THE UNIVERSITY OF CHICAGO

First-Person Narrative and Story Meaningfulness: Promoting Empathy via Storytelling

By

Youran Shi

June 2021

A paper submitted in partial fulfillment of the requirements for the

Master of Arts degree in the

Master of Arts Program in the Social Sciences

Faculty Advisor: Tasneem Mandviwala

Preceptor: Resney Gugwor

Abstract

This study examined whether using the first-person narrative while telling another's story and whether stories at different levels of meaningfulness influences people's empathy for others, interpersonal relationships, as well as perception of community atmosphere. While few studies have directly analyzed the effect of using a first-person narrative, the present study gives a theoretical and empirical account of why first-person narration of retelling another's story can lead to more empathy and better relationships at the individual, biological, and social level. Twenty-six university students participated in the Story Exchange, a storytelling intervention program offered by a non-profit organization called Narrative 4. Participants completed an online questionnaire before and after the story exchange. Using mixed-method analyses, results of the study suggested a positive influence of story meaningfulness and first-person narrative on empathy, perspective-taking, personal connections, both within the exchange group and the school community in general. The findings of the study can not only narrow the gap between storytelling and empathy research, but also help people design more effective empathy interventions to improve perspective-taking and social relationships.

Keywords: Empathy, storytelling, narrative, youth development

First-Person Narrative and Story Meaningfulness: Promoting Empathy via Storytelling

"The universe is made of stories, not of atoms." – Muriel Rukeyser, poet and activist (15 Dec 1913-1980)

Empathy is a complex imaginative process involving both cognition and emotion, which creates a psychological experience for people to connect and respond to the world and those in it (Coplan, 2004). The affective component of empathy often entails an imaginative adoption of another's emotional state, while the cognitive component of empathy is often referred as "perspective-taking" or "role-taking" (Coplan, 2004). Self-other differentiation is another notable component of empathy. That is, the empathizer is fully capable of experiencing their own separate thoughts and emotions when simulating the target's psychological experiences.

Previous research has linked empathy with altruistic and prosocial behaviors and better social relationships (e.g., Batson, 1986; Davis & Outhout, 1987). For example, empathy can lead to altruism and offer benefits such as less aggression, more help for those in need, increased cooperation in competitive situations, reductions of intergroup conflict, better attitudes and actions toward stigmatized populations, as well as health benefits to the altruistic helper (Batson et al., 2004). However, other research has suggested the complex relation between empathy and its benefits, where some researchers emphasized the cognitive aspects of empathy (understanding another person) while others the affective aspect (feeling what another feels) (Leith & Baumeister, 1998). Out of various components of empathy, research suggests that perspective taking might produce the most prosocial benefits and is particularly constructive for fostering good relationships and interactions.

Given these positive effects of empathy, a question remains about how best to encourage empathy? Previous research has explored the ways to induce empathy by tapping into goals and

motivation. For example, identifying a superordinate goal (i.e., a desirable goal that can only be attained by joint forces of conflicting sides) can reduce intergroup conflict (Batson et al., 2004). Other efforts are made to improve perspective taking, such as workshops where everyone is encouraged to express hopes and fears and to listen to others' concerns. In peace workshops, for example, participants from two sides of the conflict will live together, spend free time together, share cultural experiences, and participate in structured exercises (Batson et al., 2004). Previous research suggests that such workshops can provide personalizing interactions, awareness of outgroup needs, and superordinate goals. Such that people will build cross-group friendships, improve perspective taking, and foster empathic concern for outgroup members.

Narrative and Storytelling

Humans are natural storytellers, and the exchange of stories happen in everyday social interactions (Murray, 1997). Thus, stories and storytelling can be potent and useful device in helping individuals better understand the world and others with different experiences and perspectives (Moezzi et al., 2017). In social sciences, *narrative* often denotes non-fiction and formal cases. In this paper, I refer narrative as personal narratives in the conversational storytelling, which is commonly used in our daily life (Moezzi et al., 2017). Some researchers believed that people's narrative thought is a kind of cognition qualitatively different from abstract, scientific thinking, and that narratives or stories are metaphors for people to understand human behaviors and have great influence on a person's moral development (Vitz, 1990). The same idea was reiterated by Murray (1997) who suggested that storytelling not only helps people to understand a character's experience, but also offers insight into the identity of the storytellers and the cultures they live in.

Recent research also calls attention to the importance of storytelling. For example, Moezzi et al. (2017) suggested that storytelling can be an effective device to bring people from different domains and disciplines to work together to understand the world and solve collective challenges faced by all humans. They discussed the potential advantages of using storytelling, stories, and narratives in the energy and climate change research. Storytelling is also a valuable methodology approach in research, especially for studying consumer relationships (Rooney et al., 2016). Commercial storytelling is also essential for inducing narrative transportation effect in the commercial marketing (e.g., branding, marketing research and strategy) and industries (e.g., cultural industry, tourism) (van Laer et al., 2019). Nowadays, people are increasingly experiencing stories in digital formats or social media. Sawyer and Willis (2011) suggested that digital storytelling can be a creative counselling tool to modify the behaviors of children and adolescents. The emerging research of immersive storytelling and virtual reality (VR) has examined the user experience in VR and suggested the effect of VR in stimulating embodied experience and empathy (Shin, 2018).

Stories as Sense-Making Tool

People are motivated to give meaning to life, and we make meaning by telling stories and narrating our lives (Stanley & Hurst, 2011). In other words, people make sense of experiences, such as suffering and illness, by telling stories. Indeed, previous research has discussed that people use stories to discover the meaning of human existence and understand complex human affairs (e.g., Booker, 2004; Webster & Mertova, 2007). In short, story is a sense making tool (Bennett & Detzner, 1997).

The choice or judgment of the meaningfulness of a story can be arbitrary and based on personal decisions. While a person is free to make up a narrative about her own life or interpret

her life story in any way, she should also be free to judge the significance of a story (Vitz, 1990). Moreover, the narrative we choose to embrace can have important influence on our subsequent actions, thoughts, and beliefs. “Our plannings, our rememberings, even our loving and haring, are guided by narrative plots.” (Sarbin, 1986, p.11).” Thus, out of all the narratives we acknowledge, it is reasonable to predict that those we find the most meaningful should bring the most influence on our psychology.

The importance of finding the meaningfulness in our life stories can also be reflected from the practice of psychoanalysis and psychotherapy of different kinds that aim to help their clients to make narrative sense of their lives (Spence, 1982). That is, actively constructing a coherent story about the past can help a person make better sense of her life, which may help with certain psychological issues. In a similar vein, the research on the narrative medicine has suggested the positive effect of narrating traumatic experiences in a constructive and purposeful manner (Hartman, 2004).

While people can use stories understand their own life experiences, we can also use stories to understand others. This might be one way of how narratives and storytelling can help with fostering empathy.

Narrative Empathy

Stories can encourage empathy, and storytelling is a fundamental way for individuals to communicate and connect with others (Leung & Fong, 2011; Mui, 2017; Parrish, 2006). During a storytelling event, the listener or reader of a story often identifies with the perspectives of the characters to make sense of their experiences in the narrative (Ferneley & Sobreperez, 2009).

