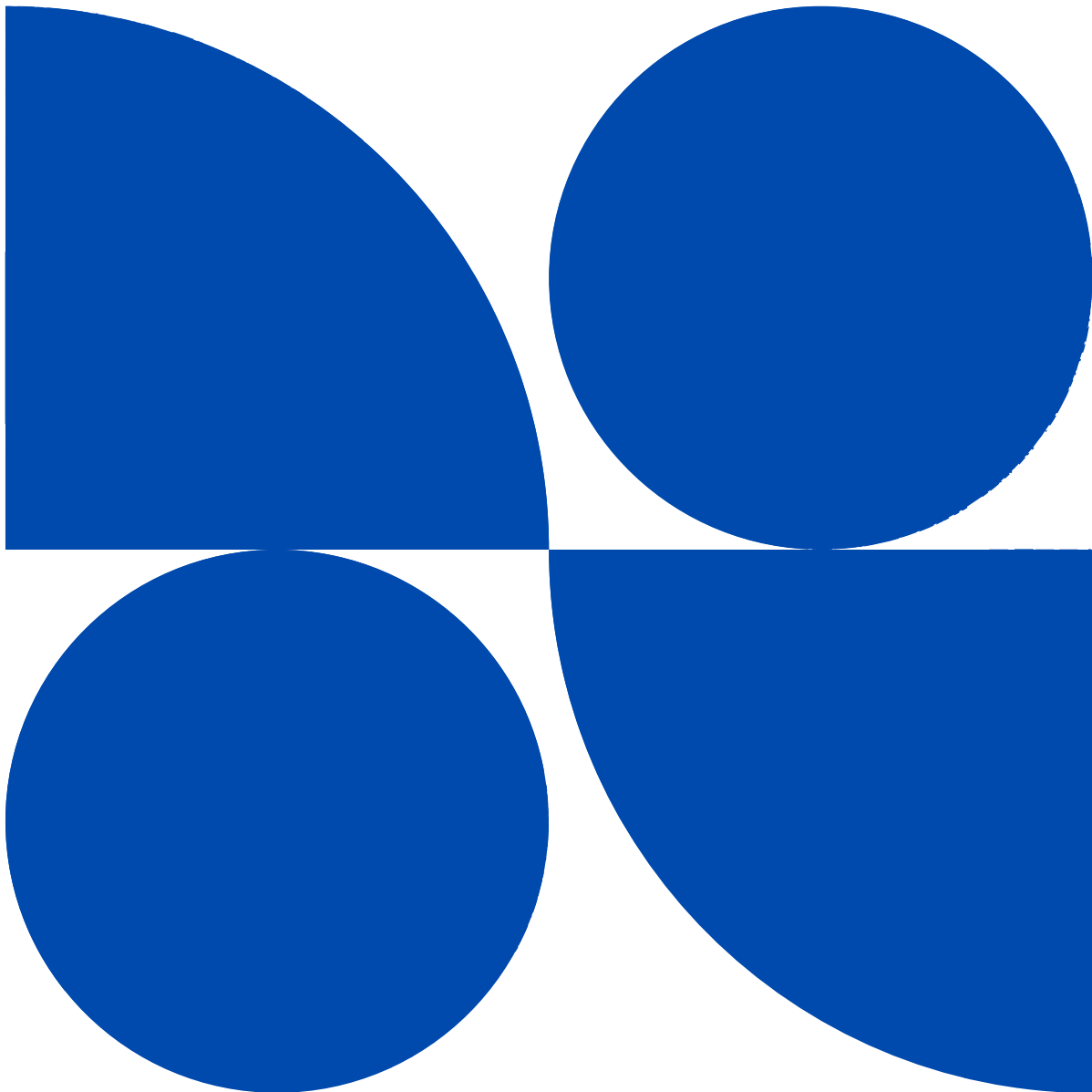


Understanding Virtual Art Engagement

Exploring the Impacts of Immersion on Flourishing



Background

People visit art museums for a variety of reasons, including to see something beautiful or famous, to learn more about art, or to experience a sense of awe. More recently, there has been increased interest in understanding the role art museums play in promoting flourishing in museum visitors.

