Unlocked: A Game On Human Trafficking

AadilMehdi J Sanchawala
International Institute of Information Technology, Hyderabad
Telangana, India
aadilmehdi.s@students.iiit.ac.in

Adhithya Arun
International Institute of Information Technology, Hyderabad
Telangana, India
adhithya.arun@students.iiit.ac.in

Rahul Sajnani
International Institute of Information Technology, Hyderabad
Telangana, India
rahul.sajnani@research.iiit.ac.in

Kavita Vemuri
International Institute of Information Technology, Hyderabad
Telangana, India
kvemuri@iiit.ac.in

Abstract—A behaviourally transformative experience via a strong theme, narrative, and gameplay is a powerful learning paradigm when presented coherently. The interplay of these factors facilitates learning and allows for an immersive experience. It enables players to explore their options and deliberate on the outcomes of their decisions. In this paper, we focus on the socially relevant theme of human trafficking. With *Unlocked*, we present a perspective that has not been addressed by similarly themed games so far. Understanding such an outlook is crucial to connect with the realities of human trafficking. Our game demonstrates the obstacles in real-life escapes and rescue operations while using well-established literature on learning as guiding principles to create an effective transformative experience. It allows the player to identify with victims and understand their mindset and thought processes. We measure our game's efficacy in educating players about factors like socio-economic and cultural predicaments, and latent conditions that influence these crimes. Such factors are often overlooked and are hard to understand until they are experienced first-hand. Our study attempts to show that transformative games can help recognize the role that these factors play by placing the player in the victim's position and building a strong narrative around it. We evaluate the learning process by having two phases of survey, pre-test, and post-test. The pre-test survey tests the player's knowledge about the current state of human trafficking. In the post-test survey, players rate the experience, gameplay, and effectiveness of the game in educating them about the trafficking scenario. The game was tested and validated by social activists who work to rescue trafficked women and children. They acknowledged the potential impact our game could have on raising awareness. Our findings establish that transformative games grounded with a strong narrative and built with a meticulous design guided by principles of transformation and learning prove to be highly effective in propagating social messages on the perils of human trafficking.

Index Terms—Transformative play, Game based learning, Serious games, Human Trafficking, Role playing

I. Introduction

A. Games for Behavioural Change

Games, like cinema, provide an opportunity for players to experience a version of reality alien to them. This makes games a powerful medium to communicate and create awareness about social issues and highlight subtle prevalent prejudices present in a society. Video games with narratives are effectual experiences with three critical ingredients, namely, immersion, agency, and transformation [1]. The interplay among them when appropriately employed in enacted events catalyzes a highly transformative experience that conventional narratives cannot forge. Enacting an experience has a singular effect on players enabling them to identify and empathize with the world they are put in. The concept of immersion was further formulated into a hierarchy of engagement, engrossment and total immersion [2]. The highest level of total immersion requires a relatable narrative and agency, apart from game mechanics, allowing the player to make choices with cognitive oversight and hence imbibe ethical considerations [3].

Transformation, as presented by Mateas [4], has three distinct ways:

- **masquerade** – placing the player in the victim's shoe for the duration of the game.
- **variety** – incorporating variational outcomes for a better understanding of the theme.
- **personal** – transforming one's social behavior and thought process in such scenarios.

While the former two are transitory game characteristics, the latter is the goal of any transformative game. The features that bring about these changes include engaging curiosity, a relatable narrative [5] and the role-playing aspect where the cognitive and behavioral changes are possible [6].

Debates on the transferability of online activities to lasting offline engagements are often a concern for transformational games [7]. This, however, is resolved by placing the players as active stakeholders in situations that require solving problems [8]. A positive consequence is the adaptation of game technology, as a tool, by advocacy and humanitarian aid organizations.

In this paper, we present *Unlocked*, a game designed on the aforementioned principles of transformation and learning that address the prevailing issue of child trafficking for labor. Through the game, we address the transformational path of a victim's attempts of rescuing fellow trafficked victims but

facing resistance. The game portrays nuanced difficulties and hurdles that a victim has to overcome in the process of escaping. *Unlocked* intends to create awareness and educate the player about the complex circumstances that crimes such as trafficking entail.