Research on the readers’ relationships with fictional characters and narrative comprehension showed that taking in the perspective of fictional characters will help readers

better understand, process, and recall the texts pertaining to characters' point of view (Coplan, 2004). Moreover, readers also tend to experience the emotional events from the standpoint of a protagonist, which provides further support that people are motivated to take up the characters' perspectives and have an empathic connection with the characters when engaging with a fictional narrative.

However, people are able to maintain the self-other differentiation, an important component of empathy, when taking up a character's perspective. Coplan (2004) used a pluralist account to explain people's empathic engagement with narrative fictions. She suggested that during the process of empathic connection, readers would simulate a character's experience (i.e., their thoughts and emotions), while preserving their own thoughts, desires, and emotions to the background at the same time. That is, an empathic involvement with storytelling entails more than a simulation of characters' experience. However, while empathetic response to fictional characters and situations are more likely to occur for negative emotions, not all feeling states of characters would induce empathy (Keen, 2006). Researchers have proposed more specific storytelling strategies for evoking empathy, and one of them is the first-person narration.

First-Person Narration

While narratives or stories have the power of fostering empathy, it seems that stories told in the first-person narration (i.e., telling a story by using the pronoun "I") are more superior than those told in the third-person (i.e., telling a story by using the pronoun "he/she/they") (Coplan, 2004). That is, using an interior representation of a character's consciousness and emotional state can help open readers' minds to different attitudes, support character identification, and predispose them for empathetic experiences (Keen, 2006).

Character identification is the most common feature of how narrative fiction is associated with empathy, and many predict that the first-person narration can help with the character identification (Keen, 2006). Character identification is possible even when the fictional character and reader differ from one another in significant ways. That is, any specific aspects of characterization, such as naming, description, traits, actions, plot trajectories, or speech may result in character identification and thus, empathy. It seems that empathy for fictional characters requires only minimal amounts of identity, feeling, or situation. However, Keen (2006) found little empirical evidence to support the expected benefit of the first-person narration.

While character identification usually occurs towards a fictional character, later research started to provide evidence for the efficacy of using the first-person narrative for real people. For example, Deen et al. (2010) found that writing first-person narrative pieces about severaly mentally ill patients, as a part of the psychiatric training program, fostered the residents' empathy for those patients. Writing in the first-person (vs. third-person) helped the residents to "crawl into the patient's skin more easily" and they were able to better understand patients' subjective experiences and imagine things about the patients' lives (Deen, et al., 2010, p.440). Such narrative writing exercise also helped residents to see their patients "as whole people, rather than just collections of symptoms" (Deen, et al., 2010, p.440).

Apart from writing a story, research has also suggested the psychosocial benefits of oral storytelling, compared to story reading (Hibbin, 2016). For example, oral storytelling can benefit children's socio-emotional development through empathic understanding of self and others, self-expression, identification of story characters, and bi-directional communication with story listeners (Hibbin, 2016). However, few studies have investigated oral storytelling in the first-person narration and its effects on empathy.

More recently, Gonzalez-Liencres et al. (2020) studied the influence of an immersive virtual scene of intimate partner violence experienced either from the first-person perspective (i.e., the victim's perspective), or witnessed from the third-person perspective (i.e., an observer's perspective). They found that when experiencing the virtual scene from the first-person (vs. third-person) perspective, participants, which were non-offender men, had a higher identification with the woman and took the scene more personally. That is, they had a greater sensation of helplessness, fear, vulnerability, and alertness; and they also showed more behavioral and physiological reactions to the virtual abuse scene. Previous work by Slater et al. (2010) also showed similar results. Men who witnessed a virtual scene from the first-person (vs. third-person) perspective of a girl tended to have a body ownership as the girl's virtual body, perceive the situation as if they were the girl, and have stronger physiological reactions to threatening virtual stimuli.

Overview of The Current Study

In the present study, we examined whether using the first-person would lead to increased empathy for other people, improved interpersonal relationships, as well as community atmosphere. We also examined how the meaningfulness of the stories shared would influence people's story exchange experience. We hypothesized that using the first-person perspective to describe others' experience and awareness of the meaningfulness of stories would help people empathize with others and thus, foster better relationships and prosocial behaviors at the personal, as well as group and societal level.

The Story Exchange

This study used a classroom storytelling intervention developed by the non-profit organization, Narrative 4 (N4), which aims to promote empathy by embedding perspective-

taking in personal storytelling. During the story exchange activities, participants were first paired together to privately share personal stories chosen by themselves. After sharing, students reconvened as a class, and each shared their *partner's* story, in the *first*-person narration. Story exchanges concluded by having each person share a wish for their partner.

The Psychology of First-Person Narrative

Few theoretical and empirical psychology studies have directly analyzed the effect of using a first-person narrative. However, the psychological phenomenon of using the first-person narrative does not exist on its own; instead, it is interconnected with other psychological experiences. In the following section, we will attempt to use previous theoretical and empirical research in psychology, cognitive science, and sociology to shed some light on why first-person narration of retelling another's story can lead to more empathy and better relationships at the individual (cognitive, psychological) level, biological (neural activity) level, and social level (social context, environment). Moreover, we discuss why we expect empathy happened between two strangers can transfer into broader social networks.

Individual Level

At the cognitive level, retelling the partner's story using the first-person narration can alter how much people empathize the partner based on the cognitive dissonance theory. Festinger and Carlsmith (1959) proposed the concept of cognitive dissonance, which suggests that people experience dissonance when being induced to say something contrary to their private beliefs. Such dissonance, subsequently, can motivate people to change their private opinions or beliefs in the absence of rewards or threats. That is, people tend to change their belief to be consistent with what they have said or done when the pressured used to induce their overt behaviors is weak.

Telling another person's story using the first-person, instead of third-person perspective can create significant cognitive dissonance. Because people are consciously aware that they are telling another's story and that they are not the actual actor in the story, even though they use the pronoun "I" to refer to the actor. Thus, such experienced dissonance will motive the narrator to imagine and empathize the other person's experience as if the event happened to herself to reduce the experienced dissonance. That is, when telling a story using the pronoun "I," people may experience dissonance because the story did not actually happen to them but happened to the partner. To resolve such dissonance, people should be motivated to imagine as if they had undergone their partner's experience the during the story exchange. On the contrary, using the third-person pronoun to refer to the actor in another's story during a story exchange would not create such dissonance. Therefore, using first-person narrative during the story exchange should increase narrator's empathy for the partner.

At the psychological level, linking the self, as represented by the pronoun "I," to others' stories can also enhance empathy that people feel for others in an automatic way. Research found that automaticity of higher cognitive process is closely related to one's identity or self-concept (Bargh et al., 2012). For example, research on behavior contagion and conformity has suggested the mediating role of the self-concept in automatic behavior priming effects. That is, priming is most powerful when it directs at one's self-concept or things that are self-descriptive. Moreover, successful priming that activates self-concept can lead to participants adopt a role or persona with certain characteristics that are not necessarily descriptive of participants themselves (e.g., a college student adopting the persona of an elderly person).

