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Research Article

Video Games as Awareness Raisers, Attitude Changers, and Agents of Social Change

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The widespreadness of video games, particularly among digital natives, requires ongoing exploration of their profound effects. This study aligns with this need, investigating video games as possible tools for positive societal influence and exploring their potential to address sensitive social issues. Transportation theory underscores the transformative potential of video games, casting players as "travellers" who, traversing stages of reality dissolution, emotional connection, and altered return, present a pathway for attitude transformation. Participants ($N = 98$) engaged with "*Survival*," "*Paper, Please*," and "*Against All Odds*" to explore the effectiveness of video games in addressing the refugee crisis, increasing awareness of the issue at hand, changing perceptions, and encouraging them to take action in real life. The study's results align with integrated threat theory, revealing that immersive gaming experiences can induce significant changes in attitudes, decrease denial, and increase empathy. The results highlight the potential of video games to educate people about pressing global issues and invoke empathy without trivialising problems. Consequently, while this study extends the current body of knowledge, it offers some promising directions for further research to validate the affirmative impact of video games in this realm.

1. Introduction

Leveraging media, particularly interactive platforms such as video games, holds transformative power in cultivating empathy [1]. Media, when intelligently designed, has the potential to immerse individuals in diverse narratives, allowing them to vicariously experience the lives and perspectives of others. This immersive engagement transcends the traditional boundaries of storytelling, creating an emotional connection that fosters a deeper understanding of different cultures, struggles, and perspectives [2]. By incorporating narrative-driven content and relatable characters, media becomes a powerful tool not only for entertainment but also for instigating positive behavioural changes, breaking down stereotypes, and nurturing a more compassionate and empathetic society [3]. This approach uses the unique ability of the media to evoke emotions and provoke thoughtful reflection, making it a compelling force for social impact and fostering a shared sense of humanity.

As a result, an increasing number of video game developers, especially indie, produce games and virtual realities that aim to increase the public's awareness of a wide range of pressing global social issues, including poverty, cancer, child abuse, gender dysphoria, and refugee crisis. They "aim at helping to organise and accelerate the adoption of computer games for a variety of challenges facing the world today" ([4], p. 95). These video games seek to evoke compassion in players by providing an experience that allows them to look deeply at the experiences, thoughts, and feelings of the characters in the game [5]. Due to their technological format, video games can construct sophisticated messages combining the social, political, economic, and historical factors of the problem. Their distinctive rhetorical power also allows them to produce highly complex narratives while remaining highly understandable and learnable for players unfamiliar with social issues [6]. Furthermore, immersion in the gaming environment fosters intense emotions and deeply personal experiences among players [7].

Modern society witnesses escalating cultural and ethnic diversity primarily driven by global migration, a phenomenon influenced by technological advances and improved transportation. This global movement, driven by the aspirations for freedom, improved education, higher quality of life, and improved economic opportunities, involves approximately 281 million international migrants. This includes 84 million forcibly displaced individuals, comprising 48 million internally displaced and 31 million seeking asylum [8]. The dynamic landscape of migration, which affects more than 1 billion people worldwide, raises concerns in various countries, prompting political debates and immigration reforms to address perceived threats to cultural, social, political, and economic structures and to the adoption of immigration reforms aimed at strengthening countries' borders.

The gaming world is emerging as a new medium for social change, bringing closer stories of migrants and refugees, and engaging players in games inspired by real-life refugee experiences. According to Royle [9], games engage players on three main fronts and thus might help improve public understanding of migration. Firstly, the game structure provides motivation and the urge to solve problems for the problem's sake alone. Second, the backstory or narrative lends believability or authenticity to the engagement. Finally, characterisation makes the player's role in the narrative believable, engaging them fully in the game.

Video games' potential to positively impact attitudes is rooted in their ability to grant perspective [10–12]. Perspective-taking in video games involves players adopting the perspective of another identity (an in-game character) and gaining a glimpse into the motivations behind their actions. This allows players to come into contact with points of view that they would never have imagined otherwise while still being able to weigh these views against their own beliefs. Games not only allow players to glimpse characters' internal perspectives and explore their feelings and motivations, but they also let players look at the world through the characters' external perspectives by having them assume roles that they could never have imagined for themselves [12, 13]. Darvasi [10] explains that perspective-taking often involves actively considering those who initially seem very different (an "out-group") by, for example, embodying their "mental state, points of view, and motivation" (p. 3). Morally engaging narratives in video games positively influence players' perspective-taking, and increased interventions and perceived immersion are associated with elevated empathy levels [3].