B. Background

Human trafficking is the act of stealing one's freedom of action, choice, and life for monetary profit. Among the victims of human trafficking, women and children are more likely to fall prey to situations where the line between bonded labor and gainful employment is blurred. Types of human trafficking include sexual exploitation, forced labor, coercion for organ removal, begging, and the use of children in warfare. Factors precipitating trafficking include civil unrest, and mass migration, lack of access to education or jobs, a dysfunctional family, or lack of human rights. Trafficking even becomes a route for the family to secure nourishment and a perceived healthy life for their children as promised by agents of the trade. It is a lucrative industry (International Labor Organization estimates the profits to be about $150 billion). The task of government agencies and organizations is to make rules and enforce punishments to deter trafficking. However, the civil society are equal stakeholders who need to be aware of it and have the knowledge to identify victims, and the means to help or report such crimes. Towards this world-wide effort, our contribution is a unique human trafficking game.

II. RELATED WORKS

Using game-based approaches to convey the evils of human trafficking have been attempted before. *Balkans ACT Now! BAN Human Trafficking* [9] is a game centered around trafficking developed with the support of the European Union. It is a text and image-based decision-making game, where different decisions lead to different outcomes. The game shows the players different possible scenarios a trafficked person may find themselves in and the possible choices they have. Each choice has a unique corresponding outcome, some of which lead to safety while others lead to further exploitation. The game includes an element of uncertainity as some options that may seem helpful may turn out to be unfavorable and vice versa. However, the gameplay is text-heavy and very short, as a result of which the player does not connect entirely with the victim or the plot.

(Un)trafficked [10] was developed for Nobel Laureate Kailash Satyarthi's Children's Foundation and the Children's Investment Fund Foundation. This game is also a text and image-based decision-making game, where players take on the role of decision-makers in the life of a young 13-year-old village girl in India for a week. The game presents a unique interaction interface, where every decision is binary, and one must slide a coin to make a choice. Contrary to the aforementioned games, *Unlocked* offers a richer experience allowing players to navigate their trafficked character through grim environments and dangerous scenarios. It gives them the

opportunity to face the dilemmas and moral questions of a trafficked victim.

MISSING: The Complete Saga on Trafficking [11] was created by activist Leena Kejriwal. This game is designed as a role-playing game set in the rural Indian countryside. Through this game, the players take the journey of an impoverished but brave village girl, Champa, in her fight against trafficking for prostitution, and finally finding her place in the world after that. The game does not provide a background about the lives of trafficked women and children like the protagonist. It thereby falls short in grounding the narrative and building a connection with the identities of victims. The game is histrionic, as it depicts a dramatized narrative where the antagonist is shown as the only obstacle. It does not dwell on the internal conflict that the victims might have as a result of their backgrounds.

In most games, actions depicting rescue in the virtual humanization projects focus on operations showing tracking, rescuing, and repatriating a trafficked child as a simple task. However, this definition is insufficient to completely understand all the perspectives and the situations that lead to trafficking. In contrast, *Unlocked* focuses on building a connection between the player and their character, through a narrative that explores his background and unravels the root causes that play a substantial role in creating opportunities for exploitation and trickery, thereby enabling such crimes. Our game also explores the thought process of victims and gives a unique insight into human trafficking.

III. ABOUT THE GAME

Unlocked captures critical aspects of trafficking and weaves it into a narrative that allows the user to discover an entirely new perspective. It helps players understand that the root causes are usually social circumstances that make people susceptible to submit to such criminal acts.

A. Story

Somesh, our protagonist, is a twelve-year-old boy who is a victim of forced child labor. He was trafficked when he was merely nine years old. The traffickers took Somesh away from his parents with the promise of giving him an education and a job. The parents being from a poor background agreed to send their child away with them. The story begins with Somesh working in a bangle making factory where he stays with other children who have been separated from their parents as well. His labor includes sitting near the stove in sweltering heat and making bangles out of delicate glass. He works full time for the industry with no pay and atrocious, unhygienic work conditions relegating his life to extreme trauma. Any form of rebellion from him or any other children results in solitary confinement, corporal punishment, and starvation. Somesh decides to remedy this situation and resolves to escape the factory. He plans his escape from the factory with the other children only to find out that most of them are unwilling to flee. They believe that they are unwanted by their parents, and their lives do not matter. Somesh tries to convince them

that there lies a world filled with opportunities. However, they refuse to escape with him and threaten to expose his escape plan to the traffickers. Somesh sneaks into the factory's records and archives to find proof against the traffickers. He finds the files of all his friends including himself. The records show that they were taken away from their parents at a very young age from the outskirts of Delhi. He takes the documents he gathered and shows it to his friends in the hope that they would join him after they have learned the truth. However, only one of his friends agrees to join him in his plans of escape as the rest are afraid to face the social rejection and poverty of the outside world and prefer their present life. Somesh escapes with a resolution to return for his friends. He decides to liberate all the children and show them the value of freedom.

