

**Empathy Unleashed: Exploring the Impact of Cultivating Unlimited Empathy Mindset on
Engaging in Empathic Effortful Behaviors**

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Abstract

Empathy is considered a virtue, yet it can be challenged when it is difficult or distressing to relate to people in need. Believing empathy can be developed may lead to more significant empathic efforts in challenging contexts than those who believe it cannot be developed. Specifically, believing that empathy is unlimited shows the potential for increasing empathy, which is a research gap this study aims to fill. Undergraduates randomly assigned to limited or unlimited empathy conditions read articles portraying empathy as limited or unlimited. They then completed the empathy selection task, a 25-trial card deck selection activity where they chose whether to empathize. Participants' beliefs about empathy were assessed before study completion. This study hypothesized that an unlimited mindset would be associated with more empathy, even in challenging conditions. Contrary to expectations, the distinction between unlimited and limited mindsets did not significantly impact empathic effortful behaviors ($p = 0.45$) However, participants strongly endorsing unlimited empathy in the unlimited condition empathized more than those with weak endorsements in the same condition. This underscores the transformative effect of an unlimited empathy mindset on decision-making, particularly for individuals who perceive empathy as unlimited. The study proposes a thorough examination of the unlimited empathy mindset's impact on the motivated empathy framework, offering new avenues for addressing empathy challenges and devising innovative support strategies.

Keywords: empathy, beliefs, random assignment, empathy selection task

Empathy has been conceptualized as a motivated phenomenon, and changing people's motivations to empathize seems to shape empathic outcomes (Keysers & Gazzola, 2014; Zaki, 2014). The motivation to empathize is derived from its subjective expected value: people weighed different costs against offsetting rewards. People avoid empathy-eliciting situations when empathy costs money or time (Andreoni et al., 2017; Cameron & Payne, 2011; Pancer et al., 1979; Shaw et al., 1994) and when it entails vicarious emotional costs such as distress (Cameron et al., 2016).

“Empathy effort,” a term coined by Schumann and colleagues (2014), refers to a willingness to devote time or effort to empathize. People can modify their empathy experience by increasing their effort. These efforts to improve empathy may aid people in overcoming a lack of automatic empathy in challenging situations, such as conflict, intergroup, or helping contexts, and they are critical for positive social outcomes.

Previous research has found that mindsets play a significant role in whether people exert effort when faced with a challenge. People with a malleable mindset—those who believed empathy could be developed through effort—put in more empathic effort than those who believed empathy was a fixed trait that could not be developed (Schumann et al., 2014). Hasson et al. (2022) proposed that, besides the malleable mindset, there is the unlimited mindset of empathy, which holds that the capacity to feel empathy is limitless. Hasson and colleagues (2022) incorporated an unlimited mindset of empathy into a performing arts intervention that effectively encouraged prosocial behavior toward political outgroup members (i.e., Arabs). However, whether it effectively increased empathic effort remains to be seen. This study fills this knowledge gap by investigating the impact of an unlimited resource mindset intervention on empathic effort.

I hypothesized that an empathy intervention based on the theory of unlimited resources would increase participants' empathic efforts. The following sections introduce current knowledge of empathic effort and mindsets to increase an individual's level of empathy expressed.

Empathy Effort

A comprehensive meta-analysis of American college students indicated a concerning trend known as the empathy deficit, which signifies a diminishing ability to empathize with and understand others' perspectives (Konrath et al., 2011). This phenomenon has been attributed to underlying cultural shifts (Konrath et al., 2011; Twenge et al., 2012). The analysis, encompassing 72 diverse samples, highlighted a significant decline in self-reported empathy over the past three decades. Between 1979 and 2009, scores on the affective (i.e., emotional sharing and responding) and cognitive (i.e., understanding perspectives and emotions) subcomponents of empathy decreased by 48% and 34%, respectively.

This observed decline in empathy ran counter to many popular theories of empathy, which suggested that empathy—especially the affective component of empathy—was largely automatic and innate (e.g., Gallese, 2003; Hatfield et al., 1993; Hoffman, 1984; Preston & Waal, 2002; Smith & Haakonssen, 2002) and thus should not be susceptible to large-scale change over time. This automatic view of empathy dominated early philosophical thought (Lipps, 1903; Smith & Haakonssen, 2002; Vischer, 1873) and was prominent in contemporary models from various psychological sub-disciplines. The tendency of newborns to mimic their mother's facial expressions and cry in response to other infants' cries is one example of how developmental psychologists emphasize the innate and primitive nature of vicarious experience (Bernieri et al., 1988; Eisenberg, 1989). Ethologists described sharing others' motor, mental, and

emotional states as an automatic and adaptive mechanism that had been preserved to help members of social species achieve their shared goals (Preston & de Waal, 2002; Seyfarth & Cheney, 2013). Furthermore, researchers typically assess empathy with measures that quantify a hard-wired-like susceptibility to emotional cues (e.g., the Emotion Contagion Scale; Doherty, 1997) or stable tendencies to experience empathy for others (e.g., the Interpersonal Reactivity Index; Davis, 1980). In line with this view of empathy as hardwired, some research suggests that sharing the emotions of others is heritable (Knafo et al., 2008).