1.1. State of the Art. Beyond mere entertainment, recent research reveals that video games are emerging as powerful tools that immerse individuals in diverse scenarios, prompting a deeper understanding of the human experience. Belman and Flanagan [14] discussed the heuristic principles of three exemplary games, *PeaceMaker*, *Hush*, and *Layoff*, for their ability to engage players' capacity to empathise innovatively. Alhabash and Wise [15] confirmed *PeaceMaker's* positive effects in changing students' explicit and implicit attitudes toward foreign nations. Behm-Morawitz et al. [16] reported greater support for prominority policies and the stimulation of perspective-taking regarding African-American men after virtual racial embodiment was used to reduce bias against a nondominant group in *Sims Social*. Sou [6] concluded that the serious refugee games *Frontiers: Welcome to Fortress Europe*, *Cloud Chasers: Journey of Hope*, and *Against All Odds* could be viewed as a response to current problems with the representation of refugees in traditional media. Neys and Jansz [17] showed that *Airport Security*, *Darfur is Dying*, *McDonald's Game*, *Peacemaker Game*, *September the 12th*, and *Super Columbine Massacre RPG* had a positive impact on respondents' knowledge of and opinion about the political issues addressed in these games, with a quarter expressing a desire to obtain more information about the problems and more than half saying that they were motivated to communicate with friends about the issues or to stimulate them to play the games. Anderton and King [18] reported on the learning processes associated with exploring personal bias through gameplay and broadening cultural empathy in the role-playing game *Oblivion*. Navarro-Remesal and Zapata [19] argued that games like *Finding Home*, *Burry Me*, *My Love*, *Path Out*, and *North*, promoting ethical play, can spark conversations on pressing political issues surrounding refugees, from rescue efforts to inhumane treatment in camps, fostering awareness and engagement in political discussions at various scales.

In the same vein, Gentile et al. [20] showed positive effects on prosocial behaviour from playing *TY2*, *Crash Twinsanity*, *Chibi Robo*, *Super Mario Sunshine*, *Pure Pinball*, and *Super Monkey Ball Deluxe*. Lenhart et al. [21] reported that adolescents who played games with civic experiences (e.g., *Guild Wars 2*, an MMORPG) were more likely to be engaged in social and civic movements in their real lives (e.g., raising money for charity and volunteering). Parallelly, Peng et al. [22] found that participants who played *Darfur is Dying* were willing to help the Darfur population after the game. Kolek et al. [11] used a serious game *Czechoslovakia 38–89: Borderlands* to confirm that video games can affect short- and long-term explicit attitudes, a society's historical awareness, and have an important role in understanding historical and social realities. The findings of Lee and Chen [23] supported the idea that under specific conditions, engaging in intergroup contact with a refugee in *Burry Me*, *My Love* can serve as a successful and effective method for diminishing prejudice and fostering positive intergroup attitudes. While Peña and Hernández Pérez [24] offered preliminary indications that adopt the viewpoint of video game characters in *Papers*, *Please* has the potential to shape players' perspectives on political matters, including immigration.

In light of the results mentioned earlier, as researchers delve into these possibilities, the horizon broadens with the promise of games not only as sources of enjoyment but as catalysts for positive societal change.

2. Purpose of the Study

In contributing to the academic discourse on the intersection of gaming and social impact, this research aligns with recent scholarship exploring the potential of digital technologies for positive societal change [11, 23–26]. Given the pressing global significance of the ongoing refugee crisis,

particularly in light of recent geopolitical events and humanitarian challenges, raising awareness of it through this medium holds promising potential for real-life effects. When people learn through play, complicated ideas become more accessible and understandable; therefore, learning is enabled regardless of previous knowledge of the particular topic at hand [6]. However, the immersive experience of navigating the challenges refugees face within the gaming context in this study aims to go beyond mere awareness. The study aspires to leverage the emotional impact of the gaming experience to potentially influence players' attitudes and views toward the refugee crisis. Affecting individuals emotionally could lead to more profound and lasting changes in attitudes and views. Thus, this study is aimed at engaging participants in developing empathy for cultures and people of diverse populations, at increasing players' awareness of the refugee crisis, and at potentially convincing them to change their attitudes or views through the experience of being a refugee. Moreover, creating social change adds to the social relevance of this study because its results will provide a better understanding of how to make people more aware and empathetic.