B. Rules and Gameplay

The game is divided into three stages with multiple levels in each. The first stage sets the context with compelling visualizations, followed by a puzzle to familiarise the player with the controls and rules (Figure 2). The second stage focuses on the narrative and the information to plan the strategy for an escape. The final stage is the actual escape and the unexpected situation the player faces. The game presents a turn-based interface that simulates the experience of a board game. The players and enemies move one step at a time in any permissible direction. The interface is designed to make the game challenging and also allows for situational awareness by visual and auditory cues. Objects like keys are placed at strategic locations for the player to collect and open doors to escape. During the player's movement on the game board, they are likely to encounter four different types of enemies, each of which display a unique behavior, as shown in Figure 1

All types of enemies will attack the player if the following conditions are met:

- It is the enemy's turn
- The player is at a position that is precisely one unit away from the enemy's position in the direction the enemy is facing.
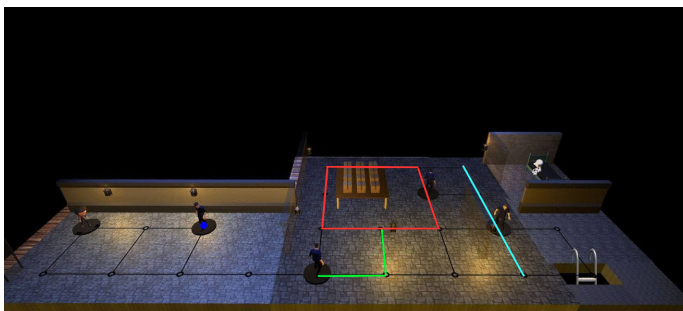

Fig. 1. Enemy movement represented with different colors.

C. Design Choices

a) Narration: *Unlocked* presents a primarily linear story, and hence is meant to be a 'one-shot' game that attempts to

Fig. 2. Game screenshot.

educate the player about human trafficking with the help of a strong narrative that introduces them to various situations and dilemmas a trafficked victim would face. The narrative incorporates the 3 distinct ways of transformation as outlined by Mateas (2005) [4], continuously and coherently while keeping it interesting and immersive.

The 'masquerade' aspect can be witnessed with the introduction of the character to the players. The narration creates a grounding for the origin of the protagonist to allow the players to delve into the background of typical victims of trafficking for labour in India. This stage connects the user to their character and allows them to empathize with him. As the narrative progresses, the players begin to identify with their protagonist. They are faced with a variety of situations such as collecting evidence, persuading a friend or stealthy exploration of a forbidden room. This builds a strong story by introducing real-life scenarios that victims would face during an attempt to escape. This realizes the second way, 'variety', that Mateas [4] talks about. The final form of transformation, 'personal', comes about at the end of the narrative. The game concludes with a scene that appears as the first-person perspective of a citizen driving by and witnessing the protagonist being captured by the traffickers merely a few meters away from the gate of the wretched place that the entire story is set in. At the end of the scene, the players are presented with a simple question, about what they would do if they witnessed the same horrid scene. This ending to the game persuades players to introspect and realize a transformation in their awareness and leaves them with a strong message that they would remember along with the game.

b) Game Mechanics: The game is designed as a turn-based, discrete 3D space game. We chose to have a turn-based game rather than a continuous real-time game. The decision was made based on the fact that in real-time games, players usually miss out on the small nuances and intricacies of the game environment and situation. However, a turn-based game gives the player enough time to comprehend the situation and

pay attention to the subtleties the game has to offer in order to strengthen their learning. Having a turn-based paradigm, enables the player to be observant of the dull and dingy surroundings of the bangle making factories. This aids in empathizing the players with the victims and place themselves in the victims' shoes and partake as an active stakeholder in the game.

Having our game in a turn-based fashion also gives the player more time to think, which is crucial in the theme of human trafficking. It enables the player to adapt the learning curve as per their needs, hence, catering to a larger audience of various age groups. With the self-adjusted pace of learning, the players are able to make decisions with cognitive oversight and imbibe ethical considerations.

