

Utilizing Virtual Play to Help Adopted Children with Trauma

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ABSTRACT

Thousands of children are adopted both domestically and internationally every year. Many come from institutional or foster care and suffer from complex trauma, abuse and neglect, which negatively affect their transition and attachment with their adoptive families [20]. To help, social workers often use a counseling technique called play therapy to help children incapable of verbalizing and expressing themselves to communicate and work through difficult subjects using objects and toys [22]. The play therapy space is a hands-on, sensory-rich play environment with a wide variety of materials and activities for children to choose from, so design solutions focused on shifting play therapy into the virtual realm using advanced gaming technologies.

Mythos is a video game where adopted children and children with trauma role play as a stuffed bear, who's lost their home and finds themselves on a journey of self-discovery. The game uses a variety of game-based learning techniques to accommodate children at different developmental levels. To ensure optimal outcomes, the game will be partnered with therapy and a physical stuffed bear. Preliminary reviews by a group of play therapists suggest the game has the potential to be a viable therapeutic tool for use with adopted children and children with trauma.

CCS CONCEPTS

• **Applied computing** → Law, social and behavioral sciences; Psychology; • **Human-centered computing** → Interaction design.

KEYWORDS

Adoption, foster care, children, trauma, attachment, play therapy, behavioral health, video games, role play games

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1 INTRODUCTION

The adoption process is a long journey, often spanning several years. For the adoptive parents, its fruition is a joyous occasion, akin to a dream that is finally coming true. However, due to the circumstances by which a child becomes available for adoption, this

is actually a frightening and traumatic time. Unfortunately, the path that leads to adoption is one of profound loss. These children have literally lost everything: loss of their parents and family, loss of their home, loss of their friends and community, loss of their innocence, and loss of the life that was supposed to be [9]. Unlike a physical death, the losses adopted children face often are ambiguous, where they may be unknown or confusing due to the physical absence of their birth family [12].

To make matters worse, many come from institutional or foster care, and may have repeatedly experienced trauma, abuse and neglect, also called complex developmental trauma [20, 21, Figure 1]. For some children, these experiences have significantly impaired their ability to trust and connect with adults, which in turn affect their ability to attach with their new adoptive family [8, 9, 15]. If left untreated, these scars can last into adulthood, impairing a person's ability to form secure relationships throughout their lives [13, 22].

2 PHENOMENA RESEARCH AND DISCOVERY

Using the lens of attachment, this research study explored the use of play and virtual play therapy to help adoptive children in Pennsylvania work through these past traumas so they can form healthy attachments with their adoptive families. Many interventions today are behavioral based and revolve around the caregiver and family [4, 16], but no studies have been published that revolve around the use of virtual play, including therapeutic video games, to treat adopted children with trauma.

Contrary to traditional design which revolves around a specific design solution, this project harnessed experience design and design research to analyze, diagnose and map out factors that affect the experience and transition of adopted children into their adoptive families, as well as detail the challenges these children have in engaging in true, child-like play. The goal was to illuminate previously invisible parts and relationships within the system and also suggest the pivotal role of play therapists in this process.

There were 46 participants in the study, six of whom participated in a semi-structured interview. Parents were assumed to focus on one child per survey. The majority of participants were from western Pennsylvania and had reached out to Bethany Christian Services of Western Pennsylvania for assistance with their children. Most had two or more children, with between one and three children being adopted.

Online quantitative questionnaires focused on demographic data and the unique challenges faced by adoptive families, while virtual and in-person qualitative interviews focused on children's opportunities and abilities to engage in pretend and imaginative play, self-directed play, and play with others, as well as their use of comfort objects, favorite activities and toys, and methods to de-stress and calm down.

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SIDEBAR 1.

