

# An Anti-Bullying and Therapeutic Interactive Visual Novel: TheraBuddy

İsa Özgür Özer and Mehmet Bilgin

University of Cukurova, Adana, Turkey

[ozgur.ozer@ufuk.edu.tr](mailto:ozgur.ozer@ufuk.edu.tr)

[bilginm95@gmail.com](mailto:bilginm95@gmail.com)

**Abstract:** This proceeding is an ongoing doctoral dissertation that will examine the effect of a serious game on bullying participant roles and social-emotional well-being. "This serious game, which is called TheraBuddy, is a Turkish interactive visual novel that is aimed at helping children and youth using cognitive-behavioral counseling and solution-focused counseling techniques." The protagonist of TheraBuddy is the player. According to story, the player is transferred to a school where bullying incidents occur. The player makes friends named Elma, Den, and Lu at this school. The player's goal during the story is to offer solution-focused or cognitive-behavioral help to friends involved in bullying incidents, whether as victims or perpetrators. TheraBuddy consists of nine parts, including an introduction and eight chapters. Throughout the story, two characters named Ozguro and Bilgin help the player make choices, and the story of TheraBuddy continues according to the player's choices. TheraBuddy was coded and hosted using the Ren'Py game engine. Characters and backgrounds were designed through Canva, and the TheraBuddy characters were voiced using Elevenlabs AI Voice Generator. As a result, an interactive anti-bullying game that is currently only playable offline has been developed. Work is currently being done to make this offline game a web-based game. It is believed that TheraBuddy will be helpful in combating bullying and strengthening students socially and emotionally. In the future, when the online version of TheraBuddy is completed, this belief will be tested under experimental conditions.

**Keywords:** Anti-bullying Games, Bullying Participant Roles, Social-emotional Health

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## 1. Introduction

In modern schools peer bullying is one of the prevalent issues that threatens the socio-emotional development of children and adolescents. According to a recent report published by The United Nations Children's Fund (2018), half of the youth aged 13-15 worldwide are subjected to bullying at school and in its surroundings. The same report states that one in three students globally is involved in bullying, regardless of age group. Experiencing peer bullying at an early age can have devastating effects on children and adolescents in both the short and long term (Callaghan & Joseph, 1995; Juvonen & Graham, 2014; Lereya et al., 2015; Moore et al., 2017; Schoeler et al., 2018). These are evident that combating bullying in schools is of paramount importance. There is a rich body of literature on traditional intervention methods developed for this purpose (Farrington & Ttofi, 2009). Moreover, the use of information and communication technologies to combat bullying in schools is becoming increasingly widespread. Interventions are implemented through games, forums, online social networks, and simulations (Nocentini et al., 2015).

Some of these interventions include Be Internet Awesome (Seale & Schoenberger, 2018), Cooperative Cybereduca 2.0 (Garaigordobil & Martinez-Valderrey, 2018), Mii-School (Carmona, Espinola, Cangas, & Iribarne, 2010), Stop the Mob! (Walsh & Schmoelz, 2015), and QUEST for the Golden Rule (Rubin-Vaughan, Pepler, Brown, & Craig, 2011). Additionally, SMART Talk, Fear Not!, and KiVa are among the most evidence-based games for preventing bullying. However, SMART Talk and Fear Not! are no longer accessible, and KiVa is only available to specific partner schools (Calvo-Morata, Alonso-Fernandez, Freire, Martinez-Ortiz, Fernandez-Manjon, 2020). Be Internet Awesome is an adventure game composed of 4 games and various sections, aiming to raise cybersecurity awareness among children through exercises. The game emphasizes themes such as thinking before sharing online, distinguishing between fake and real content on the internet, keeping personal secrets, being kind, and talking to someone when a problem arises (Seale & Schoenberger, 2018). Cooperative Cybereduca 2.0 is another anti-cyberbullying serious game developed for adolescents with similar goals (Garaigordobil & Martinez-Valderrey, 2018). This game, which can be played as a group in the classroom and is freely accessible, requires players to answer a total of 120 questions embedded in the game's storyline. These questions cover topics such as cybersecurity, cybersexuality, the consequences of bullying/cyberbullying, and coping with bullying/cyberbullying. It was recorded that the experimental group, who played the game for one hour a week throughout the semester, exhibited less bullying and aggression but higher prosocial behavior by the end of the term.

