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"Come and Share a Story with Me": Promoting Engagement between Ethiopian and Non-Ethiopian Israelis Via Joint Digital Narratives

Abstract

Does building a collaborative digital story lead to reduction of intergroup tension? Studies show that joint storytelling can help reach deeper levels of understanding through exposure to another group's narrative. We hypothesized that engagement in a collaborative digital storytelling task would lead to reductions of negative emotions and attitudes. In our study, dyads of Ethiopian and non-Ethiopian Israelis interacted via a unique digital platform that supports storytelling in a comics-like format aiming to reduce intergroup tension. Their responses to this task were measured before and after the joint activity. Findings showed a decrease in negative emotional states in intergroup contexts (STAI) between pre-and post-intervention for members of both groups, and a slight decrease in negative attitudes toward the out-group. In other words, joint-digital storytelling sessions lead groups in complex relations to be more likely to support engagement. This study has implications for the effect of contact on intergroup tension.

Keywords: joint digital storytelling, intergroup tension, emotions, attitudes

1. Introduction

Tense relations between groups in a society and ways to reduce them have long drawn the attention of social scientists. Such tensions, especially between majorities and minorities in the forms of racism and prejudice were found to develop as a result of fear of competition over common goods such as economic interests, limited resources and social norms; they often result in negative attitudes toward minority members (Bobo, 1997; Henry & Sears, 2002). The more majority members believe their group interests are being threatened by minority members, the greater their prejudice will be (Canetti-Nisim, Ariely, & Halperin, 2008).

Possible bridging tools to ease intergroup tension have been found through intergroup contact which is considered one of the most effective strategies (Allport, 1954; Pettigrew & Tropp, 2006). Under optimal conditions, contact between groups, originally face-to-face, was found to be helpful in reducing negative stereotypes by decreasing negative emotions and prejudices (Allport, 1954; Pettigrew, 1998). In this respect, the use of digital tools can play a positive role in reducing negative attitudes toward minority group members (Schiappa, Gregg, & Hewes, 2005; Turner et al., 2008; Crisp & Turner, 2009) also leveraging the power of digital and joint storytelling. This is particularly relevant during the COVID-19 emergency that has significantly limited opportunities for face-to-face interactions and physical group gatherings.

In this work, we focus on the ability of a unique digital platform that supports storytelling in a comics-like format to reduce intergroup tension. The digital platform, Communics (Zancanaro et al., 2020), enables a form of online contact between members of two social groups in Israel who are part of the Jewish national collective - a majority group, non-Ethiopians Jews living in Israel and a minority group, Ethiopians Jews, who live in Israel and experience racial prejudice. Ethiopian Israelis experience discrimination in many aspects of daily life, their instant visibility

through skin color along with other factors such as doubts concerning the validity of their Jewishness, their lower material resources and differing cultural norms, have become stigmatizing markers in their daily encounters with the rest of the Israeli Jewish population (Kaplan & Salamon, 2004; Kimmerling, 2004) and, in some case, encounters with the local police (Mizrachi & Herzog, 2012; Abu, Yuval & Ben-Porat, 2017). Engagement via the Communicsplatform provides an opportunity to members of both groups to connect, either face-to-face or remotely, and to collaboratively construct a joint story using a library of images and predefined texts. With the term *engagement*, we refer to intentional, sustained and reciprocal intergroup interaction (Nagda & Zúñiga, 2003) that, in our study, took the form of a collaborative storytelling activity. Such encounters, we contend, can help reduce negative based threat emotions as well as negative attitudes, such as symbolic racism. Symbolic racism addresses traditional racial attitudes such as racial prejudice and the white person's perception that the genetics of black people are inferior and to negative and racial attitudes toward blacks and their right to belong to the general society (Huddy & Feldman, 2005; Sears and Henry, 2002). In some cases, symbolic racism relates to the notion that individuals from the majority group wish to limit the minority group's civil rights and position within society (Canetti-Nisim & Pedahzur, 2003; Sears, 1988).

2. Theoretical Background and Hypotheses Development

2.1 Symbolic Racism and Contact

Can interaction between conflicting groups via digital contact help reduce symbolic racism? Over the years, scholars have suggested that learning about the other and recognizing its narratives can be a critical step in the move toward such engagement (Pettigrew, 1998; Bar-Tal,

Oren, & Nets-Zehngut, 2014; Ben Hagai et al., 2013). However, putting aside the "elephant in the room" of symbolic threat and focusing on the recognition of differing narratives is not simple, as it may lead both sides to perceive their own narratives as being less valid. It is necessary to explore ways of sharing narratives in a less threatening manner; to learn about the other's point of view with the aim of reducing symbolic threat and other negative elements that feed intergroup tension (Adwan, Bar-Tal, & Wexler, 2016). Specifically, scholars who examined ways of reducing symbolic racism have shown that contact and exposure to information about minorities can be important predictors of change in contemporary racial attitudes (Goldenberg et al., 2016; Mackie, Maitner, & Smith, 2016).

Social scientists show that under the category of tense intergroup attitudes, racial prejudice and its political impact shifted the focus from more traditional racism into symbolic racism (Henry & Sears, 2002; Sears, Henry, & Kosterman, 2000). The symbolic racism worldview consists, for example, of a denial of racial discrimination as an obstacle for blacks to achieve better lives and to assign responsibility for their continuing disadvantages or their reduced work ethic. An additional assumption refers to the exaggerated demands for better treatment and the unjustified special attention given to them (see Sears, 1988; Henry & Sears, 2002). McClelland and Linnander (2006), who conducted a comparison of longitudinal and cross-sectional models of contemporary racial attitudes, found contact to be important in changing the feelings that white people have about blacks in the USA.

According to the contact theory, certain preconditions must be established for an encounter to succeed (Pettigrew & Tropp, 2006). First, both groups must have equal status during the encounter. Second, both groups must agree to a common goal while sharing a common task. In addition, intergroup cooperation must be met and finally, the meeting has to be supported by

authorities who are viewed as significant to the members of both groups (Pettigrew & Tropp, 2006; Drenth, 2001). However, even when all of the above conditions are met, scholars advise us to view contact between groups as a complex process and accept that these conditions do not necessarily increase the chances of a positive change; changes may be mild and take a long time, especially changes in attitudes (Brewer, 2007; Dovidio et al., 2003).

In the last decade we have witnessed an additional way of potentially reducing racial based tension, led by political activists around the world. Such actions have brought together individuals from different groups (e.g., blacks and whites, homosexuals and heterosexuals and the "Me too" campaign) to reduce intergroup tension by advocating for justice (Freelon, Mcllwain, & Clark, 2018; Gallagher et al., 2018). Studies have shown that after a positive contact with the minority group, it is the majority group who is prompted to advocate the disadvantaged group's rights in society (Reimer et al., 2017). In Israel, for example, following the wrongful shooting of an Ethiopian Israeli by a non-Ethiopian Israeli officer, a collaboration was formed between Ethiopians (blacks) and non-Ethiopians (whites) in July 2019. This event brought together protests from both groups to fight for equal rights for minority groups and, in turn, positively affected intergroup racial based prejudice relations, as the two groups learned more about each other while working together to improve relations.

2.2. Threat Based Intergroup Emotions and Contact

The political and social role of emotions in intergroup relations has been long recognized, as threat-based emotions, specifically negative ones, were found to be aroused by intergroup interactions (Groenendyk & Banks, 2014; Ford et al., 2018). Encounters with members of other groups enable an individual to receive new and unfamiliar information about different groups and their members. Such knowledge, together with the experience of personal acquaintance advances

greater understanding between the groups, reduces negative emotions, and increases positive ones. The leading notion is that since negative emotions can be aroused by intergroup interactions, certain types of intergroup contact can effectively mitigate prejudice by reducing those negative emotions.

The literature dealing with emotions and contact distinguish between two different sets of emotions, i.e., emotional states in an intergroup context (such as anxiety) and emotions toward interactions with individual outgroup members (Tropp, 2003). Both may arise even after a single expression of prejudice from members of other groups and can have negative implications for intergroup relations in terms of how group members feel in intergroup contexts (Tropp & Pettigrew, 2005). Anxiety, for example, as an emotional state in an intergroup context, is often provoked during intergroup interactions (Stephan & Stephan, 1985). It is a type of response to an external threat of unclear origins over which the threatened person has little control (Eysenck, 1992). Intergroup contact, specifically a remote one such as via the internet, was found to reduce intergroup tension and create positive contact between rival groups (Amichai-Hamburger & McKenna, 2006; Shaked, 2018).

