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How Music and Art Affect Compassion and Perspective Taking: A Collaboration Between UCF RESTORES and Opera Orlando

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Cover Page Footnote

Fellow authors include faculty mentor, Dr. Deborah Beidel, and Opera Orlando Executive Director, Gabriel Preisser.



How Music and Art Affect Compassion and Perspective Taking: A Collaboration Between UCF RESTORES and Opera Orlando

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ABSTRACT: The ability of music and art to impact emotions and behavior is well understood based on studies conducted in a laboratory. However, research in a laboratory setting does not always generalize well to a natural environment. In this pilot study, we investigated how attending an opera that portrayed a wartime Christmas truce affected the audience's levels of empathic concern and perspective-taking. Paired samples t-tests were conducted on data from 63 adult participants ($M = 52.17$ years). The results indicated that attendance at this operatic performance positively changed both empathic concern and perspective-taking, suggesting that even in a naturalistic setting, music and art possess a transformative ability to change human emotions and behavior.

KEYWORDS: empathy; music; art; empathic concern; perspective taking

Introduction

During the 2020 Ash Wednesday address in Rome, Pope Francis commented on the social climate stating “we live in an atmosphere polluted by too much verbal violence, too many offensive and harmful words, which are amplified by the internet; today people insult each other as if they were saying good day” (Guyunn, 2020). On numerous occasions, President Barack Obama has referred to an “empathy deficit,” claiming it to be a “more pressing problem for America than the federal deficit” (Honingsbaum, 2013). The issues addressed by these world leaders are not unfounded. A cross-temporal meta-analysis conducted by Konrath, O’Brien, and Hsing (2011) found that empathy, as measured by Empathic Concern (EC) and Perspective Taking (PT), drastically declined amongst American college students from 1979 to 2009 with the steepest declines beginning in the year 2000. Although a thorough discussion of causation is outside the scope of this paper, many researchers point to the rise of social media and the internet to explain this phenomenon as there is certainly an observable negative correlation between the increase in these factors and the decrease in empathy. Since these data are only correlational, it is entirely possible that other factors, such as cultural shifts emphasizing the self, may also play a role (Konrath, 2012). Nonetheless, it is at the very least common knowledge that there has been an observable trend towards antisocial behavior and antagonistic language amongst individuals with conflicting beliefs exhibited on the internet, and it does seem likely that this trend is an unfortunate consequence of the lack of empathic concern and perspective taking amongst American citizens. In fact, current research suggests that both affective and cognitive dimensions of empathy have been related to online antisocial behavior (Sest & March, 2017). Despite our basic knowledge about empathy, less is known about how we might enhance these feelings, particularly outside of laboratory settings. Given the psychological climate currently pervading the United States, such research is sorely needed (Konrath, 2011).

Davis (1983) describes empathy as the tendency for people to react to the observations of other individuals’ experiences. At its core, it is the ability of people to feel what someone else is feeling (Koller & Lamm, 2014). Today, most researchers view empathy as a multidimensional construct with affective and cognitive components (Konrath et al., 2011). The

most commonly cited scale for dispositional empathy, and the only one that follows a multidimensional approach, is the Interpersonal Reactivity Index (IRI), which measures empathy through four subscales: Empathic Concern (EC; other-oriented feelings of sympathy for the misfortunes of others), Perspective Taking (PT; tendency for people to imagine other individuals’ points of view), Personal Distress (PD; feeling personal distress when observing the distress of others), and Fantasy (F; imagining oneself in fictional situations) (Davis, 1980; Konrath et al., 2011), with the EC and PT scales, respectively, measuring the affective and cognitive dimensions of this construct.