Domains of Impairment in Children Exposed to Complex Trauma		
I. Attachment	IV. Dissociation	VI. Cognition
Problems with boundaries	Distinct alterations in states of consciousness	Difficulties in attention regulation and executive functioning
Distrust and suspiciousness	Amnesia	Lack of sustained curiosity
Social isolation	Depersonalization and derealization	Problems with processing novel information
Interpersonal difficulties	Two or more distinct states of consciousness	Problems focusing on and completing tasks
Difficulty attuning to other people's emotional states	Impaired memory for state-based events	Problems with object constancy
Difficulty with perspective taking		Difficulty planning and anticipating
		Problems understanding responsibility
		Learning difficulties
		Problems with language development
		Problems with orientation in time and space
II. Biology	V. Behavioral control	VII. Self-concept
Sensorimotor developmental problems	Poor modulation of impulses	Lack of a continuous, predictable sense of self
Analgesia	Self-destructive behavior	Poor sense of separateness
Problems with coordination, balance, body tone	Aggression toward others	Disturbances of body image
Somatization	Pathological self-soothing behaviors	Low self-esteem
Increased medical problems across a wide span (eg, pelvic pain, asthma, skin problems, autoimmune disorders, pseudoseizures)	Sleep disturbances	Shame and guilt
	Eating disorders	
	Substance abuse	
	Excessive compliance	
	Oppositional behavior	
	Difficulty understanding and complying with rules	
	Reenactment of trauma in behavior or play (eg, sexual, aggressive)	
III. Affect regulation		
Difficulty with emotional self-regulation		
Difficulty labeling and expressing feelings		
Problems knowing and describing internal states		
Difficulty communicating wishes and needs		

Figure 1: - Domains of impairment in children exposed to complex trauma [20]

As shown, research revealed that adopted children come with an array of personal baggage that affects every aspect of their life [Figure 2]. Past traumas and extenuating circumstances surrounding their adoption feed into fears and false beliefs about themselves and the world around them [22], which can affect seemingly unrelated skills like their ability to play [23]. When interviewed, adoptive parents indicated their children frequently struggled with social play, both in terms of self-esteem and directing play with others [10]. They have ample opportunities to play on their own, but they have extreme difficulties in self-directing play—a possible side effect from having grown up in an abusive or chaotic environment [11]. Many also struggled with imaginative play, which has been shown to correlate strongly with executive functioning skills—the ability to plan, organize, problem solve, and self-regulate [3]. Interestingly, these deficits were not reflected in children's ability to play using puzzles, board games, and video games.

3 USING PLAY TO TREAT TRAUMA

Play therapy is a counseling technique used to help children incapable of verbalizing and expressing themselves to communicate and work through difficult subjects using objects and toys [19]. There, specially trained play therapists work to “help them experience those feelings in containment and in safety,” so they can rewire the brain and create new patterns [2, 19]. Studies have shown that when paired with a strong family and stable home environment, play therapy can be especially beneficial for adopted children who have experienced complex trauma, abuse and neglect [22].

Three interviews were conducted with play therapists to better understand their process and methodology, as well as the tools

they employ in their practice. The play therapy space is a hands-on, sensory-rich play environment with a wide variety of materials and activities for children to choose from, so questions focused on the challenges they have faced in accommodating a digital curriculum due to COVID-19 restrictions [14]. In light of the research results, discussion also touched on the use of video games for therapy. Therapists stated that they have used video game themes like Minecraft or watched their child patients play a video game, such as Roblox, but none have employed the use of actual video games in their practice. In their opinion, they had not succeeded in finding a game that was built to suit the unique needs of the children they're trying to help.

At the same time, due to the fact that video games exist in a realm that's separate from the real world—a dichotomy that's similar to a play room [1]—therapists believed that video games can play a valuable role in therapy: “I think that it has a ton of potential because it's a safe thing for kids. It captures their interest, and it isn't as vulnerable as playing with something in the room.” (Therapist #2) In addition, by “entering their world and their language,” therapists can connect on a deeper level.

According to the literature, these thoughts are not uncommon. Role-play games, both virtual and in-person, have long been evaluated for their ability to help children “express their own inner schemas of the world around them.” [1] Studies have also shown the value of serious video games to help children alleviate anxiety or ADHD. In particular, the game Mindlight incorporated various cognitive behavioral therapy (CBT) strategies, such as attention bias modification, exposure therapy and biofeedback training, as



Figure 2: Results of primary research.

well as game-based techniques including role play, character-based narratives, and a variety of challenges [18, 24].

4 DESIGN PROCESS AND SOLUTION

In a world where children are accustomed to life on a screen, design solutions focused on shifting play therapy into the virtual realm using advanced gaming technologies. The design process utilized a two-prong approach: 1) taking classes to gain a better understanding of the mechanics of game-based learning [5] and 2) working hand-in-hand with a play therapist to analyze parent/child responses and dissect the play therapy environment for translation into the digital space [Figure 3]. From there, together we explored new and innovative ideas to harness the make-believe world through virtual role play, storytelling and story-acting.

The end result was a video game called Mythos, where adopted children and children with trauma role-play as a stuffed bear who has lost their home and finds themselves on a journey of self-discovery. Based in a modern-day world with fantasy underpinnings, the game uses a variety of game-based learning techniques to accommodate children at different developmental levels. To ensure optimal outcomes, the game is designed to be partnered with therapy and a physical stuffed bear. At the end of each session, the therapist will ask the child questions about their experience.