Similarly, anger and fear, for example, as emotions toward interactions with members of other groups, were found to appear during such encounters. Anger is an emotion associated with threats to personal or group resources (Cottrell & Neuberg, 2005), particularly economic threats (Tapias et al., 2007). Intergroup contact was also found to help reduce feelings of anger toward the members of other groups (Miller at al., 2004; Shaked, 2018). In a series of post conflict studies in Northern Ireland, for example, Tam et al. (2006; 2007) revealed that anxiety and anger related emotions explained the effects of contact on prejudice (Tam et al., 2006). In the current study we are investigating the effect that digital contact has on both sets of emotions. In other words, whether

levels of anxiety from the intergroup encounter and emotions toward members of other groups such as anger and hate, can be reduced via technology-mediated contact with members of another group.

2.3. Joint Digital Storytelling - A New Form of Intergroup Contact

In the current study we use a digital platform for joint storytelling as a type of contact. Participants from the two groups can interact in a joint activity of building a story that includes situations where a mixed Ethiopian/non-Ethiopian couple faces an everyday dilemma that contains elements of racism (entry to a nightclub, looking for a new job, searching for an apartment). Storytelling and narration are powerful tools to reflect on self-identity (Bruner, 2004; Hammack, 2008). They have been applied to various intergroup relations, for example, to support interventions in problematic health situations (Carter, Perez, & Gilliland, 1999), to empower young people at risk of deviant behavior (Nelson & Arthur, 2003) and to work through intergroup conflicts such as the Israeli-Palestinian conflict (Bar-On & Adwan, 2006).

In such interventions, different genres have been used to support the storytelling process, from more traditional, text-based narrations to the use of comics and illustrated stories. Comics are a form of narrative visualization (Segel & Heer, 2010) that have the ability to capture and maintain the reader's interest through the combination of graphical and textual elements. Studies have shown that interactive comics help in visualizing specific details of interactive stories (Andrews et al., 2012) and that digital comics are more goal-oriented than paper-based versions (Andrews, 2014). Several recent studies investigating the use of digital tools to support the creation of comics have demonstrated that such tools support learning experiences of children (Maldonado & Yuan, 2011) as well as young adults (Sockman et al., 2016), and minority groups (Zancanaro et al., 2020).

The use of digital tools does not only support the creation of the story but also facilitates collaborative approaches to storytelling, involving multiple authors working jointly on building narratives. Collaborative digital storytelling has been used as a platform for individuals to work collaboratively toward the building of a joint narration (Colás et al., 2017), even in the context of intergroup conflicts (Zancanaro et al., 2020) using a combination of textual and graphical elements that characterizes comics and illustrated stories and can nurture interactivity during storytelling. Digital and online contact, such as the approach we use in this study, has been shown to be a valid alternative to face-to-face encounters (Amichai-Hamburger, Hasler, & Shani-Sherman, 2015; Reis, et al. 2021). Many issues regarding differences between digital and face-to-face interventions remian to be examined.

We tested the effects of our platform in both forms of contact: face-to-face (co-located) and remote. We measured the participant's levels of symbolic racism and negative based emotion before and after the engagement in one of the two forms of contact via the digital platform (co-located and remote). (See Appendix A). Our leading hypothesis was that if there is no significant difference between the two forms of contact in reducing levels of symbolic racism and threat-based emotions after using the digital storytelling platform, the potential benefits of the intervention will be due to the joint activities and not to the added value of being present in the same place (i.e., co-located). If this hypothesis is accepted, remote intervention can be recommended which will provide a more feasible platform to adopt in different situations and scalable to higher numbers of participants.

To fully explore potential differences related to the perception of the co-located or remote interaction, we also considered measures related to the interaction experience in terms of user experience, satisfaction with the interaction and ease of use of the digital tool, as well as

metrics for comparing participant's perception about the partner's role during remote or co-located sessions.

3. Ethiopians and Non-Ethiopians in Israel

Discrimination and racial prejudice are not new to the Ethiopian Jews in Israel as they have faced it since their arrival in Israel in the late 1980s. Approximately 149,000 Ethiopian Jews currently live in Israel (about 62,000 born in Israel), and account for 1.69% of the population (Israel Center Bureau of Statistics, 2019). As part of the Jewish national collective, they strive for inclusion in Israeli society, to be recognized as equal members of the nation and the state (Mizrachi and Zawdu, 2012). Yet, their instant visibility through skin color along with other factors such as doubts concerning the validity of their Jewishness, their lower material resources and differing cultural norms, have become stigmatizing markers in their daily encounters with the rest of the Israeli Jewish population (Kaplan & Salamon, 2004; Kimmerling, 2004).

Relations between Ethiopians and non-Ethiopians in Israel are complex. Ethiopians, as Jews, are officially part of the Jewish-national collective, and like other Jewish immigrants are expected to assimilate into the national narrative. Since its establishment in 1948, and according to the Law of Return (that guarantees citizenship of all Jews in Israel), Israel declared a policy of assimilation and absorption. However, Israeli society is significantly divided and stratified along ethnic lines (Shafir and Peled, 2002). Israelis of Ethiopian descent are relegated to a status of new arrivals and, as such have a status of inferiority and marginality (Ben Eliezer, 2004; 2008). Most live in the geographic periphery of the country, marry within their community, and their economic status is relatively low (Binhas & Cohen, 2019). They experience racism, marginalization, and exclusion from the Israeli mainstream society (Ben-Eliezer, 2008; Elia Leib, Harel-Shalev, and Daphna-Tekoa. 2018).

Over the years, the second and third generations of Ethiopian Jews who migrated to Israel in the 1980s have developed their own identity and culture, in part due to disappointment in the "Promised Land" (Ben Eliezer, 2004). Several cases of racism and discrimination contributed to this disappointment and to the adoption of external sources of identity such as a global racial identification with blacks as a means of achieving recognition and a more positive social identity (Mizrachi & Herzog, 2012). Examples include a crisis between the Ethiopian community and the establishment as they learned that their blood donations were systematically dumped due to fear of HIV in 1996 (Seeman , 1999). Also, there have been several cases over the years in which Ethiopians children were not accepted in certain schools (Burstein & Norwich, 2018) as well as incidents of lack of recognition by the religious authorities (Abu, Yuval & Ben-Porat, 2017).

Along with the gathered frustration from these issues, the relationship between native Israelis and Ethiopian Israelis also reached a boiling point in several extreme events that included police brutality toward Ethiopian Israelis. One example took place in 2015 where thousands of Ethiopian Israelis went out to the streets to protest police brutality directed against a member of their community who was a soldier in the Israel Defense Force (Damas Pakada). Yet another example of the complex intergroup relations can be found in Abu, Yuval & Ben-Porat's (2017) work on responses by Ethiopian Jews to such brutality and stigmatization by the police. They found that despite such treatment by the police, Israelis of Ethiopian descent reported equal or higher levels of trust in the police compared to veteran Jewish Israelis. Such trust levels are explained by the researchers as de-stigmatization strategies they use as part of their desire to be an equal part in the society.

Another intragroup clash took place in July 2019, following the killing of Salomon Taka, a young Ethiopian, by the police. The Ethiopian population took their frustration and grief to the

streets to protest against both ongoing violence toward them and cultural racism cases such as new revelations of racial segregation in the school system (Tzuri &Trabelsi-Hadad, 2019; Carey & Liebermann, 2019). It is important to mention that during the weeks of Ethiopian protests in July 2019, non-Ethiopian Israelis joined Ethiopian Israeli activists, presenting their solidarity with the affected minority. These actions of majority members joining the demonstrations strengthened the importance of the protest and raised awareness via social media platforms all around the country. Given intergroup tension between these two groups, Ethiopian and non-Ethiopian relations provide a critical test case.

It is important to point out that, in contrast to tense and even violent black-white relationships in the USA, relations between Ethiopians and non-Ethiopians in Israel reflect more of a social rift within the majority group, i.e., the Jewish national collective. In the Israeli case, scholars identify two main social domains - the first, incorporates issues within the Jewish national collective, and the second, includes matters regarding the relationship of that collective with other religions. Regarding the latter, "Jewishness" functions as the main socio-political divider between Arabs and Jews; whereas the Jewish collective deals with several social and political cleavages of its own (e.g., religious vs. secular, Russian immigrants vs. native born Israelis; Ashkenazim (East European) vs Mizrahim (Jews of Arab countries). Although the Ethiopian case introduced a racial component to stigmatization in the Israeli arena, Ethiopian Jews define themselves as Jewish immigrants to the Promised Land who, like other Jews (Russians, Yemenites, etc.), "will eventually be absorbed into a Jewish national and colour-blind collectivity" (Mizrachi & Herzog, 2012, p 426). Therefore, as we explore elements of friction within the Jewish community, we believe the friction may be more susceptible to ways to reduce such tension. In this respect,

elements of friction enable the examination of hypotheses that address ways and means of promoting minority-majority reconciliatory interventions via joint digital storytelling.