From a macro perspective, humans are complex social beings whose lives are deeply rooted in, and often dependent on, their interactions with others. In part, empathy is like a “Rosetta Stone” for decoding those interactions by helping individuals to understand their social environment and predict others’ behavior (Bošnjaković & Radionov, 2018). Furthermore, there is currently much evidence that empathy is a key motivator behind altruistic and prosocial behavior, particularly in that it appears to enable people to relate to one another “in a way that promotes cooperation and unity rather than conflict and isolation” (Bošnjaković & Radionov, 2018; Konrath et al., 2011). Considering the proposed “empathy deficit,” and one of its perceived consequences being a greater prevalence of antisocial and antagonistic behavior frequently exhibited on the internet, it seems necessary for researchers to begin identifying practical ways of fostering empathy to address these problems. Fortunately, we are not the first to propose a more in-depth exploration into this line of research. In their 2009 publication, Batson and Ahmad explicitly state that inducing empathy “shows promise as a means to improve intergroup relations.” Results from Batson, Chang, Orr, and Rowland (2002) indicate that inducing empathy by having someone listen to an interview with a drug addict is not only a powerful tool for increasing individuals’ positive attitudes towards a specific individual but was a powerful motivator toward engaging in actions that then benefitted other members of that same group. These results ultimately led Batson et al. (2002) to further express the seemingly practical value of inducing empathy as a technique for creating positive attitudes and prosocial actions towards stigmatized groups.

So, while the literature endorses the notions that society is desperately in need of an increase in empathy and that inducing empathy is not only possible but appears to have countless positive implications regarding social interactions, it simultaneously fails to identify practical avenues for doing so outside the controlled laboratory setting. Controlled laboratory settings can provide many advantages for studying different psychological phenomena by controlling factors that may otherwise influence behavior (a concept known as internal validity). However, because laboratory situations are so highly controlled, they often fail to generalize to “real life” (external validity). Thus, it is a combination of laboratory and observational studies that often provide the greatest understanding of a particular psychological phenomenon. Having examined this concept in a laboratory setting, the next step is to examine every day experiences or activities that are empirically corroborated to foster empathy. Consequently, two ensuing questions arise. One, are there existing, practical, and effective experiences, that can be empirically endorsed to induce empathy in real world settings? Two, if so, what are they? A brief search into the etymology of the word *empathy* would direct researchers towards art.

Insight into the ability of literary works to evoke emotion dates back at least to Aristotle, who described the ability of tragic plays to arouse pathos (the emotions of pity and fear) in an audience. More recently, the term empathy, which derived from the German word “*Einfühlung*” meaning “feeling into,” was coined by Theodore Lipps and translated into English by early psychologist Edward Titchener to describe people’s “aesthetic appreciation of art” (Stavrova & Meckel, 2017). Later, Titchener (1924, as cited in Bošnjaković & Radionov, 2018) defined empathy as the “process of humanizing objects, of reading or feeling ourselves into them,” and not long after that, Rollo May (1939, as cited in Peloquin, 1995) hypothesized that “art has the ability to coax persons towards empathy.” Any entry level art, history, or anthropology class will teach students that long before the scientific method ever existed, art, in its many different mediums, was (and still is) considered to be a tool used by artists to convey their perspective of the world and provide an avenue for outsiders to understand an artist’s culture, values, viewpoints, and even emotions. That said, while art may be the tool used for conveying perspectives and emotions, today’s empiricism has shown that empathy is the mechanism that allows art observers to decode

such information. For example, Stavrova and Meckel (2017) found that trait empathy is associated with an enhanced ability to accurately perceive emotions from art; implying that the effects of empathy are not solely restricted to social targets (i.e., other people), but rather, have the capacity to extend to products of the human mind, such as art.

Conversely, assuming art and empathy are inextricably linked, exposure to art may have the capacity to positively influence empathy. Many in the fields of art and education have already posited such a notion by suggesting that teaching art to students may help them to develop a greater sense of empathy (Caldwell, 2018). Meanwhile, there is much research from the psychological community that demonstrates this notable correlation, particularly between music and empathy. Marrying together these two concepts, Kalliopuska and Ruokonen (1993) found that a short 12-hour music education training program could temporarily and vigorously accelerate the natural development of empathy in 6-to-7-year-old children. Bal and Veltkamp (2013) found empirical evidence that fiction reading under realistic conditions is not only related to empathic skills but may even positively impact those skills. As a further matter, and particularly as it relates to the consequences of the “empathy deficit” presented in this paper, primitive implications from Batson et al. (2002) suggest that inducing empathy for a fictional character may be a valid possibility for promoting positive attitudes and actions towards stigmatized groups, and Greitemeyer (2009) found that exposure to songs with prosocial (relative to neutral) lyrics not only fostered empathy but also prosocial behavior.