Flourishing is a multi-faceted way of approaching overall quality of life in terms of two basic conditions: low ill-being and high well-being.¹ *Low Ill-Being* concerns the absence of diseases, disorders, and other negative states and traits. The goal of focusing on ill-being related factors is to mitigate or reduce any existing ill-being and to prevent future occurrences of ill-being. *High Well-Being* concerns the presence of strengths, meaning, and other positive states and traits. The goal of focusing on well-being related factors is to preserve existing well-being and to promote well-being in the future.

Unsurprisingly, a number of research projects have examined the flourishing benefits of visiting art museums.² Collectively, these studies suggest that visiting art museums can reduce several dimensions of ill-being (e.g., stress, anxiety), increase feelings of social connection and overall quality of life, and increase positive emotions.

Recently, there has been a rapid increase in the ways people are able to engage with visual art outside of art museum spaces. One major way people engage with visual art is digitally, from the ability to search for particular artworks online (e.g., visiting Google Arts and Culture³) to participating in curated experiences hosted by art museums and other institutions.^{4,5,6} Given these new and increasingly available forms of digital art engagement, it's important to understand how digital art engagement impacts us.

Across two projects, we examined the potential flourishing and emotional benefits of brief visits to a virtual art gallery. These projects were particularly interested in how people's level of immersion^{7,8,9} during their engagement enhanced their flourishing.

The Open Gallery for Arts Research

To better understand digital art engagement, we employed a cutting-edge virtual gallery research tool—the Open Gallery for Arts Research (OGAR).^{10, 11} OGAR allows for designing a gallery from scratch and allows for a number of functions including:

1. Designing the floor and wall layout of the gallery
2. Adjusting the color of the walls, floor, and ceiling
3. Place artwork images on walls
4. Resize artwork images
5. Making individual artwork images full screen for viewing
6. Adding labels to artworks
7. Adding audio to accompany individual artworks

Once a gallery is designed for research projects, it can be directly embedded into a Qualtrics survey for seamless data collection alongside other factors of interest. The gallery shows up as a thumbnail within the Qualtrics survey screen, and participants click this thumbnail to launch full screen mode, allowing them to explore the gallery.

After launching full screen mode, participants are free to navigate through the gallery using their mouse and arrow keys on the keyboard. As participants move through the gallery, their position, view point, and what they are looking at (among other factors) are recorded. This allows for reconstructing participant visits, learning what people looked at and for how long, and how long their visit lasted.