Such findings show the flexibility of the self-identity and self-concept, such that one is able to adopt different characteristics, behaviors, and mindsets possessed by people who are

different from the person. Thus, using "I" to tell others' stories can be an effective way to link the self to another's experience and prime the self to adopt a persona of the other person for a short-period of time. In this way, it is possible for a person to simulate the psychological experience of another person and better understands the experience and feeling from the other's perspective. Thus, people will feel more empathy for their partners' experiences if they use first person narration to retell others' stories.

Furthermore, the self-concept also has significant implications for motivation and goal pursuit (Bargh et al., 2012). For example, the effect of pairing positive affect with a goal is augmented when symbols or stimuli related to the individual's identity or self-concept. Such influence of the self-concept could explain the "name letter effect," where people tend to pursue careers and move to locations that incidentally share letters (especially initials) of their name. Thus, when the goal of a storytelling event is to foster interpersonal relationships, people who use the first-person (vs. third-person) narration to retell others' stories should be more motivated to empathize and understand their partners and be more open to building a relationship.

Biological and Physical Level

The experience of empathy also happens at the biological level as shown by the research on "mirror neurons," which highlights people's selective response to actions performed by the self and others (Spelke & Kinzler, 2007). That is, peoples' neural activities and behaviors tend to mirror others whose actions they observe. Mirror neurons thus allow people to have the same mental experience by observing someone else who is having a direct experience (Keysers et al., 2003). This suggests that during a storytelling event, both listening to the partners telling their stories and retelling partners' stories should activate individuals' mirror neurons, because people are paying attention to others' experiences. In particular, using the first-person narration to tell

someone else's story should activate a storyteller's mirror neurons even more. Because referring the actor in the story as "I" should motivate the teller to imagine and submerge herself into another's experience even more, which will result in a full bloom neurological and behavioral experience that mirrors the partner's experience.

In addition, embodiment research can also support the efficacy of adopting a first-person narrative. The automaticity research on embodied emotion and cognition has shown the metaphorical associations between physical and psychological experiences (Bargh et al., 2012). For example, physical warmth can produce feelings of social warmth (e.g., trust and generosity) and vice versa. Thus, it is plausible that using "I" to describe others' experiences should prompt people to embody others' physical and psychological experiences, which in turn will produce enhanced empathic feelings for others.

Social Level

Empathy experienced at the interpersonal level can also benefit intergroup relationships. Spelke and Kinzler (2007) suggested the innate tendency of humans to identify with and reason about social partners and social group members, such that people prefer the in-group members over the out-group members regardless of the criteria for categorization. Similarly, Festinger (1954) argued that people prefer situations where others have similar (vs. divergent) abilities and opinions to themselves. Additionally, individuals are more likely to move into groups that share similar opinions and experiences and move out of groups that do not. Because the group memberships are very much subject to malleable perceptions, this suggests the possibility that the empathy experienced at the individual level can spread and transfer to a larger population. When using the first-person narration to retell another person's story, it is possible that people would not only identify with the person, but also adopt the social backgrounds and preferences of

the person. Thus, the empathy people feel for a person should be able to transfer to other people who share social memberships or social experiences with that person.

Granovetter (1973) has demonstrated the strengthen of weak ties. That is, the dyadic weak ties can work as micro-macro bridges that connect different social networks. He suggested that small-scale interactions can feed into and thus, influence large-scale relations between groups which, in turn, influence small-scale interactions. This suggests that any effect happened within interpersonal interactions between weak ties have the power to travel across social networks and reach a larger number of people. In other words, while strong ties often concentrate within the same groups, weak ties can connect members from *different* groups.

The process of exchanging stories between individuals is an example of micro-level interpersonal interactions that have the potential to extend its effect to a macro-level intergroup relations or relations among more people. Even among a small group of people, the predicted empathy effect at the interpersonal level has the potential to reach more people because each participant is affiliated with their own unique social networks and social memberships. On the one hand, the empathy people experience for their partners can be extended to other people who resemble the partners' experiences, characteristics, and social identities. On the other hand, participants' empathetic experience, attitude, and ability gained during the story exchange can disperse among other people who are in the participants' social networks. Thus, a weaker tie the participants share, the more spread the empathy effect will be.

Method

Participants

26 (6 male, 19 female, 1 other, $Mean_{age}$ = 21.38, SD_{age} = 1.13,) students enrolled in Liberal Arts courses at the Seton Hill University in Greensburg, Pennsylvania participated in the

Story Exchange as a part of their curriculum requirement. Before and after their story exchange, students received emails recruiting them to participate in an online study about their story exchange experience. We offered them $5 Amazon gift cards for completing a survey before the story exchange and $10 Amazon gift cards for completing another after the exchange.

Procedure

Prior to the story exchange, participants saw a few resources, including articles and videos (see Appendix A), about N4, the story exchange, and empathy. Then, participants went through the story exchange activity described earlier by using some story prompts (see Appendix B). Both before and after the story exchange, participants completed a survey to assess their pre- and post- story exchange experiences, as well as their empathy and attitudes towards their partners and other people.

Materials

Pre Story Exchange Survey

Participants completed the Interpersonal Empathy Assessment (Gerdes, et al., 2011; Gerdes, et al., 2012), a standardized 23-item questionnaire used in empathy interventions on a scale ranging from *1* (= never) to *6* (= always). One sample item was "When I see someone receive a gift that makes them happy, I feel happy myself." In addition, participants also completed the Openness to Diversity and Challenge Scale (7 items; Pascarella et al., 1996) to assess participants' general thoughts on differences in society (e.g., "I enjoy having discussions with people whose ideas and values are different from my own."). Lastly, participants completed a revised version of the Political and Social Involvement scale (11 items) on a on a scale ranging from *1* (= very little) to *4* (= very much) to measure the level of their political and community

involvement (Ramirez & Zimmerman, 2016). One sample item was “Volunteering in my community.”

Post Story Exchange Survey

Participants completed the same Interpersonal Empathy Assessment again after the story exchange. Additionally, participants completed the Taking Social Action Scale (6 items; Engberg et al., 2003) to rate how they think the story exchange might have changed their action in the future (e.g., “Make efforts to get to know individuals from diverse backgrounds.”) on a scale ranging from *1* (= very little) to *4* (= very much). Participants also completed the Pluralistic Orientation Scale (5 items; Engberg et al., 2003), and rated how participants think the story exchange might have changed how they may think in the future (e.g., To what extent have your experiences at the story exchange contributed to your ability to see the world from someone else’s perspective.”) on a scale ranging from *1* (= very little) to *4* (= very much).

In addition to quantitative measurements, we also used open-ended questions to collect qualitative data that could offer further insight into participants’ experience with the story exchange, how meaningfulness of the story and first-person narrative influence their experience, as well as the empathetic influence of the story exchange on the personal and community level. To analyze the qualitative data, we adopted the grounded theory, including the open and in-vivo coding strategies, as well as the mixed methods research approach (e.g., Bryant & Charmaz, 2007; Creswell, 2009). A detailed list of the open-ended questions, coded categories, coding criteria, and definitions are presented in the Table 1 below.

