve the issue by integrating informatics tools to promote healthy gaming habits for all ages. The capstone allowss gamers, parents, and educators to balance gaming with other activities through tools and combined information.

This project combines proposed tools with advanced parental controls. The components used include visual aids and checklists, customizable notifications that offer reminders and alerts encouraging breaks. Testing of popular gaming platforms like Nintendo Switch, PlayStation, and Xbox to ensure the parental control tools are easy to use was also done.

The project's website serves as a central hub, providing educational resources, guides for setting parental controls, and insights into the impact of gaming addiction. It also offers a prototype demonstration of tools and guidelines for managing gaming habits.

By blending technology, education, and empathy, this project shows how informatics can help solve gaming addiction and promote well-being.

Acknowledgemets

I like to thank Joey Reaves, Trey Rooney, and Jessica Herndon for their significant effort on the usability testing and user task list. Their thoughtful feedback were essential to the testing this project.

Additionally, I would like to express my appreciation to my professor for her guidance, insight, and understanding throughout the course of this project.

Background

Gaming addiction is an psychological and important global issue that it is fueled by the evolution of technology. While gaming can offer entertainment, social connection, and stress relief, it can also have serious negative effects on players' physical, mental, and emotional well-being when overused. For individuals with conditions such as ADHD, these effects are enhanced especially when it comes to

hyperfocus, making it even more challenging to set healthy boundaries around gaming time (American Psychiatric Association, 2021). As a person with ADHD myself and as a gamer who has struggled with gaming addiction, I can speak first hand of the hardships it is to follow a daily regime of work and school and have a healthy gaming lifestyle. These proposed or implemented tools could have helped me in the past, reach deadlines and find time for more important things in life.

This proposal aims to explore how existing tools such as parental controls, alarms, calendars, and reminders can be used to combat gaming addiction. I seeks to propose new tools and interventions that could enhance users' ability to manage their gaming time. The final deliverables for this project will include instructional guides for current tools like parental controls and proposed features for new tools.

This research is particularly relevant not only for those struggling with gaming addiction but also for anyone who seeks to maintain a balanced relationship with technology in a ever growing technological world. By using existing tools and creating new ones, this project seeks to bridge the gap between user needs and tool functionality, empowering individuals to regain control over their gaming habits while promoting overall well-being (Leung, 2017).

Project Planning

Project management is important to ensure that the project is completed on time and meets all requirements within the 8-week deadline. This planning period focused on organizing resources, preparing the scope and deliverables, establishing success measurements, and creating a timeline.

Timeline

The project will follow a structured timeline to ensure completion of each phase:

- **Week 1:** Research phase, including literature review and source list.
- **Week 2:** Continue research, define key topics, and identify stakeholders.
- **Week 3:** Develop a plan for gaming wellness tools and parental controls.
- **Week 4:** Develop usability testing plan.

- **Week 5:** Conduct usability testing and document results.
- **Week 6:** Analyze usability results, draft proposed tools.
- **Week 7:** Finalize testing results, propose new tools, and create demo videos.
- **Week 8:** Compile final report, finalize deliverables, and present findings.

While there were hiccups in between the phases, including health issues and issues with project changes. I was able to keep up with the timeline.

Project Scope

The scope of this project revolves around exploring existing and finding new technological tools that can help manage gaming addiction across different age groups, particularly children and adults. The key elements of this scope include:

- **Current Tools:** Research how parental controls, alarms, and reminders are currently used on popular gaming consoles (Xbox, PlayStation, and Nintendo Switch) to help users manage screen time and set break reminders.

- **Behavioral Impact:** See how these tools affect gaming habits in both children and adults, including impacts on mental, emotional, and physical well-being

- **Limitations and Challenges:** Identify issues with existing tools, like how easy they are to bypass, limited customization, or lack of appeal for adult users.

- **Proposed Solutions:** Outline potential tools or improvements that could enhance the effectiveness of existing options

- **Stakeholder Needs:** Consider what parents, adult gamers, educators, mental health professionals, and gaming companies need

Solution

- **Innovative Tool Enhancements:** Propose feature upgrades, like customizable break reminders or better calendar/alarm integrations

- **Policy Recommendations:** Suggest policies for gaming companies to adopt, such as periodic reminders to take breaks or features for users to easily review their playtime

- **Educational Materials for Stakeholders:** Develop a proposal for educational resources, such as guides that parents, educators, and mental health professionals can use to better support balanced gaming behaviors.

Deliverables

The project deliverables will address gaming addiction and propose ways to manage it through existing and new tools.

- **Research Report**

- A breakdown of current tools and features available across gaming platforms (e.g., Xbox, PlayStation, Nintendo Switch) for managing gaming time and behavior.

- Comparative evaluation of these tools, identifying their strengths, weaknesses, and areas for improvement.

- Examination of the behavioral impact of these tools on children and adults

- **Recommendations**

- Practical suggestions for improving existing tools, such as adding customizable reminders and self-management features for adults.

- Policy recommendations for gaming companies and regulators, such as advocating for more detailed in-game notifications and wellness prompts.

- **Instructional Guides**

- Step-by-step guides for setting up parental controls on Xbox, PlayStation, and Nintendo Switch,.

- A section on how adults can use these tools for self-management to address gaming addiction.

- **Proposed Tools/Features (Conceptual Only)**

- A outline of new or enhanced tools, such as integrated gaming calendars, advanced alarms, or focus mode.

- Descriptions of how these features could work, including mockups

- **Final Presentation**

- A presentation summarizing the research and findings

Success Measurements

- **Literature Review:** Analyze existing research on gaming addiction and screen time management to identify effective tools and gaps in current solutions.

- **Existing Tools Analysis:** Evaluate parental controls and screen time features on gaming consoles (Xbox, PlayStation, Nintendo Switch) to identify areas for improvement.

