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7. THE ROLE OF ROLE-TAKING

Social Perspective Taking and Interpersonal Relationships in Virtual Simulations

INTRODUCTION

The idea that adopting the roles of others will foster an array of desired educational outcomes pervades the field of education. Social studies simulations, anti-bullying interventions, conflict mediation programs, and other role-taking exercises are borne from the implicit logic that when participants can "walk a mile in someone else's moccasins" better interpersonal outcomes will result. Specifically, by taking the perspective of others we will better understand them, and that understanding will pave the way for smoother interactions and relationships. Because education is a fundamentally social enterprise (Gehlbach, 2010), learning how to enhance the social interactions between teachers, administrators, students, and peers is essential to K-12 and higher education. Thus, improved interpersonal relationships should generate better educational outcomes. With the development of virtual environments, people can now walk a mile in the shoes of others and take the perspectives of others more flexibly, efficiently, and authentically than ever before. Virtual environments also allow for the systematic evaluation of these role-taking exercises. In this chapter, we explore theoretical pathways through which role-taking might improve interpersonal relationships. We articulate hypotheses connecting role-taking – a particularly powerful approach to taking the perspective of others – to improved relationships. We then provide an illustrative example of a virtual environment from the Social Aspects of Immersive Learning (SAIL) project. Through this case example, we describe how these hypotheses might be tested and how the resulting knowledge could lead to improved relationships in educational contexts.

> *Mrs. Andrews: "Honestly, Bill, that child hasn't got a clue about my life, not a single clue"*
> *(Freaky Friday, 1976)*

In the movie *Freaky Friday*, Mrs. Andrews and her adolescent daughter Annabel are annoyed with each other. Both wish for a life as easy as they perceive the other leads. They soon get their wishes. By magically switching bodies, Annabel and Mrs. Andrews each learn that the other's life is not so easy.

Many role-taking exercises in education employ the same implicit logic portrayed in *Freaky Friday*: that if we can "walk a mile in someone else's

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moccasins", then we will better understand their situation, constraints, and behaviors as well as their thoughts and feelings. As a consequence of this enhanced understanding of the other party, role-taking might engender a more accurate perception of the other party's point of view, and, consequently, increase empathy toward the other. According to this logic, interpersonal relationships should be strengthened as a result of effective role-taking exercises i.e., the two parties should become more caring (Noddings, 2006) and supportive (Wentzel, Battle, Russell, & Looney, 2010), as well as less conflictual (Pianta & Hamre, 2009) and disaffected (Skinner, Furrer, Marchand, & Kindermann, 2008). Because relationships are comprised of the two parties' actions, perceptions, and memories of those interactions (Gehlbach, Brinkworth, & Harris, 2012), improved relationships are essentially a subjective perception. In education, the capacity of teachers and students to develop and sustain positive, trusting, and reciprocal interactions is paramount to effective learning (Pianta & Allen, 2008).

Until science allows us to magically switch bodies with someone else, however, we must rely on more metaphorical approaches to improve relationships and, potentially, learning. Being able to don someone else's role, position, or psychological experience is a critical capacity. Role-taking interventions based on these types of metaphors promote a host of desired educational outcomes ranging from decreased stereotyping to increased helping behavior (Ku, Wang, & Galinsky, 2010).

The variety of forms interventions take raise questions about *how* and *through what processes* such positive outcomes result. Does role-taking improve relationships by creating cognitive dissonance between one's own views and those adopted through the role-taking (Festinger & Carlsmith, 1959)? Does the shift in role from observer to actor change people's perceptions of the situation and lead people to make new attributions for why others behave as they do (Ross, 1977)? Perhaps taking on the persona of another increases the possibilities that you will see similarities and commonalities between yourself and your adopted role – which in turn promote increased liking (Galinsky & Moskowitz, 2000). Another possibility is that role-taking exercises simply blur the identity boundaries between self and other (Aron et al., 1991). It could also be that through imagery and shared neural patterns, role-taking helps people to mirror and mimic others in a way that fosters improved relationships (Chartrand & Bargh, 1999). There may be truth to several of these possibilities. This chapter explores these hypothesized pathways and the critical question of why role-taking activities might enhance social outcomes in educational contexts. We begin by placing role-taking within a larger context – as a specific, but uniquely powerful approach to social perspective taking (SPT) – and defining SPT.