We addressed this question by means of an experiment that uses a customized platform for digital storytelling of joint narratives by members of two groups, Ethiopians and non-Ethiopian Israelis, who are experiencing racially based tension. The platform supports joint storytelling in the forms a digital comic, managing interaction between two co-located or remotely located participants and supporting the users in collaboratively building a joint narration. The objective of this study was to test the impact of collaborative digital storytelling on in the two groups, controlling for the two types of contact, co-located (face-to-face) and remote. Specifically we aimed to reduce levels of symbolic racism and threat-based emotions while providing a positive user experience including awareness of the partner's role.

We therefore advance the following three hypotheses: we hypothesize that the form of online contact (co-located/remote) via which participants will interact and create a joint story, will show similar effects for both groups (Ethiopian Israelis and non-Ethiopian Israelis) with respect to the user experience and partner perception (H1a.) and to changes in emotions and attitudes (H1b). We also hypothesize that negative emotional states in an intergroup context (STAI) and negative emotions toward interactions with individual outgroup members will decrease from the Pre-Post tests for both groups (H2). Finally, we hypothesize that symbolic racism will decrease from the Pre-Post tests for both groups (Ethiopian Israelis and non-Ethiopian Israelis) (H3).

4. Data Analysis

A 2x2 experimental design was used in this study: form of contact (co-located/remote) and type of participant (Ethiopian/non-Ethiopian Israeli). For the *form of contact* variable, participants were either seated next to each other (co-located) or in separate rooms (remote), both in a university experimental laboratory. For the *type of participant* variable, participants were assigned to the condition according to their origin (Ethiopian Israelis/non-Ethiopian Israelis). Data were obtained from session log files and pre- and post-session questionnaires.

4.1. Procedures

Three days before the digital storytelling session, participants received and completed an online version of the pre-questionnaire. On the day of the session, participants were randomly assigned to a partner from the other group with whom they narrated a joint story, in one of two settings, remote or collocated, to which they, as a pair, were randomly assigned. Participants were instructed in the way they were expected to perform the task, i.e., create a joint story, with each member of the dyad taking turns to select graphic backgrounds, characters, objects and text expressions, and to respond to their partner's selections (see Appendix B). In keeping with the contact hypothesis (Allport, 1954; Pettigrew, 1998), participants in both groups had equal opportunities to express themselves as well to contribute to the progress of the story. The participants were each located in a different quiet room (remote setting) or in the same room (co-located setting); in each case, an assistant provided instruction and technical support. After the completion of the joint story, participants were asked to individually respond to the post questionnaire items. The duration of the entire session was about one hour including the post questionnaires (20 min) and the story-telling task (40 min).

During the pre-study stage, difficulties arose in recruiting Ethiopian Israelis as there are only about 200 Ethiopian students in our university community. Hence, to achieve the required

sample size, we used the well-known method of confederate participants which has been tested in the face-to-face contact world (see for example Nier et al., 2001; Bruneau & Saxe, 2012; Cao & Lin, 2017; Bruneau et al., 2020). It is based on contact between a participant from one of the groups with a trained confederate partner who is a member of the research team. In virtual contact studies, researchers use actors and study assistants who simulate the responses of one of the groups. This enables the researchers to better control content. Bruneau and Saxe (2012) and Bruneau et al. (2020), for example, used similar methods when they investigated the effects of controlled interaction on attitudes toward the "other" among Mexican immigrants and white Americans in Arizona. In the present study, non-Ethiopian Israeli participants interacted either with an actual Ethiopian Israeli or with a confederate participant who was an Ethiopian Israeli research assistant. (see Appendix B).

4.2. Participants

We recruited 47 Ethiopian Israelis and 83 non-Ethiopian Israelis in an initial sample of 130 participants. There were 60 remote sessions consisting of 24 sessions where a non-Ethiopian Israeli participant interacted with an Ethiopian Israeli and 36 sessions where a non-Ethiopian Israeli participant interacted with a confederate participant. There were 23 co-located sessions where a non-Ethiopian Israeli participant interacted with an Ethiopian Israeli participant. After the data collection, the overall sample consisted of 109 participants who completed the pre and post questionnaires (35 Ethiopians Israelis and 74 non-Ethiopian Israelis, See Appendix C, Table C1 for full participant demographics) while 21 questionnaires were incomplete and thus excluded from the analysis (See Appendix A). Among the Ethiopian Israelis there were 14 participants (mean age = 27.5 years, SD=2.2) in the co-located sessions (13 females and 1 male) and 21 in the

remote session (19 females and 2 males, mean age=27.8 years, SD=3.1). Among non-Ethiopian Israelis there were 16 participants in the co-located sessions (10 females and 6 males, mean age=25.1 years, SD=2.4) and 58 in the remote session (48 females and 10 males, mean age=26.1 years, SD=3.2).

4.3. Digital Storytelling Platform: Communics

In each session, participants were invited to create a story using Communics, a collaborative digital story-telling tool that enables two participants (remote or co-located) to jointly compose a narration in the form of a visual comics-style story (Zancanaro et al., 2020). The digital tool has been developed to support storytelling activities with young users and it has been used to support reconciliation interventions (Zancanaro et al., 2020) and an educational setting (Rutta et al., 2021).

In a storytelling session with Communics, each participant has access to a library of images to use as backgrounds, characters, and objects as well as a set of predefined textual phrases or sentences. The material provided in the library was prepared by a team of researchers with a background in racial prejudice between Ethiopian-Israelis and non-Ethiopian Israelis to narrate stories that reflect situations (e.g., a mixed race couple trying to rent an apartment) which could lead to disclosure of overt or covert indications of prejudice and stereotypes. During the storytelling session, participants took turns to compose the story by successively creating a story panel (referred to as a frame) which included selection of a relevant background image and characters, objects and texts (Figure 1). One or more frames can be created during a single turn or the participant may simply add characters, objects and/or text to an existing frame. The other participant was able to passively view the evolving story in real time, but then became active when

his/her turn came and s/he could add more elements to the story. The deletion of a frame already in the story could be proposed by the participant whose turn it currently is but this requires explicit approval by the other participant who receives a request through a popup window in his/her interface. During the construction of the story, the two participants can interact through a chat-based mechanism integrated within the interface. The story is concluded when the participant whose turn it currently is makes an explicit request which is approved by the other participant.
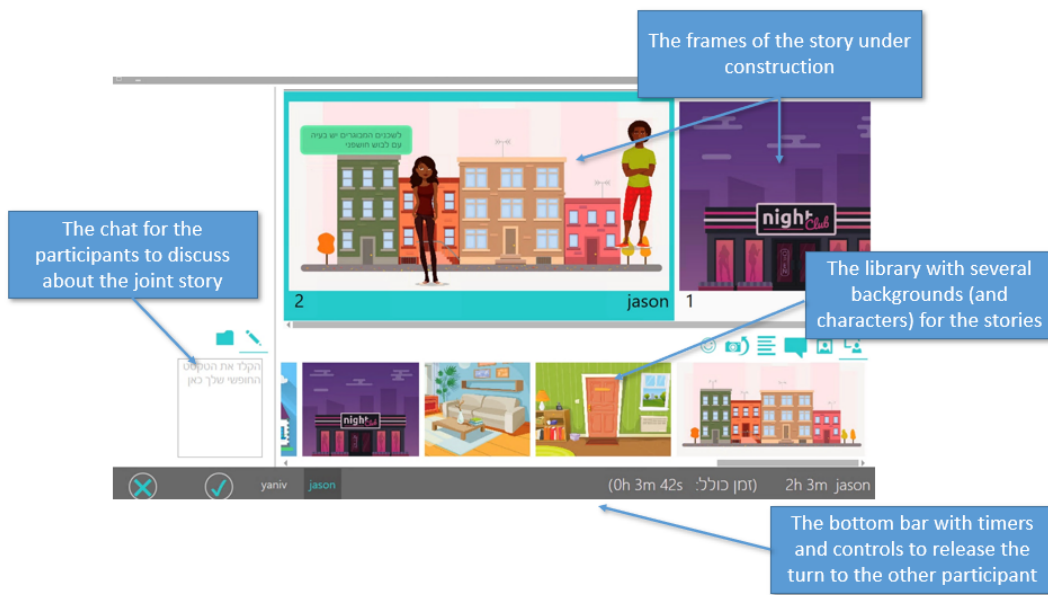

Figure 1. Screenshot of Communics, the digital storytelling tool used in the study

In the present study, each dyad of participants, Ethiopian and non-Ethiopian Israelis, could choose an initial situation where a mixed Ethiopian/non-Ethiopian couple faces an everyday dilemma that contains elements of racism (entry to a nightclub, looking for a new job, searching for an apartment). Appendix D includes a sample story.