4.1 Game Components

Borrowing concepts from game-based learning [5], the game's focus is to mirror experiences often faced by adopted children and children with trauma.

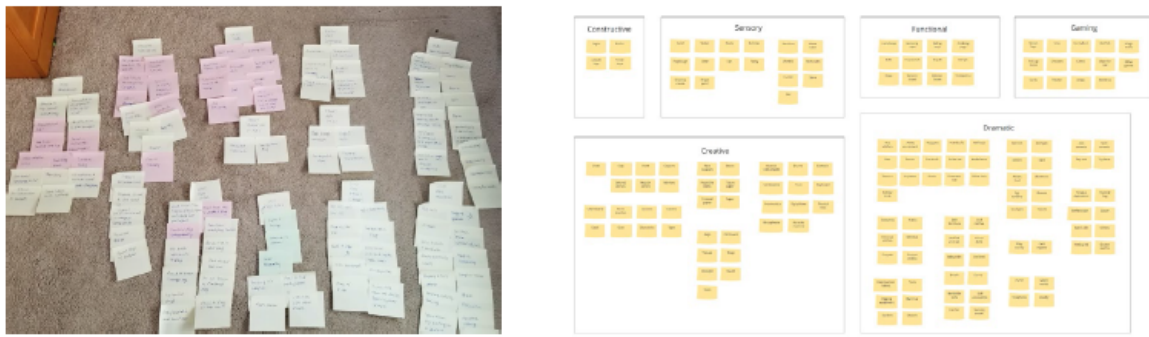


Figure 3: Co-design process incorporating the use of affinity mapping exercises



Figure 4: Process whereby therapists can incorporate the game into their treatment sessions

- **Role-play:** Children participate in the game as a stuffed animal, allowing them to project their emotions and experience the trauma journey using an outside lens. They can customize the bear's name, age, color and choose a superpower. Superpowers are based on character traits rather than physical traits, such as funny, fast, strong, brave, smart, kind or curious.
- **Storyline:** The game uses the 12-step hero quest, a common narrative technique used in role-play games, to mimic the process often used in trauma and recovery programs [7]. In the form of a predefined character, the focus is on performing actions that enable character transformation.
- **Learning opportunities:** To advance the game, children use their imagination, explore, make decisions, solve puzzles, collect objects, interact with other characters, and pick up a variety of skills, such as identifying their feelings, learning coping skills, and understanding loss.
- **Physical object:** Children will be provided with a physical stuffed animal that emulates the stuffed bear in the game. The hope is that children will use it to embody and project their feelings, both positive and negative, to help them process their experiences and heal.

Specifically designed to be partnered with therapy, therapists can incorporate the game into their individual and play therapy sessions [Figure 4], as well as with child support groups. They focus on creating a safe environment, building rapport, and allowing the child to dictate where and how sessions go. Because each child and their story are different, the game allows therapists to tailor treatment goals toward meeting the child at whatever stage they're

in. Throughout the game, therapists check in to see how the child is doing and provide support. They can also work with parents to continue necessary support at home.

4.2 Game Themes

Adopted children face a variety of issues that impede their ability to heal from past traumas, grow, and ultimately attach to their adoptive family. The game will attempt to provide opportunities to address core issues such as loss, rejection, guilt, shame, grief, identity, intimacy, mastery and control [17].

A large part of the game revolves around teaching a variety of life skills and strategies, based on real exercises therapists teach children in their practice [Figure 5]. For example, when the bear suddenly finds themselves alone in a strange land, children are prompted to identify how the bear is feeling and then point to the part of their body where they might be experiencing those feelings. In another instance, children employ coping strategies to help the bear calm down in the midst of a stressful situation: they can take a deep breath, move around, or rock their body. Children gain points for every skill they gain and are able to revisit these exercises throughout the game, as needed.

Decision points are based on clinical concepts; for example, when initially confronted with a stressful situation at the beginning of the game, children must decide the bear's reaction: fight, flight, freeze, or collapse [21, 23]. Each is based on typical reactions to stress, and sends players down a different path in the game. Over time, as players gain skills and learn coping strategies, they will be prompted to employ more positive methods of dealing with stress, such as reaching out to others or practicing their super power.