According to a report by Newzoo in 2022 [27], approximately one-third of the world's population engages in playing video games. This study focusses on adolescents aged 16 to 18, increasing its scientific relevance, since video games are extremely popular, particularly among adolescents and young adults [21]. In fact, according to Gómez-Gonzalvo et al. [28], an average Spanish teenager spends approximately 47.23 minutes a day playing video games, while an American teenager invests in gameplay 125.1 minutes per day [29] and an Australian adolescent spends 280 minutes per day [30]. Naturally, it is important to know if and how the power of video games can be used to meet the socially relevant objectives covered by this study, namely, to effect awareness, perspective, and behavioural change.

2.1. Integrated Threat Theory (ITT). Resistance toward refugees and migrants is often a response to culturally distinctive and unfamiliar "others." Host nationals are unlikely to be ready to accept changes in traditional cultural beliefs, values, and identities caused by immigrant populations. The unexpected diversity created by immigrants is perceived as a threat to one's own culture and, as a result, leads to prejudice and discrimination against out-groups in general and refugees in particular.

Stephan W. G. and Stephan C. W.'s [31] integrated threat theory, or intergroup threat theory (ITT), explained these feelings of threat. ITT identifies four domains of threat that cause prejudice and negative attitudes toward immigrants and out-groups: realistic threat, symbolic threat, negative stereotype, and intergroup anxiety. Real threats affect physical well-being and the economic and political power of the in-group (e.g., tight jobs market). Symbolic threats arise from the out-groups' cultural differences in values, morals, and worldview, leading to prejudice against members of the out-groups (e.g., different religious practices). Negative stereotypes create a basis for negative expectations regarding out-group members (e.g., refugees are not trustworthy). The fourth type of threat, intergroup anxiety, refers to the anxiety felt by in-group members when interacting with out-group members due to possible adverse outcomes for themselves. Interacting with immigrants is often difficult for people from host cultures due to linguistic and cultural differences, and this adds to the intergroup anxiety in their interactions.

Todd and Galinsky [32] reviewed empirical research, finding that perspective-taking helps negotiate social complexities, decreases biases, improves intergroup attitudes, and encourages a view of out-groups as more "self-like" and of the self as more "out-group-like." Cohen [33] claims that by "introducing other perspectives and persuading others to identify with them, new possibilities for understanding are opened that may result in attitude change" (p. 260). Furthermore, "(game) designers tried to implement values through player actions, rewards, narrative premise and goals, and rules within the environment" ([34], p. 108).

2.2. Transportation Theory. Video games provide direct experience and immersive learning that traditional media fail to deliver. Video games place players in a prominent position, that of a protagonist, in our case a refugee, and invite them to explore the complexity of the refugee universe in an entirely interactive way.

Green and Brock [35] based their transportation theory on the conceptualisation given by Gerrig [36]: "Someone ('the traveller') is transported, by some means of transportation, as a result of performing certain actions. The traveler travels some distance from his or her world of origin, making some aspects of the world of origin inaccessible. The traveller returns to the world of origin, somewhat changed by the journey" ([35], p. 701). The "traveller" label is attached to users to explain their process when encountering a mediated world. The authors conceptualised transportation as a mixture of attention, imagery, and feelings. They indicated that the transportation process consists of three stages. First, the traveller loses the distinction between the fictional, narrative world and the real world. Second, the traveller feels connected to the narrative world. Third, the traveller returns with a change in attitude or beliefs. It is a compelling experience that can change how people see the world. The theory also suggests that people become more open to persuasion when they are absorbed in a story. That is, highly transported people suspend their normal set of beliefs and begin using the beliefs of the narrative they are presented with as a frame of reference [37]. This gives hope for dialogue on topics people are usually resistant to, such as prejudice and discrimination toward out-groups or the threat of cultural others.

Transportation theory is commonly applied to literature and film-watching experiences. Still, more and more researchers have started applying it to digital games, suggesting that certain digital games transport players into fictional worlds and, as a result, can potentially support empathy-related behaviours and actions as part of this engagement [14, 34, 38–40]. For example, Mahood and Hanus [39] found that if players felt transported or "wrapped" in the narrative of a video game, committing immoral actions caused them feelings of guilt and shame in players.

2.3. Hypothesis. When addressing resistance and prejudice toward refugees, integrated threat theory (ITT) posits that anxieties emerge from realistic, symbolic, stereotype, and intergroup domains. Perspective-taking might counteract these biases. In parallel, transportation theory underscores the transformative potential of video games, casting players as "travellers" who, traversing stages of reality dissolution, emotional connection, and altered return, present a pathway for attitude transformation. Taken together, these theories inform hypotheses on knowledge enhancement, attitude shifts, increased empathy, and decreased denial in the context of video games portraying refugee experiences.