Another critical game mechanics decision was to set the game in discrete space. Having a discretized space limits the movement of the player, emulating the claustrophobic spaces of bangle making hutments. This also complements the turn-based nature of the game. Moreover, they are also representative of the physical struggle that the victims experience due to their fatigued, malnourished, and deformed bodies which are a result of long hours of crouching in front of fire pits, hence, limiting their mobility.
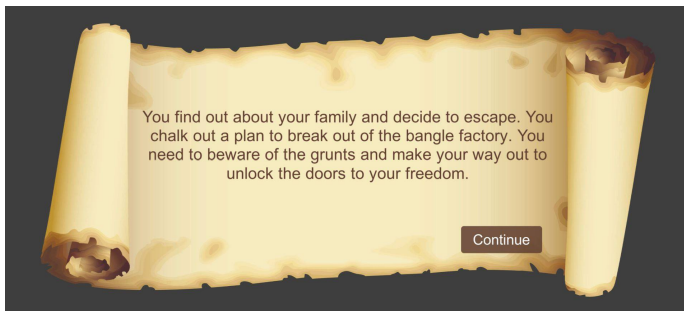

Fig. 3. Sample of narrative help card displayed at the beginning of every level.

During the game, the player is vigilant of his surroundings and situations. We do this with the help of various tasks that the player has to complete which emulate the real-life difficulties that the victims and the rescuers face during rescue operations. Using various help-cards (Figure 3), interactions with the non-player characters, and exploration, players are in a continuous dialogue with themselves, introspecting the decisions that they make and the ethical implications of those decisions. For instance, a major decision that a player has to make in the game is to choose between escaping the trafficking den alone or flee along with comrades. Such a crucial decision poses an ethical conundrum to the player and requires the player to deliberate on the consequences of his/her choices and portrays the indecisive mentality that the victims generally have in such situations.

c) Game Art: The game uses objects similar to real-world settings giving players a first-hand experience of the trafficking scenario. Players witness dimly-lit enclosures with caged cells, bangle making furnaces, and storage rooms. These dimly-lit enclosures make it hard for the players to view their surroundings, replicating trafficking dens.

Fig. 4. Child begging for mercy to the grunt.

Fig. 5. Figure representing the bangle making factory where caged children represented in red are forced to work.

We employ subtle cues in the environment to strengthen the game's learning aspect. Levels have various scenes, objects, and obstacles displaying the hardships faced by children. These scenes include victims sweeping floors, begging for mercy, and working in the bangle making furnace. By capturing specific conditions (Figure 4 and Figure 5), we try to amplify the empathy that the player feels with the victims. The expressionless facial design for victims signify the lack of hope in their lives. The game utilizes congruous background scores to bring out the game's theme and make it more immersive. The visuals ensure players get an engaging experience while playing the game and make it easier for them to comprehend the horrors of trafficking. Through these visuals, the game displays the psychological difficulties faced by victims even when there exists a possibility of escaping.