Though already famous, the view that empathy was largely automatic received converging physiological support following the discovery of “mirror neurons” in macaque monkeys, which fire in response to both their actions and intentions and the actions and intentions of others (Ferrari et al., 2003; Rizzolatti & Craighero, 2009). These mirror neurons often seemed to respond reflexively. In humans, for example, engagement of mirror properties occurred even when observers were subjected to cognitive load (Spunt & Lieberman, 2013) or were not explicitly instructed to attend to the target (Iacoboni et al., 2005). Several neuroscientists considered mirror properties part of the foundation for empathy, allowing for reflexive, non-effortful experience sharing (e.g., Gallese, 2003; Iacoboni, 2009).

Thus, scientists discovered support for their belief that empathy—particularly the vicarious sharing of others' states—occurred naturally in various fields. These automatic models, however, did not fully account for empathic processes (Zaki, 2014). People's experiences of empathy were highly varied and context-dependent, rather than feeling empathy reflexively during every social encounter. Empathy has been shown to fail in situations where it was difficult or painful to relate to social targets, such as when people felt dissimilar to the target (Mitchell et al., 2006; Xu et al., 2009) or when they believed that empathizing would cause them personal

distress and discomfort (Davis et al., 1999; Pancer, 1988). These situational fluctuations indicated that empathy was frequently difficult and not felt reflexively.

Based on the evidence presented above, Schumann et al. (2014) proposed that people could either disengage from the situation or expend empathic effort when faced with such empathic challenges. They contended that people could modulate their empathy experience by increasing the required effort. For example, people may spend more time with the targets, ask questions, listen to them to better understand their emotions and perspective, or consciously try to put themselves in their shoes to share their physiological or affective states.

These efforts to enhance empathy may assist individuals in overcoming a lack of automatic empathy in challenging situations. It could be necessary to make an effort to empathize when empathy is challenging to experience but critical for positive social outcomes, such as in conflict, intergroup, or helping contexts.

Malleable Mindset of Empathy and Empathic Effort

Previous research has found that mindsets play a significant role in whether people exert effort when faced with a challenge. People had different perspectives on the malleability of essential characteristics such as personality and intelligence (Chiu et al., 1997; Dweck, 1996). These mindsets existed on a continuum, with an *entity* or *fixed theory* (e.g., we cannot develop our intelligence) at one end and an *incremental* or *malleable theory* (e.g., we can develop our intelligence) at the other—the challenge had very different meanings in these two minds. For people with a fixed theory, challenge indicated low ability, and because they believed attributes were fixed, this low ability could not be developed (Dweck & Leggett, 1988; Mangels et al., 2006). These people, therefore, tended to seek out activities or situations that confirmed their abilities and disengage from activities or situations that challenged them. For example, people

with a fixed theory of intelligence tend to avoid challenging tasks that carry the potential for poor performance and persist less in the face of difficulty or failure (Dweck & Leggett, 1988; Heine et al., 2001; Hong et al., 1999; Mueller & Dweck, 1998).

Conversely, a challenge signaled an opportunity to improve one's limitations for someone with a malleable theory (Heine et al., 2001; Hong et al., 1999; Mueller & Dweck, 1998). As a result, these individuals are more likely to engage in behaviors that would help them develop their abilities, such as approaching or persisting with complex tasks and exerting effort to improve (Beer, 2002; Carr et al., 2012; Heine et al., 2001; Hong et al., 1999; Mueller & Dweck, 1998; Nussbaum & Dweck, 2008).

Schumann et al. (2014) investigated whether these two theories of empathy would be more strongly associated with self-reported attempts to feel empathy in contexts posing a more significant empathic challenge. People with a more malleable theory of empathy reported expending more empathic effort in contexts where empathy was complex (e.g., when they disagreed with someone) than those with a more fixed theory and persisted in trying to feel empathy when they did not immediately feel it. These findings suggest that people's attitudes toward empathy can significantly impact their empathic behavior, especially when feeling empathy and not reflexive is difficult.

Unlimited Mindsets of Empathy and Empathic Effort

According to Hasson et al. (2022), people feel less empathy for outgroup members than ingroup members, partly because empathy is viewed as a limited resource. The resources underlying self-regulation—the mental processes we use to control our mind's functions, states, and inner processes, for example—are limited according to resource depletion theory, and using them for one task leaves fewer available resources for others (Baumeister et al., 1998). In

contrast, studies showed that effortful self-regulation was not necessarily limited (Frieese et al., 2018; Schmeichel & Vohs, 2009). Such research indicated that exerting self-regulation did not consistently reduce subsequent self-regulation (Moller et al., 2006) but could sometimes increase it (Tuk et al., 2015). For instance, when given incentives to control their behavior, people did not experience depletion effects as compared to those who did not receive incentives (Muraven & Slessareva, 2003).

Despite resource limitations, subjective beliefs about their capacity could have behavioral consequences. Believing a resource is limited could lead to people using it sparingly and selectively, whereas believing it is unlimited could lead to people using it generously and non-selectively (Chiu et al., 1997; Dweck et al., 1995). For example, people who believed their capacity for self-control was limitless did not show diminished self-control after exhausting effortful tasks (Job et al., 2010). Furthermore, persuading people that willpower was limitless increased self-regulation, as demonstrated by eating habits and academic tasks.