Hypothesis 1. Exposure to video games will improve comprehension of complex scenarios.

Hypothesis 2. Attitudes of denial felt toward refugees will decrease after playing a video game.

Hypothesis 3. Immersive experiences of being a virtual refugee will increase empathy toward real-life refugees.

Hypothesis 4. Positive game experiences will correlate with a more pronounced change in attitudes.

Hypothesis 5. The game's enjoyment will correlate with a higher willingness to help refugees in real life.

3. Methods

3.1. Procedure. The subjects of this study were first-year students enrolled in a medium-sized university in Ukraine. Potential participants did not receive any advance indication of what the study could be intended to measure; they were simply informed that the study was about video games for educational purposes. They were offered bonus course credits for volunteering in the study. An introductory email was sent to them explaining the rules and timing of the research and inviting them to complete a pretest survey accessed through a link to an online form. This first email containing an explanation and a pretest survey was sent to approximately 200 students. One hundred thirty-six students accepted to participate in the study. Due to the design and timing of the study, forty answers were retained. The final sample size was ninety-eight undergraduate students.

The study lasted two weeks. In the first week of the study, the pretest questionnaire was administered to the students to determine their type, previous knowledge, and attitudes toward the topic. Then, the students were asked to play the game of their choice, resulting in $N_{\text{AgainstAllOdds}} = 55$, $N_{\text{Papers,Please}} = 24$, and $N_{\text{Survival}} = 19$. The main reasons students reported choosing one game over another included the game's technical requirements, a captivating name and description, language variety, and having heard about the game before. This last reason was mainly applicable to *Papers, Please*. Third, students were asked to complete the posttest questionnaire immediately after playing a game of choice, consisting of a feedback part, a postknowledge and attitudes studied part, and a willingness to take action part.

Prior to initiating the research, ethical clearance was obtained during the Meeting of the Academic Council of the Faculty of Transport and Information Technologies of the National Transport University (Reference Number: №5/12.18). All participants provided their informed consent before participating in the study. The research procedures, the right to withdraw at any stage, and confidentiality measures were explained to the participants, and they were given the opportunity to ask questions before consenting to participate.

3.2. Sample. To analyse the composition of the study group, basic demographic information was collected, namely, sex, age, and the frequency of video game play. First, the mean age of the sampled participants was $M_{\text{age}} = 17.55$ (SD = 0.91). Secondly, there was a male-to-female ratio of four to one among the participants who were 100% Ukrainians (the research was conducted before the full-scale invasion of Russia on the territory of Ukraine on 24.02.2022). Lastly, looking at the frequency with which the students sampled played computer games, 23% were casual players, 43% were gamers, 25% were nongamers, and 9% were hard-core gamers.

3.3. Stimuli. The choice of games for this study was based on the popularity of the games, easy accessibility, availability of online or offline playing, language selection, cost, and quality. The games are relatively short and do not require players to register before playing. The quality of the games played a crucial role because poor quality would negatively impact the willingness of the participants to participate in the study and play the games in their free time. Previous empirical findings on the effectiveness of the games were also considered.

The following games were used in the study. *Papers, Please* is a commercial title designed for entertainment purposes rather than with the intention of developing any particular skills in players. *Against All Odds* and *Survival* are educational games created to reflect the actual problems of today's world, with specified learning goals, outcomes, and experiences in mind.

Papers, Please (2013) by Lucas Pope [41], a puzzle/simulation game described by the developer as "A Dystopian Document Thriller", mirrors a "real-world" ongoing contemporary debate regarding immigrant and refugee populations [42]. The Eurogamer portal compared *Papers, Please* to a digital version of the famous Milgram experiment [43]. *Papers, Please* casts the player in the role of an immigration inspector who has to decide which people must be admitted, turned away, or detained at the border of the fictional former communist state of Arstotzka. Recently, Morrissette [42] studied the deep-seated struggle between morality and rationality depicted in *Papers, Please*, from the perspective of street-level bureaucracy. Formosa et al. [44] concentrated on different aspects of a player's moral engagement in the game and Cabellos et al. [45] on the potential of *Papers, Please* to promote moral learning. Lohmeyer [46] examined the game from the political and social ethics perspective of

digital humanity, while Peña and Hernández Pérez [24] investigated whether taking on the perspective of game characters can influence players' opinions about immigration.