In an anti-bullying game Mii-School, developed by Carmona, Espinola, Cangas, and Iribarne (2010), students are presented with 17 different scenes set in various contexts. During these scenes, players are expected to choose

one of the predefined behaviors to respond to the situation. These responses include ignoring the bullies, protesting, responding with irony, fleeing in fear, confronting them, or feeling embarrassed. Stop the Mob! is an anti-bullying point-and-click serious game, designed by preschool teachers, that can be played on both computers and mobile phones and is freely accessible (Walsh & Schmoelz, 2015). In this game, players view the world from the perspective of an anonymous girl student, and Bob, a character in the game, faces various bullying situations at school. Players are given the opportunity to choose from possible actions such as participating in the bullying, avoiding and escaping the situation, or helping Bob, and to see the positive and negative changes these responses can bring to Bob's school life. Besides the few examples mentioned here, there are many other ICT interventions against bullying. Calvo-Morata et al.'s (2020) meta-analysis examined 33 games and game-like applications developed for this purpose and drew several conclusions. Firstly, it was noted that these games share common mechanics such as making choices, managing dialogues, and completing adventures. Secondly, the primary goals of these games are to teach players strategies and raise awareness. The same study also highlighted that very few of these games have been evaluated using pre-test, post-test, and follow-up measurements, and many of them are no longer accessible. Furthermore, there is a lack of evidence-based serious games against bullying available in Turkish.

In recent years, interactive visual novels, which have become increasingly popular and highly favored among children and adolescent populations, are starting to appear among the best-selling games of large-scale game studios such as Steam, Nintendo, and Playstation (Klotz, 2021). These games can serve as models for designing serious games, given their growing popularity. First of all, According to Hakkun et al. (2018) These games, which are as simple as point-and-click simulations, are suitable for use even among young age or disadvantaged groups. In interactive visual novels, emphasis is placed not only on players' gaming skills but also on how they influence the story through the choices they make. Secondly, interactive visual novels offer opportunities for not only knowledge and comprehension but also application and higher-level learning through interactions that provide a simulation experience (Bloom, 1956). Thirdly, interactive visual novels can be designed to include visuals, dialogue texts, voiceovers, choices, videos, and even mini-games. Consequently, they serve as a functional game type that offers an engaging learning experience and keeps players actively involved. An interactive visual novel with voiceovers for anti-bullying is an inclusive method that can also reach groups with reading, writing, or hearing difficulties.

Fourthly, fostering empathy is crucial in preventing peer bullying (Orpinas & Horne, 2006). Since interactive visual novels offer players a deep narrative and character development, they can encourage players to form emotional connections with characters, better understand the situations of both victims and perpetrators, and develop empathy. Lastly, interactive visual novels can be developed at a lower cost and in a shorter time compared to other ICT-based games. This makes them a more economical model for producing a greater number and variety of games. Experimental research has shown that Interactive visual novels are used for purposes such as facilitating foreign language education (Camingue, Melcer, & Carstendottir, 2020) and improving healthcare services (Yin, Ring, & Bickmore, 2012). However, in the national and international literature, only two studies have been found concerning the development of an interactive visual novel specifically aimed at addressing peer bullying (Keat, 2012; Wibisono, Fredlina, & Wijaya, 2020). Neither of these studies includes experimental testing of the developed game/intervention tool, and access to these relevant games is also limited.