Hasson et al. (2022) used performance art to promote the idea that empathy was an unlimited resource for Israeli Jews by measuring their empathic reactions (i.e., hug, handshake, or no interaction) toward outgroup members (i.e., Arabs). According to their findings, promoting the belief that empathy was limitless led people to feel more empathy for outgroup members and engage in more empathic behaviors. Nonetheless, this study was designed to be neither emotionally nor cognitively taxing (Cameron et al., 2015, 2019) and only measured empathic reactions. The present study aims to fill this knowledge gap by investigating people's tendency to empathize and empathic behaviors in emotionally complex situations.

Conclusion

This review discusses the significance of empathic effort and some current and potential methods for increasing empathic effort. Mindset-based interventions influenced people's decisions about exerting effort in adversity. People with a malleable theory of empathy expended more empathic effort in difficult empathy situations than those with a fixed theory of empathy (Schumann et al., 2014). Similarly, since people with an unlimited theory believe empathy is limitless, they should feel less threatened when their empathic abilities are challenged. When confronted with situations in which empathy is difficult for them to experience, they will expend effort to overcome these challenges.

This study examines whether mindsets of empathy will predict empathic effort in a helping context that is distressing and thus challenging. Its guiding hypothesis is that people who believed empathy was limitless would exert more empathic effort in helping contexts. The present study will improve our understanding of the limitations of automatic empathy and what can be done when it fails or is insufficient for the task at hand.

Methods

Study Design Overview

Participants were randomly assigned to two conditions: a limited or unlimited theory of empathy. Participants in the limited condition read a scholarly-written article presented to them as high school class materials, introducing empathy's limited nature. Those in the unlimited condition read the article introducing the unlimited nature of empathy. After reading the article, participants in both conditions indicated their willingness to engage in or avoid empathy through the empathy selection task. Finally, the participants's beliefs about empathy were measured before they departed from the study. The independent variable was the mindset of empathy (limited vs. unlimited), and the dependent variable was the participants' empathy choices in the empathy selection task. I hypothesized that people induced to have an unlimited, as opposed to a limited, mindset of empathy would be more willing to engage in empathic behavior, particularly when helping requires much empathic effort.

Participants

One hundred fifty-three college undergraduate students, with a mean age of 18.74 ($SD = .96$, age range = 18 to 22), were recruited from the University of Texas at Austin through an online scheduling database for an introductory psychology course. Informed consent was presented to the participants before the study began, and the conditions were randomly assigned upon their approval to participate. There were 72 participants assigned to the limited condition, with a mean age of 18.71 ($SD = 0.98$), and 81 participants to the unlimited condition, with a mean age of 18.77 ($SD = 0.95$). Participants under 18 were excluded from the study.

Materials and Measures

Theory of Empathy Manipulation

The manipulation consisted of reading an article from a prior study on empathy with high school students (Schumann et al., 2014). In Schumann and colleagues' study (2014), participants were randomly assigned to read one of the two articles adopted from an online news article published in *The Stanford Daily* (Park, 2010) but presented to them as an article from *Psychology Today*. In Schumann and her colleagues' study (2014), the articles examined growth or a fixed mindset. In the present study, the articles were rewritten to examine the unlimited or the limited mindset. Claiming that these two articles were published in *Psychology Today* was intended to improve the manipulation's credibility and validity for the participants.

The article on unlimited theory included quotations from experts arguing that empathy can be unlimited (e.g., "Empathy can be unlimited"; see Appendix A). Contrastingly, experts in the limited theory article argued that empathy is limited (e.g., "One cannot be empathetic with everyone"; see Appendix B).

Grade-level Appropriateness

This five-item survey assessed the participant's view of the article's grade-level appropriateness for high school students. The unlimited and limited articles were presented to the participants as high school class materials; the survey served as a secondary index for the researchers to ensure the appropriateness of the materials. The participants rated the article from 1 (very poor) to 5 (excellent; see Appendix C). The unlimited article ($M = 4.19$, $SD = 0.73$) was rated more appropriate for high school students than the limited article ($M = 3.99$, $SD = 0.78$). Figure 1 shows the distribution of the responses to the grade-level appropriateness from participants in unlimited and limited groups.

Empathy Selection Task

The empathy selection task, created by Cameron and colleagues (2019), measures motivated empathy avoidance using behaviorally revealed preferences (Kool et al., 2010). It assessed situation selection (Gross & Thompson, 2007), an emotion regulation strategy whereby people choose situations to enter based on the emotions they want to feel.

Participants completed 25 trials and were instructed to choose between objective and empathy card decks on each trial. The objective deck was always on the left, in red, labeled "DESCRIBE," and the empathy deck was always on the right, in blue, labeled "FEEL." After making a choice, participants saw an image of a person. The people depicted were black and white male and female adults from the Chicago Face Database (Ma et al., 2015) displaying anger (see Figure 2). If participants chose the objective deck, they would be instructed: "Look at the person in the picture and try to notice details about the person. Objectively focus on the external features and appearance of this person. Please write one sentence describing the age and gender of this person." If participants chose the empathy deck, they would be instructed: "Look at the person in the picture, and try to feel what this person is feeling. Empathically focus on the internal experiences and feelings of this person. Please write one sentence describing the experiences and feelings of this person." Trials were not randomized for each participant. The suggestion followed all the instructions (except for the first trial), "Please use at least 10 seconds to write the response". The number of trials where "FEEL" was chosen was operationally defined as empathic effort.