Against All Odds (UNHCR, 2006) is a web-based role-playing game developed by workers from the United Nations High Commissioner for Refugees (UNHCR). The objective of the game is to make people more aware of the problems and challenges facing refugees, to change the public's attitude toward refugees by illustrating the complexity and dangers of the refugee experience, or, in other words, to have people "taste life as a refugee" ([4], p. 94). To reach the end of the game, the player must make tough decisions at all stages. These short challenges illustrate the complexity and danger of the refugee experience. In addition to the information the player gets while playing the game, they can also read the facts online. van't Riet et al. [26] tested the effects of *Against All Odds* on immersion, identification, and willingness to help. In the same vein, Meeuwes [47] and Shliakhovchuk [48] studied the effects of this game on knowledge about refugees, perspective on learning, willingness to help, and feelings of persuasion. Sou [6] used the game to discuss procedural rhetoric regarding the difficult decisions and dilemmas facing refugees and to analyse the representational practices of serious games that focus on refugees.

Survival (2017) is a game app on Android and iOS about the human tragedy of migration. It was developed in Algeciras by young Spaniards in collaboration with young migrants and refugees from the Strait of Gibraltar, with the support of the Alliance of Civilisations of the United Nations and the development company Omnium Lab Studios [49]. The participation of people of 11 nationalities ensured the intercultural axis of the game. The video game gives a first-person account of the odyssey of social inclusion, going through all the stages of a refugee based on the experiences of thousands of people who embark on a dangerous journey to find a better life [50]. *Survival* is a video game designed to educate players about the experiences of asylum seekers, immersing them in the challenges and fears faced by thousands of individuals. By placing players in the shoes of refugees, the game is aimed at shifting their focus and perspective, encouraging a deeper analysis and understanding of this issue within our social context.

The strategic selection of diverse games for this study is not arbitrary but rather a deliberate choice to offer a multifaceted exploration of the intricate issues surrounding refugees and migration.

3.4. Instruments. The following instruments were used to collect quantitative data from the students sampled: (a) a pretest questionnaire and (b) a posttest questionnaire. Both questionnaires were designed with Microsoft Office Forms 365.

3.4.1. The Pretest Questionnaire. At the beginning of the study, students were asked to complete an electronic pretest questionnaire. The main objective of this questionnaire was to evaluate students' attitudes toward and knowledge about refugees and migrants. The pretest questionnaire was based on scales and divided into two parts. The first part concerned biographical information, such as gender, nationality, age, and frequency of computer game play. The second part was a preknowledge and attitude scale. It consisted of 18 items exploring three variables: (a) awareness of migrant and refugee issues or knowledge, (b) empathy for refugees and migrants, and (c) attitudes of denial toward refugees and migrants. The three-part attitude scale was partly adapted from Jacobs [51]. The sixteen items included in this three-part attitude scale were developed by the author of this study drawing on the content of the games, and two of them were adopted from Henry and Sears [52]. Students were asked to rate on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) the degree to which they agreed with the statements. Each dimension was then rated by summing up the responses.

3.4.2. The Posttest Questionnaire. The electronic posttest questionnaire was divided into three well-defined parts: (a) general feedback, (b) postknowledge and attitude evaluation, and (c) call for action. The general feedback section comprised open-ended questions about the participants' general experience with the games. The "Enjoyment and Educational Value" scale combines hedonistic and eudemonic outcomes [53] and was adopted with some modifications from Jacobs [51]. The second part consisted of a postknowledge test that included the same items as the preknowledge test arranged in a different order. The same test questions were used to determine whether playing the game had led the students to acquire new knowledge and change their attitudes. The last part assessed whether the participants were ready to improve their knowledge of the issue at hand and to take action to help immigrants and refugees.

3.5. Measures. For the current study, the three conceptual scales were developed for the pretest. The 15 items were combined under scales called "Knowledge," "Denial," and "Empathy" in the pretest. The first part measured the prior knowledge of the participants. The second and third parts weighed the positive and negative attitudes of participants toward refugees and migrants. Two items in the "Knowledge" and "Denial" scales were inspired by the Symbolic Racism Scale [52]. The statements were adjusted for this study because they needed to specifically ask how much knowledge the participants thought they had about the refugee and migrant situation in the world. This resulted in the following items: "Refugees and migrants are responsible for the social tension existing now in the world" and "Over the past few years, refugees and migrants have gotten more economically than they deserve."

For the posttest, two more scales were added, "Education and Enjoyment" and "Willingness to Take Action." The first scale gauged the participants' experience with the video game and was based on hedonistic and eudemonic outcomes [53] adapted from Jacobs [51]. "Willingness to Take Action" was measured using two behavioural intention indicators. Participants were asked to use a 3-point scale to rate how likely they would be (a) to attend a *Foundations of Intercultural Communication* course to become more skilled in communicating with people from different cultures and (b)

to help refugees and migrants (any help) as a volunteer if asked.

