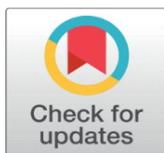
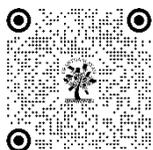


CLIMATE CHANGE ACTION THROUGH VISUAL AND PERFORMING ARTS: A PERSPECTIVE FOR SOCIAL TRANSFORMATION

Dr. Vinay Kumar ¹  , Suhel MA ² 

¹ Assistant Professor, Dept. of Social Work, Central University of Jammu, Raya-Suchani (Bagla), Jammu, J & K

² Doctoral Scholar, Dept. of Social Work, Central University of Jammu, Raya-Suchani (Bagla), Jammu, J & K



Corresponding Author

Dr. Vinay Kumar,
vinaykumar@cujammu.ac.in

DOI
[10.29121/shodhkosh.v4.i1.2023.3990](https://doi.org/10.29121/shodhkosh.v4.i1.2023.3990)

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Copyright: © 2023 The Author(s). This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

With the license CC-BY, authors retain the copyright, allowing anyone to download, reuse, re-print, modify, distribute, and/or copy their contribution. The work must be properly attributed to its author.

ABSTRACT

Climate change is an existential reality for mankind and requires immediate attention and community action. Globally, various approaches are being adopted to influence policy and community awareness and behaviour. Art serves as a bridge, connecting scientific facts with human experiential understanding of nature, making the intricacies understood in simple yet impactful ways, and reducing the existing gaps. The intersection of climate change action and use of the visual and performing arts represents an attractive area that synergizes artistic expression with environmental activism. This paper reviews and explores the various forms of these arts serving as powerful channels to involve, connect, and inspire zeal among communities on climate change action. These art forms have been part of every human culture since time immemorial and generate diverse perspectives and emotional responses with great potential for desired social change. Further, visual and performing arts have played a critical role in breaking down social and cultural barriers among masses to desired behavioural change by addressing pertinent socio-cultural politics. By sustainably using these art forms and chronicles, the social change agents by involving proficient artists can contribute to long-term community enrichment and societal transformation towards climate action. The rich potential of visual and performing arts to not only satiate human minds abstracts but also raise awareness and mobilize communities, influence policy, and ultimately drive meaningful climate activism and social transformation for a climate-smart and sustainable world.

Keywords: Climate Change Action, Communities, Visual and Performing Arts, Social Transformation, Sustainability



1. INTRODUCTION

Climate change crisis stands as the most pressing civilizational concern of the 21st century, crossing all geopolitical boundaries, affecting natural ecosystems and endangering species. It demands imperative action across all scientific, political, legal, cultural and societal spheres. Despite the plethora of scientific evidence and international agreements, country-specific policy frameworks at the ground level, community engagement, behavioural change and concern for climate action remain limited, often hindered by the complex technical and scientific data on climate issues, which further complicates the reach to common understanding and comprehension. "Art's potential to transform society, as well as its capacity to support agency and inspire feelings of hope, responsibility, and care, has been known for a long time (Boal, 2000 as cited in Bentz, 2020)". In recent years, the various forms of visual and performing arts have emerged as a strong medium of social transformation for climate change action, offering hope to bridge the gap between scientific knowledge and community engagement in simplistic forms towards climate action in a sustainable manner. This

systematic literature review scrutinizes the intersection of climate change and the various arts forms, focusing on how visual and performing arts can and have been contributing to climate change awareness, advocacy, and action at local levels with individuals, groups and communities.

Human nature has been inquisitive towards its own existence and interconnectedness with nature. Art has been one of the various ways to express strong emotional connect, the human way of relatedness, and derive meaning and solace within. It easily translates to human minds the message depicted through its various forms. The arts, like images, posters, videos, documentaries, etc., possess exceptional capabilities to induce sentiment, nurture empathy, and create meaning, potentials essential for addressing the mental and social obstructions associated with any issue of concern like climate change education and communication (Roosen et al. 2018). The conventional methods of climate change communication have often been through statistical data, graphs, and technical terminologies; these approaches have alienated the public, who find them hard to connect with complex information. In contrast, various forms of visual and performing arts link sensory organs and mental dimensions to make climate change more simple and comprehensible to understand (Bentz and O'Brien 2019).