We are not the first to suggest the possibility of using existing experiences outside of laboratories to induce greater dispositional empathy. For example, many have proposed that museums are an excellent avenue for fostering empathy. However, the empiricism and line of literature concerning this hypothesis is limited. So, considering that the empirical body does seem to engender evidence for the notion that empathy could be induced through non-social encounters (specifically art and music), we hypothesize that music and art, in the form of an opera, will positively affect empathy. To investigate this hypothesis, UCF RESTORES has partnered with a local arts organization, Opera Orlando, to measure levels of empathy amongst audience members before and after watching the

Christmas opera, *All Is Calm*, to see if this experience can positively affect empathy.

Methods

Participants

Data were collected from audience members who attended one of four showings of the historically based opera, *All Is Calm*, written by Peter Rothstein and presented by Opera Orlando at the Dr. Phillips Center for the Performing Arts. Participants were recruited either through personal requests by ushers working for the Dr. Phillips Center, UCF RESTORES staff and students manning an information table adjacent to the theater, or through a notice in the opera playbill. A total of 63 individuals completed the surveys. Other than one question for age verification, demographic information was not collected. One of the four performances was specifically for an audience consisting primarily of veterans. All participants completing the survey were asked to verify that they were 18 years or older. The age range of participants was 19 to 78 with the average age above 50 years old ($M = 52.17$, $SD = 15.83$).

Materials

Participants had the option to complete the pre-test and post-test questionnaires using either a paper-and-pen version or an online version using their personal smartphone devices. Opera Orlando Playbills, which included two pages for UCF RESTORES general information, were used to describe the study for informed consent, and to provide the QR codes and links for accessing the online version of the questionnaire. Questionnaire content on either method of completion (paper-and-pen or smartphone) was identical.

Measure

The 8-item self-report questionnaire that was used for this investigation consisted of items from two subscales [Empathic Concern (EC) and Perspective Taking (PT)] of the German Interpersonal Reactivity Index (SPF-IRI, Koller & Lamm, 2015). The SPF-IRI was selected over the original IRI as psychometric data suggest that it has the same reliability and validity as the original measure but has better factorial validity (Grevenstein, 2020). The SPR-IRI was validated on

a population similar in age to the sample used in this investigation. Empathic Concern, which is defined as people's "other-oriented feelings of sympathy for the misfortunes of others," ultimately measures for sentiments of compassion and warmth, and best accesses the affective component of empathy (e.g., "I often have tender, concerned feelings for people less fortunate than me"). Perspective Taking, which best accesses the cognitive aspect of empathy, is the tendency for people to imagine other individuals' points of view. Basically, it is their ability to figuratively step into another's shoes (e.g., "I sometimes try to understand my friends better by imagining how things look from their perspective") (Binghai Sun, et al., 2018; Davis, 1983; Konrath et al., 2011). Davis (1983) posits that EC and PT are complementary in that they are positively correlated, and because EC and PT are the preferred subscales for measuring affective and cognitive empathy, it is not uncommon for many studies (present study included) to choose to only use these two subscales in the measurement of the construct of empathy as a whole. The two 4-item subscales were presented on the questionnaire with questions 1-4 addressing EC and questions 5-8 addressing PT. Participants were asked to rate each item using a 5-item scale as follows: never (0), seldom (1), sometimes (2), often (3), always (4).

Procedure

Prior to the presentation of the performance, participants completed the pre-test survey either on paper-and-pen or via Qualtrics links accessed through their personal smartphone devices. The 75-minute musical performance, *All Is Calm*, depicts events that occurred during World War I. The opera's script relied heavily on the use of letters written by World War I soldiers to their families in 1914 and tells the story of the Christmas day truce that occurred that year along the Western Front. The letters and songs early in the opera convey opposing nationalistic attitudes before Christmas day, where loyalty to soldiers' respective alliances and sentiments of hatred towards enemy alliances was established. Concurrently, the same early songs and letters that emphasized ingroup bias, emphasized the similarity of emotions and experiences of war that crossed enemy perspectives even before the truce ever occurred.

The middle portion of the opera depicted the encounters that occurred between the British and

German troops during the truce that occurred on that fateful Christmas day. During these scenes, the letters explained how soldiers on different sides of “No Man’s Land” reached out to the opposing side. For example, one letter shared the story of how British and German soldiers together sang the Christmas carol, “Silent Night,” in the same language despite having different native languages and physically being in opposite trenches. After initial communication had been made and negotiations for holiday peace had been established, the letters continued to share the stories of enemy soldiers getting to know each other by playing football together in “No Man’s Land,” trading cigarettes, speaking each other’s languages, trading prisoners of war, and taking comical photographs together wearing opposing individuals’ uniforms. It was during these encounters that affective and cognitive empathy came into play, and the enemy soldiers began to realize they had more similarities than differences.