The participants' "Knowledge and Education" and "Enjoyment" scales were assessed with six items per scale, "Empathy" with five items, "Denial" with four, and "Willingness to Take Action" by two. Participants were asked to use a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) to rate all statements, except both items on the Willingness to Take Action scale and "The game made me think about the refugee and migrant situation in the world" from the "Education and Enjoyment" scale, which were rated with a 3-point Likert scale (1 = disagree, 3 = agree) [54].

3.5.1. Analysis of Internal Consistency. The resulting three scales were tested for interreliability using Cronbach's alpha. The "Empathy" scale showed good internal consistency (pretest: $\alpha = .80$, posttest: $\alpha = .80$), and the "Education and Enjoyment" scale showed decent cohesion (posttest: $\alpha = .71$) and so did the "Willingness to Take Action" scale (posttest: $\alpha = .77$). The "Denial" scale was calculated by averaging all four items and showed a borderline acceptable internal consistency (pretest: $\alpha = .71$, posttest: $\alpha = .63$). However, the "Knowledge" scale did not show the same level of cohesion (pretest: $\alpha = .55$, posttest: $\alpha = .51$). A closer examination indicated that Cronbach's alpha would increase significantly if the item "I know the reasons why refugees and immigrants flee from their countries" was excluded from the calculations. Scale and item were retained in this study to allow exploration of this specific topic.

3.6. Data Analysis. Data collected from the study were quantitatively analysed using SPSS software. The first step was to investigate whether the mean scores for the two experimental conditions were statistically different from each other, in general, using a repeated measures t-test. Second, the differences in influence between the three experimental games were determined by means of univariate analysis of variance (ANOVA). Third, a regression analysis was performed to investigate the potential mediation of "Enjoyment and Education" on knowledge and attitude change. The data was interpreted according to the guidelines by Cohen [55]. The results obtained were compared and contrasted intragroup and between groups to find any significant differences that could confirm whether or not there is a change in knowledge and attitudes due to playing one of the games. The dataset generated and analysed during the current study is available from the corresponding author on reasonable request.

3.7. Results

3.7.1. Effects of Video Game Usage on Knowledge, Denial, and Empathy Attitude Change. To compare the impact of video games on participants' knowledge, attitude denial, and empathy, a paired sample t-test was conducted. The level of knowledge about refugee and migrant issues before and after playing the game showed that there was no significant difference in the scores in the pretest ($M = 3.26$, $SD = 0.59$) and posttest ($M = 3.18$, $SD = 0.56$) conditions ($t(97) = 1.4, p = 0.164$). These results suggest that we have to retain the null hypothesis that there are no differences between the conditions.

However, there was a significant difference in the scores for the "Denial" attitude ($M = 2.75$, $SD = 0.76$ and $M = 2.52$, $SD = 0.61$) conditions ($t(97) = 3.75$, $p \leq 0.01$) and for the "Empathy" attitude ($M = 3.98$, $SD = 0.49$ and $M = 4.20$, $SD = 0.66$) conditions ($t(97) = -3.56$, $p = 0.001$). Together, this suggests that video games affect the attitudes of denial and empathy, which supports our hypothesis.

3.7.2. Effects of Enjoyment of Video Game Play on Attitude Change and Willingness to Take Action. The second hypothesis held that the value of the content's "Enjoyment and Education" would predict greater attitude change. The independent variable used in this analysis was "Enjoyment and Education." This variable was measured only once in the posttest, and a linear regression was run to understand the proportion of variance in the "Knowledge," "Denial," and "Empathy" attitude changes that this variable accounts for. To assess linearity, scatterplots were plotted. Visual inspection of these plots indicated a linear relationship between the variables for "Denial" and "Empathy" but not for "Knowledge." There were homoscedasticity and normality of the residuals for "Denial" and "Empathy." "Enjoyment and Education" as a sole predictor explains 27.5% of the variance in the difference in "Empathy" between the pre- and posttest with adjusted $R^2 = 27.0\%$, a medium-size effect according to Cohen [43]. It also statistically significantly predicted "Empathy" attitude change ($F(1, 96) = 36.41$, $p < .0005$). "Enjoyment and Education" as a sole predictor explains 4.2% of the variance in the difference of "Denial" between pre- and posttest with adjusted $R^2 = 3.2\%$, and it statistically predicted "Denial" attitude change ($F(1, 96) = 4.180$, $p < .044$). There was no linear relationship for the "Knowledge" scale. In summary, the hypothesis is partially supported. Furthermore, there was no linear relationship between "Enjoyment and Education" and "Willingness to Take Action" in real life.