Globally, over the past two decades, scholarly interest in harnessing the potential of arts in climate change communication and action has grown significantly, highlighting a multidisciplinary union of humanities and social sciences with environmental science to deal with the global crisis created by climate change. An increasing number of artists (both visual and performing) are interested in and concerned about climate change and environmental degradation (Gabrys and Yusoff 2012; Lesen et al. 2016). The review highlights various approaches used for stimulating climate action among communities, emphasizing the transformative perspective of art in addressing one of the greatest challenges of our times.

The development of concern for the environment and encouraging communities to participate in such movements requires motivation and empathy, which can be generated through art forms (Curtis, D.J. 2009). Similarly, (O'Neill and Nicholson-Cole 2009) have stated that positive digital stories motivate individuals to proactive behaviours towards climate concerns rather than negative presentations of the same. The forms of visual media shape public perception regarding climate change (Doyle, J, 2011) can help bring about social transformations and larger community reactions (Roosen et al.,2017) in the interest of climate-driven policies and actions. These initial studies have laid the groundwork for a larger investigation of artistic strategies for climate communication, setting the stage for diverse approaches to emerge.

The broad themes identified in the scholarly writings reveal a multidimensional relationship between climate change and the visual and performing arts and includes education, advocacy, community engagement, and policy influence. Integrating art in educational frameworks as part of curriculums could enhance understanding of climate issues deeply and responsibly (Trott, 2020) among a large number of children while they are young and further will help promote sustainability. Corbett, J. B., & Clark, B. (2017) in their study, further highlighted the importance of integrating storytelling and emotional engagement through the arts to foster climate awareness. Engaging communities in participatory art-based projects like documentaries, drama and poetry at local levels will create opportunities for localised discussions, solutions and building resilience (Galafassi et al. 2018).

The forms of visual arts, particularly in climate change awareness and promotion, have been extensively explored in the last three decades. Nurmis (2016) has highlighted the use of visual art to explain the complex climatic data in accessible formats for the masses to understand. For example, photography documenting the devastating impacts of forest fires on ecosystems, filmmaking capturing the realities of displaced and migrant communities due to floods or landslides in the mountains can create lasting impacts beyond just scientific data in the form of statistics. Painter and sculptor Olafur Eliasson, of Danish-Icelandic origin transported twelve blocks of ice from free floating icebergs from the Greenland ice sheet, then arranged them in a clock formation to highlight rapidly passing time to deal with the climate crisis. Further, architectural models and buildings using climate-friendly recycled waste materials can stimulate diverse viewpoints on climate change adaptation and foster public discourse on the theme.

Individual engagement and collective participation in practice and interpreting art for giving meaning to climate change impacts can foster a culture of sustainability and build long-term connections (Kagan, 2010). Further, the arts have significant implications for policy and advocacy, which is reflected in Doyle's (2011) work on mediating climate change through visual spaces, which highlights the strategic use of pictures, posters, documentaries and other print media to influence public opinion and shape political discourse. These images create mental impacts for individuals to seek answers and solutions. Another study by Leiserowitz and Smith's (2010) on museum exhibits demonstrated that

interactive art on issues of climate change can serve as a tool for science communication, simplifying complex environmental data into accessible and compelling narratives for all age groups to connect and think of probable action at their levels. For example, a six-foot-long art installation to explain the importance of climate equity was created by Von Wong at Elysian Sanctuary, Pennsylvania, for public display and comments. Another artist, Chris Jordan, replaced Botticelli's painting "The Birth of Venus" with 240,000 plastic bags, equal to the number consumed throughout the world every ten seconds, highlighting the water crisis and pollution. These installations illustrate the potential of artistic interventions to bridge the gap between scientific knowledge and societal action, fostering a culture of climate consciousness.