SOCIAL PERSPECTIVE TAKING

SPT entails "discerning what others are thinking and feeling in a non-egocentric manner" and attending to how others perceive the situation (Gehlbach, 2004, p. 209). There are two key elements of SPT – the ability to accurately assess the

thoughts, feelings, and motivations of others, as well as the motivation to engage in this ability in the first place (Gehlbach, 2010).

Role-taking is one of many ways that a person might engage in SPT. Specifically, role-taking is a form of *projection* (see Gehlbach & Brinkworth, 2012, for other SPT strategies). By "putting ourselves in somebody else's shoes" while remaining attuned to their goals, pressures, limitations, and feelings, we can better empathize with them and take their perspective. In contrast to overt behavior or conduct, George Herbert Mead defined role-taking as "a strictly mental or cognitive or empathic activity […] a process by which a person momentarily pretends to himself that he is another person, projects himself into the perceptual field of the other person, imaginatively 'puts himself in the other's place,' in order that he may get an insight into the other person's probable behavior in a given situation" (Coutu, 1951, p. 180). Thus, the specific strategy of role-taking is one of many strategic approaches a person could use to attempt taking the perspective of someone else.

However, putting yourself – with your own personal history, personality traits, and values – in someone else's situation may be tremendously difficult in some instances, particularly when SPT targets are quite different from you. Thus, in more sophisticated versions of role-taking, people are not only asked to take on the role of someone else, but they are psychologically immersed in the target's situation and made cognizant of the ways in which the target is a different person. In other words, more effective role-taking activities combine the act of projecting oneself into someone else's shoes while scaffolding an adjustment process to help role-takers account for differences between themselves and the "target" (Gehlbach & Brinkworth, 2012).

Through the role-taking process, perceivers engage in SPT to better understand and empathize with targets. Consequently, this unique strategy is well suited to promote interpersonal relationships. Several studies indicate that SPT can be taught (Gehlbach, Young, & Roan, 2012; Marangoni, Garcia, Ickes, & Teng, 1995) and that we can improve relationships by getting a person to take the perspective of the other party (Galinsky & Moskowitz, 2000). Yet the pathways between SPT and improved relationships are unclear.

Several theoretical pathways may cause role-taking activities (see Figure 1) to enhance interpersonal relationships. We focus on four distinct channels. First, role-taking may spark evolving perceptions of targets' behaviors and situational constraints. As these perceptions develop, they may become more empathetic, thereby improving relationships. Second, role-taking activities may provide opportunities for perceiving a greater number of similarities between the parties. By transforming "them" into "we", perceivers may increasingly bestow in-group preferences on former out-group members. Third, as a new persona is adopted through role-taking exercises, identity overlap may blur boundaries between self and other – allowing our egocentrism to give the benefit of the doubt to the other person. Fourth, role-taking may expose a perceiver to particular images and/or have them engage in certain behaviors which result in shared neural structures between the perceiver and the target. These shared structures may generate vivid

cognitive experiences that are readily available to facilitate the understanding and acceptance of a target's subsequent behaviors. These pathways may all have the potential to increase perceptions of friendliness, trust, and caring between two parties. We outline the pathways in the following section, and then explore how virtual environments could test these and other mechanisms that underlie role-taking. The ultimate goal is for scholars to apply the findings to educational settings in order to improve relationships and enhance learning.

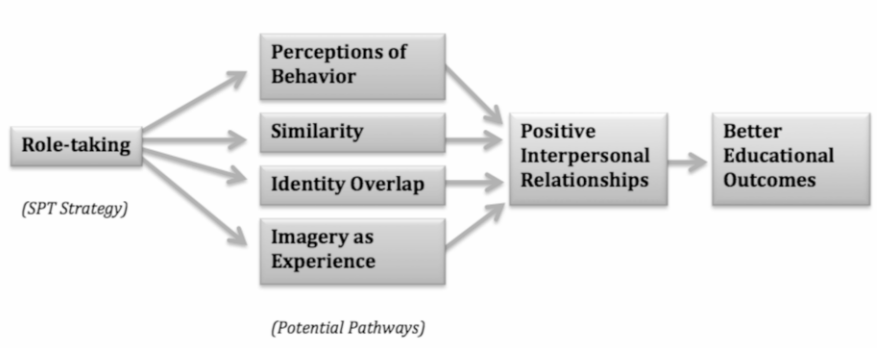

Figure 1. Potential pathways linking role-taking to improved relationships.

