

Title: Moving allies to action through play: Assessing the INteractive Tool for Empathy in NeuroTypicals (*INTENT*)

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1. Introduction

Being autistic at work too often means conducting constant cost-benefit calculations around who might be willing to extend us empathy, under what conditions, and for how long, with many autistic people expressing skepticism that non-autistic people will ever meet them halfway (Asasumasu, 2011). Employers can support their autistic workers by investing in social infrastructure in the form of allies who are equipped to act as social facilitators. However, even well-intentioned colleagues and supervisors may struggle to serve in this role due to both Milton's (2012) double empathy problem of relating across neurotype as well as anti-autistic bias. Answering Kim et al.'s (2023) call to ground investigations of stigma against autism in a theoretical framework, we examine avoidance of anticipated emotional exhaustion as a motivation for denying autistic workers humanity and support. We then evaluate the efficacy of a training game for increasing potential allies' resilience to this effect. Finally, we ask autistic people for their impressions of these prospective allies.

While much of the literature on bias against autistic workers focuses on the relatively one-way, one-time exchanges of job interviews, being retained after being hired depends on how autistic people's day in, day out demands on their teammates are perceived. Autistic collaborators can be simultaneously seen as more intelligent and in greater need of help (Heasman & Gillespie, 2019); supervisors report they find managing neurodivergent employees draining (Richards et al., 2019). These evaluations that autistic employees require more effort are dangerous because when allies believe they cannot spare the time or energy necessary to support an autistic person, they may start to see the autistic person as less human in order to justify their decision not to provide this support (Cameron et al., 2016; Capozza, Di Bernardo, et al., 2016; Capozza, Falvo, et al., 2016; Kim et al., 2025; Parker et al., 2020; Wang et al., 2025). Compared to purely social exchanges, this effect may be heightened in professional contexts where people are particularly protective of how they are being asked to invest their energy and sensitive to the stakes of not accomplishing tasks (Bottema-Beutel et al., 2019; Heasman & Gillespie, 2019; Foster et al., 2024; Szechy & O'Donnell, 2025).

Interactions in the workplace add further complexity to the double empathy problem in that multiple perspectives are often at play. Team members may experience conflicting access needs and preferences, leading to difficult discussions around how to ensure everyone can participate and contribute (Pacific Alliance on Disability Self-Advocacy, 2019). Because cross-neurotype breakdowns in connection are apparent to third-party observers, allies may feel self-conscious about how others view their exchanges with autistic people when they do not go well (Crompton et al., 2020; D. Jones et al., 2024). Given these outsiders' perceptions of the quality of the exchanges did not align with those who actively took part in it, effective allies have to maintain their self-confidence that what looks right to someone watching may not be what works best for the autistic person themselves. Similarly, when identifying and training allies, organizational decision-makers must understand that their own perception of what a good ally looks like may not align with that of the autistic person this ally intends to serve. Careful framing about what "good" means in this specific context is important. Per the double empathy problem, we may expect autistic people to perceive fellow autistic people positively; however, autistic and

non-autistic people differed only in the conclusions they drew from their trait impressions. That is, autistic people still rated other autistic people less favorably in terms of traits such as awkwardness, but these negative judgments did not decrease their interest in spending time together in the future (DeBrabander et al., 2019; Dunn et al., 2023; Morrison et al., 2020).

Ensuring allies are impactful thus requires us to develop a better understanding of how autistic people form impressions of them. People speak differently to those they dehumanize as dependent, taking on more directive or nurturing tones and messaging (Cooper & Harwood, 2024). Rather than being oblivious to these nonverbal cues, autistic people may in fact have a finely-honed sense for who shows the most promise as an ally. Indeed, D. Jones et al. (2021) found that autistic people were more interested in spending time socially with conversation partners who had completed an acceptance training, detecting their promise as allies within just a few minutes of watching them talk with another autistic person. Given the distinct considerations at play in a professional context, further investigation is needed around the signals autistic people use to determine who they can safely approach for support in the office, including whether they monitor for signs that well-intentioned allies are becoming strained.