Art has been recognised as an instrument for climate change action, but still challenges exist to integrate in the mainstream modes of awareness along with classical modes of environment and science communication, which have not reached the communities at the grassroots. There have been constraints of funding for artists, a lack of institutional support, and proper strategies to generate climate-related art and popularise it, along with the undervaluation of art and artists in climate discourse, often limiting the scope and impact of artistic initiatives. These challenges are to be addressed through acknowledging the art as an integral medium of communication for social transformation and a strong medium for climate change action in the perception of masses. In fact, scholars like Miles (2014) argued for a more holistic approach to climate action, emphasizing the importance of eco-aesthetics in fostering a deeper connection to the natural world by valuing the work of artists in this direction. Equal footage of artists with scientists in the form of collaborations to explain the climate challenges and use of social influencers along with fusion of technology will boost the initiative. This approach can help unlock the full potential of visual and performing art to mass-scale social and behavioural transformation to address the climate crisis at the doorsteps.

2. DATA & METHOD

The conceptual insights of this article are drawn from multiple sources of data. A systematic review of literature embedded in a transformative research paradigm was adopted for this study. This conceptual paper explores how visual and performing arts can facilitate climate change action and promote social change. The discussions and conclusions are primarily based on research papers written between 2009 and 2022, examining the way that artistic expression acts as a tool to increase awareness of climate issues, encouraging changes in behaviour, and for dialogue around climate issues. It highlights the various methods used across this literature base and outlines prominent themes and gaps in the research. At every step of the review, a careful, multi-stage process was undertaken to ensure transparency and replicability. An evidence based approach was taken, following the PRISMA guidelines for systematic reviews, with an in-depth search, strict inclusion/exclusion criteria, and transparent data extraction and analysis. The primary search was performed in Scopus, Web of Science, and Google Scholar databases. The search terms included various combinations of "climate change", "visual arts", "performing arts", "art activism", "climate communication", "social transformation", "environmental art", "theatre", "performance art", "film", "photography", "public art" and "community engagement". The search criteria were restricted to peer-reviewed literature published between 2009 and 2022 that directly addressed the intersection of Visual Arts and/or Performing Arts and engagement with Climate Change action strategies, with an explicit focus on social transformation and/or community engagement. This date range was selected to include recent studies and progress in this new field.

3. DISCUSSION

The following sections will explore identified themes in greater detail, examining the various forms of visual and performing art contributions to climate change awareness, advocacy, community engagement, lifestyle changes and policy influences. In the past three decades, several subfields of environment-related art have emerged, like ecological art (eco-art), sustainable architecture, bio-art, acoustic ecology, green theatre, environmental documentary, expeditionary art and eco-art education—art with a clear focus on responding to the environment and human impacts on the environment, etc. (Bower 2011, 3). Further, Visual arts components serve as a strong tool for both artistic expressions, socio-cultural and political interpretation, providing a platform to critique unsustainable practices and imagine sustainable futures. For example, public art installations and exhibitions at global climate summits like conference of parties (COP) have drawn attention to the human and ecological impacts of climate change, creating opportunities for dialogue among policymakers, activists, and the general public.

Performing arts forms like theatre, dance, and music also play a critical role in climate change action. In 2008, Dr. Beer conceptualised the term 'Ecoscenography' (ecological design for performance) to drive the development of sustainability in the field of theatre and performance design and advocated for newer theatre pedagogies to cater to climate concerns. These art forms offer dynamic and immersive experiences, enabling audiences to engage with climate narratives on a visceral level. Roosen, Klöckner, and Swim's (2017) study on audience reactions to climate-inspired performances underscores the potential of performing arts to evoke powerful emotional responses, fostering empathy and a sense of urgency. Moreover, the embodied nature of performance allows for the exploration of themes such as vulnerability, resilience, justice and interconnectedness, creating space for reflection and positive social transformation.

1) The Power of Art as an excellent Climate Change Communicator

Art has the capacity to heal the planet with the right approach and mindset to be developed in the psyche of the human population so that issues of climate action resonate towards conscious action. Visual storytelling like "An Inconvenient Truth" (2006) and movies like "Don't Look Up" (2021) changed the global political discourse and public narrative on climate change awareness and the need for action; resulting in a large number of viewers becoming climate activists. Visual art has the capacity to present scientific data with relatable and emotionally impactful narratives in simplistic forms to connect irrespective of language and cultural boundaries. A New York artist, Eve Mosher, walked almost 70 miles across Brooklyn and lower Manhattan, painting a chalk line showing the likely location of frequent flooding if sea levels continued to rise.