ROLE-TAKING AND INTERPERSONAL RELATIONSHIPS

Perceptions of Behavior

Role-taking may improve relationships by changing perceptions of behavior – both our own behavior and those of others. By attempting to maintain a consistent self-image or by understanding the situational constraints of others, we may allow flexibility in our perspective and/or decrease the degree to which we are judgmental of others' behaviors, either of which should enhance interpersonal relationships.

Cognitive Dissonance

People like to maintain a consistent self-image (Cialdini, 2009). If students hold a self-image of being caring and friendly, but find themselves teasing their peers, the inconsistency between self-image and behavior creates a tension. Consequently, students may rationalize their behaviors in some way to alleviate this tension (e.g., "the victim was a real jerk and deserved it"). When individuals attempt to explain behavior that puts one image of themselves in conflict with another without adequate external justification (e.g., money, social pressures), they must adjust at least one of the ideas internally to reduce the tension, or cognitive dissonance (Festinger & Carlsmith, 1959), and regain a consistent self-image.

Cognitive dissonance may occur as a consequence of role-taking. For example, imagine a student who has been trying to understand why her teacher gives challenging assignments. Partway through the year, the student is asked to teach class for a day. She may now see how her peers learn more from challenging problems because they do not engage to the same extent with easy ones. After this role-taking exercise, the student might face the following internal inconsistency: a) she may still prefer not to work on the difficult assignments but b) she now sees how the difficult assignments benefit her. Assuming she is motivated to learn and do well in school, behaving in accord with her "path-of-least-resistance" preference would be inconsistent with her attitudes. To reduce the resultant dissonance, she may adjust one or both of her views to maintain consistency. This could result in adopting some of the teacher's preference for challenging tasks as her own, acknowledging merit in the teacher's point of view, or softening her initial view of how challenging the assignments are. Through these cognitive adjustments, she is likely to be more open and understanding in subsequent interactions, thus facilitating a more positive relationship with her teacher.

Situational Forces

Another way role-taking might improve relationships is through recognition of situational forces while observing a target's behavior. Individuals typically acknowledge these forces for themselves, but fail to do so when considering others (Jones & Nisbett, 1971). Ross (1977) describes a related phenomenon – the *fundamental attribution error*, i.e., people's tendency to overvalue dispositional or personality factors and to undervalue situational forces. For instance, if students do not finish homework, the teacher might assume they lack discipline, harbor a bad attitude, or hold any number of negative personal traits. However, it seems just as plausible that the missing homework is due to issues in the students' lives (e.g., an illness in the family, a car accident, computer error, etc.). People commit the fundamental attribution error because of a general tendency to focus more on the actor (rather than the situation) as the likely reason for why something happened. Yet, when one becomes the actor, the tendency is to make more situational attributions (Jones & Nisbett, 1971). By taking the perspective of another – and particularly by doing so through role-taking exercises – participants make the same shift from observer to actor. As a result, they are likely to better acknowledge the situational forces at play and be less likely to commit the fundamental attribution error. Through role-taking, the perceiver's point of view should become more aligned with the target's perception. Furthermore, they may feel empathy for the target once they too have to manage the constraints of the situation. Both the aligning of points of view and the increase in empathy should strengthen the relationship between the perceiver and the target.

Similarity

Similarity offers a second theoretical pathway through which SPT might produce better relationships. Discovering similarities can lead to liking and may also be perceived through common group identities.

Liking

Perceiving another individual as similar to oneself is a powerful predictor of liking (Montoya, Horton, & Kirchner, 2008). Previous investigations show that people favor those who they see as being similar, even if those similarities are trivial (Galinsky & Moskowitz, 2000). They also allocate resources more equitably with and show more positive regard towards similar others (Hewstone, Rubin, & Willis, 2002). In sum, similarity serves as a powerful heuristic through which individuals assess whether or not they will foster a positive relationship with someone else.