Table 1

Open-ended Questions, Codes, and Coding Criteria

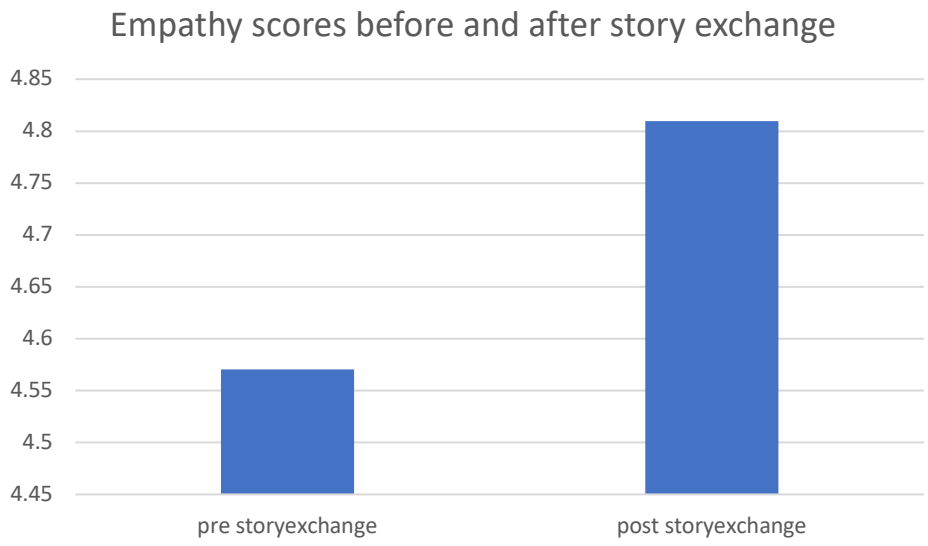
Open-ended questions	Assessment	Codes/Categories	Coding Criteria/Definitions
"What was your story (the one that happened to you) about? How meaningful was your choice of story to you?"	Effect of meaningfulness of the personal story	Level of meaningfulness of the personal story (high/medium/low)	**High**: phrases like "very/extremely meaningful" **Medium**: phrases like "somewhat meaningful/important" **Low**: phrases like "not important/meaningful" (note: for missing responses, judgment were made by the researcher based on story content)
What was your partner's story (the one that happened to your partner) about? How meaningful do you think your partner's story was to your partner?	Effect of meaningfulness of the partner's story	Level of meaningfulness of the partner's story (high/medium/low)	Same as above
"How do you expect the meaningfulness of the stories to influence the story exchange experience?"	Effect of meaningfulness	Meaningfulness promotes empathy (mentioned/not mentioned)	Phrases that mention or indicate the belief that meaningfulness can promote empathy: e.g., "Empathy for others."
		Meaningfulness promotes connection (mentioned/not mentioned)	Phrases that mention or indicate the belief that meaningfulness can promote connection: "Feel more connected to each other."
"What did it feel like to tell someone else's story using the FIRST person narrative? What was going through your mind?"	Effect of the first-person narrative (telling)	First-person promotes empathy (mentioned/not mentioned)	Phrases that mention or indicate the belief that first-person can promote empathy: e.g., "It helped me empathize more with them."
		Embodiment experience (mentioned/not mentioned)	Phrases that mention or indicate embodiment of partner's story: "the story almost became my own or I became the person telling the story"
		Concern about retelling (high/low/no)	Phrases that mention or indicate concern about retelling: High, "I was nervous"; low, "a little difficult/nervous"
How do you expect you	Speculated effect of the	Less benefits with third-person	Phrases that mention or indicate the less benefits with third-person,

would feel differently if you had used the third person narrative?	third-person narrative		such as “less connection,” “less empathy,” “less personal,” “less impactful,” “less connection to story”
What did it feel like to hear someone else tell your story in the first person? What was going through your mind?	Effect of the first-person narrative (listening)	Rethink/relive during retelling	Description of participants’ experience with reliving their stories and gaining new perspectives when listening
“How has the exchange experience affected your perception of others, including your partner?”	Outcomes at the personal level	Increase empathy/perspective-taking	Phrases that mention or indicate the increase of empathy or perspective-taking for participants
		Target of perception	The target of the change of perception, e.g., the group, partner, people in general
“In what ways did the story exchange change the climate of your school community?”	Outcomes at the community level	Increase of empathy	Phrases that mention or indicate the increase of empathy, connection, or openness in the school
		Increase of connection	
		Increase of openness	

Results

Empathy Improvement After Story Exchange

As expected, participants reported increased empathy scores before ($M = 4.57$) and after ($M = 4.81$) the story exchange. A paired sample t-test showed a significant increase of empathy scores after the story exchange, $t(25) = 3.92$, $p < .001$, with a medium effect size of 0.57 and power of 0.24. A further power analysis suggested that to achieve a power of 0.80, we would need at least 58 participants.



We then conducted multiple regression tests to test the relationships between the empathy scores and other scales used in the two surveys. A multiple regression test showed that empathy difference, $t(23) = 74$, $p < .001$, CI = [.52, 1.81] and political social involvement, $t(23) = 5.71$, $p < .001$, CI = [.70, 1.50], predicted the social action tendency after the story exchange, $R^2 = 0.64$. That is, those who had high tendency to involve in political and social activities before the story exchange or had an increase of empathy afterwards were more likely to commit social actions as a result of their experience of the story exchange.

Meaningfulness Promotes Empathy

We coded the level of story meaningfulness following the coding criteria listed in the Table 1. Twenty-one out of 26 participants explicitly stated that the stories they shared were meaningful to them and the researchers' coding of their descriptions of the stories also confirmed this. For the rest of participants who did not explicitly answer how meaningful their stories were for them, the researcher gave a rating based on the content of the story and the way participants described their stories. Twenty-three stories had a high level of meaningfulness, and 3 had a medium level. The same coding procedures were applied to the partner's stories and their level of meaningfulness. Twenty-two partner stories were had a high level of meaningfulness, 2 had a medium level, and 2 had a low level. Due to the ceiling effect of the meaningfulness of the stories and missing responses from a few participants, no further statistical analysis was applied here. However, it is clear that overall participants were more likely to share stories that are meaningful to themselves and their story exchange partners were able to detect the high level of meaningfulness of the shared stories. Such results could suggest the positive relationship between story meaningfulness and empathy improvement observed before and after the story exchange.

Table 2

Counts and Percentages of Story Meaningfulness for Self and Partner Story

Level of Story Meaningfulness	High	Medium	Low
Self story	23 (88.5%)	3 (11.5%)	0
Partner story	21 (80.8%)	3 (11.5%)	2 (7.7%)

When asked the question, "How do you expect the meaningfulness of the stories to influence the story exchange experience?", many students suggested a positive relationship between the story meaningfulness and the effect of the story exchange, specially, the resulted

connection with others and empathy for their experiences. For example, one student wrote: "I think a more meaningful story is better for the purpose of empathy building and building that intense connection between people." In particular, it seemed that being able to recognize the importance of the partner's story to the partner was also crucial for empathy and connection building:

> The meaningfulness and impact is something that I can take with me, but in the moment I was able to realize what was important to my partner. We were able to make connections on a deeper level and really have this empathetic viewpoint. While our stories weren't of loss or sadness, we were able to share in the lessons we had learned.