4.4. Measures

Post-session measures

  After each storytelling session, participants responded to questionnaires querying their experience in using the tool (User Experience Questionnaire - Short form (UEQ-S), Schrepp, Hinderks, & Thomaschewski, 2017), their perception of the storytelling session (*Perceived contact*; *Ease of use*; *Satisfaction regarding the interaction*; *Satisfaction regarding the story* and *Self-expression*) and how they experienced the interaction with the other partner (*Effectiveness, Efficiency, Trustworthiness, Fairness and Balanced Participation*). Session log measures were also recorded during each session (such as time taken to complete the story, elements used, and number of turns taken). All scales are described and reported in Appendix D and G.

Pre-   and   post-session   measures

  To examine the impact of collaborative digital storytelling on attitudinal and emotional expressions of intergroup conflict, we used measures of intergroup conflict prior to, during and following the storytelling session.

  Positive and negative emotional states in intergroup context - State-Trait Anxiety Inventory (STAI). Three positive (calm, relaxed, and content) and three negative emotions (tense, upset, and worried) selected from Marteau & Bekker (1992) aimed to test participant's self-feelings before and after the session. The response scale ranged from 1=not at all to 6=to a very large extent.

  Positive and negative emotions toward interactions with individual outgroup members. 2 items of positive emotions (empathy and sympathy) and 4 items of negative emotions (anger, hate, fear and humiliation) selected from Halperin (2008) aimed at testing participant's feelings before and after the session toward the other group. The response scale ranged from 1=not at all to 6=to a very large extent.

Symbolic racism was measured to understand the participant's degree of racial attitudes. We used 12 items, out of 15 items, taken from Henry & Sears (2002). Three items were excluded since the context of the original scale did not fit our case study and context (see full scale and items in Appendix F). The scale consists of four dimensions (sub-scales) of symbolic racism: 1. Ethics at work and responsibility for results (2 items); 2. Demands (5 items); 3. Denial of ongoing discrimination (3 items) and 4. Unjustified advantage (2 items). The answers to the items ranged from 1 (not at all) to 6 (to a very large extent) and scores were normalized to range from 0 to 1, with high scores reflecting more racial animosity. Cronbach's alpha for the scale were 0.745 for the pre-intervention and 0.808 for the post-intervention.

Control measures

Prior contact with the other group. We tested each participant's degree of contact with the other group where higher values indicate a higher frequency of previous contact with the other side (Hurley, 1987). This scale included 3 items: 1. Do you have friends of Ethiopian/non-Ethiopian origin? 2. Are you friends with people of Ethiopian/non-Ethiopian origin on social networks like Facebook or Instagram? 3. Do you meet with Ethiopians/non-Ethiopians at work or at school? Answers to the items ranged from 1 (not at all) to 6 (to a very large extent).

5. Results

We started by verifying there were no statistical differences between the types of contact for either of the groups with respect to general characteristics (see Appendix C), and therefore, any changes we found could be attributed to our experiment. Secondly, a preliminary step of our analysis strategy was to verify the levels of emotions and attitudes between the two types of contact (co-located and remote) for Ethiopians and non-Ethiopians before and after engaging in the joint storytelling task. This has the benefit of testing the efficacy of the platform by confirming differential responses among the different conditions (types of contact, i.e., co-located and remote and group, i.e., Ethiopian Israelis and non-Ethiopian Israelis) with repeated measures (Time: pre- and post-intervention comparisons).

5.1 Interaction experience from remote and co-located sessions for either group

To test H1a, an ANOVA with two between-subject factors (form of contact and groups) was used to compare measures of user and interaction experience between remote and co-located sessions for Ethiopians and non-Ethiopians. Considering the metrics from the user experience questionnaires, no significant differences were observed between the use of Communicsin remote or co-located settings (for full analysis see Appendix G - Table G1). No significant differences were observed concerning the dimensions of interaction experience, both in terms of satisfaction with the interaction with the digital platform and with the session partner (see Appendix G - Table G2). Lastly, no significant differences were observed from the log measures between co-located and remote sessions (see Appendix G - Table G3). Thus, in accordance with our first hypothesis H1a, the analysis did not reveal any significant difference in the form of contact (co-located/ remote) in either groups (Ethiopian Israelis and non-Ethiopian Israelis) related to the interaction experience.

5.2. Pre-test to the post-test measures for Ethiopian Israeli and non-Ethiopian Israeli and for both forms of contact (co-located and remote)

To test the differences between pre- and post- measures, we ran a mixed ANOVA with a within-subject factor (pre and post) and two between-subject factors (form of contact and groups). Results showed a significant main effect of pre-post differences for Negative STAI ($F(1,104)$= 44.14, $p<.001$). A significant interaction between time and group ($F(1,104)=27.23$, $p<.001$) and significant effects of time ($F(1,104)= 22.85$, $p<.001$) and group ($F(1,104)=9.20$, $p<.01$) were observed for Negative threat based emotions (Figure 2). No significant effect of the form of contact was observed for either Negative STAI or Negative threat based negative emotion (see Table F4 and Table F5 in Appendix F), thus confirming H1b.

The analysis showed a significant decrease for all participants in both sets of emotions - emotional states in intergroup context and emotions toward interactions with individual outgroup members. The results reveal significant decrease of negative emotional states in intergroup context (STAI; tense, upset, and worried), between pre- and post-intervention (Table 1), confirming our second hypothesis regarding the effects of the platform on threat-based emotions. Considering negative emotions toward interactions with individual outgroups (anger, hate, fear and humiliation), simple main effects analysis showed a decrease in the score between pre- and post-intervention for both groups (Table 1). However, these results were only significant for the Ethiopian participants ($p<.001$). As suggested by the post-hoc interaction effect analysis, it is important to note that the pre-score of Ethiopians regarding negative emotions was higher (M=2.13, SD=.91) than non-Ethiopians (M=1.31, SD=.58, $p <.01$), whereas the post score was similar between Ethiopians (M=1.18, SD=.31) and non-Ethiopians (M=1.34, SD=.66, $p >.05$). In other words, taking part in the collaborative activity of joint storytelling helped reduce individual's

negative emotional states in intergroup context (STAI) of both groups and decreased negative emotions toward interactions with individual outgroup members among the Ethiopian participants.

5.3. Intergroup attitudes: pre-post test measures; Ethiopian and non-Ethiopian Israelis in both forms of contact (co-located and remote)

To test our third hypothesis regarding a change in intergroup attitudes, we compared levels of symbolic racism before and after the joint storytelling sessions. A mixed ANOVA showed a significant interaction between pre-post and group ($F(1,104)=6.20$, $p<.02$) and a significant effect of time ($F(1,104)= 4.89$, $p<.05$). Post-hoc analysis showed a significant decrease in the Symbolic Racism scale scores between pre and post sessions for both groups. Yet these results are statistically significant only for the Ethiopian participants ($p<.02$). After engaging in the joint activity, Ethiopian participants reported lower scores of racial attitude ($M=0.25$, $SD=.12$) compared to pre-intervention questionnaires ($M=0.29$, $SD=.14$) (Figure 2 and Table 1). Additional analyses of the various subscales of symbolic racism showed a significant decrease in the "Ethics at work and responsibility for results" subscale (See Appendix H).
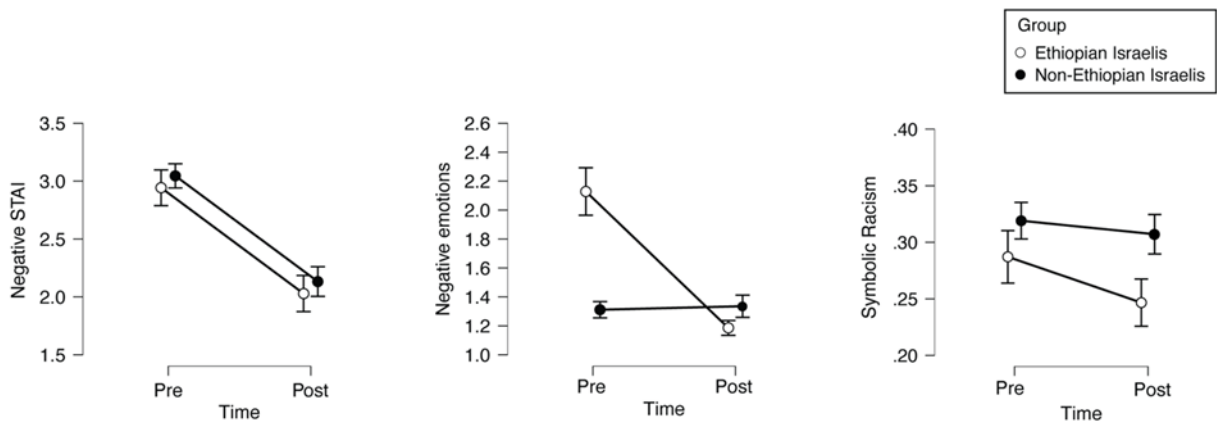
Figure 2. Pre- and post- intervention measures for Negative STAI, Negative threat based negative emotions and Symbolic racism by group. Error bars show standard error of the mean.