The opera ended with the soldiers retreating to their respective trenches as word from their superiors mandated that fraternization was strictly prohibited. However, that did not change the fact the soldiers’ sense of empathy and understanding for their enemies had undoubtedly changed. This opera was an ideal stimulus for the purpose of this study as it clearly displayed a scenario with themes of disparate beliefs, ingroup bias, and changes in empathic concern and perspective taking.

It is worth noting that because the stimulus was an opera, many of the letters were conveyed through songs in several different relevant languages including English, French, and German. No translations were made available for the songs not sung in English. One holiday-themed song aside, most of the musical numbers were unique to the opera and operetta in nature, featuring solo performances and group choruses, all of which were unaccompanied by musical instruments. This production featured professional opera singers, period-appropriate costumes, war-related props, and sound effects. After the production, the participants filled out the post-test questionnaire. Following completion, paper-and-pen questionnaires were turned into UCF RESTORES representatives at the information table, and online questionnaires were submitted directly through Qualtrics.

Results

After combining the raw data from the paper-and-pen questionnaires and online questionnaires, paired samples t-tests were conducted on items 1-4 measuring EC and 5-8 measuring PT using the statistical software R. Overall, post-test responses for both EC ($M = 3.17$, $SE = 0.01$) and PT ($M = 2.97$, $SE = 0.09$) were higher than pre-test EC ($M = 2.98$, $SE = 0.09$) and PT ($M = 2.78$, $SE = 0.01$) responses. For the subscale EC, the difference (-0.19 , BCa 95% $[-0.28, -0.10]$), was significant ($t(62) = -4.39$, $p < .001$, $d = 0.26$) suggesting that the art and music presented in *All Is Calm*, changed affective empathy, although the effect size indicates that this effect was small. Analysis of the subscale PT also led to a difference (-0.19 , BCa 95% CI $[-0.29, -0.09]$) that was significant ($t(62) = -3.76$, $p < .001$, $d = .27$), again suggesting that art and music do in fact affect this particular aspect of cognitive empathy, although once again, the effect was small.

Discussion

The results of this investigation suggest that attending a musical performance, in this case, the Christmas themed performance of *All is Calm*, significantly impacted audience members’ cognitive and affective aspects of empathy. These findings are important because as indicated earlier by Pope Francis, President Obama, Konrath et al. (2011) and Konrath (2012), there has been a significant decline in empathy amongst Americans since the 1970s, and this decline has consequences. Abnormal deficiencies in empathy is a tell-tale symptom of several mental health disorders such as Psychopathy, Borderline Personality Disorder (BPD) and Narcissistic Personality Disorder (NPD); in such cases clinical intervention in the form of therapy may be appropriate (Decety & Moriguchi, 2007). However, other individuals may suffer from less significant, but still problematic, levels of empathy. Since psychotherapy may not be appropriate (or even feasible) for addressing this general lack of empathy amongst the American population, there is a need to find, develop, and promote other types of empirically backed interventions that may teach this skill to large segments of society.

The results of this investigation coupled with past research leads us to posit several other key notions. One, that level of empathy can be changed. Two, that

art and empathy are highly correlated and thus art may have the capacity to influence levels of empathy. Finally, and most importantly as it relates to the “empathy deficit” and its consequences, inducing empathy could lead to an increase prosocial attitudes and behavior towards outgroup individuals. However, these three assumptions taken directly from the existing body of literature are based on laboratory studies. This investigation extends those findings by examining how a live musical performance would positively affect levels of empathy among the audience members.

The results were significant, not only supporting our hypothesis but also aligning with previous findings that empathy could be changed, and that art (in many different forms), appears to have the capacity to affect empathy. Moreover, this study demonstrated that empathy can be changed outside of the controlled laboratory setting through an everyday activity left completely unmanipulated by researchers. This suggests there may be other experiences that can significantly influence levels of empathy. Such findings, though preliminary, are promising, as past research indicates that changing empathy can subsequently lead to higher levels of prosocial attitudes and behavior.