- **How Different Industries Mitigate Over Usage:** Study behavior change strategies from other industries to apply to gaming tools, improving their effectiveness.

- **Proposed Tools:** Create feasible enhancements to current tools, ensuring they are practical for stakeholders and improve user experience.

- **Video/Picture creation:** Design a simple model to demonstrate how proposed tools could work.

System Design

Stakeholders

Identifying stakeholders is crucial because it allows us to recognize the people and groups that will interact with or be affected by the proposed tools. Stakeholders, such as gamers, parents, mental health professionals, gaming companies, and policymakers, each play a pivotal role in the success of these Tools.

- **Gamers (Users):** The primary users of the gaming platform, including both children and adults, who may struggle with gaming addiction. They'll benefit directly from tools that promote healthier gaming habits.
- **Parents and Guardians:** Parents are invested in managing their children's gaming time. The platform's parental controls and monitoring tools help them support balanced gaming for their kids.
- **Mental Health Professionals:** Therapists and counselors could use the platform's parental controls to support patients with gaming addiction. Their feedback can help ensure the platform's tools fit well with treatment approaches.
- **Educational Institutions:** Schools and universities may want to use or endorse the used tools or suggested tools, especially if gaming affects students' academic performance. They can also provide input for educational content on healthy gaming.
- **Gaming Companies and Developers:** Game makers and console companies, like Xbox, PlayStation, and Nintendo, could be collaborators. They may want to support responsible gaming and reduce the negative

impacts of addiction which could lead to the consoles sales performing better by showing their clientele that they support the battle of gaming addiction by using the proposed items and tools.

- **Regulatory Bodies and Policymakers:** Agencies interested in public health effects of gaming may play a role in guiding the project's privacy and health standards.

- **Researchers and Academics:** Experts studying gaming addiction and digital well-being might find the proposal and tools useful for research and could help develop features based on their findings.

Personas(User Analysis)

Personas are essential for shaping user-centered design. By developing detailed personas, I can tailor the tools and outcomes to meet the specific needs of users. Each persona represents a distinct group within our users, such as parents concerned about their children's screen time or college students struggling to balance gaming with academics.

Persona 1:Michael Scott, The Concerned Parent



- Age: 38

- Family: Married with two kids (8 and 12 years old)
- Gaming Profile: Not a gamer, but his children play games daily
- **Background:** Michael is a busy father of two, aged 10 and 13. He works full-time as an office manager, which often requires him to handle emails and calls even after office hours. He enjoys unwinding with his family by playing video games, but he's increasingly concerned about his children's gaming habits. Both kids often prioritize gaming over homework, chores, or family time, leading to arguments at home.
- Pain Points: Michael struggles to ensure his kids balance their gaming with homework and outdoor activities. He finds parental control tools confusing and hard to set up, and his kids often bypass restrictions.
- Needs:
 - Clear and easy-to-use parental controls
 - Notifications about gaming hours

- Customizable reminders for kids to take breaks
- **Goals:**
 - To help his children develop healthy gaming habits without constant monitoring.
 - Use tools that provide balanced screen time limits, encourage breaks, and allow family-friendly settings.
 - Learn more about setting up parental controls and tracking usage without feeling overwhelmed.

- **Challenges:**
 - Struggling to enforce gaming limits due to his children's tech-savvy skills.
 - Limited time to monitor and understand the full functionality of gaming controls.
 - Concerned about finding a solution that doesn't alienate his kids or cause rebellion.

- **Quote:** "I want my kids to enjoy games but also learn how to balance them with other responsibilities."

Persona 2: Jessica Jones, The Overwhelmed College Student



- **Age:** 19
- **Occupation:** Full-time college student and Aspiring Artist
- **Gaming Profile:** Plays video games daily to unwind from stress, often for 4-6 hours

at a time

- **Background:** Jessica is passionate about digital art and enjoys playing story-based video games for inspiration. However, as she transitions into her career, she finds herself gaming excessively, sometimes at the expense of her personal projects and school work. Jessica uses gaming to escape stress but feels guilty when it interferes with her productivity and mental health.
- **Pain Points:** Jessica often loses track of time while gaming, leading to late assignments and missed meals. She feels guilty but finds it hard to self-regulate.
- **Needs:**
 - Personalized reminders to take breaks or stop playing
 - A summary of gaming habits to help her set boundaries
 - Support for creating and sticking to a schedule
 - Find a tool that feels supportive rather than restrictive.
- **Goals:** To balance gaming with her academic and personal responsibilities without giving up her favorite hobby.
- **Challenges:**

- Difficulty recognizing when gaming becomes excessive until it affects her deadlines.
 - Concerned about losing creative inspiration if she cuts down on gaming entirely.
 - Prefers solutions that are customizable and integrate seamlessly into her gaming experience.
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- **Quote:** "Gaming helps me escape, but I need tools to remind me when it's time to stop."

Persona 3: Ash Ketchum, The Adult Gamer



- Age: 27
- Occupation: Software Developer

- Gaming Profile: Plays for 3-4 hours after work to relax; enjoys competitive games with friends online
- **Background:** Ash works in tech and has a deep appreciation for gaming, often diving into immersive multiplayer games after long workdays. Recently, he's noticed that his gaming habits have started to impact his sleep schedule and overall productivity at work.

- Pain Points: Ash sometimes skips meals or workouts because he's so focused on gaming. He doesn't use existing reminders because they interrupt his flow or seem too generic.
- Needs:
 - Integrated tools that don't disrupt gameplay but gently nudge him to pause
 - A way to see weekly gaming patterns for self-assessment
 - Social reminders to balance gaming with other activities
- Goals: To maintain a healthy lifestyle while enjoying gaming without feeling judged by overly rigid tools.
- **Challenges:**
 - A reluctance to change his routine despite recognizing its negative impacts.
 - Needs solutions that support autonomy rather than imposing limits.

- Quote: "I want tools that fit into my routine and help me be mindful without nagging."