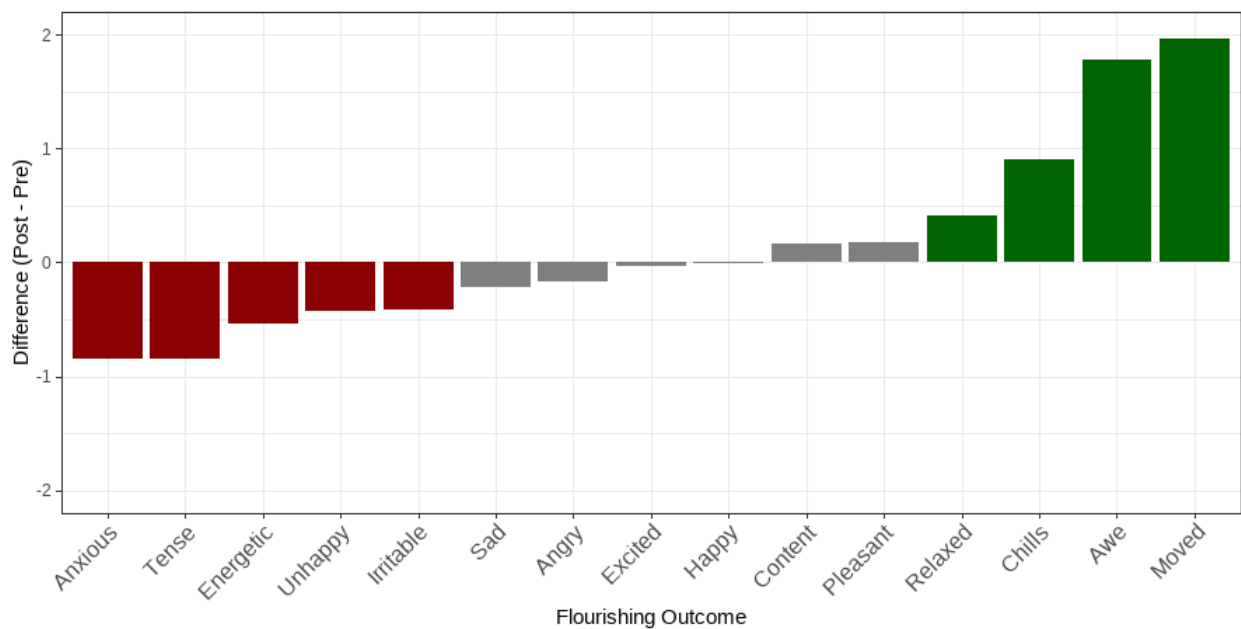
The development of a tool with this degree of customization and ability to collect detailed information represents a significant milestone in the ability to understand digital art viewing experiences. If you are interested in learning more about the technical aspects of the OGAR platform please see Rodriguez-Boerwinkle et al. (2022)¹² and to download the open-source software to design galleries and collect data using OGAR, please visit <https://github.com/HHF-Penn/OGAR>.

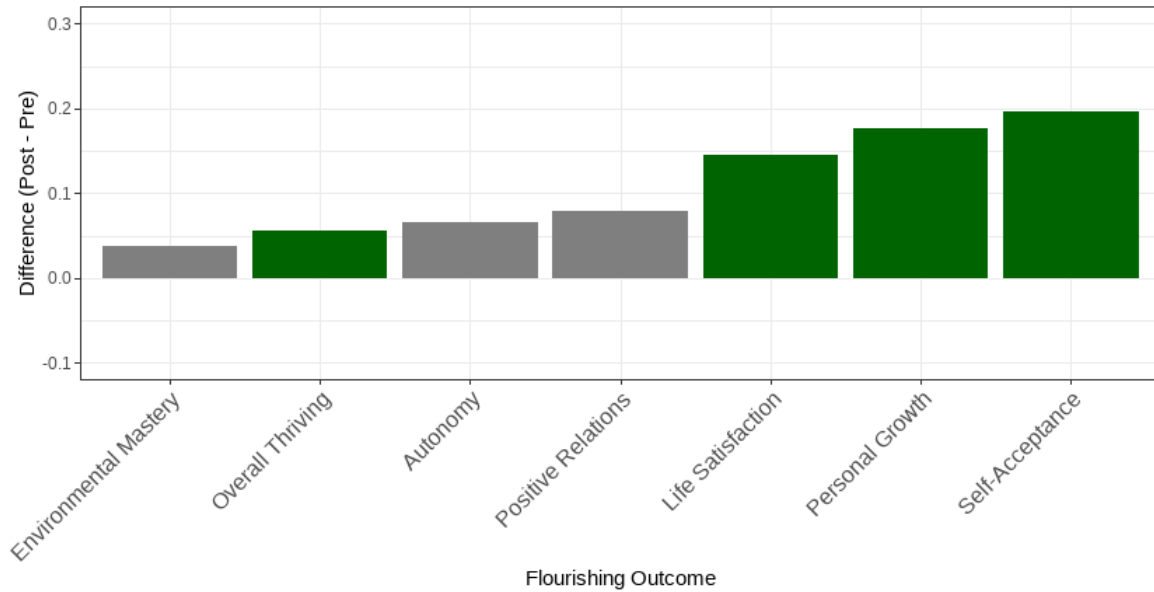
Pilot Study

In the first study using the virtual gallery tool to examine flourishing benefits of digital art engagement, we focused on the benefits of a single visit and the degree to which people felt immersed in their visit, a quality theorized to be important for optimizing flourishing benefits of art engagement.¹³ Specifically, we had two primary research questions guiding this investigation:

1. How do emotional states and other aspects of flourishing change following a short virtual gallery visit?
2. What role does immersion play in these changes?