The present study is not without limitations and the possibility of confounding variables. First, while results were significant, the effect sizes were small. This was predicted as the present experiment was a pilot study consisting of a relatively small sample size. However, to augment the effect, future studies should consider running larger sample sizes and / or increasing the intensity of the experience (e.g., increasing the duration of the experience). *All Is Calm* explicitly portrayed themes such as ingroup bias, disparate beliefs, and the acceptance and understanding of outgroup members using empathy. It is possible that the message conveyed through the opera was obvious, and that more subtle musical presentations may not have the same effect. Furthermore, as the present study was solely focused on measuring the effect of the artistic experience in its entirety on empathy, it did not discriminate between the different aspects of the performance (e.g., music, live-performance, narrative). Thus, it cannot be specified which aspects of the opera might have distinctly affected empathy. Future studies should consider focusing on specific aspects of artistic experiences and how they might influence empathy. Second, there was a sizable military veteran

presence in the audience (particularly as one of the performances was solely open to military veterans and their families), and it is possible that the theme of the storyline resonated more easily with veterans and affected their post scores. Unfortunately, we did not collect any data on military status thus it is unclear whether that group was particularly influenced. As this opera will continue to be presented, future studies should consider examining outcomes by this specific demographic group.

Consideration should also be given to other sample demographics. First, high empathy individuals are more likely to accurately interpret and be emotionally affected by the information portrayed through artwork (Stavrova and Meckel, 2017). Moreover, Binghai Sun et al. (2017) found evidence that older adults are more likely to be higher in affective empathy than younger adults. Considering that the mean age of participants in the present study was above 50 and that participants were directly recruited from the audience (implying a strong possibility that many of the participants are frequent arts, and particularly opera, patrons), it is possible that the sample is not entirely representative of the general population. Implications from Binghai Sun et al. (2017) and Stavrova and Meckel (2017) could suggest that the positive outcome of our study may partly be due to the age of our participants and the possibility that regular-attending arts patrons could be higher in baseline trait empathy and consequently be more susceptible to experiencing significant change. Further studies should address these possibilities.

Another limitation of note regards data collection. Many of the older participants had trouble using the QR code to access the online version of the questionnaires. Furthermore, some participants' cell phone carriers had poor signal quality inside the auditorium, making it difficult for the online questionnaire to load. Relatedly, future studies should consider other viable options for collecting data. Possible options could include positioning iPads at the door of the auditorium for participants to complete the questionnaires before walking into the show and again upon leaving, and/or using paper-and-pen surveys as seat drops.

Thought was also given to possibility that the results could have been affected by the social desirability effect. To test for this, a Welch two-sample t-test was conducted on the online data and paper-and-pen data

to see if the anonymity of the online method caused participants to respond more truthfully than those who participated using the paper-and-pen method and had to hand in their questionnaires to a UCF RESTORES representative. Results indicated that the difference was not significant, supporting the notion that participants responded equally as truthful despite their method of completion, and further suggesting that social desirability is not a factor of concern.

There are several different avenues for future research beyond this study. First, future endeavors should identify other artistic experiences that could influence empathy while at the same time emphasizing ease of accessibility (e.g., time, cost). Such activities could include different types of theatrical performances (e.g., musicals and plays) or art exhibits at galleries and museums. A second line of research could explore the long-term impact of these artistic experiences. The current investigation found that the opera significantly influenced empathy immediately following the performance, but the long-term impact was undetermined. Future studies should consider follow-up assessments one to two weeks later to determine the performance's long-term impact. Finally, and building upon the last suggestion, ensuing studies could examine whether this attitudinal change translates into prosocial behavior. Considering one of the greatest perceived consequences of the "empathy deficit" is an increase in hateful sentiments resulting in antisocial behavior frequently exhibited on the internet, the findings from such explorations will likely be amongst the most practical of applications.

Conclusion

Through the lens of applied clinical psychology, this paper aimed to contribute to a limited body of research by seeking to address the "empathy deficit" in America, not by developing an efficacious system for cultivating empathy in a controlled environment such as a laboratory or clinic, but rather, by identifying a practical experience in the real world that has the potential to induce empathy. Though preliminary, the results of this investigation suggest that there may be existing unmanipulated activities, particularly in the arts, that can positively affect empathy. Given its potential, deliberately providing society opportunities for more exposure to the arts – through public exhibits such as arts festivals, "plays in the park," or free music concerts – could function as one way to enhance

empathy among the United States population. Understanding the impact of and promoting these experiences could address the current "empathy crisis" and lead to greater overall societal cohesion.

