Thinking of Ways to Create New Value for Museums: The Practice of "Museum Bathing" in Conjunction with Medical Care and Welfare in a Super-aging Society

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1. Focusing on Article 3, Section 3 of partially amended "Museum Act"

On April 15, 2022, the Agency for Cultural Affairs notified the Superintendents of Education of the Boards of Education of Japan's prefectures that a partial amendment to the Museum Act had been announced. In light of the fact that 70 years had passed since the Museum Act came into effect on March 1, 1952, the amendment was aimed at "realizing museums that respond to social changes, so that museums can function both as social educational facilities and cultural facilities, while continuing to fulfill their basic role of collecting, storing, and exhibiting materials, and of education, research, and investigation."

For this article, I want to focus on Article 3, Section 3 of the revised law, which specifies that, "A museum is to… promote educational, academic and cultural development, cultural tourism… and other activities in the region where the museum is located, and thereby contribute to invigorating the region." Here, (1) "other activities" includes community development, welfare initiatives, promotion of local industries, and international exchange, and various other activities, while (2) "invigorating the region" includes the revitalization of local community development and industry, as well as the resolution of various issues faced by the region, such as issues of social inclusion due to community decline and isolation, population decline, aging, and environmental problems. (These explanations are given in supplementary notes to the law.)

In terms of creating new value for local museums, the most important points from the above are welfare initiatives under (1) "other activities," and social inclusion issues related to community decline and isolation, as well as population decline and aging under the (2) "invigorating the region." These latter challenges are linked with Japan's response to the "2025 Problem" (named for the year when all of Japan's baby boomers will be 75 or older) and "2042 Problem" (named for the year when the number of people over 65 will peak).

2. UK museums are an "untapped wellbeing resource"

According to "Calm and Collected," a report published in 2019 by Art Fund in the UK, 63% of surveyed people had visited a museum or gallery to "de-stress." However, only 6% of people regularly visit such facilities. The report concluded that museums and galleries are an "untapped wellbeing resource.

At the Museums, Health, & Well-being Summit 2022 (January 31-February 2, 2022), an online conference organized by MuseumNext® in the UK, there were reports on 26 activity programs run at museums and galleries in collaboration with health and welfare organizations, from the UK, US, Netherlands, Switzerland, Singapore, Taiwan, and elsewhere. These reports stimulated lively discussions about how to harness all the "untapped well-being resources."

Presentations on "Wellbeing with Vincent" (Van Gogh Museum: Netherlands) and "Children, Grief and Loss" (Jewish Museum London: UK) reported on mental health programs in which participants discussed feelings of psychological discomfort, loss, and grief as they viewed the art collections. A presentation about "Stress reduction in doctors in training through engagement with Art" (Groninger Museum: Netherlands) reported that viewing and appreciating artworks helped trainee doctors not only to de-stress, but also to sharpen their abilities to observe and empathize with patients.

These examples show that mental health/well-being programs that are collaboratively run by museums and medical or welfare organizations are being actively implemented in many places overseas.

3. Doctors in Canada can "prescribe" museum visits

In November 2018, doctors in Canada began for the first time in the world to prescribe visits to museums to help their patients recover their health. The Montreal Museum of Fine Arts, Canada's oldest museum (opened in 1860), partnered with Médecins francophones du Canada (the association of French-speaking doctors in Canada) to enable patients with various mental or physical health afflictions to enjoy the health benefits of art on a free visit to the museum, accompanied by family or caregivers. Doctors can issue up to 50 prescriptions per year. The museum has set up an "education and wellness department," which includes a full-time art therapist, to work on developing art programs together with doctors, university researchers, and hospital professionals. A similar initiative has been trialed in Belgium starting in September 2021.

Until now, museums have been considered places to visit for intellectual stimulation, learning, and enjoyment, and for exploring collections of artworks using all five senses. However, they are now starting to develop a new kind of value as "places of health."

This paper defines "museum bathing" as utilizing the healing power of museums for the promotion of human health and disease prevention through museum visits and offers an outline of the current state of research on museum bathing in Japan and overseas, along with some of the emerging challenges in this field.

4. The use of museum bathing to prevent frailty

To begin with, what does “health” mean? And when considering the health of elderly people in an aging society, what is the most essential perspective?

The preamble to the Constitution of the World Health Organization (WHO) defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”

Before reaching the end of their natural life, elderly people typically pass through three stages, from health, to frailty, and eventually to the need for nursing care.

The “frail elderly,” in the stage between health and the need for nursing care, are frail because their muscle strength and their physical and mental vitality are declining. There is evidence that appropriate interventions during this “frail” stage can extend healthy life expectancy, and even restore people to the stage of “health.” Therefore, early detection and prevention are essential.

So, what are the secrets to good health for the elderly? There are three: the first is exercise and movement; the second is diet and nutrition; and the third is social participation.

As of October 2021, the population aging rate (ratio of people over 65 years old to the total population) in Japan was 28.9% . According to the Japanese government’s FY2022 Annual Report on the Ageing Society, 51.6% of people aged 65 or more participate in social activities. The most common reasons given for participation were, “It gives me a sense of fulfillment” (48.8%), “I can make new friends” (39.1%), and “It gives me confidence in my health and physical fitness” (34.6%).

Accordingly, the segment of the elderly population that does not participate in social activities (39.9% of people aged 65 or more) is at risk of falling into the stage of prefrailty.