For each participant, the number of trials in which "FEEL" was chosen was summed and divided by the total number of trials (i.e., 25) to calculate the proportion of participants choosing empathy. Another way to analyze the responses to the empathy selection task was to calculate

how many participants between the two conditions chose “FEEL” in each trial. To achieve this, the number of participants choosing “FEEL” was summed and divided by the total number of participants (i.e., 153). This results in the proportion of empathy choices in each trial.

Scale of Belief About Empathy

This four-item survey assessed participants’ beliefs about empathy as an unlimited resource on a scale from 1 = strongly disagree to 7 = strongly agree. The items were: "People have an infinite amount of empathy at their disposal"; “There is no limit to the extent of empathy a person can feel”; “There is a limit to how much empathy we can feel towards others”; “One cannot be empathetic with everyone."

Participants’s responses to the first item and the second item (i.e., "People have an infinite amount of empathy at their disposal” and “There is no limit to the extent of empathy a person can feel”) were summed as a measure of support for the unlimited concept of empathy. Participants' responses to the third and fourth items (“There is a limit to how much empathy we can feel towards others”; “One cannot be empathetic with everyone") were summed as a measure of support for the limited concept of empathy.

Procedure

Participants began by agreeing to a consent form. Next, participants were randomly assigned to unlimited or limited empathy conditions, in which they read the associated articles. After reading the article, participants in both conditions rated its grade-level appropriateness for high school students.

Participants then completed the empathy selection task. Finally, participants completed the scale of beliefs about empathy survey. A debriefing form came after the scale of the empathy

survey to disclaim that this study used deception and that all names, experiments, and research results included in that article were fictitious before the participants departed from the study.

Statistical Analysis

The hypothesis was that an empathy intervention based on the theory of unlimited resources would increase participants' empathic efforts (i.e., participants' responses to the empathy selection task). I examined this question in a Welch 2-sample t-test. The independent variable was condition (unlimited vs. limited), and the dependent variable was the number of trials in which "FEEL" was chosen for each participant.

I also examined whether participants in the two conditions differed in endorsing the unlimited empathy scale. To analyze participants' belief scales about empathy between unlimited and limited conditions, I ran a Welch 2-sample t-test. The independent variable was condition (unlimited vs. limited), and the dependent variable was the participants' scale of agreement with the statement of empathy as unlimited.

I also explored if participants' scale of unlimited empathy belief would be positively related to the empathy choices in the empathy selection task with a multiple linear regression analysis. The predictors were the participants' agreement scale with the statement of empathy as unlimited and the condition. The dependent variable was the count of trials where "FEEL" was chosen for each participant.

I assessed if there were random effects from the stimuli (i.e., the faces the participants saw) and the participants with a mixed-effects logistic regression analysis.

Results

Against the hypothesis, the unlimited condition failed to predict more empathy choices ($t(147.53) = 0.75, p = 0.45$). The unlimited group had a mean of 0.6 ($SE = 0.02$) on empathy choices, compared to 0.58 ($SE = 0.03$) in the limited group.

The unlimited condition was found to predict a larger scale of belief about empathy as unlimited ($t(149.07) = 4.65, p < 0.001$). The unlimited group had a mean of 4.46 ($SE = 0.13$) on empathy choices, compared to 3.58 ($SE = 0.14$) in the limited group.

The scale of belief about empathy demonstrated a non-significant positive effect ($b = 0.51, t(151) = 0.95, p = 0.35$) on empathy choices in the limited condition. In contrast, in the unlimited condition, the increase in the belief scale about empathy was associated with a 1.64-unit increase in empathy choices. This effect tended towards significance ($t(149) = 1.87, p = 0.06$). Specifically, being in the unlimited condition and endorsing high levels of unlimited empathy beliefs influenced empathy choices, hinting at a potentially nuanced relationship that warrants further investigation ($t(149) = 1.84, p = 0.07$). Figure 3 graphically depicts the positive association between unlimited empathy agreement, condition, and empathy choices. Participants' scale of belief about empathy as unlimited and condition combined explained a significant proportion of variance in choices of empathy in the empathy selection task ($F(3, 149) = 5.06, p = 0.002, R^2 = 0.07$).

The mixed-effects logistic regression analysis revealed substantial participant response variability ($SD = 1.02$), while stimuli exhibited somewhat less variability ($SD = 0.41$).

Discussion

The present study investigated variations in empathic effort among participants exposed to behavioral interventions rooted in the unlimited empathy mindset. Contrary to initial hypotheses, the results revealed that experimental conditions, precisely the distinction between unlimited and limited mindsets, did not yield a statistically significant impact on participants' empathic effortful behaviors, as reflected in their responses to the empathy selection task.

A nuanced pattern emerged when manipulating the unlimited empathy mindset. Participants placed in the unlimited condition, who endorsed the concept of empathy as unlimited, exhibited a notable inclination towards making empathy-driven choices. This finding underscores the efficacy of instilling an unlimited empathy mindset, as it influenced participants' empathic decision-making processes.