To further analyze how students' beliefs about story meaningfulness might influence their empathy score changes, we coded their response to the question into two categorical variables: the belief that meaningfulness can promote empathy (mentioned/not mentioned), and the belief that meaningfulness can promote connection (mentioned/not mentioned). 13 out of 26 participants stated that they believed the more meaningful the shared stories were, the better they were at improving empathy. On the other hand, seven out of 26 participants stated that they believed the more meaningful the shared stories were, the better they were at improving connection. An independent sample t-test showed that participants' belief that story meaningfulness could promote empathy had a significant effect on the change of empathy scores, $t(23.13) = -2.21$, $p = .04$, $d = -.87$, power = 0.85. That is, participants who believed that more meaningful story could lead to higher empathy were more likely to have a higher increase of empathy scores ($M = 0.36$, $SD = 0.32$) than those who did not believe so ($M = 0.11$, $SD = 0.26$). However, there was no significant relationship between the belief about the story meaningfulness promotes connection and empathy scores, $t(18) = 1.20$, $p = 0.25$.

Table 3

Counts and Percentages of Categorical Variables

	Mentioned	Not mentioned	
Meaningfulness promotes empathy	12 (46.2%)	14 (53.8%)	
Meaningfulness promotes connection	7 (26.9%)	19 (73.1%)	
First-person promotes empathy	10 (38.5%)	16 (61.5%)	
Embodiment experience	9 (34.6%)	17 (65.4%)	
Less benefits with third-person	22 (84.6%)	4 (15.4%)	
Increase of empathy in community	2 (7.7%)	24 (92.3%)	
Increase of connection in community	14 (53.8%)	12 (46.2%)	
Increase of openness in community	5 (19.2%)	21 (80.8%)	
	High	Low	No
Concern about retelling	6 (23.1%)	4 (15.4%)	16 (61.5%)

Table 4

Empathy Changes of Key Categorical Variables

		Empathy change (post – pre)	*p*
Meaningfulness promotes empathy	Mentioned	.36	.04 *
	Not mentioned	.11	
Meaningfulness promotes connection	Mentioned	.14	.24
	Not mentioned	.27	
First-person promotes empathy	Mentioned	.18	.45
	Not mentioned	.27	
Embodiment experience	Mentioned	.31	.36
	Not mentioned	.20	

Meaningfulness, Vulnerability, and Emotion

While the story meaningfulness might promote empathy and connection, it might also encourage vulnerability among people during the story exchange. One student stated: “I think the meaningfulness impacts the vulnerability of the story. The experience is more powerful when an important story is shared. The two people are really able to connect on a deeper level.” Another student highlighted the role of vulnerability in bringing two persons closer: “Sharing a meaningful story creates more bonds with the group and with the partners since we are really opening up about something that might bring us pain or other strong emotions.” This suggests

that being vulnerable and being open to the emotions embedded in the stories could be an important link to an empathetic and personal connection.

Indeed, other students also resonated the importance of being vulnerable and open to others' experience, while considering some causal relations among story meaningfulness, vulnerability/openness, and empathy:

> The meaningfulness of the stories influences the story exchange experience because we are willing to be vulnerable and allowing ourselves to connect with other whom we might not know. I think that experiencing this keeps you wanting to do it more often and pushes you to start being more open with other and understanding of others and their experiences.

Here is another example of a student contemplating the relationships among meaningfulness, emotions, and empathy:

> If your stories are meaningful, then your emotions and expressions will come through to the other person. When that other person can really feel what your feeling, they can more accurately empathize and tell your story better.

Overall, it seemed that some students shared the intuitive assumption that the story meaningfulness could lead to more emotional understanding of another's story, or greater willingness to be open and vulnerable to emotions, which in turn, would lead to more empathy and connection between individuals. However, there were a couple of students who did not think the perceived level of meaningfulness would not make a difference on their story exchange experience, because any story shared would be a meaningful story. For example, one student wrote: "I think as long as the story is meaningful to the one that gives it whether it is a happy, funny, or sad story, it will be meaningful to others." Another student added on the idea and also pointed out the impact of the environment where the story exchange happened:

> I think that every story shared is meaningful regardless of how extreme, simply because it's about that person's life. I did not expect it to influence it too much because the environment itself was already full of love and empathy for one another and you could sense that as soon as you entered into the room.

First-person Narrative and Empathy

Several patterns of participants' responses emerged from the question, "What did it feel like to tell someone else's story using the first-person narrative? What was going through your mind?" Based on their responses, we coded three categorical variables: The belief that first-person narrative can promote empathy (mentioned/not mentioned), having embodiment experience during retelling (mentioned/not mentioned), and having concern about retelling (high/low/no). Independent *t*-tests and ANOVA tests found no significant difference in the change of participants' empathy scores within each of those categories. For the first-person can promote empathy category, $t(23) = 0.77$, $p = 0.45$; for the having embodiment experience during retelling category, $t(19) = -0.94$, $p = 0.36$; lastly, for the having concern about retelling category, $F(2, 23) = 1.45$, $p = 0.25$. Overall, we did not find any statistical evidence to support our prediction about the relationship between the first-person and the empathy scores.

To explore any potential relationships between the coded categorical variables, we used Fisher's exact tests. Specifically, we performed the tests among the categories "meaningfulness can promote empathy," "meaningfulness can promote connection," "first-person narrative can promote empathy," "embodiment experience," and "concern about retelling." However, we did not get any significant results from these tests, either. That is, participants' beliefs about or experience with on category did not influence their beliefs and experiences concerning other categories. This suggests that the story meaningfulness and first-person could be seen as two different approaches or constructs in using storytelling to foster empathy.

Qualitative Account of the Experience of Using First-Person Narrative

Some of the qualitative responses seem to suggest that the using the first-person narrative is helpful to promote empathy. Students reported feeling more empathetic to others story

exchange participants' stories and experiences, and better understanding of their emotions and perspectives. Example statements include:

> "I felt more connected to the emotions they probably felt."
> "I was trying to think of how I would have felt."
> "Using first person narrative really helps you put yourself in your partners shoes and relate to their story and their experience more."
> "It was very encouraging to tell someone else's story from the first person. It helped me empathize more with them."

Another cluster of responses indicated an embodiment experience of the partner's story when using the first-person narrative to retell the story. That is, some students were able to "embody the story and picture it as though it happened to [themselves]." Sometimes, such embodiment of other's story could happen without conscious awareness at the time: "I honestly did not even realize because the story almost became my own or I became the person telling the story. Afterwards I realized how to unique and powerful that is." But, the common embodiment experience was the internalization of another's story, such that individuals felt as if the story was their own experience: "At first, it was a little awkward but once I got going I kind of internalized the story, and, for a moment, it became my own."