1.2 The present study

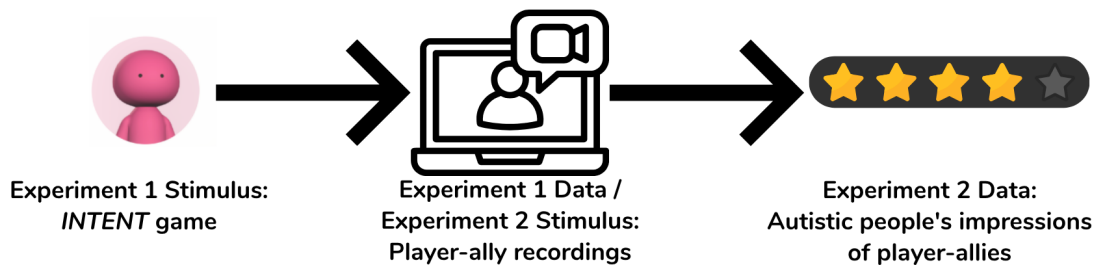


Figure 1. Stimulus and data flow across experiments.

This study proposes that to counter the effect of anticipated emotional exhaustion, prospective allies benefit from opportunities to safely practice responding to situations similar to those they will encounter in real life. The stimuli used for Experiment 1 is a transformational game called *INTENT* for Empathy in NeuroTypicals (*INTENT*; Girdhar et al., 2024), a browser-based 3-D narrative videogame designed to function as a training that shifts allies' knowledge, attitudes, and behavioral intentions when it comes to supporting autistic people in the workplace. Developed based on data and insights from focus groups of autistic adults discussing challenges they face at work, *INTENT* casts the player-ally in the role of a team lead supporting two new autistic hires. The game provides both explicit and implicit guidance about accommodations such as addressing sensory needs, providing information in writing, allowing for additional processing time, and offering detailed instructions. The game also addresses the sense of scarcity that can drive denial of empathy: the entire team is under heightened pressure, as they have been tasked with presenting a new project to their higher-ups on a tight timeline. Scenes in *INTENT* take place largely in small and large group meetings, with a mix of autistic and non-autistic colleagues present. Here, players must navigate others' biased judgments of the autistic employees and negotiate conflicting access needs and preferences while protecting employee privacy. The game format puts players in a position of temporary psychological and social discomfort while also encouraging them to take risks and see themselves as agents.

Experiment 2 of this study seeks to understand how player-allies' characteristics correlate with autistic people's own impressions of their potential, based on how they act as they play through the scenarios. To help employers hone in on who to invest in training and direct autistic

people to, our team is interested in how personality characteristics and other personal traits influence autistic people's impressions. There is evidence that allies with the trait of openness see autistic people more positively; we want to know how different traits impact how autistic people see them in turn (Gillespie-Lynch et al., 2021). For example, autistic people may value assertiveness given they are seeking someone who will stick up for them throughout the double and triple empathy problems they encounter in the workplace.

This present research project also provided pilot data support for a future project that directly assesses the efficacy of this transformational game and also how game elements produce the mechanisms necessary for transformational games to be effective training interventions for workplace autism inclusion training. Game engagement (Malone 1980a, 1980b; Malone & Lepper, 1987; Whitton, 2010) and self-determination (Gagné & Deci, 2005; Ryan & Deci, 2000) theories suggest that gamified learning methods are effective because they evoke active learning mechanisms that are necessary for training to be embodied or transferred outside of the training environment. In the case of transformational games, game design elements, such as player immersion and autonomy/choice, are thought to create the motivational mechanisms necessary to shift knowledge, attitudes, and behaviors in an individual. The second author piloted knowledge, behavior, and attitude measures to assess whether *INTENT* resulted in any individual changes for participants to support future dissertation work. In this dissertation work, the second author will explore the efficacy of transformational games, hypothesizing that *INTENT* will have the best training outcomes as compared to two other training types (e.g., an interactive choice training, and a traditional training lecture). Amongst these three conditions, game elements of immersion and player choice are also manipulated to assess the mediating role of the game elements to training outcomes, hypothesizing that their usage in transformational games results in greater training outcomes for autism inclusion training over other training types (e.g., traditional lecture with no immersion or choice, or interactive choice training with choice but no immersion).