If role-taking exercises reveal similarities, then better interpersonal relationships should result from role-taking experiences. By taking on someone else's role, students may conclude that their behaviors are similar to those of the target (perhaps because they now appreciate the situation in a way that they had not previously), which, in turn, should increase liking and strengthen relationships.

In addition to uncovering similar behavioral tendencies between the perceiver and the target, role-taking might help reveal similarity in values. Through role-taking, perceivers are asked to take on different values and are often treated differently by others as a result. By trying on a new set of beliefs perceivers may discover similarities in the values they would hold in the same circumstances. In other words, they may experience a change in where they stand because they are now sitting in a new role. That new stance is likely to share at least some commonalities with the target in question. For example, imagine members of an environmentalist group on a college campus were asked to engage in a simulation in which they took on roles of building developers (whose values conflicted with environmental groups). Although their values differ in many ways, through role-taking the students may discover similarities in that the building developers also want to help people lead better, more enjoyable lives. Through finding similarities at the level of core values, a role-taking exercise might help students better understand the opposing perspective, which, in turn would facilitate better interpersonal relationships.

Common In-group Identity

Similarities might also be perceived through group identities. People tend to favor in-groups over out-groups (Devine, 1995). Though we are members of multiple groups at any given time, some affiliations are more salient than others. According to the *Common In-group Identity Model* (Gaertner, Dovidio, & Bachman, 1996), intergroup relations may benefit by acknowledging superordinate groups that integrate two or more separate groups. These superordinate group identities could

cause the positive tendencies toward in-group members to be directed to former out-group members.

Through role-taking, extant superordinate group identities may become salient and meaningful. To the extent that students engaged in role-taking activities focus on salient superordinate group identities, they may begin to treat targets as members of their in-group, thereby improving their relationship. At a Model UN simulation, for example, a student delegate focusing on health-care in China may learn of many differences in government and policies compared with the United States. However, by representing and role-taking Chinese views, the student may also realize that China wants to improve health outcomes for its people and the world, despite approaches that are different from those taken in the United States. This discovery of common purpose could make salient and reinforce the superordinate identity (i.e., members of a world community) promoting greater governmental, and more positive interpersonal, relations among the student delegates.

Identity Overlap

A third pathway potentially linking SPT to improved relationships is presented by Aron and colleagues (Aron, Aron, Tudor, & Nelson, 1991). They suggest that over time, people in close relationships increasingly blur their identity boundaries to the extent that the other eventually becomes included within the self. Although in role-taking the closeness is perceived by only one party, the cognitive aspect may allow for a similar, though unidirectional effect. According to Aron et al., perspectives are a key aspect that may fuse between self and other whereby a "person acts as if some or all aspects of the partner are partially the person's own" (p. 242). Using this framework of "including the other in the self", it is possible that during role-taking, a similar process unfolds. When a person takes the perspective of another, perhaps identity boundaries are blurred, thus minimizing previous distinctions – after all, students are typically asked to "become" another individual in role-taking exercises. This process would result in positive relationships by reallocating the personal benefits of egocentric behaviors to a newly fused identity including the other. Davis and colleagues (Davis, Conklin, Smith, & Luce, 1996) explain, "… well-developed perspective-taking abilities allow us to overcome our usual egocentrism, tailor our behaviors to others' expectations, and thus make satisfying interpersonal relations possible" (p. 713).

Though *including the other in the self* and the previous concept of *common in-group identity* are not mutually exclusive, they can be differentiated from one another by the distinctness of self-identity. In the former, the self is not distinct. In the latter, the self is distinct and there is no inherent ambiguity of boundaries. See Figure 2 below.

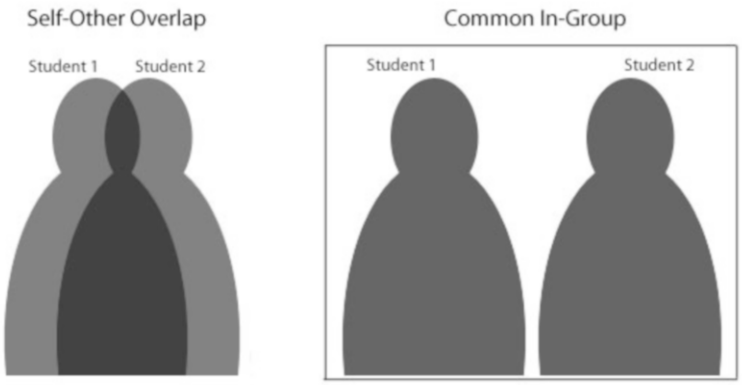

Figure 2. Self-other overlap contrasted with common in-group (Adapted from Aron et al., 1991).