Persona 4: Laura Croft, The Educator



- **Age:** 42
- **Occupation:** Middle School Teacher
- **Gaming Profile:** Occasionally games with her students or plays casual games on her phone
- **Background:** Laura is a middle school teacher who occasionally plays games to unwind. She recently became concerned about her students' gaming habits and their impact on academic performance. As a mentor, she wants to guide her students toward balanced gaming behaviors.
- **Pain Points:** Laura notices many of her students are distracted by excessive gaming, which affects their academic performance. She doesn't have resources to guide parents or students on managing gaming habits.
- **Needs:**
 - Educational materials about gaming addiction
 - Practical tips to help students balance gaming and school
 - Collaboration with parents to create consistent boundaries
 - Checklist of Parental Controls
 - Access educational materials she can share with parents and students
- **Goals:** To empower students and parents with knowledge and tools for healthy gaming habits.

- **Challenges:**
 - Limited firsthand experience with parental control tools.
 - Struggles to find time to research solutions due to her teaching responsibilities.
 - Needs tools that are easy to explain and implement.

- **Quote:** "Kids need guidance, and parents need simple tools to set them up for success."

User Stories/Scenarios

User stories and scenarios provide context to how the proposed tools will function in real-world situations. They help visualize how different people will use the platform and interact with its features. These stories highlight specific problems faced by users, such as a college student losing track of time or a parent struggling to monitor their children's gaming habits, and show how the proposed tools will address these issues.

Persona Overview: Isabella, 15 years old, is a high school sophomore with a love for adventure games. She uses gaming as a way to relax after her studies. However, she often gets carried away and plays late into the night, affecting her grades and leaving her feeling stressed about balancing school and fun.

Problem: Isabella wants to enjoy her favorite games but struggles to stick to a healthy schedule. Her parents worry about her screen time but don't want to take gaming away completely.

Scenario with Proposed Tools: After her parents enable the console's new parental control features, Isabella starts receiving playful "wind-down" reminders an hour before bedtime. These reminders show up as colorful notifications with a countdown timer and messages like: "Time to start wrapping up!!" Additionally, the parental control system includes a dashboard for Isabella's parents to review her gaming time. They sit down with Isabella once a week to review her game hours and plan for healthy breaks, making her feel included in the process.

Outcome: The tailored reminders and family discussions help Isabella manage her gaming time without feeling punished. She finds herself less tired during class, her grades improve, and she still enjoys her gaming hobby responsibly.

Sophia's Scenario

Persona Overview: Sophia, 28 years old, is a marketing professional with a packed schedule. Gaming is her way to decompress, but she often finds it hard to stop playing after a stressful day. She ends up sacrificing time she could use for exercise or hobbies like reading.

Problem: Sophia wants to balance gaming with her personal goals but often feels guilty when she plays for too long. She's looking for a way to enjoy gaming without letting it dominate her free time.

Scenario with Proposed Tools: Sophia tries the new integrated reminders on her console, which let her set weekly gaming limits. She sets playful but firm alerts like: "Hey Sophia, don't forget that book

you wanted to read tonight!" She also uses the platform's built-in gaming report, which provides her with a visual summary of her gaming hours and compares them to her set goals.

Outcome: Sophia loves seeing her progress in managing her screen time. The reminders help her transition to other hobbies without feeling like she's missing out, and she feels more in control of her evenings.

Jason's Scenario

Persona Overview: Jason, 42 years old, is a father of two and a casual gamer. He enjoys gaming with his kids but wants to ensure they don't spend too much time playing, especially on school nights. He also wants to teach his children about balanced gaming habits.

Problem: Jason struggles to manage screen time for his children without constant arguments. He wishes for a system that helps guide his kids toward healthier gaming habits without making him the "bad guy."

Scenario with Proposed Tools: Jason enables the family management tools on their console, setting age-appropriate playtime limits for his children. The console automatically notifies his kids with friendly messages like: "Game over!" The system also sends Jason a weekly report of his kids' gaming hours. He uses it to talk to them about balancing screen time with other activities like sports and reading.

Outcome: Jason finds it easier to manage his family's gaming habits without arguments. His kids respect the reminders, and Jason feels confident that they're learning healthy habits for the future.

Mia's Scenario

Persona Overview: Mia, 23 years old, is a college student who loves online multiplayer games. However, she often spends hours gaming with friends and finds it hard to juggle her academic responsibilities.

Problem: Mia struggles to set boundaries for gaming, especially when her friends want to play for hours. She's looking for a way to enjoy gaming without compromising her schoolwork.

Scenario with Proposed Tools: Mia tries the new social gaming report feature, which shows her when she's most active and when her longest gaming sessions occur. She uses the data to plan shorter sessions, prioritizing her academic schedule. Mia also activates an automatic "study mode," which limits gaming during key hours and sends her gentle nudges like: "Your next game will be waiting after the study grind!"

Outcome: Mia balances gaming and academics better with the help of the tools. She still enjoys gaming with her friends but feels more in control of her time, reducing her stress around school deadlines.

User Task List

The user task list is vital for guiding users through the process of setting up and using the proposed tools. By breaking down tasks for each platform, like setting up time limits or monitoring activity, I provide clear instructions that make it easy for parents or gamers to use the parental controls effectively.

Tool: Parental Controls Setup (Nintendo Switch, PlayStation, Microsoft Xbox)

- Task: Set up daily or weekly gaming time limits for a child's or adult's account on Nintendo Switch, PlayStation, and Microsoft Xbox.

- Goal: Ensure users can easily navigate each platform's parental control settings to apply time limits.

- Outcome: Verify that time limits are applied successfully on all platforms and users are notified when limits are reached.

Tool: Content Restrictions (Nintendo Switch, PlayStation, Microsoft Xbox)

- Task: Set content restrictions based on age-appropriate ratings for games on Nintendo Switch, PlayStation, and Microsoft Xbox.