3.7.3. Differences between Games within a Category. A variance analysis (ANOVA) was performed to investigate possible differences between games. With regard to "Knowledge," there were no substantial differences between the conditions ($F = 1.08$, $p = 0.36$). The same situation was found in relation to attitudes of "Denial" ($F = 1.32$, $p = 0.26$) and "Empathy" ($F = 0.75$, $p = 0.56$). However, "Denial" decreased from the pre- to posttest for the group that played *Against All Odds*, and the "Empathy" attitude increased from the pre- to posttest for the groups that played *Against All Odds* and *Papers, Please*. The second ANOVA revealed a substantial effect on "Education and Enjoyment" ($F = 4.98$, $p = 0.008$), with a greater level of "Education and Enjoyment" for the group that played *Against All Odds* compared to *Survival* and especially *Papers, Please*. No differences between the conditions were found for "Willingness to Take Action" ($F = 1.17$, $p = 0.31$).

4. Discussion

The ubiquity of video games across diverse age groups, particularly among digital natives, underscores the need for

ongoing research into their profound effects on players [56]. This study is aimed at deepening our understanding of the efficacy of video games in addressing critical social issues, contributing to the growing body of evidence supporting their potential as agents of positive societal influence. Several hypotheses were quantitatively tested to investigate the effects of video games. Hypotheses 1 and 5 were rejected in this study, while hypotheses 3, 4, and 5 were accepted.

In the context of this research, video games assumed the role of dynamic and interactive environment, providing first-hand simulated exposure to global social issues. The relevance of transportation theory to this study stems from its narrative power, transporting audiences into stories capable of reshaping their worldview and attitudes, irrespective of the truthfulness of that story. Attitudes are influenced by many factors, such as personal trials and tribulations or incidents that reflect negatively on the person or group that is the subject of the attitude [57]. Consequently, bringing about attitudinal change is difficult [58]. Jacobs [51] found broad support for the hypothesis that participants who enjoy a game will show a greater attitude change. This study also supports this hypothesis (H4). Participants in the study found the game experience entertaining, and many ended up feeling more empathy for refugees (H3) and less denial (H2). Despite that the present study reports a minimal size effect on the attitude of "Denial" toward refugees and a medium-scale size effect on "Empathy" after playing a video game, it still confirms the recent results obtained by Alhabash and Wise [15], Ruggiero [25], Jacobs [51] and Lee and Chen [23], demonstrating that these effects may be measurable. The results also align with recent research indicating that video games can affect players' short- and long-term implicit and explicit attitudes toward the topics depicted in video games and under certain circumstances [11, 59].

Contradictory outcomes surface concerning willingness to help, echoing recent findings [22, 23, 26, 48]. Kelman [60] informs that willingness to help depends on the interest in learning. If the audience enjoys the game experience and gameplay, this leads to increased interest in learning more about the game's issues and, consequently, taking action in real life. Peng et al. [22] reported some promising results: video game playing resulted in a willingness to help people in humanitarian disaster zones (e.g., donating money and discussing the refugee situation with friends or family). The "Willingness to Take Action" scale differs from the one Peng et al. [22] used, but the idea is still quite similar. "Willingness to Take Action" was assessed as the outcome and "Knowledge," "Denial," "Empathy," and "Enjoyment and Education" as potential mediators. No evidence was found suggesting that these video games stimulated the willingness to take action in real life (H5).

Other contradictory results are related to an upsurge in the knowledge of the issues tackled in the games. The results of this study did not meet expectations. The procedural rhetoric (Bogost) about migrants and refugees and their challenges was built into the game design and conveyed through the gameplay. Neys and Jansz [17] and Ruggiero [25] found that the participant's knowledge about the issues had changed notably after playing a video game. However, in this experiment, playing a video game did not increase the participants' knowledge about the complex social issues presented in the game (H1). This might be partially explained by the fact that some sampled participants already self-reported a certain level of knowledge about the issue at hand in the pretest. "Enjoyment and Education" affected attitude change for "Denial" and "Empathy," but not for "Knowledge."

Last but not least, individual measurements for each game did not produce significant differences in attitude change, potentially attributed to the modest sample size. However, when attitude change is measured for all groups taken together, changes emerge for "Denial" (a decrease) and "Empathy" (an increase). The study aligns with ITT, revealing that immersive gaming experiences can induce significant changes in attitudes, notably decreased denial (H2) and increased empathy (H3), reflecting a probable decrease in the perception of threat.