D. Game Development

The game was developed on the Unity 3D game engine, and logic was programmed in C#. Blender was used to edit and create 3D assets for the game. The 3D art and assets used are free and open-source. The characters, animations, 3D models, and assets are from mixamo.com and Unity Asset Store. The sound effects and the background score are from freesound.org.
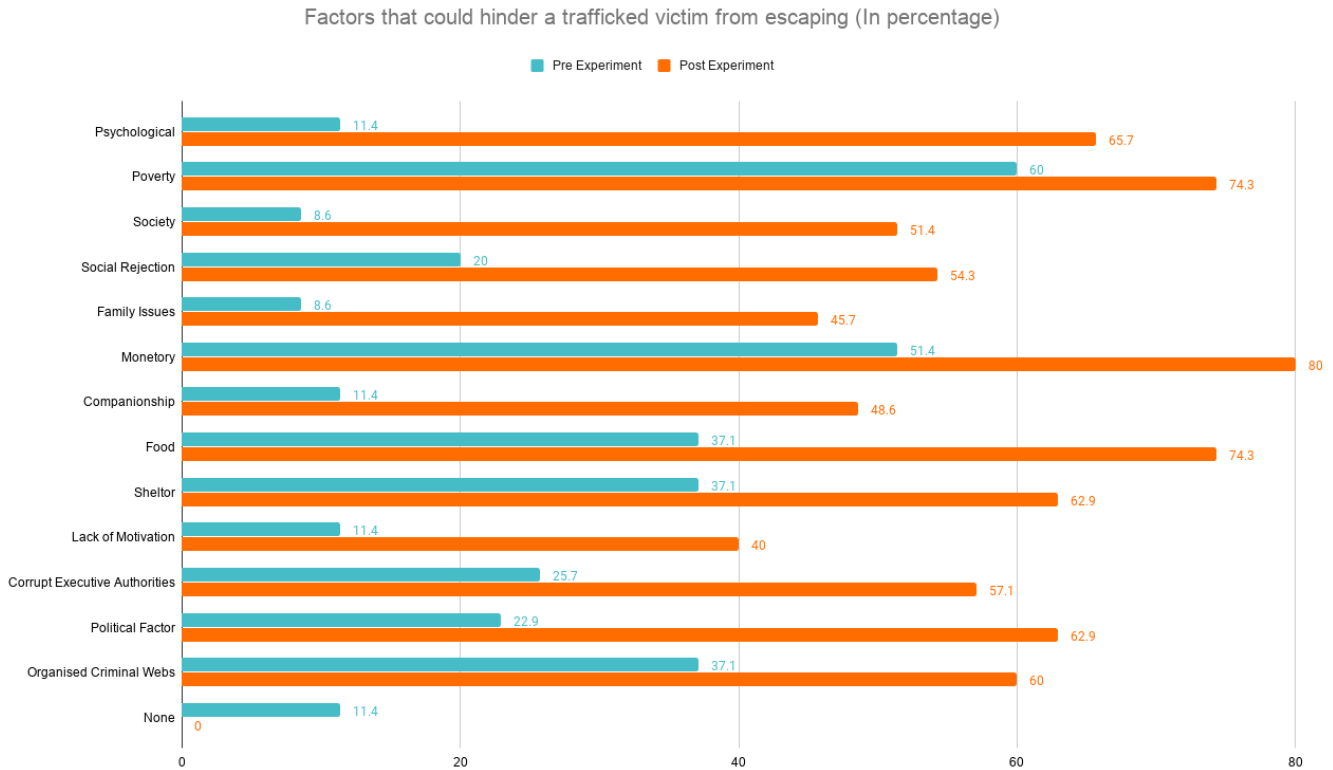
Factors that could hinder a trafficked victim from escaping (In percentage)

■ Pre Experiment ■ Post Experiment

Factor	Pre Experiment	Post Experiment
Psychological	11.4	65.7
Poverty	60	74.3
Society	8.6	51.4
Social Rejection	20	54.3
Family Issues	8.6	45.7
Monetory	51.4	80
Companionship	11.4	48.6
Food	37.1	74.3
Sheltor	37.1	62.9
Lack of Motivation	11.4	40
Corrupt Executive Authorities	25.7	57.1
Political Factor	22.9	62.9
Organised Criminal Webs	37.1	60
None	11.4	0

Fig. 6. Factors possibly hindering a victim's escape as reported by the participants. The data was collected pre-post game play. The figure displays the percent of participants (x-axis) reporting the factors (y - axis) hindering a victim's escape.

IV. PLAY TESTING

The game was play-tested by 35 participants (age range: 15 to 55 years, 74% male), with the majority in the age group of 18 – 21 years (26/35), with gaming and non-gaming backgrounds. 74% of the participants were residing in different parts of India, while 26% were non-resident Indians. The play-testing phase was conducted as follows,

- The play-testing experimentation was conducted in a single-blind study fashion, with a pre-test and post-test design. Survey responses were taken before and after the play testing to gauge the level of learning and transformation.
- Each participant was asked to fill in a questionnaire on demographics, beliefs about human trafficking in India, and how it compared to other countries.
- The game was played on a standard laptop fitted with headphones.
- The duration of gameplay for each person was approximately 30 minutes.
- After the completion of the game, each individual completed another questionnaire that asked them if the gameplay changed their current beliefs of trafficking.

The pre-game questionnaire revealed that 94% of the participants had read about human trafficking, with 34% agreeing

to it being a severe situation in India. At the same time, 49% participants said it was similar in other countries, and 17% felt it to not be that serious of an issue. Interestingly, when asked whether child labor is inevitable due to poverty, only 26% responded with a "no". But most importantly, post-gameplay, 52% realized the seriousness of child labor in India, while only 38% still thought it was the same as in other countries. On the inevitability of child labor in India, post-gameplay, 66% were not sure anymore as compared to nearly 34% pre-gameplay. These distributions are indicative of the effectiveness of the game on changing perceptions.