As a result, there is a need to develop an interactive visual novel that can protect students from peer bullying and its effects. Therefore, the initial phase of this ongoing doctoral thesis is to develop a web-based interactive visual novel aimed at bystander intervention to bullying and contributing to students' socio-emotional well-being. The second phase involves testing the effects of this intervention tool under experimental conditions. At the current stage of the study, the first phase is nearing completion, and an offline anti-bullying interactive game has been developed so far. Work is currently being done to transform this offline game into a web-based format. The aim of this paper is to introduce an anti-bullying computer game (TheraBuddy), which has not yet been experimentally evaluated for its effects.

## **2. Theoretical Framework of TheraBuddy**

TheraBuddy's grounding in solution-focused and cognitive-behavioral counseling is influenced by several key factors. Firstly, both approaches have been scientifically proven to effectively address behavioral and emotional difficulties in children and adolescents (Beck, 2019; de Shazer et al., 2021; Gingerich & Peterson, 2013; Hofman et al., 2012). Additionally, the utility of these approaches in educational settings is robustly supported in the literature (Franklin et al., 2008; Joyce-Beaulieu & Sulkowski, 2015). On one hand, solution-focused approach plays a significant role in helping children experiencing peer bullying and related problems to establish positive

social relationships, gain problem-solving skills, and enhance their self-efficacy and social competencies (Myers, 2009). On the other hand, the cognitive-behavioral approach modifies negative and destructive thought patterns associated with peer bullying, promotes the development of prosocial skills such as assertiveness and problem-solving, and enhances students' emotional regulation skills. Thus, it equips them to combat peer bullying (Warner et al., 2016; O'Moore & Minton, 2005; Smith et al., 2004). TheraBuddy promotes using these approaches' problem-solving methods to assist other characters with their bullying-related issues. They will understand cognitive errors such as catastrophizing or selective abstraction, ways to identify these errors, and various cognitive-behavioral techniques like evidence examination, cognitive restructuring, mental rehearsal, and opposite scaling. Additionally, players are trained in solution-focused thinking and setting positive goals, breaking solutions into achievable steps, focusing on strengths, examining exceptions, and techniques such as the miracle question.

### **3. Methodology**

#### **3.1 Development Process of TheraBuddy**

The development of TheraBuddy utilized the open-source Ren'Py game engine, version 8.2.3 (Ren'Py, 2024). It has an easy-to-learn scripting language based on Python. TheraBuddy's characters and backgrounds were designed through the Canva Pro. For some scenes, ready-made photos from the Canva library were used, while for others, a design was created from scratch by giving commands to AI assistants like Canva Magic Design. For example, for the background design of the scenes in Ozguro's room in TheraBuddy, the command given to the Canva Magic Design AI assistant was, "Create a colorful school counselor's office with a desk, computer, bookshelf, chair, large windows, and sunlight." Character visuals are designed in the same way as the backgrounds. Approximately 35 character visuals and around 250 location visuals have been designed for TheraBuddy. Below are examples of two locations in TheraBuddy (see Figure 1 and Figure. 2) and the main characters' visuals (see Figure 3).



**Figure 1: School Counselor's Room in TheraBuddy (Created on Canva Pro)**



**Figure 2: Cafeteria in TheraBuddy (Created on Canva Pro)**



**Figure 3: The main characters in TheraBuddy are, from left to right: Den, Elma, Lu, Ozguro, Glen, Juli, and Bilgin. (Created on Canva Pro)**

To voice characters in TheraBuddy, a subscription to the ElevenLabs AI Voice Generator was purchased. All characters in TheraBuddy were voiced in Turkish using synthetic voice actors provided by ElevenLabs AI Voice Generator (an English demo of the game is also available). The game's script was completed by the author of this paper, İsa Özgür Özer, in approximately one year, including the preliminary and pilot phases. When selecting appropriate voice tones, factors such as the characters' appearances and roles in the game were considered. For example, a fatherly tone was used for Bilgin, a middle-aged, rational, and didactic character, while a mocking and harsh young male voice was used for Glen, one of the bullying characters.