- Goal: Confirm that users can filter out games that are not suitable for their child's age on all platforms.

- Outcome: Ensure that age-inappropriate games are blocked and content is restricted based on user preferences across all consoles.

Tool: Purchasing and Spending Controls (Nintendo Switch, PlayStation, Microsoft Xbox)

- Task: Enable purchase approval for in-game purchases and set spending limits on Nintendo Switch, PlayStation, and Microsoft Xbox.

- Goal: Ensure that all purchases, including microtransactions, require approval from a parent or guardian on all platforms.

- Outcome: Verify that purchases are either blocked or require approval for any transactions made within games.

Tool: Communication and Multiplayer Access (Nintendo Switch, PlayStation, Microsoft Xbox)

- Task: Manage online communication and multiplayer game access on Nintendo Switch, PlayStation, and Microsoft Xbox.
- Goal: Ensure users can control communication options (voice chat, messaging) and multiplayer access based on their preferences on all platforms.
- Outcome: Confirm that online communication is restricted appropriately, and multiplayer access is limited or blocked on all consoles.

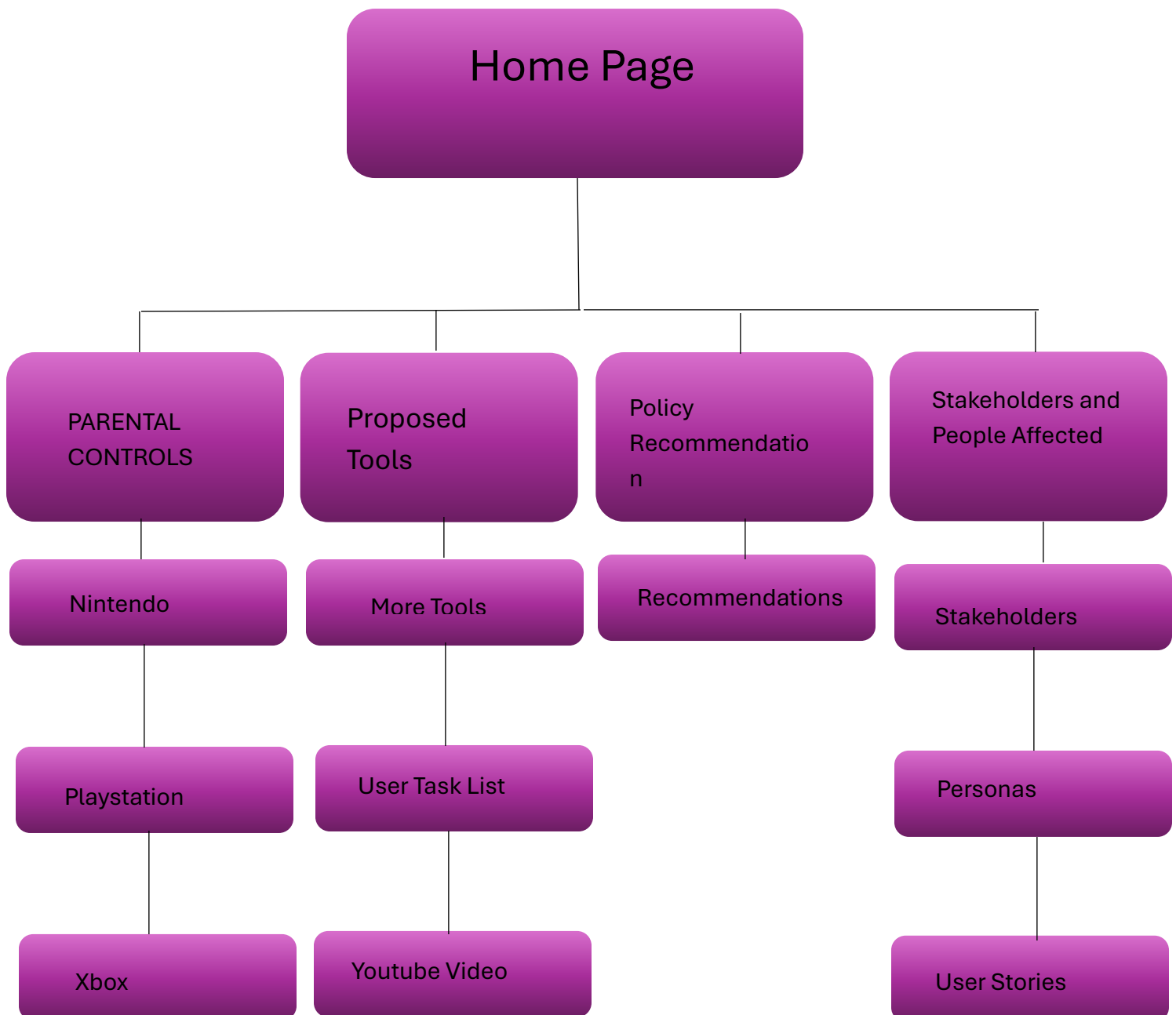
Tool: Screen Time Limits (Nintendo Switch, PlayStation, Microsoft Xbox)

- Task: Set up screen time limits for daily or weekly usage on Nintendo Switch, PlayStation, and Microsoft Xbox.
- Goal: Ensure users can adjust screen time limits to help maintain a balanced gaming schedule.
- Outcome: Confirm that screen time limits function effectively, preventing extended gaming sessions across all platforms.

This checklist ensures that parental controls for Nintendo Switch, PlayStation, and Microsoft Xbox are properly set up and functioning for managing gaming time, content, spending, and communication for children or adults.

Site Structure

The structure of the website brings everything together into a unified platform. By organizing all the information, tools, and resources in one central location, we make it easier for users to find what they need quickly. The layout, with sections like “Parental Controls,” “Proposed Tools,” “User Task List,” and “Policy Recommendations,” ensures that users can easily navigate the website.