Figure 6 reveals results to the question, 'Factors that could hinder a victim from escaping various trafficking scenarios'. In the pre-test, participants have the opinion that poverty (60%), monetary (51%), shelter (37%), and food (37%) are the major factors hindering a victim from escaping. Post-gameplay, there is an interesting rise in the number of participants of the opinion that poverty, corruption, and political factors also hinder a victim's escape. The graph witnesses a rise in psychological (11% to 66%), corruption (26% to 57%), political factors (23% to 63%), poverty (60% to 74%), food (37% to 74%), and shelter (37% to 63%) as the factors obstructing a victim from escaping. The shift can be reasoned as the narrative and quests of the game expose participants to the mentality of victims, the political aspects, and the corruption involved in trafficking
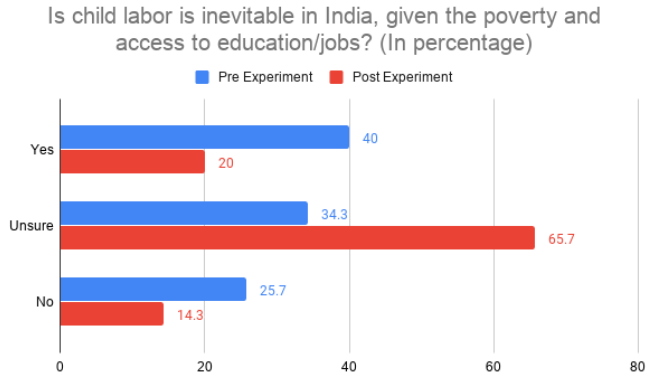
industries.

Fig. 7. The pre-post feedback for the question - "Is child labor inevitable in India, given the poverty and access to education/jobs". Figure displays percent of participants (x-axis) and their reported results (y-axis).

Figure 7 shows the pre and post experimental results to the question, "Do you think child labor is inevitable in India, given the poverty and access to education/jobs?". The expected results for this question were to see a rise in the "*unsure*" responses and a decline in the "*yes*" and "*no*" responses. This is attributed to the expectation that after treatment (playing the game), the participants who responded "*no*" would acknowledge the monetary, psychological, societal, familial and political factors, and understand the hurdles involved in the lives of child laborers. They would also learn that the traffickers feed them with false promises and continue to extract cheap labor out of them. A decline of "*yes*" responses is expected due to the understanding that after playing the game, participants realise that exposing artifices of the traffickers and presenting victims with freedom and opportunities motivate them to escape the trafficked situation. As it can be seen in Figure 7, the experimental results match with our hypothesized pattern. There is a decline of 20% in the "*yes*" responses and 11% in the "*no*" responses. The "*unsure*" responses increase from 34% to 66%.

Figure 8 reveals the result of how serious participants think the human trafficking situation is in India. In the pre-test, we hypothesize that the majority of participants to choose the option "*same as other countries*" as most of them are unaware to such scenarios. The result validates our hypothesis with the majority (49%) choosing the option "*same as other countries*". The post-test results reveal a shift of opinion with 52% of the participants choosing "*very serious*" to describe the seriousness of the human trafficking situation in India. There is a decrease in the number of participants who feel the trafficking scenario is "*not very serious*", displaying personal transformation in their outlook. These shifts occur as the participants have a better understanding of the seriousness of the situation owing to the experience gained after playing the game.

Figure 9 shows the pre-experimental and post-experimental responses to the question, "Do you believe that if given a
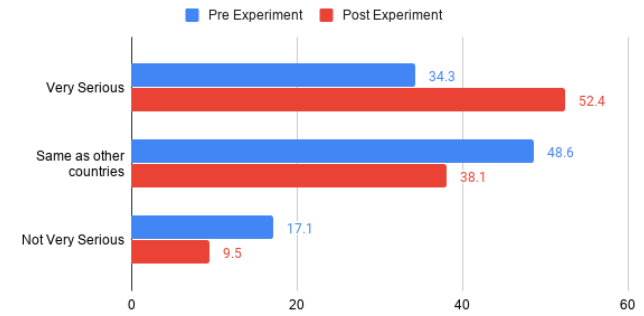