Table 1.

Mean and (standard deviations) for the pre- and post-session measures for all participants and by groups.

	All participants (N=109)		Ethiopians (N=35)		Non-Ethiopians (N=74)	
	Pre	Post	Pre	Post	Pre	Post
Negative STAI	**3.01 (.89)**	**2.10 (1.04)**	**2.94 (.91)**	**2.01 (.90)**	**3.05 (0.91)**	**2.10 (1.09)**
Negative emotions toward the other	**1.58 (.78)**	**1.29 (.57)**	**2.13 (.91)**	**1.18 (.31)**	1.31 (.58)	1.34 (.66)
Positive STAI	4.39 (.83)	4.35 (.95)	4.42 (.96)	4.39 (1.03)	4.37 (.76)	4.33 (.91)
Positive emotions toward the other	4.22 (1.04)	3.75 (1.38)	4.10 (1.0)	3.54 (1.24)	4.28 (1.11)	3.85 (1.45)
Symbolic racism	0.35 (.33)	0.33 (.33)	**0.29 (.14)**	**0.25 (.12)**	0.32 (.13)	0.31 (.15)

Note: Values in bold indicate a significant difference between pre- and post-session measures. All variables of the symbolic racism scale are presented on 0–1 scale, with high scores reflecting more racial animosity.

6. Discussion

Does joint digital storytelling sessions lead to a reduction in intergroup negative emotions and political attitudes? We addressed this question by means of an experiment that used a customized platform for digital storytelling of joint narratives by members of two groups, Ethiopians and non-Ethiopian Israelis, who experience racially-based tension. We found reduced negative emotions among participants of both groups following the use of the digital platform as well as modest changes in attitudes.

Taking part in a controlled intergroup interaction has been shown to improve intergroup relations (Pettigrew, 1998; Davido & Gaertner, 1986) by providing members of each group with more information about the other. Such knowledge can help build new associations between group members (Kawakami et al., 2000), and reduce uncertainty about how to interact with others and how to cope with negative emotions following intergroup interaction (Davido & Gaertner, 1986; Turner, Crisp, & Lambert, 2007). Over the years, different forms of contact were tested in an attempt to reduce tension and encourage intergroup encounters such as the usage of virtual contact (Yablon & Katz, 2001), extended contact (Turner et al., 2008) and imagined contact (Crisp & Turner, 2009). In line with existing literature that virtual contact can also help reduce intergroup tension, the current study shows that engaging via a collaborative storytelling digital platform helped reduce negative emotions among both Ethiopian and non-Ethiopian Israeli participants; they reported having fewer negative emotional states in intergroup contact, i.e., they felt less anxious or worried during the session.

Participants of both groups also reported less negative emotion toward individual outgroup members, i.e., they were less angry and afraid and felt less humiliation and hatred. These results were only statistically significant for the Ethiopian participants, a finding that is consistent with the body of research that has studied the Ethiopian community in Israel. It has pointed out the challenging situations faced by Israelis of Ethiopian descent: longing to be included in Israeli society following years of difficulty in arriving in the "Promised Land", and yet, suffering from racism, marginalization, and exclusion from Israeli mainstream society (Ben-Eliezer, 2008; Elia-Leib, Harel-Shalev, & Daphna-Tekoa, 2018). A good example to these complicated relations is in what Abu, Yuval & Ben-Porat (2017) described as the 'trust–discrimination paradox' that Ethiopians Jews are dealing with. Despite high perceptions of discrimination by the police and, in

some cases, brutal mistreatment, Ethiopian Jews express high levels of trust in this authority. Similarly, in the current study, Ethiopian participants reported fewer negative emotions toward interactions with individuals in outgroups (i.e., non-Ethiopian Israelis), a finding we did not observe among non-Ethiopian participants. This can also be explained by the desire of minorities, in our case, Ethiopians Jews, to belong and to express identification (Lamont & Mizrachi, 2012). Studies show that to feel included in society, minorities sometimes develop de-stigmatization strategies by which they deal with the paradoxical nature of their relationship with the majority group (Lamont, 2009; Lamont & Mizrachi, 2012; Binhas & Cohen, 2019; Abu, Yuval & Ben-Porat, 2017).

The third hypothesis relates to a change in intergroup attitudes after engaging in a collaborative activity of joint storytelling. Following Henry and Sears (2002), we focused on symbolic racism - the belief that blacks are demanding and unworthy and do not require any form of special government assistance. Among other beliefs, symbolic racism includes assumptions regarding work ethic and responsibility for outcomes that refers to the assumption that the failure by blacks to progress results from their unwillingness to work hard enough (Ben-Eliezer, 2008). Another core worldview expresses denial of ongoing discrimination, a notion based on the belief that blacks no longer face much prejudice in society today (Gallagher et al., 2018).

Results indicated that engaging via a collaborative storytelling platform leads to a moderate change in attitudes. Both non-Ethiopian and Ethiopian Israeli participants reported less symbolic racism, however, these results were statistically significant only among Ethiopian participants. Again, tis may be explained by the inner conflict of Ethiopian Jews between wanting to integrate and belong in the ethno-national community and feelings of discrimination. Additional explanation may be related to the majority group, non-Ethiopian Israelis: first, the process of changing

attitudes, especially negative attitudes such as symbolic racism is long and complex (Pettigrew, 1988; Pettigrew, 2003). Second, a one-time session will likely not be enough to support expression of such changes. Another explanation is rooted in the general context in which our study took place. Research has shown that changes in attitudes between tense intergroup relations are even more difficult in countries that experience continuous discord. Focusing on the Israeli-Palestinian conflict, Canetti-Nisim, Ariely, & Halperin (2008), for example, showed a spillover of the conflict that may result in general fear and anxiety that affects all intergroup relations within the country, such as Russian immigrants, work migrants and Palestinian citizens of Israel. The relations with the Ethiopians community may be affected as well.

A second objective of this study was to test the impact of collaborative digital storytelling via two types of contact, face-to-face and remote. The empirical findings support our hypothesis, indicating that there are no significant differences between the two types of contact. More specifically, both Ethiopian and non-Ethiopian Israelis rated their experience with the platform as being equally positive in both types of contact; they were satisfied with the interaction and found the platform to be easy to use. No significant differences were observed for the participant's positive perception of their session partner and that their contributions during the joint narration were balanced. The metrics obtained during the digital storytelling session confirmed that participant behaviors when co-narrating in either a remote or co-located setting did not significantly vary.

Conclusion

These findings make a significant contribution to the emerging body of work regarding the healing role that digital contact can play in reducing negative attitudes toward minority group members (Schiappa, Gregg, & Hewes, 2005; Turner et al., 2008; Crisp & Turner, 2009). This is

even more relevant in the context of the ongoing COVID-19 pandemic where social distancing has become the norm. Digital storytelling has been adopted to foster resilience and strengthen social bounds during the COVID-19 health emergency with different populations such as pediatric patients (Babal, Webber, & Ruedinger, 2020), preschoolers (Khamsuk & Whanchit, 2021), teenagers (Igarashi, Mizushima & Yokoyama, 2020) and young adults (Kaufmann, Straganz, & Bork-Hüffer, 2020). These experiences have demonstrated that the use of storytelling activities, including visual narratives such as comics and manga (Igarashi et al., 2020), can assist groups in sharing health-related information (Igarashi et al., 2020; Kearns & Kearns, 2020) and in coping with the consequences of social distancing (Babal et al., 2020), from the disruption of daily lifestyle (Kaufmann et al., 2020) to the expression of grief (Sullivan, 2021).

This study contributes by providing evidence and guidance for the implementation of digital storytelling experiences that can support intergroup contacts, considering the limitations imposed by the health emergency and the social distancing measures and supporting the positive effect of visual and digital storytelling in the context of a world pandemic (Kearns & Kearns, 2020).