However, it seems implausible to say that the empathic experience and embodiment experience during the retelling were two separate psychological processes. Instead, we would suggest that people often experience a blend of both experiences, and that the two processes share similar components. For example, both empathic and embodiment experiences require some degree of imagination. When retelling the partner's story using the first-person perspective encourages the reteller to actively reconstruct not only the scenes of the story, but also the psychological experience of the character "I" in that story. Both of which would require the reteller's own imagination to fill in the gaps of the story or psychological experiences that were unknown to the reteller.

Indeed, some students' responses suggested a blend of embodiment and empathy experiences. For example, one student indicated an embodiment of the partner's story, as well as a perspective-taking of the partner' experience: "In a way, I felt like it was my story to tell. I was trying to put myself in the situation as if it had happened to me." Similarly, this student also experienced embodiment of other's story, in addition to cognitive empathy (i.e., perspective-taking) and affective empathy (i.e., feeling partner's pride):

> It was a new experience. It made me have the ability to see from her perspective and be able to put myself in her shoes. I was feeling the same sense of pride that she had felt as I was telling her story.

Moreover, consequent results of both the empathic and embodiment processes seemed to overlap. For example, both processes seemed to lead to better perspective-taking of another's story as shown by the excerpts above. Additionally, both processes might also result in improved connection between individuals, as one student wrote:

> Telling someone else's story using the first-person narrative made it so much deeper. I think that in doing this, I was able to feel like I was telling my own story and really allowing myself to connect to that person on another level.

Lastly, although embodying another's story seems to suggest a full takeover of someone else's experience and psyche, which might be in conflict with the self-other differentiation component of empathy, there might still be room for both processes to occur completely. For example, this student was able to adopt the partner's story, while maintaining her own thoughts and feelings: "It made everything feel so much more real. Since I was trying to emulate her in the story, her story temporarily became mine. I just remember thinking, 'she is so strong.'"

Another noticeable pattern of students' responses was their concern about retelling the stories. Some of them expressed that they were nervous about the retelling, because they did not want to "mess up" the stories and wanted to make sure they represent the stories in a truthful,

respectful, and appropriate manner. For example, one student wrote: “It was nerve-wracking to speak for and as my partner. I wanted to make sure I did her story justice.” The concern about retelling also included the consideration of the partners’ feelings when hearing their stories being retold. Here, a student was worried about how to retell the story in a way that would provide the partner the best story exchange experience:

> It was a little bit of a struggle because I wanted to highlight the important parts of the story that mattered most to him. I was thinking about how I should not mess up because this is his story and it's his time to be super vulnerable and I don't want to take that from him if he's if he's sitting there confused by what I am saying and why I'm saying different things.

Prior experience of participating in the story exchange could relieve some of the concerns and anxieties about retelling others’ stories. For example, a student who has done the story exchange before wrote: “Since I have done it before, I wasn't really nervous to mess up, but I was more thinking about being able to tell it the way he wanted it told; respectfully and emotionally.” It seems that without the unnecessary stress of retelling, students could pay more consideration into retelling their partners’ stories in a meaningful and empathic way.

Participants’ Anticipated Effect of Using Third-Person Narrative

Twenty-three out of 26 students thought that using the third-person narrative instead of the first-person would be less beneficial for the story exchange experience. Common reasons provided by students included that third-person would result in less personal connection (8 responses, e.g., “I don't think that there would have been as deep of a connection.”), less empathy (6 responses, e.g., “I might not have had the same level of the empathetic experience.”), and less impactful story exchange experience (3 responses, e.g., “I think it would not have left as much of an impact on me if I had used third person narrative.”).

Interestingly, students also suggested that using the third-person would feel "less personal" (6 responses): "I think it would have been much less personal and like I was just reading a historical piece. But putting myself in the shoes really changed it as a narrative and a story that was remembered." Here, the student also contrasted her experience with the first-person narrative, which enabled her to emerge herself into another's perspective and better remember the story. Similarly, another student wrote that: "[The third-person] would probably feel like I was just summarizing what someone just told me." This suggests that unlike the first-person, the third-person narrative would not have provided an imaginative or engaging experience for students to take on a personal and intimate perspective of others. Contrasting with students' embodiment and empathic experiences with using the first-person narrative, the third-person was predicted by students to be less effective at attracting empathy and connection in a personal way.

However, using the third-person narrative to retell others' stories might be less stressful for students than using the first-person. One student wrote: "I think I would not have felt as much pressure or as strong about getting her story right." While using the third-person instead of the first could be a solution for people who are stressed out about retelling a story, future research should test if the relief of such pressure would be at a cost of the benefits provided by the story exchange.

Impact of Story Exchange on Perception of Others

Participants' responses to the question, "How has the exchange experience affected your perception of others, including your partner?", suggested the impact of the story exchange on the way they perceive others and understand others' perspectives and beliefs. Students indicated improved empathic feelings for others, especially a strengthened perspective-taking awareness.

For example, one student wrote: “It has allowed me to be more understanding and empathetic to others because we don't always know what they're going through.” Similarly, another student wrote: “It made me realize that you never know the kind of circumstances people go through so you can never judge a book by its cover.”

Moreover, a better perspective-taking of others’ experience could foster interpersonal relationships: “It made me be able to see people from a better perspective and be able to build a connection with them.” While some students’ response did not specify a target population, others explicitly stated a better understanding of and a closer connection with their story exchange partners. For example, one student wrote: “I think the amount of respect I have for my partner increased substantially. I already respected her, but this made me see her in a whole new life. I am more aware of other people now.” Similarly, another student stated that “[The story exchange] helped me become closer to my partner since I didn't know them before this experience.”

The interpersonal connection also happened at the group level, such that students suggested they had meaningful connection with other participants in their story exchange group:

> I always feel more connected to people after an exchange, I described it to my group like every N4 exchange, even with a total stranger that you might never even see again, you form a friendship through story exchange that doesn't end, you always remember that person's story.

Moreover, the perceived connections with the group members might be due to the sense of openness and vulnerability provided throughout the story exchange experience. One student wrote: “I think the exchange brought me closer to the other people in my group because I had some personal stories I could associate with the person that broke down any barriers we had.”

Table 5

Counts and Percentages of Target of Perception

Target of perception	People	Group	Partner	Friend
Count (percentage)	20 (76.9%)	3 (11.5%)	2 (7.7%)	1 (3.9%)

Impact of Story Exchange on Community Atmosphere

To see if impact of the story exchange could go beyond the story exchange group, we examined if the story exchange also influenced the students' perception of the climate of their school community. When asked "In what ways did the story exchange change the climate of your school community?", 23 out of 26 students noted a positive influence of the story exchange on students at schools, or the school community in general. For the influence on the climate of the school community, students suggested that the story exchange "created a space of connection and empathy." Such that students mentioned increased empathy from students and school, as well as a strengthened connection among story exchange participants, classmates, and within the school community in general. Thus, it seems that the sense of connection and empathy created within the story exchange group were able to spread to the broader school community:

> I think that [the story exchange] brings people together. I've done the exchange previously in a couple of other classes and each time there are people I don't know, so I feel like after the exchange we feel more connected with those people. It's like falling dominos affect, like a cycle.