Fig. 8. The pre-post feedback for the question - "How serious is the situation of human trafficking in India?". Figure displays percent of participants (x-axis) and their reported results (y-axis).
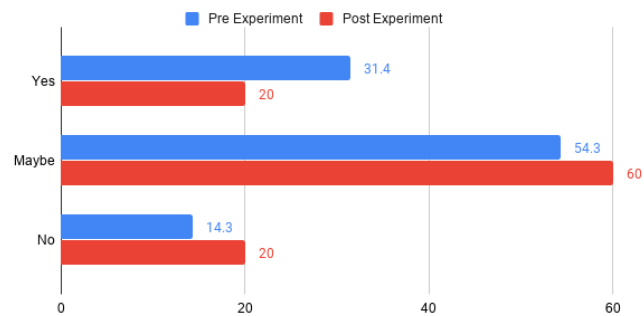

Fig. 9. The pre-post feedback for the question - "If given a chance, escaping a trafficked situation is easy?". Figure displays percent of participants (x-axis) and their reported results (y-axis).

chance, escaping a trafficked situation is easy?". There is an expected rise, from 14% to 20%, in the number of participants that respond "*no*" to the question. The responses for "*yes*" decrease from 31% to 20% and the responses for "*maybe*" increase from 54% to 60%. We can see that the responses for "*yes*" reduce post-experiment to nearly 64% of that seen in the pre-experimental results. This is explained by the fact that after receiving the treatment (playing the game), the participants are able to appreciate the multitude of convoluted factors involved in the process of escaping the situation.

57% of the participants reported that the game aesthetics, visuals, and art captured the intricacies of the situations of human trafficking and aided in conveying the theme and empathizing with the protagonist of the game. However, 32% of the participants suggested that the visuals could have been closer to reality to be more immersive. The game mechanics and rules were understandable to 80% of the participants. The distribution as a function of the rating is provided in Figure 10. Nearly 75% of the participants reported that the sound effects amplified their experience.
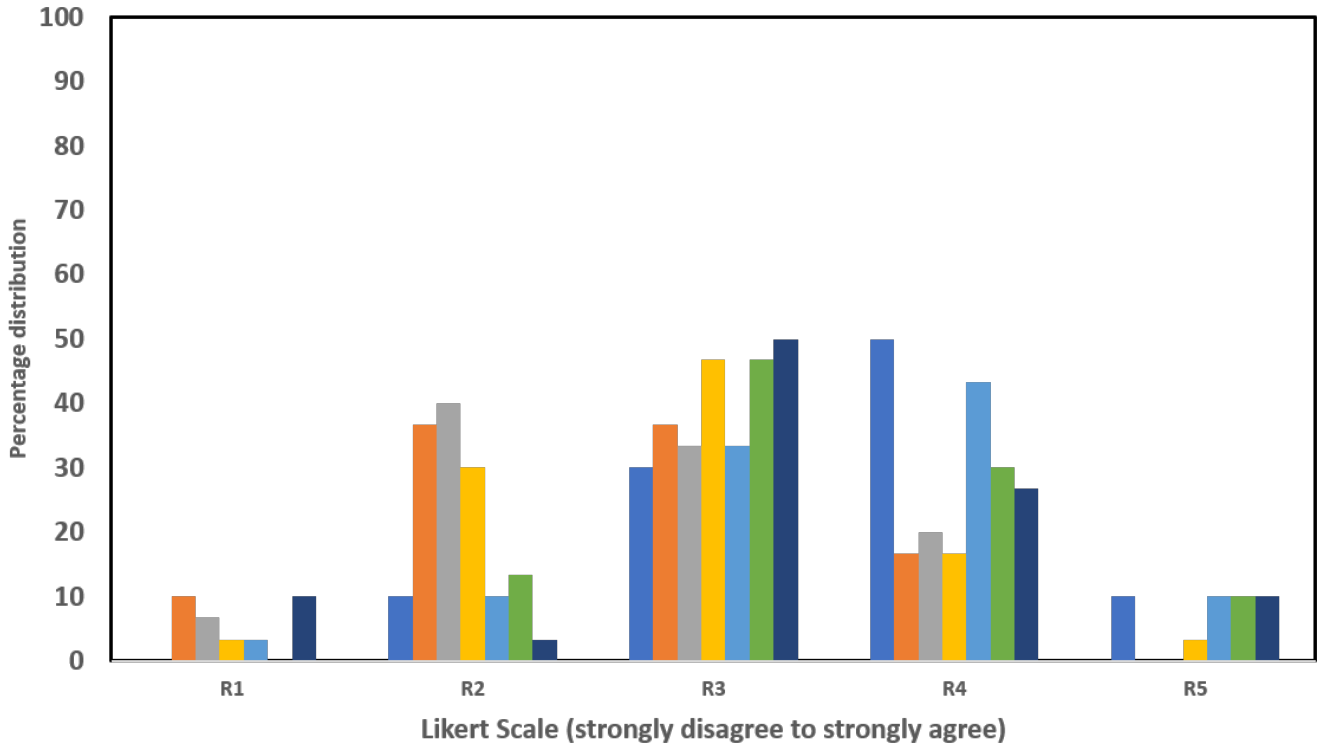
Fig. 10. The rating on Likert scale (R1 to R5) for the following questions: Blue: Game Aesthetics; Orange: Immersion; Grey: Intuitive; Yellow: Definition of rules; Sky blue: Understandability of controls; Green: Understandability of rules; Indigo: Understandability of mechanics, action and enemy movement. The y-axis denotes the percentage distribution of the participants.