The current research includes some limitations. first, our use of a one-time collaborative storytelling session may not have been intensive enough to engender profound changes in participant attitudes. A second limitation was the lack of long-term follow-up to determine whether the observed reductions in intergroup negative emotions and attitudes were sustained over time. Additionally, the relatively small number of participants may have affected the differences between the groups. In order to address this issue, we merged the two types of contact (co-located and remote) after demonstrating in our initial hypothesis that there were no significant differences

between the two types of contact. Therefore, we could assume that the combined data supported our hypothesis regarding the effect of the joint storytelling platform.

Future studies sould consider a larger sample which will fully document the added value of using this kind of joint story platform among groups in conflicting relations. Secondly, to improve the generalization ability of these conclusions we suggest conducting similar studies among other groups in conflict as in the European case studies of refugees and members of host countries. Finally, we find it extremely important to conduct such studies in real-life settings such as "living labs" in which researchers may gain higher ecological validity to their study. Overall, this paper indicates that joint-digital storytelling intergroup collaboration may lead to decrease in negative emotions toward the out-group member. Moreover, the current research is especially important for heterogeneous multicultural societies that experience conflicted intergroup relations in various aspects of life.

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Appendix A. Confederate and non-confederate participants
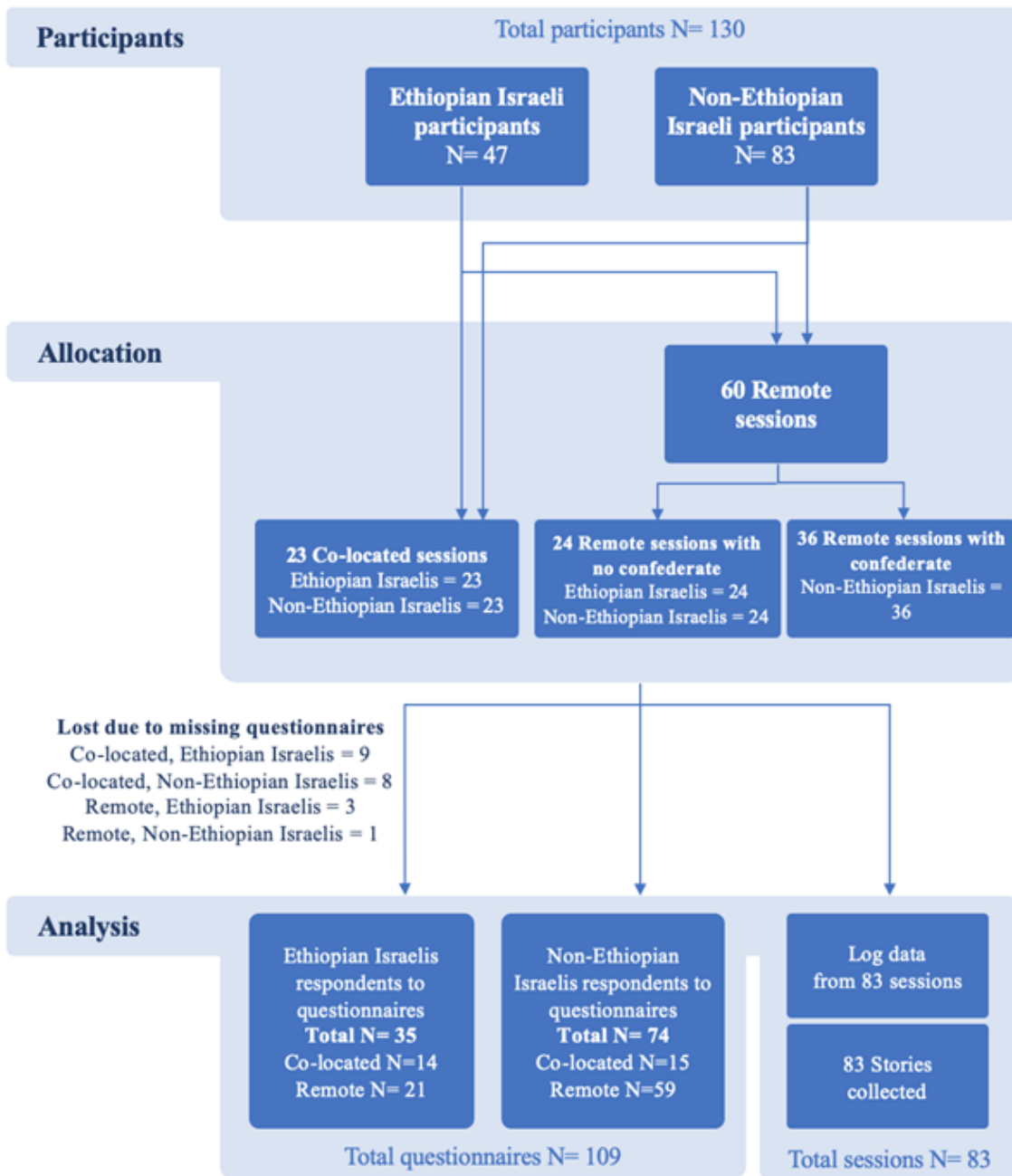
Figure A1. Participants flow diagram

Effect of confederate representation of an Ethiopian Israeli participant based on the use of the digital storytelling platform

The remote sessions (N=59) were carried out either in non-confederate mode (N=23) or confederate mode (N=36). The potential effect of using a confederate participant in the remote sessions was tested via a MANOVA for significant differences between remote with confederate, remote with non-confederate and co-located with non-confederate sessions. The analysis shows no statistically significant differences (F (2, 75) = 1.53, p = .135; Wilk's Λ = 0.81 - see also Table A2).

Overall, in all conditions, participants spent a mean of about 25 minutes to construct a joint story, frequently adding texts and graphical elements to the story. Although they were permitted to request to delete story contributions from their partner, this happened only rarely and most such requests (90%) were accepted by their partner. No significant differences between Ethiopian Israelis and non-Ethiopian Israelis were observed in the mean duration of turn-taking, in the number of turns taken and in the texts and items added to the digital story (Table A1).

Table A1.

Means and standard deviation on metrics obtained during the digital storytelling session for Ethiopian Israelis and non-Ethiopian Israelis.

	Ethiopian Israelis (n=47)	non-Ethiopian Israelis (n=83)	t/p

Story duration (s)	1570 (432)	1592 (412)	-0.28 / 0.77
# turns taken	6.1 (1.7)	6.3 (1.5)	-0.55 / 0.58
# texts added	15.5 (8.9)	15.9 (8.1)	-0.31 / 0.76
# item added	26.6 (9.9)	26.6 (8.1)	-0.01 / 0.99

For the non-Ethiopian Israeli participants, we examined whether their responses when engaged in the digital storytelling with a confederate Ethiopian Israeli participant differed significantly than when they engaged with an actual Ethiopian Israeli participant. There were no significant differences between the two types of sessions with the exception that the confederate session resulted in a significantly more positive STAI following the session where in the confederate type of session it was higher than in the other type of session (see Table A3).

From the log analyses and the results of the questionnaires, we can conclude that the use of a confederate representation of an Ethiopian Israeli participant did not significantly affect the session interactions nor the participants' attitudes with respect to co-located sessions and remote sessions with a non-confederate. Therefore, in the analyses of the questionnaires, the results from non-Ethiopian Israelis who interacted with either a confederate or non-confederate participant were combined.

Variables describing the functions used to create the stories for both types of contact: the co-located and remote. For the remote contact, the use of a confederate Ethiopian Israeli participant is compared to a non-confederate participant.

Table A2.

	Co-located sessions	Remote sessions		t/p
	(n=23)	Not Confederate (n=24)	Confederate (n=36)	
Story-telling duration (s)	3032 (466)	2983 (546)	2782 (440)	2.24 / 0.11
# texts added	31.2 (10.2)	33.21 (13.1)	29.9 (14.5)	0.47 / 0.62
# turns taken	12.9 (3.6)	12.3 (3.2)	11.4 (2.4)	3.1 / 0.06
# items added	50.5 (12)	53.7 (12.4)	48.4 (11.4)	1.22 / 0.30
# requests to delete a frame	3.9 (2.2)	3.3 (2.6)	4.1 (2.2)	0.74 / 0.48

Table A3.

Means and standard deviation for pre- and post-session attitude measures from the non-Ethiopian Israeli participants for sessions when a confederate played the role of an Ethiopian Israeli participant or an actual (i.e., non-confederate) Ethiopian participant (only for the remote setting).