Strong theatre performances, paintings, murals, music, and film are alternative modes of storytelling that humanize climate struggles, making them more personal and urgent. "The Great Barrier Reef," a multimedia dance production by the Australian Dance Theatre, to depict the beauty and fragility of the endangered ecosystem uses movement, music, and projected animations. World Wildlife Fund (WWF) through the campaign i.e., The "Do Art for Earth", invites talented artists to creatively raise public awareness about local environmental issues and inspire action. Further, tribal art from Maharashtra, India called Warli art, has been depicting the changing environment and its consequences. Artistic expressions can enhance public understanding of climate change, evoke emotions, and inspire sustainable behaviours backed by scientific evidence. Globally art is gaining acceptance as an excellent communicator to advocate for climate action.

2) Art as a Catalyst for Behavioural and Policy Change

Art has great potential when it comes to influencing individual behaviours because it helps connect with the human universal imagination. Beyond raising awareness, art has the potential to drive real-world action by influencing individual behaviours and shaping policy discourse. Performances and visual installations can create shared emotional experiences that lead to increased empathy and collective responsibility. Activist art, such as protest performances, street murals, and immersive exhibitions, has been instrumental in pushing policymakers to address environmental concerns. This theme investigates how the arts have been used to advocate for policy reforms, encourage sustainable lifestyles, and foster a sense of urgency toward climate action.

Art-based approaches help foster community engagement and foster a sense of ownership and responsibility. Art therapy can be effective in healing trauma, especially in vulnerable populations, and in increasing social responsiveness among people with autism spectrum disorder. Art can similarly affect the well-being of people with dementia and their caregivers, with research showing improvements in cognition, behaviour, mood and relationships (Rowe, 2016). Art also has an effect on urban development and how people in a community act. The connection between art and policy is not straightforward and biennials are often fictitious victims of policy because they usually depend on public funding and policy schemes. AI gives a chance of automation in curatorial practices; however this type of experience raises ethical concerns that need to be put right as the integration of AI and block chain in curatorial practices will lead to future curatorial processes. Art is an important part of education and socialization it influences how children develop socially and emotionally and it encourages critical thinking (Balliger, 2021).

3) Community Engagement, Justice and Social Change through Art

Art is about empowering individuals and groups to become active participants in shaping their own narratives and solutions. In the critical intersection of climate justice and social change, art can act as a powerful tool for community engagement, generating meaningful dialogue and amplifying the voices of those affected by climate induced inequities. It takes a step ahead of awareness generation to become a catalyst for visible change. Coinciding with the 2015 Paris Climate Conference, the "ArtCOP21" campaign, a worldwide festival of creativity and the arts was celebrated with a focus

on neighbourhood-based initiatives that tackled regional environmental issues, this project featured artwork from all around the world. Another film from India, "Kadvi Hawa" (2017), directed by Nila Madhab Panda, highlighted the story of a drought-stricken village in Rajasthan and the struggles of its marginalized and vulnerable communities and depicted the human cost of climate change and need for climate action. Art is also important when it comes to social justice movements and health disparity, where it advocates for issues, we see within our society as a whole. Located in Los Angeles, Watts public art activism advocates social justice, radical self-love and creativity as a potential catalyst for behavioural change and policy implementation. Due to their visibility, the artificial nature that is given to Middle Eastern women in art often challenges stereotypes and facilitates more nuanced understandings of cultural identities. (Tyack, 2015).

Art brings communities closer to face the common challenge as an emergency through participation for change by sharing their lived experiences in forms of songs and murals; to further co- create solutions and grassroots activism. For example, the Standing Rock Sioux Tribe's resistance to the Dakota Access Pipeline gained international attention in part due to the powerful murals, banners, and digital art produced by Indigenous artists. Indigenous and marginalized communities, who often bear the brunt of climate change, have used artistic traditions to assert their voices in climate dialogues. Art plays a complementary role in the shared goal to deal with the impacts of climate change by bringing home the issues in simplistic forms for communities to comprehend, to act collaboratively and responsibly for themselves and their loved ones.