Usability Study Methodology

The usability study methodology for this project focuses on assessing parental control tools and their impact on managing gaming habits with proposed tools.

1. Research Goals and Objectives

- **Objective:** Evaluate the usability of parental controls across Nintendo Switch, PlayStation, and Xbox to manage gaming habits.
- **Research Goals:**
 - Assess how easily users can navigate and set parental controls.
 - Determine if parental controls help improve time management and gaming behavior.
 - Evaluate users' ability to interpret and act on alerts and reports.
 - Compare usability and effectiveness across different platforms.

2. Participants

- **Target Users:**
 - Parents managing children's gaming time.
 - Adult gamers managing their own gaming habits.

3. Usability Testing Design

- **Method:** Mixed-method approach (qualitative and quantitative).

- **Moderated Testing:** I guide guides participants through tasks.
- **Unmoderated Testing:** Participants complete tasks and provide feedback.
- **Tasks:**
 - Setting screen time limits.
 - Configuring content restrictions.
 - Enabling purchase restrictions.
 - Setting alerts and reviewing reports.
- **Success Metrics:**
 - Task completion rate.
 - Error rate.

4. Procedure

- **Preparation:**
 - Provide instructions for each task.
 - Ensure participants are familiar with the platform
- **Conducting the Test:**
 - **Introduction:** Explain test purpose and tasks.
 - **Task Execution:** Participants complete tasks.
 - **Observation:** Take notes on issues faced.

- **Post-Test Interview:** Ask about ease of use, pain points, and improvement suggestions.

5. Data Collection

- **Quantitative Data:**
 - Error rate and task success rate.
- **Qualitative Data:**
 - Participant feedback on usability and specific features (notifications, reports, time limits).

6. Data Analysis

- **Quantitative:**
 - Analyze success rates and errors to identify usability issues.
 - Compare platform usability.
- **Qualitative:**
 - Identify common problems or areas for improvement.

7. Reporting

- **Usability Report:**
 - Summarize usability and key findings for each platform.
 - Highlight well-received features and problem areas.
 - Provide recommendations based on user feedback and test results.

Technical solution such as prototype of a system development and system version 1.0

Development Phase

The proposed tools and checklist are the technical solution of this project, addressing gaming wellness through innovative features and practical parental controls. They constitute the 1.0 prototype, with the website acting as the central hub that stores the prototype's checklist's, and visual proposed tools.

The development process prioritized human-centered design principles by considering the needs of parents, gamers, and mental health professionals. The checklists were written with step-by-step instructions to ensure our stakeholders went through each step. Included in these checklists were reasons why each setting is important and a written portion as to why it is important to stay on top of parental controls and to manage gaming habits.

In the process of creating proposed tools and parental control checklists, I have made visual representations and policy recommendations of some of the proposed tools for gaming companies to hopefully use in the future.

The proposed tools expand on the current parental controls by providing solutions to enhance gaming wellness:

- **Dynamic Breaks:** Analyzes playtime and recommends breaks tailored to gameplay intensity and time of day.

- **Wellness Goals:** Encourages healthy habits with gamified achievements like "Take a Break" badges.
- **Game Pause Alerts:** Prompts players to pause at natural stopping points with messages like "Time to stretch!"
- **Daily Play Reports:** Tracks gaming activity and provides personalized tips to improve playtime habits.
- **Mood Alerts:** AI-driven tool that detects frustration or fatigue using emotional signals like in-game behavior or microphone input.
- **Sleep Mode:** Automatically disables consoles during predetermined hours with an override option.
- **Family Goals Tracker:** A dashboard for setting family-oriented gaming and wellness goals.
- **Focus Mode:** Locks consoles to encourage focus on responsibilities outside of gaming.

These tools aim to enhance emotional, mental, and physical well-being through thoughtful interventions while combining with existing parental control systems.

Checklist as the Foundation of the Prototype

The checklist provides step-by-step instructions for configuring parental controls on Xbox, PlayStation, and Nintendo Switch.

- Detailed steps for setting screen time limits, content restrictions, and purchasing controls.
- Recommendations for using features like activity reports to monitor gameplay habits.

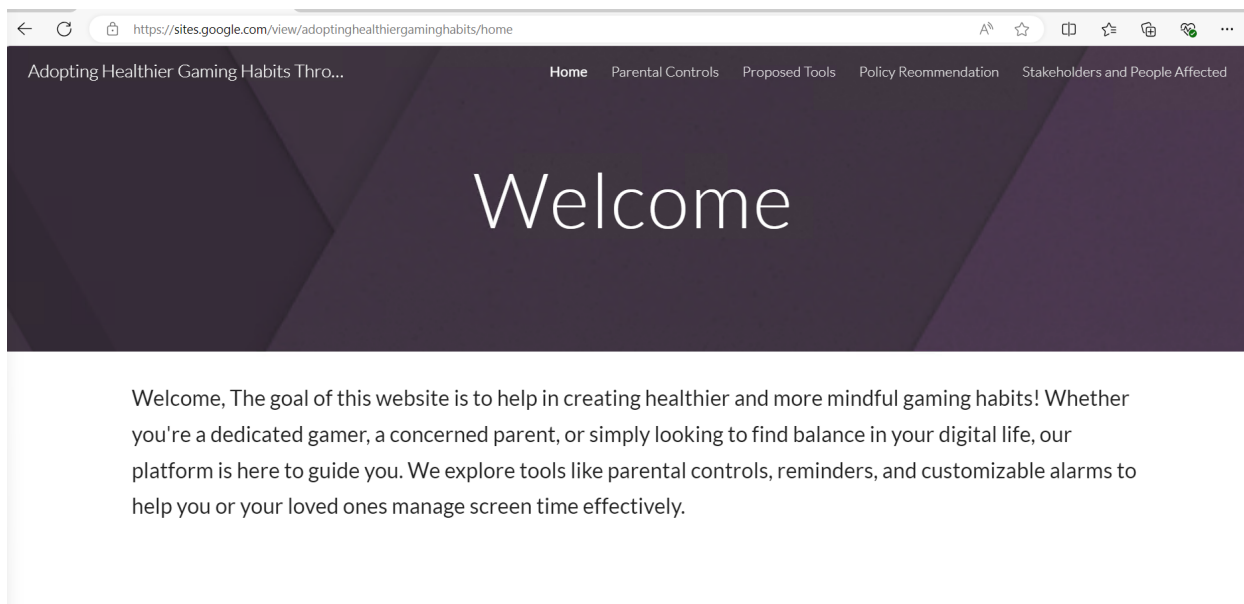
- Highlight the importance of each parental control feature.