	Pre-session			Post-Session		
	Confederate (N=36)	Not Confederate (N=24)	t / p	Confederate (N=36)	Not Confederate (N=24)	t / p
Negative STAI	2.96 (.92)	3.21 (.77)	-1.07 / 0.28	1.88 (.96)	2.36 (1.18)	-1.70 / 0.09

Negative emotions toward other	1.39 (.53)	1.21 (.39)	1.35 / 0.18	1.40 (.81)	1.23 (.36)	.885 / 0.38
Positive STAI	4.29 (.84)	4.34 (.67)	-0.26 / 0.80	**4.55 (.79)**	**3.09 (.86)**	**2.95 / 0.01**
Positive emotions toward other	4.22 (1.14)	4.29 (1.16)	-0.23 / 0.82	3.69 (1.41)	3.87 (1.60)	-.462 / 0.65
Symbolic racism						
Ethics at work and responsibility for results	2.68 (1.1)	3.04 (1.00)	-1.2 / 0.21	2.52 (.89)	2.94 (1.01)	-1.64 / 0.11
Demands	2.61 (1.07)	2.27 (.81)	1.34 / 0.19	2.42 (.87)	2.21 (.81)	0.95 / 0.35
Denial of ongoing discrimination	2.6 (.91)	2.63 (.99)	-0.12 / 0.91	3.08 (.50)	3.17 (.36)	-0.81 / 0.42

*
$p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Appendix B. Instructions for participants before creating the joint story

General Introduction and goals – The Communics online platform supports the creation of comic strip type storytelling by two people who speak the same or different languages. Your mutual goal is to build a collaborative story with another person with whom you interact using Communics. You will take turns to progress the story by selecting the tools described below.

How does it work? We'll begin with an explanation on the storytelling tools provided by Communics.

Story Backgrounds - Backgrounds are the basic component and are used to denote successive panels in the comic strip. They consist of   graphics of different settings (e.g., house, nightclub) that you can use as a backdrop for your story. In order to see the various backgrounds, press this icon… Note that you can scroll left and right to see the different backgrounds. It is important that each frame be not too crowded in order to make sure the story is clear; you can use the same background in more than one frame but try to use more than just a single background.

Characters - After choosing the desired background, you can add your choice of characters. Once the character is selected, you can move it to different locations in the background frame and change its size. Note that you should not identify with only a single characters. Rather, you should build a story that involves both.

Text - The next step is to add text to the story by pressing this icon and choosing a desired category (e.g., "greetings") and then selecting a suitable text snippet. Each category is subdivided into smaller sets, as illustrated in the reference card that you have been given. This

should help you to navigate between the different categories and to find text within each category. Don't forget that most categories have a scroll option to locate additional text snippets.

Turn-taking - After you will finish your turn, press a "checkmark" and it will now become your partner's turn. The "checkmark" will turn into flashing dots which indicate that the system is still active but that you have to wait until your partner finishes his/her turn. When that happens, you will hear a beep and the dots will turn back to a "checkmark". You can then add new content, change or erase the existing content, or progress to a new background panel. Note, you should try not to take too much time for your turn.

Preparation for the meeting - Now you can begin using Communics. Note the following "game rules": The comic strip completion time should take about 30-40 minutes and should include use of the following digital tools: 8-15 different backgrounds, text, and characters. Try to include as much diverse content as possible. Remember, you should build a joint story, not a string of statements or arguments. This means that you should focus on observing each narrative as generated by your partner and respond to it by continuing along similar story lines, or by bringing opposing ideas. You can use any of the aforementioned digital tools to continue the story. Note that color is used to differentiate between the text inserted by you or your partner.

You will be given a 5-minute warning before the end of the session so that you can complete the joint story. Once the story is complete, contact with your partner will ceases and you will be asked to comment on your satisfaction with the story as well as on your experience in creating it.

Appendix C. Descriptive statistics

Table C1 presents the demographics for the two groups (Ethiopian Israeli and non-Ethiopian Israeli) and two types of contact (co-located and remote). No statistical differences were observed between the types of contact for either of the groups with respect to these characteristics.

Table C1.

Descriptive statistics (means and standard deviations) for the two groups (Ethiopian Israeli and non-Ethiopian Israeli) and two types of contact (co-located and remote).

	Ethiopian Israelis			non-Ethiopian Israelis		
	Co-located	Remote	t, p-value	Co-located	Remote	t / p-value
Sample size	14	21		16	58	
Gender (Female:Male)	13:1	19:2		10:6	48:10	
Age (years)	27.5 (2.2)	27.8 (3.1)	-.36, 0.73	25.1 (2.4)	26.1 (3.2)	-1.16 / 0.25
Political orientation	2.6 (.85)	3.2 (1.29)	-1.58, 0.12	3.8 (1.17)	3.5 (1.31)	.77 / 0.44
Pre-Contact	5.1 (.94)	5.1 (.88)	-.13, 0.90	3.2 (1.33)	3.2 (1.09)	.16 / 0.88

$^{*}p < 0.05,$ $^{**}p < 0.01,$ $^{***}p < 0.001$

Appendix D. *Example of a completed digital comics strip story (translated into English from the original Hebrew)*

Figure D1. *A sample story about a mixed couple looking for an apartment created by two study participants.*

Appendix E. Full scale and items for interaction experience and participant's perception of the partner measurements.

User experience questionnaire (UEQ-S). We used the shortened version of Schrepp, Hinderks, & Thomaschewski's scale (2017) to measure the participant's user experience. The questionnaire consists of 8 items in the form of a semantic differential scale: 4 items represent pragmatic qualities (e.g. complicated/easy, confusing/clear) and 4 items represent hedonic qualities (e.g. boring/exciting, conventional/inventive). The questionnaire produces two scores, one for pragmatic qualities and one for hedonic qualities, and an overall score.

Perception of session/experience. Five items on a 6-point scale (1= not at all; 6 = very much) aimed at assessing four different dimensions of the perceived experience of the participants toward the use of the digital tool. The dimensions investigated included: *Perceived contact*; *Ease of use*; *Satisfaction regarding the interaction*; *Satisfaction regarding the story* and *Self-expression* (McGloin & Krcmar 2011; Warkentin & Beranek, 1999; Konijn, van der Molen & van Nes, 2009; Dennis & Kinney, 1998; Hecht, 1978).

- *Perceived contact.* Did you feel that you got to know your partner as if you met him/her in person?
- *Ease of use.* Do you think that this app is easy to operate technically?
- *Satisfaction regarding the interaction.* Do you feel satisfied with the way the interaction went with your partner?
- *Satisfaction regarding the story.* Do you feel satisfied with the story created with your partner?

- *Self-expression.* Do you feel that the interaction via the app enabled you and your partner to express yourselves in the best way?

Participant's perception of the partner. Four items rated using a 6-point scale (1 = not at all; 6 = very much) about the partner's role during the session (*Effectiveness, Efficiency, Trustworthiness* and *Fairness*). The participants were also requested to respond to a question about the perceived balance in the collaborative storytelling process:

- *Effectiveness. Did the partner guide you to build a balanced story?*
- *Efficiency. Did the partner intervene too often? (reversed item)*
- *Trustworthiness. Did you trust your session partner?*
- *Fairness. Was the session more likely to favor the other participant?*
- *Balanced participation Did your partner contribute more than you to constructing the story? (responses: 1= "Contributed less than me", 2= "Contributed same than me" and 3= "Contributed more than me").*

Session log measures. Communicsusage logs were recorded throughout each session. These data included the duration of the story-telling activity, the duration and number of turns for each user, the number of text phrases and items used in total during each session and as used by each of the participant dyads.

Appendix F. Full scale and items for symbolic racism measurement

Symbolic racism

Ethics at work and responsibility for results. 1**.** To what extent do you think that if Ethiopians only try harder, they will be as good as non-Ethiopians Israelis? 2. To what extent do you think Ethiopians work as hard as non-Ethiopians Israelis?*

Demands. 1. To what extent do you think Ethiopians in Israel are demanding too much in their struggle for equal rights? 2. To what extent do you think Ethiopians demand too much of the rest of the Israeli population?   3. To what extent do you think the Ethiopian leaders are pushing too hard?   4. To what extent do you think racial tension is present in Israel today?   5. To what extent do you think that Ethiopians in Israel do not complain enough about their social situation?*

Denial of ongoing discrimination. 1. To what extent do you think there is discrimination against Ethiopians today in Israel that limits their chances to advance? * 2. To what extent do you agree that years of discrimination have made it difficult for Ethiopians to advance? * 3. To what extent do you agree that discrimination against Ethiopians no longer exists in Israeli society?

Unjustified advantage. 1. To what extent do you think Ethiopians have received less than they deserve in recent years? * 2. To what extent do you think Ethiopians have received more than they deserve in recent years?

*=Reversed item

Appendix G. Effect of interaction experience with respect to the form of contact (co-located and remote) for either group

In order to test the first hypothesis, an ANOVA with two between-subject factors (form of contact and groups) was used to compare measures of user and interaction experience between remote and co-located sessions for either groups. Considering the metrics from the user experience questionnaires, no significant differences were observed between the use of Communicsin remote or co-located settings. No differences were observed concerning the dimension of interaction experience, both in terms of satisfaction with the interaction with Communicsand perception of the interaction with the session partner.