4) The Intersection of Art, Science, and Technology for Climate Action

Innovative approaches at the intersection of art, science, and technology are redefining how climate change is perceived and addressed. Digital art, augmented reality, interactive installations, and eco-theatre productions are increasingly being used to blend scientific research data with artistic expression, making environmental data more engaging and accessible. This theme explores how collaborations between scientists and artists can result in creative climate solutions, using artistic methods to visualize data, promote renewable energy, and provide proactive sustainable solutions to communities.

The arts offer potent channels for communication and engagement, and scientific research is essential to understanding climate change and informing the creation of viable solutions. We know (as is now irrefutable) that humanity, and only humanity, is causing climate change (York, 2010). The knowledge does not always beget action, and action requires clear communication (York, 2010), however. Scientists work with artists to help drive the communication of climate science and to elevate public engagement (Tosca, 2021). This cross-industry approach facilitates the production of new types of research interfaces and visualizations (Tosca, 2021), bringing otherwise elusive datasets to light and public engagement. The collaborative bringing together of art, design, and science from the outset of a project promotes better knowledge production as well as broader public understanding of ecological challenges (Tosca, 2021). The scientific bodies should engage and collaborate with artists to articulate themselves to the masses towards climate action, which is still missing on larger climate discourses.

Technology is enabling science and new forms of artistic expression, as well as the reach and impact of climate action initiatives. The most important concern within Patchwork is climate change and this is already reflected in the data collection with digital platforms that can be used to create and distribute climate-related art (Williamson, 2013). Digital activism and web archaeology work, for instance, enables the construction of community memories that can activate social awareness and response to climate extremes (Williamson, 2013). Moreover, escape rooms gamification presents creative resources for advancing climate change education using immersive experiences to encourage experiential learning, critical thinking and problem-solving skills (Ouariachi, 2020). It is easy to see how these technologies create a sense of urgency and increase the collaborative effort between participants, which is aligned with goals related to climate action (Ouariachi, 2020).

5) Cultural Context and Indigenous Perspectives through Art

The media is influential in social construction of global climate change and Indigenous cultures (Stammen, 2022). Looking at ways climate change is covered in the Western World Stammen, Givens, Wilkes, Litts, and MartinezCola's research points to the underrepresentation and misrepresentation of Indigenous peoples (Stammen, 2022). Those representations show that Indigenous members' representations of Indigenous perspectives are more accurate when Indigenous peoples themselves write news articles (Stammen, 2022). It calls for a decolonized approach to media

representation, one in which Indigenous voices are not only included but also given prominence in the story. Their Holistic Media Coding Protocol, structured through both Indigenous and Western lenses, serves as a useful tool for identifying how media coverage correlates with nuanced misrepresentation (Stammen, 2022). The profound relationship between land and Indigenous identity is central to understanding the impacts of climate change (Wilson, 2021). Wilson's work explores the fundamental connection between land and human experience, emphasizing the emotional and spiritual connections Indigenous peoples have with their ancestral territories (Wilson, 2021). Indigenous knowledge systems challenge capitalist frameworks of land ownership, advocating for a perspective that views humans as part of the land, rather than its owners (Menziez, 2022). This perspective highlights the interconnectedness of human and environmental well-being, a crucial aspect often overlooked in Western-centric approaches to climate change. The impact of climate change varies significantly across different localities, affecting young people's perceptions and experiences based on their geographical context (Menziez, 2022). For example, Aboriginal Australian dot paintings often depict water cycles and sacred landforms affected by climate change, reinforcing Indigenous ecological management practices. This necessitates localized approaches to climate change adaptation and mitigation that consider the specific needs and vulnerabilities of different communities.

The study by Clissold, Furlong, McNamara, Westoby, and LataiNiusulu examines intangible and non-economic dimensions of loss due to climate change, particularly in Pacific Island communities (Menziez, 2022). Pasifika arts serve as crucial avenues for sharing experiences, navigating loss, and exploring grief related to climate-driven loss (Menziez, 2022). This highlights the significance of recognizing cultural and identity losses in climate change impact assessments and planning. Grande, Dias, Jardim, Machado, Soratto, da Rosa, Ceretta, Zourntos, Soares, and Harding's research emphasizes the vulnerability of Indigenous peoples to climate change impacts due to their close relationship with nature (Bacon, 2018). The study highlights the interconnectedness of climate change and Indigenous health, emphasizing the need for culturally sensitive public health policies (Bacon, 2018). By converting environmental issues into powerful visual and performance storytelling, indigenous art acts as a link between traditional heritage and modern climate campaigning. Both Indigenous and non-Indigenous audiences are mobilized by these artistic manifestations that integrate Indigenous aesthetics, activism, and ecological understanding, fostering a deeper connection to climate challenges. In addition to being important for cultural preservation, recognizing and elevating Indigenous artistic perspectives is also a key tactic for promoting climate justice and sustainable development.