To address these questions, we recruited 155 U.S. adults from Prolific, an online research platform. The sample was predominantly female (54.19%), and young ($M = 36.32$ years). Prior to their virtual gallery visit, participants indicated their baseline levels of overall thriving, life satisfaction, five domains of psychological well-being (autonomy, environmental mastery, personal growth, positive relations with others, and self-acceptance), and fifteen positive, negative, and aesthetic emotions. Participants then visited the virtual gallery for 15 minutes. The gallery contained two rooms and eight artworks from the Philadelphia Museum of Art's collection. Immediately following their visit, participants completed the pre-visit measures again and indicated their level of immersion during the visit.





After the brief gallery visit, people felt heightened aesthetic emotions (i.e., moved, awe, and chills) and more relaxed and felt lower levels of several negative emotions (i.e., anxious, tense, unhappy, irritable) as well as less energetic. People also experienced gains in four areas of flourishing—overall thriving, life satisfaction, personal growth, and self-acceptance.

In addition to overall change in flourishing and emotional state, we also examined whether people’s level of immersion during the visit predicted changes in flourishing and emotional state. People who were more immersed during their visit indicated greater overall thriving and self-acceptance following their visit. Additionally, higher levels of immersion were also related to feeling greater positive emotion (i.e., excited, happy, pleasant, content, relaxed) and aesthetic emotion (i.e., awe, moved, chills) and lower levels of unhappiness. Immersion was also associated with feeling more angry, sad, and irritable following the visit; however, additional examination of these relationships suggested that immersion played a buffering role for these negative emotions—for people feeling elevated levels of sadness, anger, and irritation prior to the gallery visit, the more immersed they were in the visit the greater the reduction in these states.

Main Study

In a second study examining flourishing through virtual art gallery visits, we focused on the benefits of repeated visitation.¹⁴ Prior research suggests that repeated art museum visitation is associated with greater flourishing benefits.¹⁵ We aimed to examine whether this extended to repeated virtual art gallery visitation. Specifically, we had three primary research questions guiding this investigation:

1. How do emotional states and other aspects of flourishing change following a series of short virtual gallery visits?
2. What role does immersion play in these changes?
3. How do differences in people's descriptions of their visits relate to changes in flourishing?

To address these questions, we recruited 687 U.S. adults from a U.S. representative sample (with respect to age, gender, and race) from Prolific, an online research platform. The study took place over the course of 5 weeks, with one session per week. In the first week, participants completed baseline measures assessing multiple areas of flourishing, including 18 dimensions of thriving, psychological needs, depression, anxiety, and stress. People then completed four 15-minute virtual gallery visits, one per week for weeks 1-4. Immediately following each visit, people indicated their level of immersion in the visit and provided a description of their visit. Each gallery was constructed with four rooms and contained 30 artworks from the Philadelphia Museum of Art's collection, with no individual work of art appearing in more than one gallery. In week 5, participants once again completed the flourishing measures.

Overall, few flourishing outcomes changed from the measurements taken prior to any gallery visits and one week following the last gallery visit. People showed increases in feelings of support, negative feelings, learning, and autonomy dissatisfaction (e.g., feeling a lack of self-ownership or not doing things of your own volition). In addition to examining overall changes in flourishing, we also examined the role immersion may play in flourishing outcomes of digital art engagement. People who were more immersed across their four gallery visits tended to report greater autonomy satisfaction, engagement, learning, meaning, respect, anxiety, and stress. We also analyzed participant descriptions of their gallery visits and found two major themes: descriptions emphasizing information about the artwork or information about their feelings and reactions to the artworks. People who tended to emphasize artwork information in their descriptions reported increases in overall thriving and decreases in their negative emotions and sense of community. People who tended to emphasize personal reactions in their descriptions reported increases in negative emotion, depression, and stress and decreases in overall thriving and positive feelings. This may suggest that when our engagement with art takes us outside of ourselves, we may see greater support for experiencing greater flourishing. The paper detailing this study is published and freely available via open access: <https://www.mdpi.com/2076-328X/12/12/500>.