An ANOVA with a between-subject factor was used to compare measures of user and interaction experience between remote and co-located sessions. Considering the metrics from the UEQ-S questionnaire, no significant differences were observed between the use of Communicsin remote or co-located settings (Table G1). No differences were observed concerning the dimension of interaction experience, both in terms of satisfaction with the interaction with Communicsand perception of the interaction with the session partner. Considering the mean scores collected with these post-session measures, participants positively evaluated their experience with the platform as demonstrated by the results of the UEQ-S questionnaire and the ratings to the items related to its ease-of-use (M= 4.8, SD= 1.1); significantly above the middle point of the scale - one-sample t-test: $t(107)= 18.19$, $p <.001$) and satisfaction with using the platform (M= 4.3, SD= 1.2); significantly above the middle point of the scale - one-sample t-test: $t(107)= 11.43$, $p <.001$). However, mean ratings of the items of perceived contact and self-

expression showed that participants did not perceive a strong connection with the other partner (M= 2.6, SD= 1.3; significantly below the middle point of the scale - one-sample t-test: $t(107)= -2.7$, $p <.01$) and felt some limitations in the way the platform enabled their freedom of expression during the narration (M= 3.3, SD= 1.3). Notably, non-Ethiopian Israelis reported a stronger feeling of contact with the other partner in the co-located sessions compared to the remote ones ($t(107)= -3.01$, $p<.001$).

Table G1.

Means and standard deviations for interaction experience measure for all participants and by groups during co-located and remote sessions

	All participants		Ethiopian Israelis		Non-Ethiopian Israelis	
	Remote (N= 80)	Co-located (N=29)	Remote (N=21)	Co-located (N=14)	Remote (N=59)	Co-located (N=15)
Pragmatic quality°	1.1 (1.2)	1.0 (1.2)	1.3 (1.6)	0.7 (1.3)	1.6 (1.0)	1.3 (1.1)
Hedonic quality°	0.6 (1.1)	0.3 (1.3)	0.6 (1.2)	0.7 (1.2)	1.1 (0.8)	-0.1 (1.4)
Overall°	1.1 (0.9)	0.7 (1.1)	0.9 (1.1)	0.7 (1.0)	1.1 (0.8)	0.6 (1.1)
Perceived contact	2.5 (1.3)	3.0 (1.3)	2.8 (1.3)	2.7 (1.7)	**2.4 (1.1)**	**3.33 (0.9)**
Ease of use	4.9 (1.1)	4.7 (1.0)	4.5 (1.1)	4.4 (1.1)	5.1 (0.9)	4.9 (0.9)
Satisfaction (with the interaction)	4.3 (1.2)	4.2 (1.1)	3.9 (1.2)	4.0 (1.3)	4.4 (1.2)	4.5 (0.8)
Satisfaction (with the story)	3.9 (1.2)	3.8 (1.2)	3.4 (1.2)	3.7 (1.2)	4.1 (1.1)	3.9 (1.2)
Self-expression	3.1 (1.3)	3.3 (1.3)3	3.1 (1.3)	3.0 (1.7)	3.1 (1.2)	3.5 (1.3)

° UEQ-S scores range from -3 to +3

With regard to the participant's perception of the other partner, no significant differences were observed between the two types of contact (Table G2). In both settings, participants felt that their contribution was not predominantly guided by the other partner, nor that the other participant intervened too often (not significantly different from the middle point of the scale - one-sample t-test: $t(107)= 0.1$, $p >.05$). Generally, participants trusted the other partner (Trustworthiness: $M= 4.4$, $SD= 1.2$; significantly above the middle point of the scale - one-sample t-test: $t(107)= 9.7$, $p <.001$) and felt that the effort in narrating the story was balanced between participants both in remote and in co-located settings (Fairness: $M= 1.4$, $SD= 0.9$; higher scores indicate unfairness, significantly below the middle point of the scale - one-sample t-test: $t(107)= -19.3$, $p <.01$).

Table G2.

Means and standard deviations for measures of participants' perception regarding the session partner during co-located and remote sessions for all participants and by group

	All participants		Ethiopian Israelis		Non-Ethiopian Israelis	
	Remote (N= 80)	Co-located (N=29)	Remote (N=21)	Co-located (N=14)	Remote (N=59)	Co-located (N=15)
Effectiveness	3.2 (1.7)	3.1 (1.9)	3.3 (1.9)	2.8 (1.6)	3.2 (1.6)	3.5 (2.1)
Efficiency	4.7 (1.2)	5.3 (0.9)	5.2 (0.8)	5.6 (0.6)	4.6 (1.2)	5.0 (0.6)
Trustworthiness	4.4 (1.5)	4.6 (1.8)	4.4 (1.4)	4.3 (1.8)	4.4 (1.5)	4.9 (1.8)

Fairness	1.4 (0.9)	1.3 (0.7)	1.4 (0.8)	1.4 (0.9)	1.4 (0.9)	1.3 (0.6)
Balanced participation°	2.0 (0.4)	2.0 (0.5)	1.8 (0.5)	2.0 (0.4)	2.1 (0.5)	2.0 (0.6)

° scores from 1 to 3, middle point 2 = "contributed same as me"

An analysis was conducted on the information from the system log files to explore differences in the behavior of participant dyads while co-narrating with the Communicsplatform. The variables included storytelling duration, number of different texts selected by the participants, number of turns taken, number of items created, and number of requests to delete a frame. A MANOVA was used to test for significance between settings (Remote vs Colocated). No significant differences between Remote (confederate + not confederate) and co-located sessions were observed (F (1, 76) = 1.81, p = .12; Wilk's Λ = 0.89, see Table G3). These analysis confirmed that the participants' behaviors when co-narrating in a remote or in a co-located setting did not significantly vary between the two settings.

Table G3.

Variables describing the functions used to create the stories for both types of contact (co-located and remote). For the remote contact, the use of a confederate Ethiopian Israeli participant is compared to a non-confederate participant.

	Co-located sessions	Remote sessions		
	(n=24)	Not Confederate (n=23)	Confederate (n=36)	F(2,75) / p
Story-telling duration (s)	3032 (466)	2983 (546)	2782 (440)	2.24 / 0.11

# texts added	31.2 (10.2)	33.21 (13.1)	29.9 (14.5)	0.47 / 0.62
# turns taken	12.9 (3.6)	12.3 (3.2)	11.4 (2.4)	3.1 / 0.06
# items added	50.5 (12)	53.7 (12.4)	48.4 (11.4)	1.22 / 0.30
# requests to delete a frame	3.9 (2.2)	3.3 (2.6)	4.1 (2.2)	0.74 / 0.48

Appendix H. Analysis of the different subscales of symbolic racism

A mixed ANOVA shows a significant main effect of group ($F_{(1,104)}= 13.82$, $p<.01$) for "Denial of ongoing discrimination", indicating, as expected, higher scores for the majority group compared to the minority (Table H1). Considering the "Ethics at work and responsibility for results" subscale, the analysis shows a significant interaction between pre- and post- intervention ($F_{(1,104)}=4.50$, $p<.05$) and a significant effect of time ($F_{(1,104)}=12.09$, $p<.01$). Simple main effects analysis showed a decrease of the score between pre- and post- for both groups, however, only for Ethiopian participants results were significant ($p<.01$). No significant effects were observed for the other two subscales (i.e. "Demands" and "Unjustified advantage").

Table H1.

Mean and (standard deviations) for the pre- and post-session measures for all participants and by groups.

	All participants		Ethiopians		Non-Ethiopians	
	Remote (N= 80)	Co-located (N=29)	Remote (N=21)	Co-located (N=14)	Remote (N=59)	Co-located (N=15)
Symbolic racism						
Denial of ongoing discrimination	0.33 (.51)	0.31 (0.4)	0.18 (.17)	0.18 (.17)	0.32 (.18)	0.31 (.19)
Ethics at work and responsibility for results	0.45 (.38)	0.39 (.39)	**0.45 (.24)**	**0.33 (.23)**	0.39 (.22)	0.36 (.20)
Demands	0.32 (.32)	0.30 (.29)	0.29 (.19)	0.26 (.16)	0.29 (.19)	0.28 (.17)
Unjustified advantage	0.34 (.35)	0.33 (0.41)	0.29 (.18)	0.23 (.18)	0.31 (.18)	0.31 (.21)

Note: Values in bold indicate a significant difference between pre- and post-session measures. All variables of the symbolic racism scale are presented on 0–1 scales, with high scores reflecting more racial animosity.