In addition to a blurring of the self and other, a second possibility includes seeing more of the self in others, which can affect how a person takes the perspective of another. Ames (2004) suggests that perceivers attempt to infer mental states from a target's ambiguous behavior through two readily accessible templates: the self and stereotypes. When there are perceived similarities with a target, a perceiver tends to employ projection (using the self as a template) as a perspective taking process. Conversely, when perceiving out-group targets, stereotypes are used as a perspective taking process.

Thus, role-taking simulations may encourage participants to see themselves in the other. As a result, perceivers may engage in projection, rather than stereotyping strategies. This particular SPT strategy may produce a more charitable read of the other person's thoughts and feelings than the stereotyping strategy. By encouraging a type of SPT in which perceivers are more likely to give targets the benefit of the doubt, better relationships would likely result.

IMAGERY AS EXPERIENCE

A final proposed pathway from SPT to better interpersonal relationships involves mental imagery and neural activation. According to Mervyn Nicholson, 'Visualizing is a way of knowing: it is a mode of generating knowledge […]. How we see determines what we see; and how we see is embodied in our mental images. By virtue of their condensing impulse, images have a kind of power that abstract ideas can never have' (as cited in Petrova & Cialdini, 2008, p. 506).

Imagery

People engaging in role-taking form new mental images, which affect how they see and interact with others. The powerful new imagery is readily available in future interpersonal exchanges. Petrova and Cialdini (2008) explain that aside from

informational content, the ease in which information comes to mind affects attitude and opinion formation. For example, the use of product imagery in commercials provides easy access to mental representations of the consumption experience – images that may assist in subsequent decision-making processes. Similarly, when students engage in role-taking, imagery of their adopted perspective is readily available, making it easier to understand and accept the target's subsequent behaviors. With this increased understanding of their behaviors, stronger relationships seem likely to ensue.

While images are more powerful than abstract ideas, experiences are even stronger – and experiences are what role-taking simulations are designed to provide. Indeed, imagining a behavior uses similar neurophysiological structures as performing the actual behavior, ranging from simple hand movements to more complex behaviors of rowing or weightlifting (Petrova & Cialdini, 2008). It is possible that thoughtfully imagining another's perspective in a primarily cognitive role-taking exercise would also activate similar neural structures; adopting their persona through an active role-taking simulation might provide even richer activation. Preston and de Waal (2002) explain that imagining or observing another person's emotional state can automatically activate a representation of that state in the observer, which activates associated autonomic and somatic responses. During role-taking, by imagining the perspective and emotional state of a target, we activate similar neural structures in our own brains. Likewise, a student who through role-taking imagines the sad emotional state of a fellow student not only thinks about the emotion, but has a similar neural response – in conjunction with quick access to mental imagery of a target's perspective, such an experience could produce increased empathy, understanding, and better relationships.

TESTING PATHWAYS WITH VIRTUAL ENVIRONMENTS

This chapter proposes that role-taking may improve relationships through four potential pathways: perceptions of behavior, similarity, identity overlap, and imagery as experience. The understanding of these processes can provide invaluable information for the enhancement of relationships in educational contexts. However, these proposed pathways are complex and likely include overlapping and concurrent processes. Fortunately, virtual environments present a powerful platform to effectively test these underlying processes. In the following section, we illustrate how a particular virtual environment could investigate the four hypothesized mechanisms linking role-taking to improved relationships.

Virtual Environments

Using current technology of virtual environments, the links between role-taking and improved relationships can now be experimentally tested. Virtual environments allow avatars to be changed in a click and for participants to immerse themselves in a new persona instantly. In the Social Aspects of Immersive Learning (SAIL) project, we used a virtual environment that was originally created

to teach middle school students about ecosystems science (Metcalf, Kamarainen, Tutwiler, Grotzer, & Dede, 2011). Using the game engine *Unity*, the adapted virtual environment is a web-based, 3D world. See Figure 3 below.

Figure 3. SAIL environment.