Prior to the writing of the script, well-known interactive visual novels such as Doki Doki Literature Club version 1.1.1 (Salvato et al., 2018) and My Childhood Friends version 1.2.0 (WitPOP, 2022) were played to understand the general mechanics, game features, and narrative styles of this genre. The characters that the protagonist (the player) would befriend and help were designed, and what would happen to each of them was decided. Following this, the story was structured to allow choices to be made by the player every 8-10 lines of dialogue. The artistic aspect of the game was driven by spontaneous creativity, while the methodological structure (therapeutic and educational methods used throughout the game) was inspired by the counseling approaches described in the theoretical framework section. Ultimately, the game script consists of over 37,000 words and involves at least 100 interactions with the player.

TheraBuddy features a simple game mechanic. Players can advance scenes and dialogue by clicking with the mouse or pressing the enter key on the keyboard. When a choice menu appears, players can interact using the mouse or the arrow keys. The choices affect the storyline rather than the game or chapter endings. For instance, in one scene (see Figure 4), players choose between two questions to ask Elma: "What's on your mind?" or "What would you like to happen?" Selecting the first leads to a cognitive-behavioral conversation, where they try to reframe Elma's thoughts, addressing upsetting thoughts and identifying cognitive distortions. Choosing the second initiates a solution-focused discussion, including the miracle question and goal-setting through scaling. Regardless of the choice, the story returns to the main path with Den and Lu's arrival, and Elma feels better. Players earn badges for helping friends, which appear in the top right corner of the screen. The game features five symbolic awards: the Helpfulness Badge, Empathy Badge, Peer Mentor Badge, Anti-Bullying Badge, and Cybersecurity Badge.

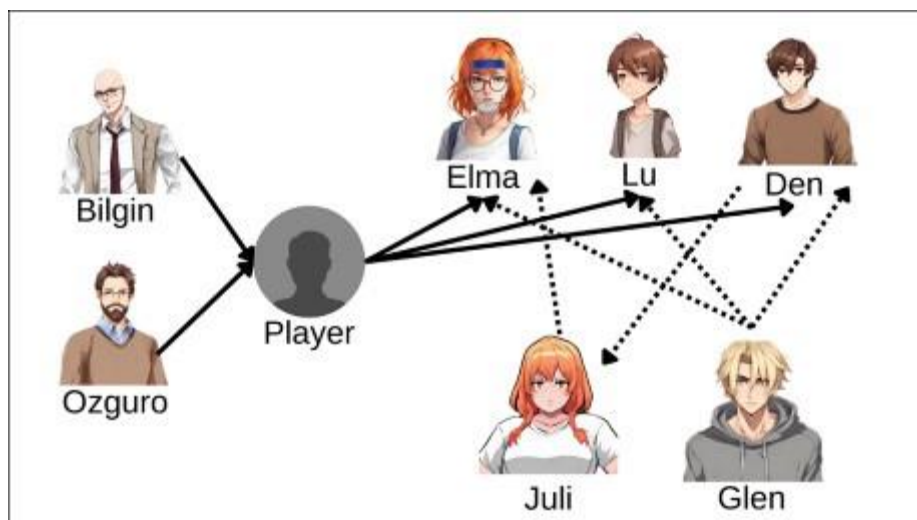


**Figure 4: The player selects one of the cognitive-behavioral or solution-focused questions to help Elma.**

The beta tests of the current offline version of TheraBuddy were conducted with eight elementary and middle school students aged 11 to 15. It took an average of 120 minutes for the participants to play through the game once. The participants were observed as they played the game, notes were taken for debugging, and their feedback was recorded at the end. For example, in one scene, players were asked to enter their grade numerically. However, it was noticed that the players generally used string inputs. To fix this, code was written in the game's script to restrict string inputs. The students mentioned that some concepts were unfamiliar and difficult to understand (such as 'selective abstraction'). These were replaced with more easily understandable terms for children and adolescents. For example, 'focusing on the negative' was used instead of 'selective abstraction.' In addition to debugging and corrections, the participants' suggestions for performance improvements were also considered. For instance, a 12-year-old student found the game enjoyable but suggested it would be more engaging with character voiceovers. As a result, Turkish voiceovers were added throughout the game, which initially lacked this feature.