The present study builds on past work by introducing a novel approach to intervening over empathy. Most existing interventions in empathy focus on building empathy-related skills, such as emotion recognition, perspective-taking, and communication. However, such efforts may be limited in their impact as they address one's ability to empathize but inadvertently discount one's motivation to empathize. I tested an intervention targeting empathic motives by teaching participants that empathy was unlimited. This experiment offers new evidence supporting a motivated empathy framework and its relevance to intervention. It also introduces a new tool for building empathy that could be used alongside existing intervention techniques. By pairing skills-based interventions with complementary motivation-based approaches, researchers are positioned to create highly effective interventions that address ability-based and motivation-based empathy failures.

Limitations

Although our findings demonstrate the promise of motivation-based interventions in shifting empathy, the present work has some significant limitations.

First, the study's limited sample size ($N = 153$) impacted its ability to detect significant effects on empathy choices. Through a power analysis grounded in the established norm for effect size in social psychology ($d = 0.4$; Richard et al., 2003), employing a Welch 2-sample t-test design, it was determined that the study could have attained 80% statistical power with a sample size as modest as 270 participants in total. The observed non-significant main effect on empathy choices across conditions is attributed, in part, to the limited number of participants, suggesting that underpowered statistical analyses influenced the study's outcome.

Second, this study failed to investigate potential moderators, the first of which is social desirability bias. Social desirability bias refers to the tendency of individuals to present themselves in a favorable light or to respond in a socially acceptable way, even if it does not reflect their true beliefs or behaviors (Edwards, 1957). Participants might overstate their empathetic beliefs or actions (empathy selection task) to align with the societal expectation that empathy is a desirable virtue. This could lead to self-reporting bias, where individuals might exaggerate their empathetic responses, making it challenging to assess their genuine empathic abilities or inclinations accurately. Another potential moderator would be emotional valence, which describes the extent to which an emotion is positive or negative, whereas arousal refers to its intensity, i.e., the strength of the associated emotional state (Feldman Barrett & Russell, 1999; Lang, Bradley, & Cuthbert, 1997; Russell, 2003). In the present study, all stimuli in the empathy selection task display anger. A way to expand the generalizability of this research is to categorize the emotional stimuli as either showing a positive or negative emotion, measuring the emotional

valence as a moderator. Past research on examining the stimuli's emotional valence as an independent variable (i.e., the stimuli in the empathy selection task display positive emotion vs. negative emotion) has revealed that there is no difference in rates of engagement in the empathy selection task between valence (Cameron et al., 2019). However, valence as a moderator has yet to be examined, which future research could aim to address.

Third, the emotional challenge in the empathy selection task lacks a proper measurement. Empathy in the empathy selection task incurs cognitive costs due to mundane task elements. For instance, formulating a response based on gender and age might be more straightforward than articulating internal experiences. This underscores the inherent cognitive effort involved in empathy, possibly from heightened uncertainty or concern regarding empathic accuracy. There is, however, a lack of measurement to assess how emotionally challenging the empathy selection task is for the participants, which serves as an essential index that may explain the insignificance of the main effect on the dependent variables (choosing "FEEL" in the empathy selection task).

Fourth, individual differences in endorsing unlimited empathy beliefs before participants enter the study could influence their subsequent beliefs about empathy. For instance, participants with pre-existing unlimited empathy mindsets might respond differently to the intervention than those with limited empathy beliefs. Assigning individuals with varying initial beliefs to the same condition may lead to divergent levels of endorsing an unlimited empathy mindset following the intervention. The individuals who received the intervention yet retained low empathy beliefs might have been excessively fixated on their pre-existing convictions concerning limited empathy capacities. This fixation on their entrenched beliefs could have led to an unintended adverse effect of the intervention. This study did not evaluate participants' initial empathic

beliefs, nor did it gauge the evolution of these beliefs throughout the study. Additionally, the study did not assess the participants' level of conviction in their initial beliefs regarding empathy.

The final concern is whether the empathy selection task mirrors everyday empathy experiences. The task involves situation selection, seen in daily life (e.g., avoiding charity solicitations), and is linked to empathy avoidance (Pancer et al., 1979; Shaw et al., 1994). The task lacks context and identity details, potentially causing uncertainty and effort in empathizing. While some real-life situations resemble this, often more context aids understanding. Future studies should explore how contextual information affects empathy avoidance. Suppose additional details encourage empathy rather than avoidance. In that case, it is crucial to investigate whether this change results from reduced cognitive effort or the presence of compensating rewards that counterbalance the effort.

Conclusion

The profound impact of empathy on interpersonal interactions is widely acknowledged within the literature, with elevated levels of empathy correlating positively with favorable outcomes for both the empathizer and the empathy recipient (Baron-Cohen, 1994; Batson et al., 1988; Eisenberg & Miller, 1987). Despite these advantages, the benefits of empathy can often elude individuals, especially in situations where empathizing becomes intricate. My research illuminates a novel approach to navigating these challenges by emphasizing the significance of exerting additional effort to cultivate empathy. Specifically, it underscores the pivotal role of individuals' empathic mindsets in predicting the extent of this empathic endeavor. This novel perspective offers a promising avenue for addressing deficits in empathy, unveiling a potentially transformative method for fostering empathic connections.