For instance, the Xbox checklist outlines how to set up screen time limits, customize content restrictions, and enable activity reporting, helping parents tailor gaming to their family's needs.

Website as the Central Hub

The website serves as the primary location for accessing the checklist and proposed tools. It provides a seamless user experience, allowing users to:

- Download the checklist for their preferred console.
- Explore Proposed tools and Policy Recommendations.
- Provide feedback on the tools and website to inform future iterations.



[Adopting Healthier Gaming Habits Through Proposed and Current Tools](#)

Prototype 1.0 Evaluation

- **Checklist Evaluation:**

- Stakeholders found the checklist easy to follow and comprehensive.
- Recommendations included adding visuals or screenshots for more clarity.

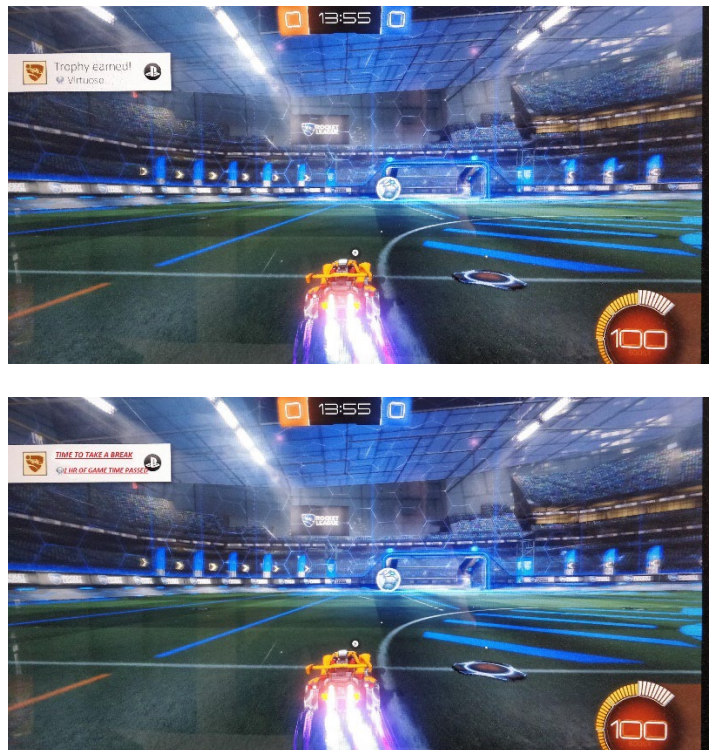
- **Website Evaluation:**

- The website's layout was praised for its simplicity.
- Users suggested additional features like a search bar and downloadable resources for offline access.

- **Simple Picture Prototype Evaluation:**

- Simple Proposed tool example picture was given and asked what could be modified
- User suggested making a video to represent the affect in real time.

Modified picture used in prototype 1.0 before and after (The idea behind the proposed tool came from social medias platforms like Tiktok)



Connection to Development and Interaction Design

The checklist and website address interaction needs by simplifying hard parental controls with easy followable steps. The proposed tools and checklist offer a solution for future integration of the proposed tools into gaming platforms. The proposed tools give us a future to where gaming wellness is held to higher standards, and the visual aids help give gaming companies an idea of the implementation of the tools.

Software and Tools Used

I will be using the most common household gaming devices for the proposed tools and prototypes.

- Xbox x/s

- Nintendo Switch
- Playstation 5

To make the Prototype of my image of a proposed break reminder and others. I used a combination of Paint, iMovie, Capcut to establish which programs match my needs best.

Usability study analysis and system vision 2.0 or comparison of another technical solutions

Usability Study Analysis

The purpose of this usability testing is to assess the ease of use and effectiveness of parental control tools on Nintendo Switch, PlayStation, and Xbox. These tools are designed to help users manage gaming habits, such as setting screen time limits, restricting content, and monitoring activity. The goal of this testing is to determine whether the tools meet the needs of parents and adult gamers.

Testing Methodology

Usability testing was conducted with participants who were either parents or individuals with gaming systems. Each participant was asked to complete specific tasks related to the parental controls available on the three platforms (Nintendo Switch, PlayStation, and Xbox) based on the user task list provided. Participants were asked to provide feedback on their experience, including ease of use, navigation, and functionality. The tasks tested included setting screen time limits, adjusting content restrictions, enabling communication controls, and viewing activity reports.

Test Participants

The usability testing involved 3 participants:

1. **Parent(Joey Reaves) :** Parent with limited experience using parental controls but familiar with gaming consoles.
2. **Gamer 1(Trey Rooney):** Adult gamer familiar with gaming systems but new to using parental controls.
3. **Gamer 2 (Jessica Herndon):** Tech-savvy adult who frequently uses digital tools but had not used the specific parental control tools.

Test Tasks and Success Criteria

The following tasks were evaluated during usability testing. Success was defined based on participants' ability to complete the tasks effectively and with ease.

Tool: Parental Controls Setup

- Task: Set up a daily screen time limit for a child's or adult's account.
- Success Criteria: The user can navigate to the screen time settings and successfully apply the limit.