The platform can be deployed on any computer with an internet connection. Within the virtual environment that includes a pond ecosystem abutting a golf course, we set up a role-taking exercise to uncover the links between SPT and improved relationships. In the simulation, participants enter the virtual world as a golf course owner and immediately meet a reporter from the local newspaper. In the initial interaction, the reporter asks participants/owners to read an article he wrote about the golf course that they (the participants) own. As the golf course owners, participants then explore the virtual world meeting with various non-player characters who inform them about the owner's preferences in preparation for the negotiation with the ranger. For example, participants learn from a veteran club member that they would like to turn the pond into a water hazard. Participants also talk to the club pro and groundskeeper about such issues as building a cart path and increasing the size of the pond – all things that would be beneficial for the owner, golf course, and members.

Some participants also walk in the shoes of the ranger before entering into negotiation as the golf course owner. These participants learn that the ranger would like to keep the pond in its natural state. They meet with a bird watcher, environmental scientist, and veterinarian to learn that the ranger (the role they are temporarily playing) would like to develop a nature path and keep the pond the same size among other things. Participants who take both roles return to their true identity as the golf course owner before entering a negotiation with the ranger over six issues concerning the use of the pond. Participants are informed that they will receive a commission based on each of the outcomes agreed upon with the ranger.

The design of this environment has key features that are representative of most role-taking activities. Participants mentally project themselves into the roles of the golf course owner and ranger, pretending to be that person in the virtual world and gaining insight on the person's behavior in a given situation. Due to the virtual nature, we also have the ability to do things not possible in regular role-taking exercises. For example, the virtual negotiation platform provides controlled, consistent responses limiting extraneous variables. One can easily take on a new role, such as the ranger, and have that experience be identical for all participants. In addition, participants can make decisions in the virtual world and see reactions or consequences of those decisions. For instance, the golf course owners make choices about which golf-bags are to be shown in the display window of the pro shop.

UNDERSTANDING ROLE-TAKING PATHWAYS

For researchers, the virtual world provides an opportunity to isolate mechanisms underlying the role-taking function. By manipulating whether a participant walks in the shoes of the ranger, we can measure the effects of role-taking on relationships; specifically, we can explore how the pathways outlined in this chapter might link SPT and improved relationships.

Perceptions of Behavior

Could our perceptions of behavior link SPT to better relationships? Perhaps after role-taking, the desire to maintain consistency in our own behaviors (i.e., reducing cognitive dissonance), or the recognition of situational forces in others' behaviors (i.e., decreased fundamental attribution error) leads to better relationships.

The SAIL environment offers an opportunity to test the potential role of dissonance in yoking the role-taking experience to improved relationships. We could provide external justification and help participants discount the ranger's perspective, thereby reducing dissonance. For example, in one experimental condition we could provide information that the ranger's perspective is unsound. Friends and colleagues in the virtual world could acknowledge that the ranger is an extremist within their group. This group would be contrasted to a condition in which participants engaged in the ranger role normally, without a crutch for reducing dissonance. If cognitive dissonance is a pathway from role-taking to better interpersonal relationships, we predict that participants in this experimental conditions would incur less dissonance, resulting in weaker relationships with the ranger than those who receive no external justification for role-taking.

It is also possible that role-taking impacts relationships through a greater respect for the other's situation. To explore this hypothesis, we could manipulate the degree to which the owner or ranger must make decisions based on situational forces outside of their control. For example, we might set up a version of the study in which the ranger must take certain positions because of government regulations. One set of participants could walk in the virtual world as the ranger and learn of

the situational constraints behind behaviors. These participants would gain information of the ranger's views as well as explanation of why the ranger has those views: "The ranger would like to keep the pond in its natural state *because* …". Another group could experience an identical role-taking experience except that they would only receive information: "The ranger would like to keep the pond in its nature state". Through follow-up surveys we should find that those who learned more about the situational forces (i.e., were told the information and the rationale) should have positions more similar to the ranger than those who did not gain situational knowledge (i.e., who received only information but did not get an underlying rationale). Furthermore, if the recognition of situational forces is a key aspect of role-taking, then participants who walked in the constrained ranger's shoes should display less fundamental attribution error and indicate a stronger relationship due to greater empathy for the situational limitations of the ranger.