### 3.2 Characters of TheraBuddy

TheraBuddy features eight main characters: Ozguro, Bilgin, Elma, Den, Lu, Glen, Juli, and the player (the protagonist). Ozguro and Bilgin serve as adult mentors throughout the game. Ozguro is a young, friendly school counselor, while Bilgin acts as a didactic, charismatic, middle-aged, paternal inner voice. Elma is a victim with orange hair, glasses, and a dental brace. Lu, from a poor background, is small and frail. Den, who is in love with Elma, is a clean-cut, docile youth who experiences both bullying and victimization. Glen, who has family issues, is muscular and gathers supporters as a bully. Juli, who is overweight, is tough and plays roles of bully, supporter, and victim. The player befriends Elma, Den, and Lu, offering social support to friends who are victims of bullying. The pathways of bullying interactions among the characters are illustrated below (see Figure. 5).



**Figure 5: The pathways of bullying interactions among the characters. Solid arrows show acts of helping. Dashed arrows show acts of bullying.**

### 3.3 Content of TheraBuddy

TheraBuddy begins with the scene where the protagonist meets Ozguro, the school counselor. In this scene, the player is prompted to choose a name they will use throughout the game. During this intro, the player is taught the game mechanics by making choices. Upon arriving at their classroom, the player meets Elma. They accept Elma's invitation to sit together, marking the beginning of the first chapter. The first chapter is titled "First Lesson." In this chapter, Elma introduces the player to Den, and they wait for their history teacher, Mr. Tev, to arrive. When Mr. Tev arrives, he asks the new students to introduce themselves. The player stands up as one of them and mentions their age, gender, and where they live (these details are collected for future work as demographic variables). When the player sits down, they accidentally wet their pants and notice two students giggling at them. At that moment, Bilgin appears and asks the player what happened. Through the player's responses, they engage in a conversation about the distinction between events, thoughts, emotions, and behaviors. After the lesson ends, the player begins to search for a way to dry their wet pants, marking the beginning of the second chapter.

The second chapter is titled "Eyewitness." In this chapter, while the player is searching for a way to dry their wet pants, they witness Glen cornering and teasing Lu, damaging his glasses. Bilgin appears and encourages the player to help Lu. They think solution-focused to find a way to deter Glen. The player resolve the situation, rescue Lu, and this leads into the third chapter. The third chapter is titled "Another Perspective." In this chapter, the player learns about what has been happening between Glen and Lu. According to the story, Lu had been completing assignments for others in exchange for money at one point. Glen and his friends found out about this and have been coercing Lu to do what they want under the threat of reporting him and getting him expelled from school. Additionally, they sometimes physically harm Lu or his belongings and ridicule him. The player convinces Lu to consult with Ozguro. In Ozguro's office, they address the cognitive distortions that make Lu feel helpless. Through the player's choices, they discuss Lu's catastrophic thinking and polarized thoughts. Ozguro and the player work together to suggest more functional ways of thinking for Lu.

The fourth chapter is titled "Peer Mentor." In this chapter, the player and Lu go to the school yard to meet Elma, whom they find crying. When they approach Elma, she does not want to talk and leaves angrily. Den then comes and explains to the player and Lu what happened. According to Den, a girl named Juli mocked Elma's jaw brace. The player learns that this verbal and social bullying has been going on for a long time. During the next break in the cafeteria, the player is alone with Elma. Elma is very upset. Bilgin appears to help the player support Elma through her distress. Bilgin and the player collaborate to have a solution-focused or cognitive behavioral conversation with Elma, shaped by the player's choices. They try to reframe Elma's thoughts, address upsetting thoughts, identify cognitive distortions, or they attempt to answer the miracle question and set goals. The fifth chapter is titled "Yin Yang." It begins with an interlude where we see Den expressing his love for Elma through an acrostic poem. Following this, we observe Den preparing a poster with "obese of the year" written over Juli's picture, believing this to be his way of getting revenge on Juli. As the interlude ends, Elma meets the player in the school yard, showing them the poster and revealing that someone has been leaving these around the school. They are unaware that Den is behind this. When they enter the classroom, they see Ozguro has arrived with Juli. Ozguro seats everyone and gives a speech against bullying. Afterwards, he organizes two interactive drama games focusing on bullying and empathy for the entire class. Once the games conclude, the sixth chapter begins.