Conclusion

Recent years have seen many expansions in the ways in which people can engage with visual art online. To better understand these forms of digital art viewing, we used a newly developed virtual gallery research tool to conduct two studies examining the flourishing and emotional benefits of digital art engagement. Collectively, our recent work suggests that digital art engagement can impact flourishing, particularly emotional states, and that the Open Gallery for Arts Research is a promising new tool for greater understanding of digital art viewing.

¹ Pawelski, J. O. (2016). Defining the ‘positive’ in positive psychology: Part II. A normative analysis. *Journal of Positive Psychology, 11*(4), 357-365.

² Cotter, K. N. & Pawelski, J. O. (2022). Art museums as institutions for human flourishing. *Journal of Positive Psychology, 17*(2), 288-302.

³ Trupp, M. D., Bignardi, G., Chana, K., Specker, E., & Pelowski, M. (2022). Can a brief interaction with online, digital art improve wellbeing? A comparative study of the impact of online art and culture presentations on mood, state-anxiety, subjective wellbeing, and loneliness. *Frontiers in Psychology, 14*, 782033.

⁴ Agostino, D., Arnaboldi, M., & Lampis, A. (2020). Italian state museums during the COVID-19 crisis: From onsite closure to online openness. *Museum Management and Curatorship, 35*(4), 362-372.

⁵ Burke, V., Jorgensen, D., & Jorgensen, F. A. (2020). Museums at home: Digital initiatives in response to COVID-19. *Norsk museumstidskrift, 6*(2), 117-123.

⁶ Tan, M. K. B., & Tan, C. M. (2021). Curating wellness during a pandemic in Singapore: COVID-19, museums, and digital imagination. *Public Health, 192*, 68-71.

⁷ Shim, Y., Tay, L., Ward, M., & Pawelski, J. O. (2019). The arts and humanities: An integrative conceptual framework for psychological research. *Review of General Psychology, 23*, 159-176.

⁸ Tay, L., Pawelski, J. O., & Keith, M. G. (2018). The role of the arts and humanities in human flourishing: A conceptual model. *Journal of Positive Psychology, 13*(3), 215-225.

⁹ Thapa, S., Vaziri, H., Shim, Y., Tay, L., & Pawelski, J. O. (in press). Development and validation of the mechanisms of engagement in the arts and humanities scales. *Psychology of Aesthetics, Creativity, and the Arts*

¹⁰ Rodriguez-Boerwinkle, R. M., Boerwinkle, M., & Silvia, P. J. (2022). The Open Gallery for Arts Research: An open-source tool for studying the psychology of virtual art museum visits. *Behavioral Research Methods*.

<https://doi.org/10.3758/s13428-022-01857-w>

¹¹ The Open Gallery for Arts Research is available here: <https://github.com/HHF-Penn/OGAR>

¹² <https://doi.org/10.3758/s13428-022-01857-w>

¹³ Tay, L., Pawelski, J. O., & Keith, M. G. (2018). The role of the arts and humanities in human flourishing: A conceptual model. *Journal of Positive Psychology, 13*(3), 215-225.

¹⁴ Cotter, K.N., Crone, D.L., Rodriguez-Boerwinkle, R.M., Boerwinkle, M., Silvia, P.J., & Pawelski, J.O. (2022).

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¹⁵ Fancourt, D., Steptoe, A., & Cadar, D. (2018). Cultural engagement and cognitive reserve: Museum attendance and dementia incidence over a 10-year period. *British Journal of Psychiatry, 213*, 661-663.