Tool: Content Restrictions

- Task: Set content restrictions based on age ratings for games.
- Success Criteria: The user can easily block age-inappropriate content without errors.

Tool: Purchasing and Spending Controls

- Task: Set purchasing and spending limits for in-game purchases.
- Success Criteria: The user successfully limits spending and requires approval for purchases.

Tool: Communication and Multiplayer Access

- Task: Enable or restrict online multiplayer access for children.
- Success Criteria: The user successfully manages multiplayer settings, including voice chat.

Tool: Activity Reports

- Task: View weekly activity reports to track screen time and game usage.
- Success Criteria: The user can access, interpret, and use the report to monitor or adjust behavior.

Test Results

The test results summarize how each participant performed on the assigned tasks. The following provides a breakdown of results for each tool.

Task 1: Parental Controls Setup

- Outcome: All participants successfully set screen time limits across all platforms (Nintendo Switch, PlayStation, and Xbox).
- Issues: One had difficulty locating the screen time settings in PlayStation's menu.
- Feedback: Clearer labeling of the screen time feature on PlayStation is recommended..

Task 2: Content Restrictions

- Outcome: 2/3 of participants were able to set content restrictions based on age ratings with ease.
- Issues: One participant had difficulty understanding the Xbox content filtering system.
- Feedback: Consider adding more detailed explanations for Xbox content restrictions.

Task 3: Purchasing and Spending Controls

- Outcome: All participants successfully set spending limits and required purchase approvals for in-game purchases.
- Issues: One of the participants found the purchasing controls slightly difficult to locate on Nintendo Switch.
- Feedback: Simplifying the navigation for setting purchasing controls would improve the user experience.

Task 4: Communication and Multiplayer Access

- **Outcome:** All participants were able to enable or restrict multiplayer access and voice chat settings across all platforms.
- **Issues:** No major issues. Some participants requested more customization options for restricting online communication.
- **Feedback:** Consider adding more controls for managing online interactions and voice chat on PlayStation.

The usability testing confirmed that the parental control tools across Nintendo Switch, PlayStation, and Xbox are functional and mostly easy to use. There were some issues with navigation, especially on PlayStation due to their UI, and a few participants found it difficult to locate specific settings. The content restrictions on Xbox could benefit from clearer descriptions and additional filtering options.

Participants appreciated the ability to restrict content and purchases, with most finding the experience user-friendly once they were familiar with the navigation. The activity reports feature received positive feedback, though further customization would enhance its usefulness.

Changes Made Based on Testing

Based on the feedback received during testing, several changes have been made to improve the tools:

- **PlayStation Navigation:** The screen time limit and content restriction settings will be more clearly labeled to make them easier to find. A video may be made to show step by step processes.
- **Xbox Content Restrictions:** More detailed descriptions will be added to clarify the content filtering options

• **Nintendo Switch Purchasing Controls:** The navigation for setting up spending limits will be simplified to ensure quicker access to the controls.

- **Printable Checklist:** Printable addition to the checklist where users can follow side by side
- **Better Visual Aids:** Better Visual aids to show off proposed tools

The usability testing has successfully identified both strengths and areas for improvement in the parental control tools across Nintendo Switch, PlayStation, and Xbox. Feedback from participants has been invaluable to ensure they are effective and user-friendly. The changes made based on this testing will be implemented in the final version of the parental control tools to ensure that they meet user needs and expectations, making them more accessible and useful for managing gaming habits.

Technical solution such as prototype of the system version 2.0

For Prototype Version 2.0, the focus was on improving usability and visual engagement based on feedback from Version 1.0. The key changes include:

1. **Enhanced Checklist:**

- The checklist from Version 1.0 was revised to make it more structured and easier to follow. A printable checklist was included into the final document to make it easier for users to follow. Clearer steps and detailed instructions were added to ensure all aspects of the prototype are easily readable and understood.

Checklist For Playstation Parental Controls

Initial Setup

- Create a PlayStation Network (PSN) account if you don't already have one.
- Download and install the PlayStation app on your mobile device (available on iOS or Android).
- Add family members to your account by sending invites to their email addresses (for children, you will need their details).

Set Up PlayStation Family Management

- Once the family member accepts the invitation, go to the Family Management section in your account settings.
- Set Screen Time Limits by adjusting the daily playtime for each child user account on PlayStation.
- Set Content Restrictions based on the child's age, preventing access to games, apps, or content that is not age-appropriate.
- Enable Purchase Controls to limit or block in-game purchases or the ability to buy content from the PlayStation Store.

Control Online Interactions

- Set privacy settings for your child's account to control who can interact with them online, including friend requests, messages, and online gameplay.
- Set restrictions on voice chat, communication in games, and sharing personal information.
- Manage multiplayer game access by controlling whether or not your child can play with others online.

Monitor Activity

- Regularly check weekly activity reports in your PlayStation account settings to track how much time your child spends playing games and what games they play.
- Monitor in-game purchases, online interactions, and other relevant activities to ensure they align with your preferences.