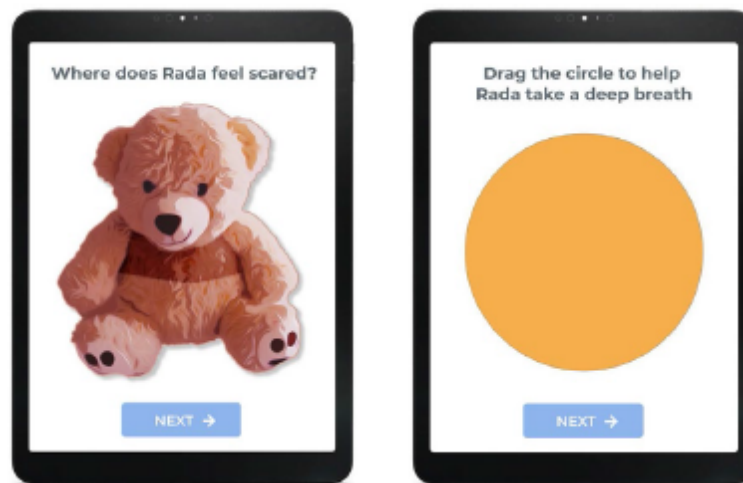


Figure 5: Examples of therapeutic skills and strategies employed in the game

5 CONCEPT TESTING AND QUALITATIVE FEEDBACK

Mythos was created as a proof-of-concept in Adobe XD. It uses a variety of design effects and illustration components, as well as interactions and sound. Imagery was staged, photographed, and edited in Photoshop.

For the purposes of concept testing, the goal was to determine the viability of the game within the therapeutic space. Three participants—two play therapists and a social worker who works with adopted children—were shown a design presentation describing the concept of the game, as well as a fully-functioning high-fidelity prototype. Because working through trauma, even with detailed training, is complicated, therapists spend a lot of time cultivating the therapist-child relationship and creating a safe space for the children to be themselves and process what they’ve been through. As a result, the demo specifically focused on essential game components and the game’s close-knit tie with therapy.

Reviews for the game and overall concept were enthusiastic. As mentioned before, none had incorporated the use of video games for therapy, and they felt the game was unique and different. They appreciated that the game was based on research—on really digging in and understanding the different perspectives of everyone involved—and that it was co-designed with a play therapist to ensure a solid, clinical component.

“I like how thoughtful you’ve been in this process of considering different experiences of children that have been adopted. I think that you’ve taken a lot of things into account. And you recognize it might not be the experience of all kids, but a lot of kids and how it could be used. I really appreciate that.” (Therapist #1)

5.1 Customization and Role Play

Overall, everyone felt the ability for children to role-play and experience the trauma journey as a stuffed bear was a useful strategy.

Projection can be an effective self-defensive tactic to help individuals process harmful and hurtful feelings within a safe place [6].

“I love that being a bear in what’s going on is removed enough from their experience that it’s not threatening, but it’s close enough to their experience that their brain can still make those connections, which is what you’re going for.” (Therapist #2)

5.2 Focus on Transferable Life Skills

By far, everyone’s favorite feature of the game was its focus on teaching children life skills that are transferable to the outside world. As shown in the research, adopted children and children with trauma often have problems identifying and regulating their emotions, so teaching these skills are typically the first step in therapy. The goal is for children to learn how to respond and react to stressful situations in appropriate ways, and more importantly, connect with their therapist and their adoptive family on a deeper level.

“I like that you have the skills integrated because there’s like this real-world application, but it’s about someone else. And it’s fantasy. But they’re practicing those skills, which helps them get that into their brain. I think that will make it stick in their brain more than if someone just talks about it with them, or has them do it.” (Therapist #2)

6 NEXT STEPS AND CONCLUSION

Overall, the therapists I interviewed were enthusiastic about the game and concept. They appreciated the game’s solid, clinical focus and partnership with therapy to accommodate any child and any situation. All were willing to try out the game with some of the children they work with, but due to the lack of time and robust testing protocols, testing with children was simply not a possibility at the time of this writing.

Detailed testing needs to occur on several different levels: first, to analyze children's overall perceptions as well as their ability to navigate and use the game; and second, to observe their reactions and gauge their performance in terms of clinical outcomes. Ideally, testing should take place with a therapist on the team who can identify and understand the impact of trauma and identify ways to circumvent its effects.

Finally, since this is only a proof-of-concept, the goal is to obtain a grant to build out the game and make it real. As shown by therapist responses, I believe the game shows a lot of promise, in that it's unique in the landscape, and could be a useful tool in helping bridge the gap between play therapists and the digital realm.

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