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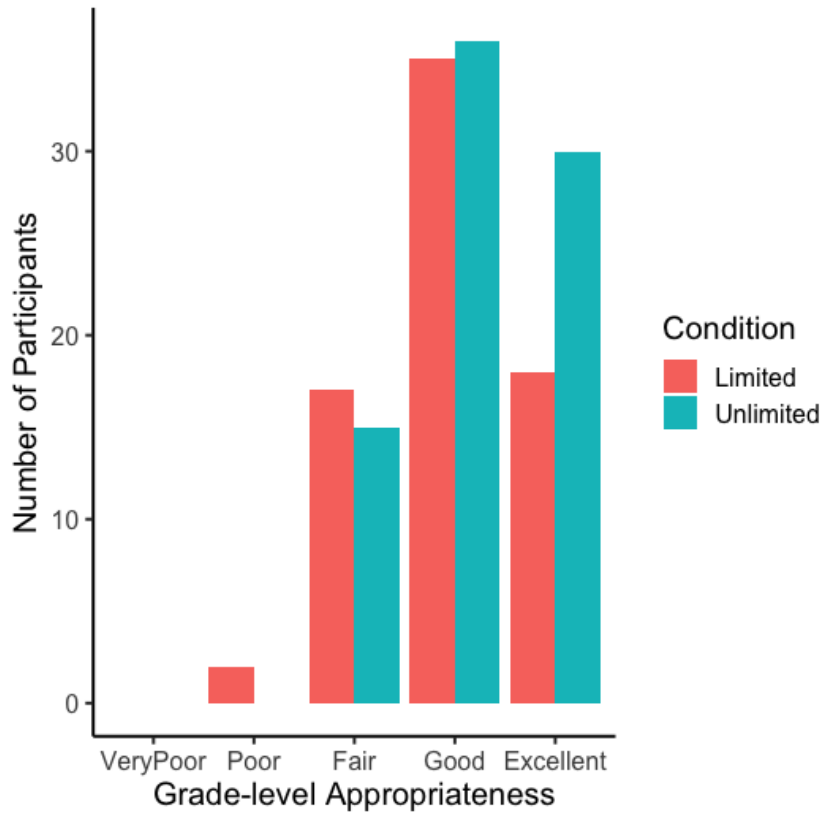
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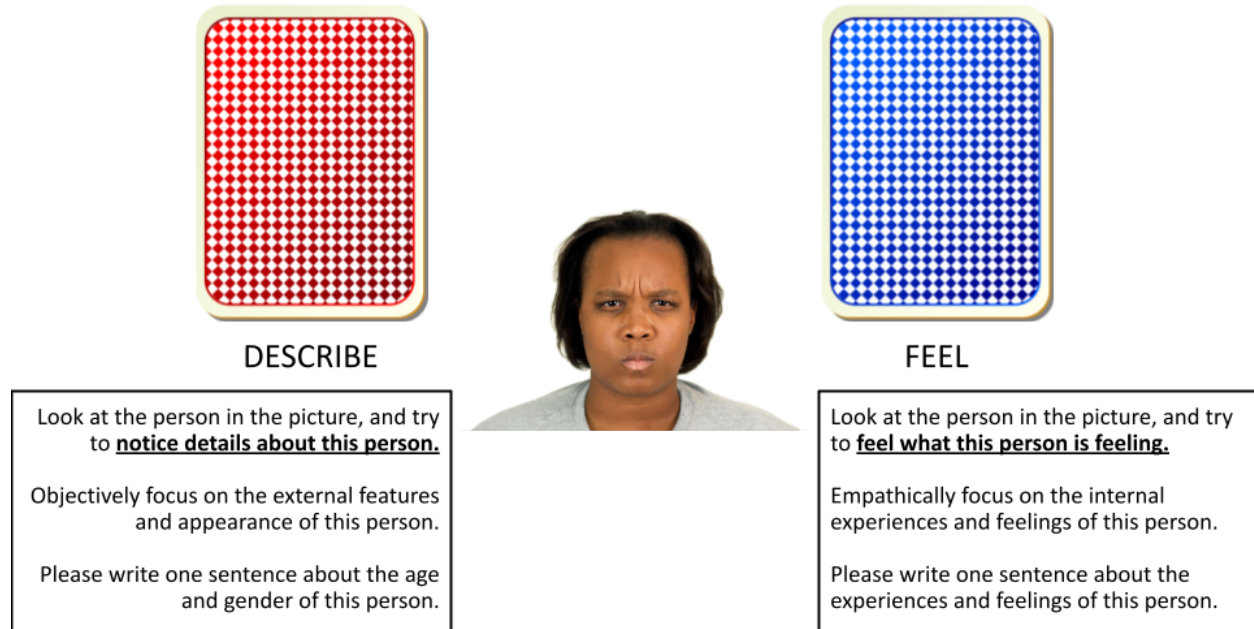
Figures

Figure 1

Grade-level Appropriateness



Note. Number of participants for each rating of the grade-level appropriateness for unlimited and limited articles.

Figure 2*Empathy Selection Task Prompt*


DESCRIBE

Look at the person in the picture, and try to **notice details about this person.**

Objectively focus on the external features and appearance of this person.