Moreover, after the story exchange, students perceived more openness within their school community, and thought the school community as "more inclusive to others," and "more open to stories and understanding." For example, one student suggested that: "Our school community has always been very welcoming and tolerant, but the story exchange has only reinforced those important values to treat each other like human beings." Another student resonated this same experience by writing that: "I think this will make the school a bit more open and compassionate

towards other people. I think more consideration will be given to other people now. We are all a bit more empathetic now."

Lastly, it seemed that the reason that the sense of connection and empathy created within the story exchange group were able to spread to the broader school community was because of students' desire to extend their experienced connection and empathy at the story exchange to a larger scope. For example, one student showed her desire to extend the good experience and feelings to other students: "We felt connected and want to bring this experience to others." Another student indicated a desire to extend the sense of togetherness and support to future endeavors:

> It banded us all together. we all felt very connected by this exchange. We learned more about each other and voice how we want to continue this sense of togetherness and support through our lives and educations/jobs.

Such desires to extend their positive story exchange experience could be driven by various factors and one of them might be the gratitude of having participated in one. One student mentioned her grateful feeling for having the opportunity to participant in the story exchange: "I think N4 has really added to my school community, we are very fortunate to have multiple professors involved with the program."

Discussion

Statistical analysis on the numeric and categorical variables suggested that the story exchange was indeed effective at prompting empathy. Overall, students were more empathic and showed increased tendency to engage in positive social actions after the story exchange. Evidence also suggested the importance of the story meaningfulness in the story exchange. The majority of students shared stories that were meaningful to them and they also believed their partners' stories were meaningful as well. The belief that the story meaningfulness could prompt

empathy was also linked to a higher level of empathy. Qualitative analysis of the story meaningfulness showed a similar pattern of results. While students believed that a meaningful story shared could increase empathy and connection, they also thoughts that a meaningful story could lead to a more openness, vulnerability, emotional understanding of another's story, which in turn, would lead to more empathy and connection between individuals.

We did not find any statistical evidence to support our hypothesis that the first-person narrative can improve empathy using the categories that we coded from students' responses. However, our qualitative analysis indicated otherwise. Based on students' responses to the open-ended questions, many reported that using the first-person narrative to retell others' stories made them more empathetic to others story exchange participants' stories and experiences, and better understanding of their emotions and perspectives. Besides the empathic connection students experienced, some also indicated having an embodiment experience of others' stories when using the first-person narrative. It seems that the experience of embodying another person and feeling emotions from his/her perspective could share both differences and similarities to the process of perspective-taking, which could also lead to increased empathy. Future research may be interested to study the connection between embodiment and empathy, and how to leverage both to foster interpersonal and intergroup relationships.

The predicted effect of the first-person narration was also reaffirmed by students' anticipated effect of using the third-person narration to retell others' stories. Majority students believed that using the third-person narrative instead of the first-person would be less beneficial for the story exchange experience. The next step of future research should be employing experimental study designs to test the different impacts of using the first-person and third-person perspectives on empathy and social relationships.

The story exchange also had a positive impact on students' perception of others. Many students indicated an increased openness and perspective-taking awareness when learning about other people and their experiences. Additionally, some students also experienced closer connection with their story exchange partners and other group members. Moreover, the relationship benefits of the story exchange went beyond the personal connection participants experienced within their story exchange group. After participating in the story exchange, students perceived a stronger connection with other students, and an increased sense of openness and empathy within the school community. This suggests that the sense of connection and empathy created within the story exchange group were able to spread to the broader school community.

However, it is important to note the lack of statistical supports for certain benefits of the story exchange discussed, and the discrepancies in the counts of "mentions" and "not mentions" for each category. Despite having a relatively small sample size and responses numbers, we were able to use the qualitive coding and thematic analysis to extract valuable and meaningful information embedded in the qualitative data that would otherwise be missed if only quantitative analysis was applied. Additionally, because the purpose of this study was to get a fuller picture of students' overall personal and psychological *experience* with the story exchange, an in-depth qualitative and thematic analysis on students' responses should also be an adequate research method.

Nevertheless, the lack of statistical evidence still casted a doubt about the benefit of the first-person narrative and story exchange on improving empathy, as well as interpersonal relationships at the group and community levels. For example, it could be the case that the false positive effect we found in the qualitative texts provided by students was only an example of

self-fulfilling prophecy, and the third-person narrative could be effective at producing empathy as some argued in previous research (Keen, 2006). Thus, future research might want to adopt behavioral or physical measures of empathy and include more aspects of storytelling and narrative (e.g., the second-person narrative) in the examination.

Lastly, the target population of this study is university students and a large proportion of participants of the N4's story exchanges are adolescents and young adults. Because of their unique characteristics (e.g., young age, high-level of education, open-mindedness), people may question the effectiveness of story exchange across different age levels and social groups. While this is a common issue of many psychological experiments that have used university students as primary participants, we do not expect a huge reduction in the benefits of story exchange across the lifespan. For example, recent research found the empathy growth from adolescence to older adulthood, despite the mixed results suggested previously (Oh et al., 2020). That is, changes in the socioemotional goals and significant life events can contribute to emotion and perspective-taking development overtime, while motivating them to have more empathy and prosocial actions. Thus, such an enhanced sensitivity for empathy should not hinder the effect of story exchange among healthy elder people. In turns of social groups, future researchers should take advantages of the diverse population and communities taking part in N4's story exchanges and investigate any of their unique experiences with the story exchange.

Conclusion

The current study provided exploratory evidence for students' perceived effect of the story exchange program, story meaningfulness, and first-person narrative on improving empathy and social relationships. As an empathy inducing intervention, the story exchange provides an opportunity for people to learn about others' stories in an open-minded way. In particular, telling

meaningful stories and using the first-person narration to retell the partner's story should foster empathy and perspective-taking among individuals by prompting them to identify with their story exchange partners and adopt their experiences, characteristics, and feelings. In this way, the empathy people feel for their partners should be easy to transfer to other people with similar experiences as their partners. The findings of the study narrow the gap between storytelling and empathy research. Potentially, they can help researchers design more effective empathy interventions to improve perspective-taking and social relationships across different types of communities. While storytelling is being employed in more diverse industries and domains to improve working and living qualities, findings of this study provide insight into how to utilize storytelling even more effectively.

References

Bargh, J. A., Schwader, K. L., Hailey, S. E., Dyer, R. L., & Boothby, E. J. (2012). Automaticity in social-cognitive processes. *Trends in Cognitive Sciences*, *16*(12), 593-605.

Batson, C. D. (1986). Sociobiology and the role of religion in promoting prosocial behavior: An alternative view. *Journal of Personality and Social Psychology*, *45*, 1380-1385.

Batson, C. D., Ahmad, N., & Stocks, E. L. (2004). Benefits and liabilities of empathy-induced altruism. *The social psychology of good and evil*, 359-385.

Bennett, J. A & Detzner, D. F. (1997). Loneliness in cultural context: A look at the life history narratives of older Southeast Asian refugee women In Lieblich, A. and R, Josselson (Eds), *The Narrative Study of Lives, 5*, Thousand Oaks, CA, Sage.