References

- Bal, P. M., Veltkamp, M. (2013). How does fiction reading influence empathy? An experimental investigation on the role of emotional transportation. *PLoS ONE*, 8(1). <https://doi.org/10.1371/journal.pone.0055341>
- Batson, C. D., Chang, J., Orr, R., & Rowland, J. (2002). Empathy, attitudes, and action: Can feeling for a member of a stigmatized group motivate one to help the group? *Personality and Social Psychology Bulletin*, 28(12), 1656-66.
- Batson, C. D., Ahmad, N. Y. (2009). Using empathy to improve intergroup attitudes and relations. *Social Issues and Policy Review*, 3(1), 141-77.
- Binghai Sun, Zhenbing Luo, Wenwen Zhang, Weijian Li, & Xinyu Li (2018). Age-related differences in affective and cognitive empathy: Self-report and performance-based evidence. *Aging, Neuropsychology, and Cognition*, 25(5), 655-72.
- Bošnjaković, J. & Radionov T. (2018). Empathy: Concepts, theories, and neuroscientific basis. *Alcoholism and Psychiatry Research*, 54, 123-50.
- Caldwell, E. C. (2018, January 16). *Can art help people develop empathy?* JSTOR Daily. <https://daily.jstor.org/can-art-help-people-develop-empathy/>
- Davis, M. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology*, 10.
- Davis, M. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44(1), 113-126.
- Decety, J., Moriguchi, Y. (2007). The empathic brain and its dysfunction in psychiatric populations: Implications for intervention across different clinical conditions. *BioPsychoSocial Medicine*, 1(22). <https://doi.org/10.1186/1751-0759-1-22>.
- Greitemeyer, T. (2009). Effects of songs with prosocial lyrics on prosocial thoughts, affect, and behavior. *Journal of Experimental Social Psychology*, 45(1), 186-90. <https://doi.org/10.1016/j.jesp.2008.08.003>
- Grevenstein, D. (2020). Factorial validity and measurement invariance across gender groups of the German version of the Interpersonal Reactivity Index. *Measurement Instruments for the Social Sciences*, 2. <https://doi.org/10.1186/s42409-020-00015-2>
- Guyunn, J. (2020, February 26). *What to give up for lent? Pope Francis wants you to stop being an internet troll.* USA Today. <https://www.usatoday.com/story/tech/2020/02/26/popefrancis-quit-being-online-troll-lent-2020/4886069002/>
- Honigsbaum, M. (2013, January 4). *Barack Obama and the "empathy deficit."* The Guardian. <https://www.theguardian.com/science/2013/jan/04/barack-obama-empathy-deficit>
- Kalliopuska, M. & Ruokonen, I. (1993). A study with a follow-up of the effects of music education on holistic development of empathy. *Perceptual and Motor Skills*, 76, 131-37.
- Koller, I., & Lamm, C. (2015). Item response model investigation of the (German) interpersonal reactivity Index Empathy Questionnaire. *European Journal of Psychological Assessment*, 31(3), 211-21.
- Konrath, S. H., O'Brien, E. H., & Hsing, C. (2011). Changes in dispositional empathy in American college students over time: A meta-analysis. *Personality and Social Psychology Review*, 15(2), 180-98.
- Konrath, S. H. (2012). The empathy paradox: Increasing disconnection in the age of increasing connection. In R. Luppigini (Ed.), *Handbook of Research on Technoself: Identity in a Technological Society*. IGI Global.
- Peloquin, S.M. (1996). Art: An occupation with promise for developing empathy. *The American Journal of Occupational Therapy*, 50(8), 655-61.
- Sest, N., & March, E. (2017). Constructing the cyber-troll: Psychopath, sadism, and empathy. *Personality and Individual Differences*, 119, 69-72. <https://doi.org/10.1016/j.paid.2017.06.038>



Stavrova, O., & Meckel, A. (2017). Perceiving emotion in non-social targets: The effect of trait empathy on emotional contagion through art. *Motivation & Emotion, 41*, 492-509. <https://doi.org/10.1016/j.paid.2017.06.038>