The sixth chapter is titled "Confronting the Bully." In this chapter, Lu is saddened by the ineffectiveness of confronting Glen. Bilgin and the player collaborate to have a solution-focused or cognitive behavioral conversation with Lu, shaped by the player's choices (see Figure 6). The player and Elma attend Mr. Gav's computer class. The topic covered in class is cyber security. Mr. Gav facilitates two games aimed at raising awareness about cyberbullying and cyber security. At the end of the lesson, the seventh chapter begins.



**Figure 6: The player is trying to understand Lu's cognitive distortions.**

The seventh chapter is titled "Who is the Victim?" In this Chapter, Elma learns that Den was the one who made the posters mocking Juli. She becomes very angry and disappointed with Den for his actions. Den leaves in a huff, upset with Elma. Subsequently, the player helps Elma recognize her use of overly perfectionistic criteria and 'should' statements when judging Den. Ozguro asks the player to mediate between Juli and Den. Although

Den resolves his issue with Juli, another problem awaits him. Later that evening, Glen sends the photo of Den's love poem to the school's WhatsApp group, leading some members to make disparaging remarks about Den. Despite the player's attempts to talk to Den, they cannot reach him, and the eighth chapter begins.

The eighth chapter is titled "He Need Us." In this chapter, the player and Elma decide to visit Den at his home after school. Den believes he has embarrassed himself in front of Elma and the entire school. Bilgin and the player work together to rate Den's negative feelings, understand the overgeneralizations and mind-reading that cause these feelings. Den begins to build enough self-confidence to confront the bullying by Glen and his friends, and the final chapter begins. The final chapter is titled "Time to Say Goodbye." It opens in Ozguro's office, where Ozguro engages in an emotional farewell conversation with the player. In this dialogue, Ozguro summarizes what the player has achieved since arriving, emphasizing that the player has become a staunch advocate against bullying. At the end of the game, the player is encouraged to replay the story, making different choices.

#### **4. Future Work and Expected Results**

The effect of TheraBuddy on bystander intervention and social-emotional health will be investigated using a pre-test, post-test, and control group experimental design. Participants will be randomly selected from primary and secondary schools in Ankara, Turkey. In the pre-test, the Olweus Bullying Questionnaire for Students (Olweus, 1996) will be used to assess their participation in peer bullying. Bystander intervention to bullying will be evaluated through the measurement model of Nickerson et al. (2014). The Social-Emotional Health Scale will be used to assess students' social-emotional well-being (Furlong, You, Renshaw, O'Malley, & Rebelez, 2013; Furlong, You, Renshaw, Smith, & O'Malley, 2013). After the pre-test application, students will be randomly assigned to experimental and control groups. Each student in the experimental group will be given a [www.therabuddy.com.tr](http://www.therabuddy.com.tr) membership so that they can play TheraBuddy online. The students in the experimental group will be given one month to play TheraBuddy as much as they want. During this time, how long users played the game, how much of the game they completed, and which parts of the game they played more than once will be recorded. At the end of one month, a final test will be given to the experimental and control groups. The collected data will be analyzed with ANCOVA and repeated measures ANOVA in IBM SPSS 24 Statistics.