A. Human Trafficking Activists (NGO) playtest

In addition to the pool of play-testing participants, we also had our game reviewed by leading activists and an NGO representative involved in the rescue and rehabilitation of human trafficking victims. The perspective presented in *Unlocked* was appreciated while suggesting that the player be provided with figures on profits made by the traffickers, the physical and the psychological pain the child victims experience. It was also suggested to explicitly show the barbaric conditions of work, and strongly convey the message that labor trafficking is human abuse. The NGO was very positive about the role our game could play in their awareness campaigns.

V. LIMITATIONS AND FUTURE WORK

Future versions of the game would focus on incorporating more realistic environments to improve the immersion quotient of the game. We also hope to feature other complex social factors such as the role of political influence, social stigma, marginalization of minorities, and trivialization of such crimes by media and television that contribute to sustaining the human and child trafficking businesses in India.

VI. CONCLUSION

In this paper we present a unique game that incorporates a complex narrative woven together with an engaging gameplay that enables a transformative experience. We demonstrate our paradigm of transformative gameplay by designing a game centered around human trafficking which involves a complex set of ethical conundrums which the player needs to solve. The results reported by the participants indicate that the game proved to be an effective medium in transferring knowledge. The self-awareness questions (Figure 7, 8, 9) and the gameplay decisions reflect the understanding of the participants about the socio-economic factors that influence human trafficking. For example, an understanding of factors such as monetary compulsions and poverty that force human trafficking is reflected in high percentages (Figure 6). Additionally, the game design parameters such as aesthetics and comprehension of rules were also surveyed and reported to be satisfactory. In conclusion, the game includes a multitude of complex factors that make binary judgments problematic (Figure 9). Games such as the one presented in this paper are important interventions to bring about changes in perception as well as perspective by presenting the complete picture to the players.

REFERENCES

[1] J. H. Murray, "Hamlet on the Holodek," *"The Future of Narrative in Cyberspace"*, vol. 10, no. 4, 1999.

[2] E. Brown and Cairns, "A grounded investigation of game immersion." *"CHI04 extended abstracts on Human factors in computing systems"*, pp. 1297–1300, 2004.

[3] L. Nacke, L. Lindley, C.A.Nacke, and C. Lindley, "Flow and immersion in first-person shooters: measuring the player's gameplay experience." in *Conference on Future Play: Research, Play, Share*. ACM, 2008, pp. 81–88.

[4] M. Mateas, "Build it to understand it: Ludology meets narratology in game design space." 2005.

[5] S. Culyba, "The transformational framework: A process tool for the development of transformational games." 2018.

[6] J. Harviainen and A. Lieberoth, "Similarity of social information processes in games and rituals: Magical interfaces." in *Simulation Gaming*, 2012, pp. 528–549.

[7] L. Waldorf, "White noise: Hearing the disaster," *Journal of Human Rights Practice*, vol. 4, no. 3, pp. 469–474, 2012. [Online]. Available: https://doi.org/10.1093/jhuman/hus025

[8] S. Barab and T. Duffy, "Theoretical foundations of learning environments," pp. 25–55, 1999.

[9] BALKANS, "Act now!" 2014. [Online]. Available: http://banhumantrafficking.com/en/about-the-project.

[10] K. S. C. Foundation, "(un)trafficked," 2017. [Online]. Available: http://www.bharatyatra.online/untrafficked/

[11] M. P. Trust, "Missing: The complete saga," 2017. [Online]. Available: http://thecompletesaga.savemissinggirls.com/