Booker, C. (2004). *The seven basic plots: Why we tell stories*. Bloomsbury Publishing.

Bryant, A., & Charmaz, K. (Eds.). (2007). *The Sage handbook of grounded theory*. London: Sage.

Coplan, A. (2004). Empathic engagement with narrative fictions. *The Journal of Aesthetics and Art Criticism*, *62*(2), 141-152.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage.

Davis, M. H., & Oathout, H. A. (1987). Maintenance of satisfaction in romantic relationships: Empathy and relational competence. *Journal of Personality and Social Psychology*, *53*, 397-410.

Deen, S. R., Mangurian, C., & Cabaniss, D. L. (2010). Points of contact: using first-person narratives to help foster empathy in psychiatric residents. *Academic Psychiatry*, *34*(6), 438-441.

Engberg, M. E., Meader, E. W., & Hurtado, S. (2003). Developing a pluralistic orientation: A comparison of ethnic minority and White college students. *Paper presented at the Annual Meeting of the American Educational Research Association*, 1001, 48109-1259. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.583.9690&rep=rep1&type=pdf

Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, *7*(2), 117-140.

Festinger, L., & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *The Journal of Abnormal and Social Psychology*, *58*(2), 203.

Gerdes, K. E., Lietz, C. A., & Segal, E. A. (2011). Measuring empathy in the 21st century: Development of an empathy index rooted in social cognitive neuroscience and social justice. *Social Work Research*, *35*(2), 83-93. doi:10.1093/swr/35.2.83

Gerdes, K. E., Geiger, J. M., Lietz, C. A., Wagaman, M. A., & Segal, E. A. (2012). Examination of known-groups validity for the Empathy Assessment Index (EAI): Differences in EAI scores between social service providers and service recipients. *Journal of the Society for Social Work and Research*, *3*(2), 94-112. doi:10.5243/jsswr.2012.7

Gonzalez-Liencres, C., Zapata, L. E., Iruretagoyena, G., Seinfeld, S., Perez-Mendez, L., Arroyo-Palacios, J., ... & Sanchez-Vives, M. V. (2020). Being the victim of intimate partner violence in virtual reality: first-versus third-person perspective. *Frontiers in psychology*, *11*, 820.

Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, *78*, 1360-80.

Hibbin, R. (2016). The psychosocial benefits of oral storytelling in school: developing identity and empathy through narrative. *Pastoral Care in Education*, *34*(4), 218-231.

Keen, S. (2006). A theory of narrative empathy. *Narrative*, *14*(3), 207-236.

Keysers, C., Kohler, E., Umilt, M.A. & Nanetti, L. (2003) Audiovisual mirror neurons and action recognition. *Experimental Brain Research*, *153*, 628-636.

Moezzi, M., Janda, K. B., & Rotmann, S. (2017). Using stories, narratives, and storytelling in energy and climate change research. *Energy Research & Social Science*, *31*, 1-10.

Murray, M. (1997). A narrative approach to health psychology: Background and potential. *Journal of Health Psychology*, *2*(1), 9-20.

Oh, J., Chopik, W. J., Konrath, S., & Grimm, K. J. (2020). Longitudinal changes in empathy across the life span in six samples of human development. *Social Psychological and Personality Science*, *11*(2), 244-253.

Pascarella, E. T., Edison, M., Nora, A., Hagedorn, L. S., & Terenzini, P. T. (1996). Influences on students' openness to diversity and challenge in the first year of college. *The Journal of Higher Education*, *67*(2), 174-195.

Ramirez, J. J., & Zimmerman, H. (2016). *Diverse Learning Environments.* Los Angeles, CA: Higher Education Research Institute, University of California, Los Angeles.

Rooney, T., Lawlor, K., & Rohan, E. (2016). Telling tales: Storytelling as a methodological approach in research. *ECRM2016-Proceedings of the 15th European Conference on Research Methodology for Business Management": ECRM2016*, 225.

Sarbin, T, R. (1986). The narrative as a root metaphor for psychology. T. R. Sarbin (Ed.), *Narrative psychology: The storied nature of human conduct*, 3-21. New York: Praeger.

Shin, D. (2018). Empathy and embodied experience in virtual environment: To what extent can virtual reality stimulate empathy and embodied experience?. *Computers in Human Behavior*, *78*, 64-73.

Slater, M., Spanlang, B., Sanchez-Vives, M. V., and Blanke, O. (2010). First person experience of body transfer in virtual reality. *PLoS One* 5:e10564. doi: 10.1371/journal.pone.0010564

Small, M. L. (2017). *Someone to Talk to: How Networks Matter in Practice.* Oxford University Press.

Spelke, E. S., & Kinzler, K. D. (2007). Core knowledge. *Developmental Science*, *10*(1), 89-96.

Spence, D. P. (1982). *Narrative truth and historical truth: Meaning and interpretation in psychoanalysis*. New York: Norton.

Sawyer, C. B., & Willis, J. M. (2011). Introducing digital storytelling to influence the behavior of children and adolescents. *Journal of Creativity in Mental Health*, *6*(4), 274-283.

Van Laer, T., Feiereisen, S., & Visconti, L. M. (2019). Storytelling in the digital era: A meta-analysis of relevant moderators of the narrative transportation effect. *Journal of Business Research*, *96*, 135-146.

Vitz, P. C. (1990). The use of stories in moral development: New psychological reasons for an old education method. *American psychologist*, *45*(6), 709.

Webster, L., & Mertova, P. (2007). *Using narrative inquiry as a research method: An introduction to using critical event narrative analysis in research on learning and teaching*. Routledge.

Appendix A: Sample of Resources

Here are a sample of resourses that participants saw before going through the story exchange:

A Tale of Two Schools: **https://www.nytimes.com/interactive/2014/05/04/magazine/tale-of-two-schools.html?_r=1**

N4 U of Limerick: **https://vimeo.com/131957439**

Colum McCann's Radical Empathy: **https://www.nytimes.com/2013/06/02/magazine/colum-mccanns-radical-empathy.html?pagewanted=all&_r=1**

N4 main weblink: **https://narrative4.com/**

Appendix B: Narrative 4 prompts

1. Maya Angelou writes: “The ache for home lives in all of us. The safe place where we can go as we are and not be questioned.” Tell a story about a specific time when you felt that you had found, or lost, a sense of home.
2. Share a transformative experience related to your educational experiences, relationships, or career. Your story can be anchored in joy, pain, humor, embarrassment … there is no right story. Just speak from your heart.
3. Tell a story about the first time you realized how much race or sex or class really matter, or a moment when you in some way confronted (or were confronted with) a piece of your identity. You might consider the core cultural identifiers such as race, gender, class, religion, sexuality, age, ethnicity, ability, etc.
4. Leo Buscaglia states: “Too often we underestimate the power of a touch, a smile, a kind word, a listening ear, an honest compliment, or the smallest act of caring, all of which have the potential to turn a life around.” Tell a story from your life when you first witnessed, or participated in, an act of compassion.
5. Tell a story about a meaningful moment you have experienced during the COVID-19 pandemic. Your story can be anchored in joy, pain, connection, hope, fear, disconnection…