TheraBuddy is expected to positively impact users' attitudes toward bystander intervention in bullying and their socio-emotional well-being. To measure this effect, the following hypotheses will be tested in a future study using a pre-test, post-test, control group experimental design:

1. After controlling for pre-test scores, there will be a significant difference in the post-test scores on the Bystander Intervention in Bullying Scale and Social-Emotional Health Scale between the experimental and control groups in favor of the experimental group.
2. Within the experimental group, there will be a significant difference between the pre-test and post-test scores on the Bystander Intervention in Bullying Scale and Social-Emotional Health Scale in favor of the post-test.
3. After controlling for pre-test scores, students in the experimental group who play TheraBuddy for more than hours within a month will have significantly higher post-test scores on the Bystander Intervention in Bullying Scale and Social-Emotional Health than those who play for less than 4 hours.
4. After controlling for pre-test scores, students in the experimental group who complete more than 50% of TheraBuddy within a month will have significantly higher post-test scores on the Bystander Intervention in Bullying Scale and Social-Emotional Health than those who complete less than 50%.

#### **5. Conclusion**

This paper discusses the development of TheraBuddy, an interactive visual novel designed to enhance positive socio-emotional health and bystander intervention attitudes among students aged 10-16. TheraBuddy has the potential to be an effective game-based intervention for several reasons. Firstly, focusing on bystander intervention is critical in preventing peer bullying (Ttofi & Farrington, 2012). TheraBuddy directly targets this by placing the player in the role of an active bystander who responds to incidents involving their friends. Through this approach, students learn to defend bullying victims in their own schools. Secondly, research shows that the longer bullying continues, the more children and adolescents perceive their coping strategies as inadequate (Craig et al., 2007). TheraBuddy addresses the need for adult support and feedback by featuring characters Ozguro and Bilgin, who mentor players and provide immediate feedback throughout the game. This mentorship can help young people develop effective strategies to tackle bullying-related issues (Offrey & Rinaldi, 2017).

Thirdly, TheraBuddy employs solution-focused and cognitive-behavioral counseling techniques to assist characters within the game. Cognitive-behavioral skills are vital for maintaining socio-emotional health in bullied students, reducing bullying behaviors, and preventing bullying at a school-wide level (Gokkaya, 2017; Hutson et al., 2021). Solution-focused interventions are also effective in helping bullied students protect themselves, reduce bullying behaviors, address socio-emotional issues like social anxiety, and build academic resilience (Copur & Kubilay, 2021; Oktava et al., 2022; Yandri et al., 2023). Therefore, TheraBuddy aims to teach players evidence-based techniques for safeguarding their own and others' socio-emotional health, avoiding bullying, and assisting those who are bullied (Beck, 2019; de Shazer et al., 2021).

Common game mechanics in anti-bullying computer games include choices, dialogues, adventures, independent scenarios, explanations, quizzes, and inventory collection (Calvo-Morata et al., 2020). While many games offer a gameplay experience involving player choices, fewer games incorporate mechanics like quizzes or inventory collection. TheraBuddy is advantageous as it encompasses all these mechanics. Additionally, TheraBuddy's goals align with other effective serious games in the literature (Calvo-Morata et al., 2020; Carmona et al., 2010; Garaigordobil & Martinez-Valderrey, 2018; Seale & Schoenberger, 2018; Walsh & Schmoelz, 2015). These goals include teaching students strategies to handle specific situations, understanding the consequences of actions, fostering empathy for victims, promoting safe and responsible internet use, and learning new socio-emotional skills.

Currently an offline digital game, TheraBuddy's next research procedure (experimental) will begin once its web software is complete. Future research predicts that children and adolescents who play TheraBuddy will increase their bystander intervention in bullying situations and develop various traits indicative of healthy socio-emotional development, such as emotion management and positive relationships with others. If these predictions are validated under experimental conditions, TheraBuddy could be the first example of using interactive visual novels to prevent or reduce antisocial behavior problems like bullying in educational settings. Such a game could become part of school-wide or community-wide prevention policies and programs, forming the gamification and learning component of these initiatives.

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