2. Experiment 1

In Experiment 1, we assess the role of anticipated emotional exhaustion in allyship and the efficacy of *INTENT* to promote allyship:

- **Hypothesis 1: Anticipated emotional exhaustion will best predict allies' double empathy, dehumanization of autistic people, and social facilitation intentions**
- **Hypothesis 2: Playing *INTENT* will shift prospective allies' dehumanization and social facilitation intentions**

2.1 Methods

2.1.1 Participants

Participants (n=60) are undergraduate students taking psychology courses. Neurodivergent (n=8) and autistic students (n=3) were not excluded.

2.2 Procedures and Materials

2.2.1 Measures

Participants completed pre-surveys of their personal characteristics and pre-test measures asynchronously prior to attending a live, online training session in which the *INTENT* training, post-test measures, and double empathy behavior interpretation task were administered.

In addition to collecting information about participants' basic demographics, pre-surveys assessed participants' Big Five personality traits (Donnellan et al.'s mini-IPIP, 2006). Interpersonal reactivity was also assessed to provide additional insight on participants' general

empathy towards others (Ingoglia et al.'s B-IRI, 2016). Eriksson et al.'s (2013) RAADS-14 screener was used to assess participants' level of autistic traits, as their ability to relate to autistic people's experiences can be a factor in their empathy towards autistic people, as well as autistic people's own reactions to them. Finally, both the quality and quantity of past contact with autistic people was assessed via Gardiner & Iarocci's (2014) scales, as these factors can influence participants' knowledge and attitudes towards autistic people.

Both pre- and post-training, participants completed surveys related to different dimensions of their attitudes towards autistic people: stigma in the form of socially distancing (select items from Gillespie-Lynch et al.'s Social Distance Scale, 2022 and S. Jones et al.'s Community Attitudes, 2022), prejudice towards autistic people (Harm and Dependence subscales of Parker et al.'s Attitudes Towards People with Developmental Disabilities, 2020), dehumanization (Gray et al.'s Mind Scale, 2007), and perceptions of institutional and societal bias (additional Community Attitudes items). Participants also responded to researcher-developed measures tied to the specific knowledge *INTENT* is designed to promote: autism knowledge (i.e., understanding autistic people's access needs, such as sensory sensitivity) and allyship knowledge (i.e., understanding what autistic people need allies to do, such as maintain their privacy). Finally, participants completed measures of their behavioral intentions (willingness to both implement workplace accommodations and serve as social facilitators, including self-efficacy, anticipated emotional exhaustion, and anticipated consequences). Researchers used two vignettes about autistic students to further assess anticipated consequences, emotional exhaustion (via an adapted version of Cameron et al.'s measures, 2016), and perceptions of an autistic worker (Szechy & O'Donnell, 2025).

2.2.2 Playing *INTENT*

The web browser-based *INTENT* game takes approximately half an hour to complete. Participants were video- and audio-recorded as they played the game and instructed, "*Deliver all your character's lines out loud, as close to how you might say them in real life as possible.*"

2.2.3 Double empathy behavior interpretation task

Szechy et al.'s (2024) behavior interpretation task was used to assess generalization of lessons learned from *INTENT* to another work context. After hearing and reading a vignette about an autistic worker becoming overwhelmed, participants answered questions about what the worker was thinking. They then roleplayed their responses to researcher-developed questions about what they would say to both the autistic person and their coworkers.