4. CONCLUSION

The changing climate is impacting the very fabric of society, often unequally for different groups based on caste, creed, race, religion and gender with disparity of wealth adding to it across geographical boundaries in a rapidly changing world. Art has been one of the oldest recorded means of expressing experiences, emotions and challenges through creative expressions by people. Time has come that 'Climate Art' as a specific course and pedagogy can be taught to our younger generations to bring out the interconnectedness of the anthropocene and the need for action in daily activities. The various forms of visual and performing arts engage with the world view, values, emotional, cultural, and embodied experiences of a changing climate among masses and can bring about transformational behavioural changes to consider their own feelings and views to act responsibly. Further, it will boost climate justice, resilience and equity in the long run and highlight associated climate risks. Individual and collective social transformation through popularising various 'Climate Art' forms as they can offer information, action and opportunities to children and younger generations with hope about their future and sustainability.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

None.

REFERENCES

- Bacon, J. (2018). Settler colonialism as eco-social structure and the production of colonial ecological violence. Taylor & Francis. <https://doi.org/10.1080/23251042.2018.1474725>
- Balliger, R. (2021). Painting over precarity: community public art and the optics of dispossession, gentrification and governance in west oakland, ca. *None*. https://doi.org/10.1386/JUCS_00035_1
- Bentz, J. (2020). Learning about climate change in, with and through art. *Climatic Change*, 162, 1595–1612. <https://doi.org/10.1007/s10584-020-02804-4>
- Bentz, J., & O'Brien, K. (2019). Art for change: Transformative learning and youth empowerment in a changing climate. *Elementa: Science of the Anthropocene*, 7(1), 52. <https://doi.org/10.1525/elementa.390>
- Beer, T. (2021). *Ecoscenography: An introduction to ecological design for performance*. Palgrave Macmillan. <https://doi.org/10.1007/978-981-16-7178-4>
- Boal, A. (2000). *Theater of the oppressed*. Pluto Press.
- Bower, S. (2010). *Environmental art. A Working Guide to the Landscape of Arts for Change*. Animating Democracy: A Program of Americans for the Arts. Retrieved from <http://animatingdemocracy.org/resource/environmental-art>
- Burke, M., Ockwell, D., & Whitmarsh, L. (2018). Participatory arts and affective engagement with climate change: The missing link in achieving climate-compatible behavior change? *Global Environmental Change*, 49, 95–105. <https://doi.org/10.1016/j.gloenvcha.2018.02.007>
- Cooper, K. E., & Nisbet, E. C. (2017). Documentary and edutainment portrayals of climate change and their societal impacts. *Oxford Research Encyclopedia of Climate Science*. <https://doi.org/10.1093/acrefore/9780190228620.013.373>
- Corbett, J. B., & Clark, B. (2017). The arts and humanities in climate change engagement. *Oxford Research Encyclopedia of Climate Science*. <https://doi.org/10.1093/acrefore/9780190228620.013.392>
- Curtis, D. J. (2009). Creating inspiration: The role of the arts in creating empathy for ecological restoration. In *Ecological restoration: A global challenge* (pp. 285–293). Cambridge Scholars Publishing.
- Curtis, D. J., Reid, N., & Ballard, G. (2012). Communicating ecology through art: What scientists think. *Environmental Education Research*, 18(3), 321–335. <https://doi.org/10.1080/13504622.2011.620702>
- Dieleman, H. (2017). Arts-based education for an enchanting, embodied and transdisciplinary sustainability. *Artizein: Arts and Teaching Journal*, 2(2), 16.
- Doyle, J. (2011). Mediating climate change. *Wiley Interdisciplinary Reviews: Climate Change*, 2(3), 289–297. <https://doi.org/10.1002/wcc.108>
- Gabrys, J., & Yusoff, K. (2012). Arts, sciences and climate change: Practices and politics at the threshold. *Science as Culture*, 21(1), 1–24. <https://doi.org/10.1080/09505431.2010.550139>
- Galafassi, D., et al. (2018). Raising the temperature: The arts in a warming planet. *Ecology and Society*, 23(4), 23. <https://doi.org/10.5751/ES-10404-230423>
- Gorsegner, A. (2016). Role of art in the global climate change movement [Drexel University]. <https://doi.org/10.17918/etd-6754>
- Hawkins, H. (2014). For creative geographies: Geography, visual arts, and the making of worlds. *Progress in Human Geography*, 38(4), 554–577. <https://doi.org/10.1177/0309132513503773>
- Hawkins, H., & Kanngieser, A. (2017). Artful climate change communication: Overcoming abstractions, insensibilities, and distances. *Wiley Interdisciplinary Reviews: Climate Change*, 8(5), e472. <https://doi.org/10.1002/wcc.472>
- Ingram, D. (2016). The aesthetics of environmental visualizations: More than information ecologies. In *The aesthetics of the Anthropocene* (pp. 45–62). Palgrave Macmillan.
- Kabanda, P. (2014). The creative wealth of nations: how the performing arts can advance development and human progress. *None*. <https://doi.org/10.1596/1813-9450-7118>
- Leiserowitz, A., & Smith, N. (2010). Knowledge of climate change among visitors to science & technology museums. Yale Project on Climate Change Communication.
- Lesen, A. E., Rogan, A., & Blum, M. J. (2016). Science communication through art: Objectives, challenges, and outcomes. *Trends in Ecology & Evolution*, 31(9), 657–660. <https://doi.org/10.1016/j.tree.2016.06.004>
- Mohsen, R. & Ezzeddine, H. S. (2017). The image of middle east woman between western orientalism and middle eastern art. *None*. <https://doi.org/10.21608/IDJ.2017.87604>