Please write one sentence about the age and gender of this person.

FEEL

Look at the person in the picture, and try to **feel what this person is feeling.**

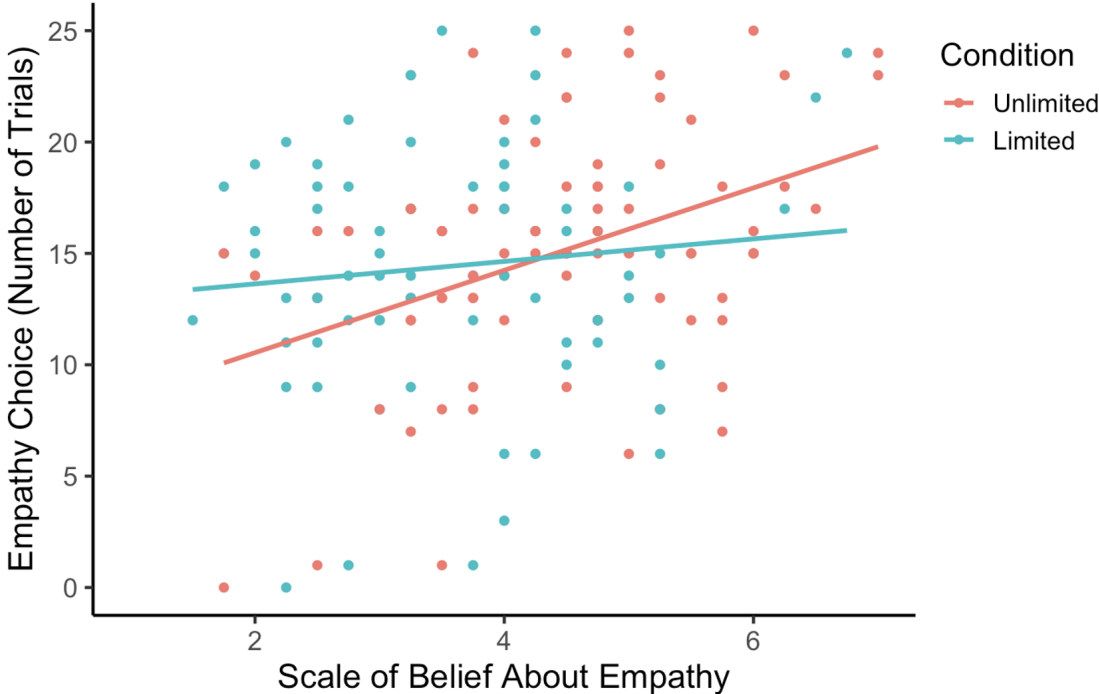
Empathically focus on the internal experiences and feelings of this person.

Please write one sentence about the experiences and feelings of this person.

Note. A visual representation of what the participants saw as prompts during each empathy selection task trial.

Figure 3

Scale of Belief About Empathy and Condition vs. Empathy Choice



Note. The interaction between the empathy choice and scale of belief about empathy, grouped by condition.

Appendix A

Unlimited Theory About Empathy Manipulation Article

by Jennifer Schneider

Published: December 28, 2019

Empathy is a powerful moral emotion—it moves us to care for the suffering of others and enables us to live cooperatively with one another. Yet we live in a society of constant connection, in which the successes and sorrows of others are brought to us instantly through phones, computers, TV, radio, and newspapers. With that increased connection comes the risk of becoming overwhelmed or overburdened by our emotions. Fearing exhaustion, we turn off our empathy. This fear, UT Austin researchers say, may all depend on your point of view.

In a study this fall in *Psychological Science*, UT Austin researchers found that people who believe they have a limited source of empathy display a lower ability to exercise empathy than those who believe their empathy is unlimited. The researchers believe the implications of these findings extend beyond just prosocial behaviors for the general public and into the training of healthcare, social work, and education providers in empathic-exhausting settings.

“The popular and influential theory in psychology is that empathy is very limited,” said psychology professor David Lawrence, one of the study authors. “But what we found was that empathy gets depleted only if you believe it does.” The previous compassion-fatigue theory suggested that empathy was a biologically restrained resource. Here’s how it went: As people work on empathic-exhausting tasks, whether caretaking, helping, or active-listening, they use their empathic resources. When they do not have any more empathy left to feel for others or themselves — that is, once they deplete their resource — they need to “take a break” until this resource is replenished. “It’s a very bottom-up theory,” said psychology professor and study author Cristine Cameron. “It’s a theory about basic thought being physiologically based.”

Through a series of four experiments, the researchers found that this conventional bottom-up theory was in need of revision. In one of the experiments, the researchers found that subjects who said they believed that their empathy was unlimited spent more time listening to patients battling cancer (which the researcher rationalized as an empathic-exhausting task) than those who believed their willpower was limited. “People’s theories affect their behaviors,” Cameron said. “So here, the hypothesis, then, is that this research... might really be operating, perhaps as a function of people’s theories about this resource.”

The researchers then tested the top-down theory on UT Austin first-year students for a semester and found that students’ personal theories about willpower affected their tendency to expand social connections. That is, to make new friends. “First, we measured what theory they believed in,” Lawrence said. “At the end of the semester, students who believe empathy is unlimited made a greater number of close friends and felt more supported since coming to college than those with a limited theory.”