Similarity

Increased perceptions of similarity could also cause role-taking to improve relationships. We could test this hypothesis by creating and highlighting similarities between the ranger and golf course owner. Virtual friends of both characters could mention the similarities. For example, in one condition, the golf course owner and ranger may become aware of their common identity as dedicated supporters of the local school system. Though they have differing views around the golf course and surrounding environment, they share common values as invested supporters of the local school system. By contrasting the relationship measures with a control condition in which the owner and ranger's common involvement with the school is not present, we could determine if similarity is a pathway whereby role-taking leads toward better relationships.

Identity Overlap

The blurring of identity boundaries may be an underlying mechanism through which SPT produces improved relationships. To identify whether role-taking leads to better relationships through identity overlap, our study could loosely follow the experiment by Aron and colleagues (1991). After taking the ranger's perspective, participants would be measured on two outcomes. First, they would rate a series of trait adjectives describing themselves or the ranger. Later, they would make a series of me/not choices related to the trait words while their reaction time is measured. If role-taking induces self-other overlap, there should be longer response times for traits different between the participant and ranger compared with those who did not take the ranger's perspective. Secondly, using the Inclusion of Other in Self scale (Aron, Aron, & Smollan, 1992), participants could choose the degree of self-other overlap that best represents how they feel about the ranger from a series of increasingly overlapping concentric circles. The resultant scores could then be measured for potential mediation between role-taking and improved relationships.

Imagery as Experience

Do imagery and neural activation function as links between role-taking and positive interpersonal relationships? According to Petrova and Cialdini (2008), low levels of vividness and high cognitive load are two factors that undermine imagery. In one experiment, we could have participants to take the role of the ranger in one of three environments: 1) a series of PowerPoint slides with stick figures, 2) the current virtual environment with computer avatars communicating via text boxes, or 3) a virtual environment with avatars played by confederates with live audio. While each environment provides the same information about the ranger, the level of vividness varies. If increased vividness boosts the effects of imagery, and imagery provides a more robust role-taking experience through the activation of similar neural networks, then the increased imagery via the more vivid and rich sensory experience should correspond with improved relationships.

To explore the viability of the imagery-as-experience pathway in another way, we could focus on cognitive load. Specifically, we might induce cognitive load in one condition by asking participants to memorize a 12-digit number or prepare for a quiz while role-taking. Although all participants would take the role of the ranger in the same virtual environment, those with an increased cognitive load would have a diminished imagery experience and likely have weaker relationships with the ranger than other participants.

CONCLUSION

Through the proposal of four potential pathways (perceptions of behavior, similarity, identity overlap, and/or imagery as experience), we explored how role-taking might improve relationships. Subsequently, we outlined ways to test these pathways through the use of virtual environments. As education moves toward online and virtual platforms, we may increasingly utilize these virtual learning environments to systematically enhance relationships throughout educational contexts, whether between teachers and students in an elementary classroom, middle school peers on the playground (e.g., anti-bullying interventions), or between roommates in college (e.g., bias reduction).

Though virtual role-taking will not replace face-to-face interactions and relationship building activities, it can augment them. Consider the proliferation of Massive Open Online Courses (MOOCS), virtual orientations and trainings, and online degree programs within higher education. Yet, even in these increasingly online contexts, education is still a fundamentally social enterprise with interactions between online lecturer and students, between students in online discussion boards, and between students in virtual workgroups. Thus, the need for insight and ability to foster relationships in these evolving educational settings remains high.

However, prior to implementing any educational interventions, we should first utilize virtual environments to further understand how the underlying mechanisms of SPT, interpersonal relationships, and educational outcomes are linked. Role-

taking is a particularly promising way to gain this understanding. Furthermore, virtual environments both enable the study of how to understand others better while also serving as a vehicle for training in this capacity.

This chapter specifically explored *how* and *through what processes* role-taking leads to positive relationships and suggested ways we might learn more about the critical mechanisms underlying role-taking. As indicated in the introductory conflict between Mrs. Andrews and Annabel, relationships depend on our ability to understand where the other is coming from. Although, we cannot switch bodies for a day, virtual environments allow us the closest alternative. By utilizing this technology, we can take many steps forward in our understanding of role-taking and its effect on interpersonal relationships – steps forward in the shoes of another.

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