- Menzies, A., Bowles, E., Gallant, M., Patterson, H., Kozmik, C., ef, S. C., McGregor, D., Ford, A., Popp, J., & Canada, P. (2022). I see my culture starting to disappear: anishinaabe perspectives on the socioecological impacts of climate change and future research needs. *Facets*. <https://doi.org/10.1139/facets-2021-0066>
- Miles, M. (2014). *Eco-aesthetics: Art, literature and architecture in a period of climate change*. Routledge.
- Nurmis, J. (2016). Visual climate change art 2005–2015: Discourse and practice. *Wiley Interdisciplinary Reviews: Climate Change*, 7(4), 501–516. <https://doi.org/10.1002/wcc.400>
- O’Neill, S., & Nicholson-Cole, S. (2009). “Fear won’t do it”: Promoting positive engagement with climate change through visual and iconic representations. *Science Communication*, 30(3), 355–379. <https://doi.org/10.1177/1075547008329201>
- Ouariachi, T., & Wim, E. J. L. (2020). Escape rooms as tools for climate change education: An exploration of initiatives. *None*. <https://doi.org/10.1080/13504622.2020.1753659>
- Roosen, L. J., Klöckner, C. A., & Swim, J. K. (2017). Visual art inspired by climate change: An analysis of audience reactions to 37 artworks presented during the 21st UN climate summit in Paris. *PLOS ONE*, 12(11), e0184481. <https://doi.org/10.1371/journal.pone.0184481>
- Trott, C. D. (2020). Merging the arts and sciences for collaborative sustainability action: A methodological framework. Retrieved from https://www.academia.edu/43737240/Merging_the_arts_and_sciences_for_collaborative_sustainability_action_a_methodological_framework
- Tyack, C., Camic, P. M., Heron, M. J., & Hulbert, S. (2015). Viewing art on a tablet computer: a well-being intervention for people with dementia and their caregivers. SAGE Publishing. <https://doi.org/10.1177/0733464815617287>
- York, R., & Clark, B. (2010). Critical materialism: Science, technology, and environmental sustainability. *Sociological Inquiry*. <https://doi.org/10.1111/j.1475-682X.2010.00343.x>
- Williamson, J. (2013). Collective action: environmentalism in contemporary art. *None*. <https://doi.org/None>