In summary, this research contributes to the expanding body of knowledge concerning the influence of video games on social attitudes, particularly in the context of pressing global social issues such as the refugee crisis. The findings align with a growing recognition of video games as potential agents of positive societal influence, offering dynamic and interactive environments that provide firsthand exposure to complex global challenges. The study substantiates the relevance of transportation theory, highlighting the narrative power of video games in reshaping participants' worldviews and attitudes. Furthermore, the positive association between the enjoyment of the gaming experience, increased empathy for refugees, and attitudinal change aligns with the existing literature. However, the study reveals contradictory results in terms of willingness to take real-world action, underscoring the need for nuanced exploration of the factors influencing this aspect. Additionally, the study challenges assumptions about the efficacy of video games in enhancing participants' knowledge about social issues, indicating that procedural rhetoric embedded in game design may not consistently contribute to knowledge acquisition. Aggregate measurements across different games demonstrate significant changes in attitudes, supporting integrated threat theory by revealing a diminished perception of threat associated with increased empathy and decreased denial.

Several limitations should be considered when interpreting these findings. The study involves a moderate-sized sample, with a total of 98 participants. After distributing the participants between three games, the number in each group needed to be more significant for generalisations, especially concerning the effects of the video game *Survival*. A larger sample in each group would yield better results on the contribution of each game. It is worth noting that the fact that some students played *Survival* in a foreign language may have impacted their perspectives and experiences. Other limitations of this study include the use of a stimulus design without a control group. Finally, this study was a standalone training tool for self-directed and self-motivated students. The setting in which individuals engage with virtual experiences, whether controlled or in their personal space, can influence the outcomes and emotional responses observed in the study [23]. More learning and attitude change could

have occurred with instructor support for knowledge construction in a controlled settings (cues, tips, different activities, etc.) [45, 61].

This article reveals some potential areas for future research. Exploring other qualitative and quantitative methods to assess the effects of games on attitude changes, perspective-taking, and willingness to help would create a clearer picture of these effects. Future research needs to understand the processes that allow a person to be adequately transported into a video game world and explore how games can effectively convince players to change their attitudes. This requires the development of a methodology that robustly detects the effects on perspective change. Additionally, long-term vs. short-term assessments can reveal the sleeping effect of video games [11, 25, 62]. Therefore, more long-term and follow-up evaluations would help to investigate how attitudes change over time or with repeated play. Furthermore, university students were the focus of this study. Their engagement was acknowledged through additional course credits, introducing the possibility of the Hawthorne effect, where participants might adjust their responses to align with researchers' expectations. Diversifying the sample by including various population groups and exploring different settings would contribute to a more comprehensive understanding of the efficacy of video games in addressing critical social issues. Video games aimed at raising awareness and understanding of serious global issues, such as migration, could attract the public that may not be traditionally involved in such matters [48].

5. Conclusions

Undoubtedly, the proposition that playing video games serves as a productive mechanism for immersing individuals in distant realities, enabling active negotiation of cultural and political domains, evokes scholarly intrigue. Against an interconnected global society with continual migration patterns for an improved quality of life, the imperative lies in how host countries and their citizens respond to these movements. The three video games used in this study were designed to increase ethical awareness of the issues involved, arouse emotions, make people see things from the point of view of refugees, change people's perceptions, and encourage them to take action in real life. These immersive environments might offer a nuanced approach to addressing global social issues, ensuring substantive exploration without trivialising the complexities therein. Consequently, while this study extends the current body of knowledge, the imperative for further research undoubtedly persists to validate the affirmative impact of video games in this realm.

Data Availability

The dataset generated and analysed during the current study is available from the corresponding author upon reasonable request.

Additional Points

Highlights of the Article. (i) This study proves that immersive environments of video games can be an additional tool for learning about pressing social issues and educating about them by creating a simplified but still dynamic scale model of reality. (ii) It identifies changes in attitudes, specifically a decrease in denial and an increase in empathy, supporting the idea that immersive gaming experiences can significantly impact perception. (iii) Video games, considered dynamic and interactive environments, align with transportation theory's narrative power, capable of reshaping participants' worldviews and attitudes. (iv) The findings align with a growing recognition of video games as potential agents of positive societal influence, providing firsthand exposure to complex global challenges. (v) It delves into the profound effects of video games on players, emphasizing the need for ongoing research to understand their potential positive societal influence and suggests avenues for future research.

Conflicts of Interest

The author declares that she had no conflicts of interest concerning the authorship or the publication of this article.

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