The researchers believe that the difference in people’s conceptions of empathy lies in how they interpret the feeling of fatigue that inevitably comes with the rapid expansion of the social network during the first year of college. “If you think empathy is limited, that fatigue is a signal to take a break,” Lawrence said. “But what we found for the people who believed empathy was unlimited was that fatigue meant nothing to them. It didn’t say, ‘Isolate yourself.’ The fatigue was irrelevant.”

Despite the findings implying that we do not need breaks, changing people’s personal theories may be a difficult task. “It’s unrealistic to tell students they don’t need breaks because they think that they do,” said Adina Glickman,

associate director for academic support at the Center for Teaching and Learning. “A break is relaxation, and it’s a relaxation system, but I think it would be reasonable to tell students that the possibility exists that breaks are not necessary, that they are more sociable, and that finding support and companionship and fitting into a new environment is more stress free than they might assume.”

The conclusion is clear: the results from UT Austin’s research study indicate that empathy can be unlimited and that understanding that it can sometimes be difficult to change is an important step to developing one’s empathy.

Appendix B

Limited Theory About Empathy Manipulation Article

by Jennifer Schneider

Published: December 28, 2019

Empathy is a powerful moral emotion—it moves us to care for the suffering of others and enables us to live cooperatively with one another. Yet we live in a society of constant connection, in which the successes and sorrows of others are brought to us instantly through phones, computers, TV, radio, and newspapers. With that increased connection comes the risk of becoming overwhelmed or overburdened by our emotions. Fearing exhaustion, we turn off our empathy. This fear, UT Austin researchers say, is all backed up by research.

In a study this fall in *Psychological Science*, UT Austin researchers found that people display a lower ability to exercise empathy after performing a series of empathic-exhausting tasks. The researchers believe the implications of these findings extend beyond just prosocial behaviors for the general public and into the training of healthcare, social work, and education providers in empathic-exhausting settings.

“The popular and influential theory in psychology is that willpower is very limited,” said psychology professor David Lawrence, one of the study authors. “And we found that empathy has the same characteristics.” The previous ego-depletion theory suggested that willpower was a biologically restrained resource. Here’s how it went: As people work on strenuous tasks, whether studying, working, or cleaning, they use their psychological resources. When they do not have any more willpower left to do subsequent things — that is, once they deplete their resource — they need to “take a break” until this resource is replenished. “It’s a very bottom-up theory,” said psychology professor and study author Cristine Cameron. “It’s a theory about basic thought being physiologically based.”

Through a series of four experiments, the researchers found that this conventional bottom-up theory for willpower is explainable for empathy as well. In one of the experiments, the researchers found that subjects who said they believed that their empathy was unlimited spent the same time listening to patients battling cancer (which the researcher rationalized as an empathic-exhausting task) as those who believed their willpower was limited. “People’s theories do not affect their behaviors,” Cameron said. “So here, the hypothesis, then, is that this research... might really be disappointing, perhaps as a function of people’s theories about this resource.”

The researchers then tested the top-down theory on UT Austin first-year students for a semester and found that students’ personal theories about willpower did not affect their tendency to expand social connections. That is, to make new friends. “First, we measured what theory they believed in,” Lawrence said. “At the end of the semester, students who believe empathy is relatively unlimited did not make a greater number of close friends and felt more supported since coming to college than those with a limited theory. They were exhausted, self-isolated, and burned out after empathetically interacting with others, reporting that they ran out of capacity to emphasize.”

The researchers believe that the difference in people’s conceptions of empathy does not impact how they interpret the feeling of fatigue that inevitably comes with the rapid expansion of the social network during the first year of college. “The fatigue emerges, no matter how you believe empathy is,” Lawrence said. “What we found was that the fatigue occurs reflexively after a person emphasizes, which aligns with the ego-depletion theory of willpower.”

Based on the findings implying that we need breaks to recover from empathy fatigue, researchers state that it is a must to retreat from empathic-exhausting tasks. “It’s unrealistic and dangerous to tell students they don’t need breaks when they think that they do,” said Adina Glickman, associate director for academic support at the Center for Teaching and Learning. “A break is relaxation, and it’s a relaxation system. I think it would be reasonable, and perhaps necessary, to tell students that the possibility exists that breaks are vital, that they are less sociable, and that

finding support and companionship and fitting into a new environment can be more stressful than they might assume.”

The conclusion is clear: the results from UT Austin’s research study indicate that empathy is limited, even if one tries to develop it.

Appendix C**Grade-level Appropriateness**

Using the scale below, please indicate how appropriate the article you read is for high school students.

1	2	3	4	5
<i>Very Poor</i>	<i>Poor</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>

Your answer: _____

Appendix D**Scale of Belief About Empathy**

Using the scale below, please indicate your agreement with each of the following statements.

1	2	3	4	5	6	7
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Strongly disagree *Strongly agree*

1. People have an infinite amount of empathy at their disposal. _____
2. There is no limit to the extent of empathy a person can feel. _____
3. There is a limit to how much empathy we can feel towards others. _____
4. One cannot be empathetic with everyone. _____