2.3 Preliminary results and further analytical strategy

Analytical strategy for Hypothesis 1 will involve an examination of intercorrelation of attitudinal and behavioral intention measures within individuals, including performance on the double empathy vignette task. We will also examine how relevant attitudinal measures correlate with participants' previous autism knowledge and experience. Pearson's R correlations will enable us to assess which attitudinal measures will be most sensitive to individual variation for further analyses of how training impacts attitudes and behavior (Hypothesis 2).

To immediately inform our research comparing the efficacy of training modalities, our team completed a preliminary analysis for a subset of measures and participants. Repeated sample t-tests comparing means of pre and post test scores generally found that across the sample population, *INTENT* significantly improved both kinds of autism knowledge as well as the behavioral intention to implement formal workplace accommodations. Specific results are as follows: autism knowledge, $t(44) = -4.32, p < .001$; autism allyship knowledge, $t(44) = -6.71, p < .001$; and likelihood to implement accommodations, $t(44) = -6.33, p < .001$.

Results for the two attitudinal measures analyzed thus far (Social Distance Scale and Community Attitudes) were mixed. Despite increased agreement that the community, workplaces, and schools need to improve support for autistic people, participants' stigma in terms of their own personal willingness to be close with autistic people did not shift. Specific results are as follows: agreement that employers should make accommodation for autistic people in the workplace, $t(44) = -2.77, p < .01$; agreement that schools should make accommodations for autistic students, $t(44) = -3.50, p < .001$; extent in thinking autistic people are discriminated against in the community, $t(44) = -2.12, p = .04$; Social Distance Scale, $p = .09$; Community Attitudes for social distance items, $p = .1, p = .5, p = .2, p = .3$.

3. Experiment 2

As a simulated workplace, *INTENT* gameplay offers a window to observe allyship behavior in the office. Video recordings collected of players reading their dialogue aloud will serve as stimuli for Experiment 2, which examines how autistic people form their impressions of potential allies:

- **Hypothesis 3: There will be agreement among autistic participants' ratings**
- **Hypothesis 4: Autistic participants' ratings will correlate with player-allies' traits**

3.1 Methods

3.1.1 Participants

Participants ($n=35$) will be autistic adults who have received (or wanted to receive) accommodations related to being autistic at work or in school. An official autism diagnosis will not be required to participate. However, we will use the RAADS-14 to gain understanding of how each autistic participant's level of autistic traits impacts their impression of allies.

3.2 Procedures and Materials

3.2.1 Thin-slice judgement task

Using the video clips collected in Experiment 1, researchers will compile a "highlight reel" of a subset of player-allies. Autistic participants will then complete a thin-slice judgment task in which they will view these reels and rate the player-allies using an adapted version of Sasson et al.'s (2017) First Impressions scale to rate each of the allies they review. Importantly, the scale is not designed to serve as an objective measure that is administered reliably across raters. Rather, we are interested in capturing autistic individuals' subjective impressions to see if we can detect any trends in how they perceive. Raters will instead be instructed:

Each of these people is in training to become a better ally to autistic people at work. We want to know how you feel about whether each person would be a good ally.

3.3 Analysis

We will use Kendall's W to examine agreement between autistic raters (Hypothesis 3), and we will use linear regression and exploratory moderation and mediation analyses to examine how the characteristics, attitudes, and knowledge of player-allies relate to their ratings (Hypothesis 4). We anticipate that negative trait impressions (i.e., scoring high on traits such as awkwardness) will not correlate with interest in future interactions. In fact, there may be greater interest in interacting with allies who are high in traits typically perceived as negative, including player-allies with a high level of autistic traits. We also anticipate that emotional exhaustion will contribute more to interest in interactions than other attitudinal measures and autism knowledge, and that interpersonal reactivity and assertiveness will be more relevant than other personality characteristics.

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