2. Expanded Visual Aids:

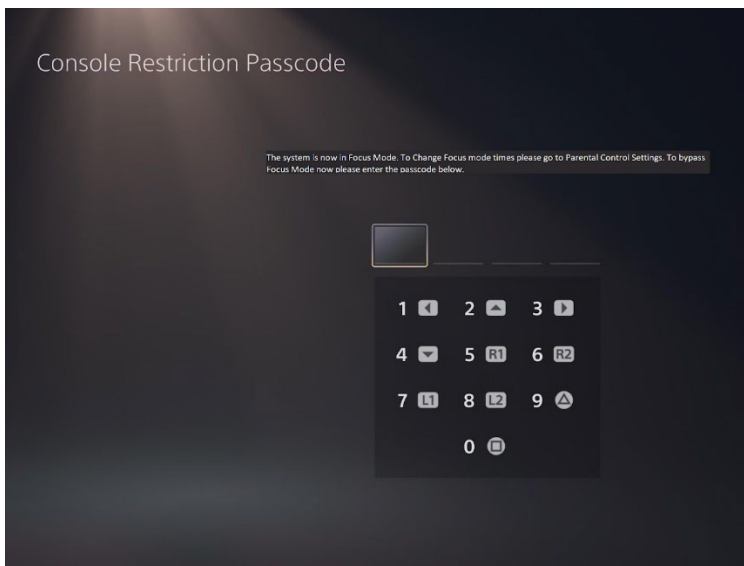
- Additional visual aids were created to better illustrate the proposed tools and features.
- One of the key improvements is a video demonstration designed to showcase how gaming companies can implement changes to improve wellness tools. This video provides a sleek non-intrusive design that will not hinder game development.
- Multiple visual mockups and images were added to supplement the video, ensuring that stakeholders have a variety of media to reference when evaluating the prototype.

<https://youtu.be/IchRNZtbcL0>

(THIS VIDEO SHOWS HOW GAME DEVELOPERS CAN UTILIZIE THE PROPOSED TOOLS. IN THIS VIDEO, WHERE A TROPHY WOULD USUALLY POP UP YOU INSTEAD SEE A REMINDER THAT AN HOUR OF GAME TIME HAS PASSED AND YOU SHOULD STAND AND TAKE A BREAK. A LOT OF SOCIAL MEDIA PLATFORMS,INCLUDING TIKTOK, USE A BREAK REMINDER ALREADY AND THIS IMPLEMENTATION CAN ALLOW PLAYERS TO REEL IN THEIR GAMING AND BRING THEM BACK TO THE REAL WORLD)



(THIS IMAGE SHOWS ONE OF MY PROPOSED TOOLS IN ACTION. MY IDEA WAS TO HAVE A NOTIFICATION OF THE CURRENT TIME POP UP EVERY THIRTY MINUTES.THE TIME STARTS ONCE THE CONSOLE IS BOOTED.)



(THIS IMAGE SHOWS FOCUS MODE BEING IMPLEMENTED ON COSOLES. SIMILAR TO IOS AND OTHER SMART PHONES, FOCUS MODE ALLOWS YOU TO PUT A

LOCK AND TIMER ON YOUR CONSOLE SO YOU CAN GET ANY CHORES OR THINGS DONE INSTEAD OF PLAYING GAMES)

Testing and Evaluation

1. Testing:

- Users were asked to complete tasks using the updated checklist.
- **Outcome:** Feedback confirmed the checklist is easier and streamlined, reducing confusion compared to Version 1.0.

2. Visual Aid Evaluation:

- The video and images were shown to gamers and parents.
- **Outcome:** The visuals made the proposed tools easier to understand, and the video demonstration provided clear ideas into potential implementation.

3. Overall Success Metrics:

- The enhanced prototype met expectations by providing better guidance and improving engagement.

Version 2.0 builds on the foundation of Version 1.0 by making the prototype more user-friendly and visually impactful. The inclusion of a video demonstration and additional images ensured that the

proposed tools are presented effectively to stakeholders, making this iteration a significant improvement over the original.

Articulate ethical and social change aspects of innovating complex IT systems

Developing the tools and enhancements for the benefit for gaming wellness prioritizes the user experience, because these are made by gamers for gamers.. Every feature, from the "Dynamic Breaks" tool to the "Daily Play Reports," was idealized to be user-friendly and integrate seamlessly with existing console interfaces. This focus ensured that the technical solution provided not only practical functionality but also a meaningful improvement in users' daily lives.

Ethical considerations also played a critical role in the design process. Excessive gaming can lead to significant mental, physical, and emotional challenges, particularly in vulnerable populations like children and adolescents, or those with mental disorders or learning disabilities like ADHD. By creating tools that promote healthier habits, such as reminders for breaks, positive reinforcement systems, and parental controls, the platform seeks to address these concerns ethically. Features like "Mood Alerts," which detect signs of fatigue or frustration.. This approach ensures that the tools are supportive rather than punitive, empowering users to take control of their gaming habits without stigmatization or judgement.

This solution enables healthier interactions between individuals and technology. The inclusion of Focus Mode and Break Reminders features showss how the solution can be used to help parents and gamers alike.. These features also promote shared accountability and wellness goals.

The technical solution was informed by evidence-based research on gaming addiction and behavior management. For example, research by Przybylski et al. (2017) highlights the role of self-regulation and family involvement in mitigating excessive gaming, which directly influenced the development of collaborative tools like the parental control checklist.

Conclusion

This capstone project has made significant progress, starting with version 1.0 of the proposed gaming tools. The first version introduced key features and a list of proposed tools like "Dynamic Breaks," "Mood Alerts," and "Wellness Goals." Version 2.0 improved on these ideas by adding user-friendly visual aids, such as videos and more graphics, to better communicate the solutions to gaming companies and stakeholders. Both versions focused on user needs, ensuring the tools were accessible and practical. Feedback from usability testing (Rubin and Chisnell, 2008) helped refine the design and confirmed the potential benefits for users' physical, mental, and emotional health.

However, some challenges affected the project. Limited access to gaming hardware and software made it harder to fully test the ideas, meaning finding users with the appropriate consoles. I also could not find clients that have suffered with gaming addiction in this short amount of time. These gaps mean some recommendations may need adjustments when more information becomes available.

While not all aspects of the project were finished, the work done here provides a solid foundation for future development. The proposed tools and ideas aim to create a healthier and more balanced gaming experience. Moving forward, stakeholders can build on these ideas to make meaningful improvements and policy recommendations can be shared with gaming companies and developers (Kushner, 2022).

Lastly, I would like to thank my professor and usability for their support and guidance throughout the project. Your help has been invaluable, and I hope this project will inspire further steps toward better gaming wellness solutions.

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