To prevent this, I would like to assert that museums and art galleries can become places of social participation and that museum bathing has a positive effect on health and can help to prevent frailty in elderly people. The question is how to demonstrate the truth of this proposition?

Initiatives such as Canada’s “museum prescriptions” was made possible because its effectiveness was supported by objective evidence. This helped to enable collaboration between local medical associations and museums.

Then, how far has overseas researches on the relation between museum and health progressed?

5. A look at some museum bathing studies in Europe and North America

In November 2019, the WHO Regional Office for Europe released a scoping review titled “What is the evidence on the role of the arts in improving health and well-being?”

The theme of the report was “the arts and health,” with reference to fine art, music, literature, theater, and film. The report stated that while the positive impact of art on health has been recognized in Europe and elsewhere over the past two decades, the supporting evidences have not necessarily been fully recognized. Most of the evaluations have been subjective, in the style of “looking at art soothes my mind,” or “going to a concert makes me feel refreshed.”

To address this deficiency, over 3,000 arts-related articles from the medical literature in English and Russian published between January 2000 and May 2019 were examined. As the result of the examination, the primary impact and other effects of the arts on health were divided into two themes: “prevention and promotion” or “management and treatment.” The papers were then sorted and analyzed based on evidence that satisfied certain criteria. The report proposed a logic model indicating the following four responses of linking the arts with health to promote greater awareness of evidence and improve the quality of future empirical research (in other words, to advance from “sensation to science”).

(1) Psychological (e.g., self-efficacy, coping with stress, improved emotional control)
(2) Physiological (e.g., reduced stress hormone response, enhanced immune function, enhanced cardiovascular response)
(3) Social (e.g., reduced loneliness and isolation, enhanced social support, improved social behavior)
(4) Behavioral (e.g., increased exercise, adoption of healthier behaviors, skill development)

In 2021, Mikaela Law et al.[1] at the University of Auckland, New Zealand published a paper with the objective of “reviewing the existing evidence on the effects of viewing visual artworks on stress outcomes...” They analyzed different research methods and sought to “outline and remedy any gaps in the research methods” identified in the WHO report.

The study proposed the following six questions for clearly defining studies on the effects of viewing artworks on stress outcomes conducted with different populations in different settings.

(1) What populations and settings were studied?
(2) What study methodologies were used?
(3) What stress outcomes were measured?
(4) What types and content of artworks were viewed?
(5) What was the duration of viewing and how many artworks were viewed?
(6) Did the studies show changes in stress outcomes?

The authors then presented the following examples of demonstration experiments adapted to these questions.

Angela Clow et al. at the University of Westminster in the UK conducted tests of London workers before and after a brief lunchtime visit to an art gallery to measure their level of cortisol, an adrenal hormone that serves as an indicator of stress. Typically, the hormone levels

were quite high before the visit, but returned to normal after the visit. The study reported that the short lunchtime visit alone was equivalent to five hours of rest and stress reduction (Angela Clow et al., 2006).[2]

A research team from Roma Tre University in Italy conducted physiological measurements (blood pressure and pulse rate) before and after the viewing of contemporary art and figurative painting to assess the effects of viewing. It reported a significant drop in systolic blood pressure in the group that viewed figurative paintings (Stefano Mastandrea et al., 2019).[3]

A research team from the Villa Santa Maria Institute in Italy conducted physiological measurements at the Sanctuary of Vicoforte in Piedmont, dating back to the 1500 and featuring one of the largest elliptical cupolas in the world and frescoes on the ceiling and walls, including a "Virgin and Child." Cortisol measurements conducted before and after the church tour of approximately two hours showed reductions of up to 60%. Furthermore, around 90% of subjects reported feeling better after the tour (Enzo Grossi et al., 2019).[4]

These kinds of demonstration experiments have now expanded from Europe and to the US, for instance at the Kunstmuseum St. Gallen, Switzerland (Wolfgang Tscacher et al., 2012)[5]; the Castello di Rivoli Museum of Contemporary Art, Italy (Francesca Ferroni et al., 2018)[6]; the Bellevue Arts Museum, US (Kristina Ter-Kazarian, 2020)[7] and the Schaulager Laurenz Foundation, Switzerland (Liosa Krauss et al., 2021).[8]

It should be noted, however, that earlier than the first study on this topic was published overseas, a demonstration experiment was conducted in Japan in 2001.

This involved physiological (cortisol test) and psychological (multiple mood scale, VAS health state valuation) measurements for visitors to three different exhibitions held at the Menard Art Museum in Komaki City, Aichi Prefecture.

According to the museum's website[9] (1) physiological measurements showed a drop in cortisol levels after viewing any of the exhibitions; (2) psychological measurements showed a drop only in depression, anxiety, fatigue, and hostility on the multiple mood scale, and a drop in mental strain and physical strain based on VAS (visual analog scale) valuation. Thus, it reports that visiting a museum has both a physiological and psychological healing effect. However, since this study, no advances in museum bathing research have been made in Japan.

As outlined above, there are growing body of evidence in Japan and overseas that demonstrates that the viewing of artworks is effective in maintaining health and reducing stress. On the other hand, since only a small number of studies have so far been conducted, research methods and experimental procedures for assessing psychological and physiological effects are not standardized.

6. Starting to conduct museum bathing demonstration experiments

When considering the psychological and physiological effects of museum bathing, it is worthwhile to consider the research on "forest bathing" research begun in the 1990s by Yoshifumi Miyazaki and colleagues (Miyazaki et al., 2015).[10] From 2005 to 2014, they conducted a series of field experiments in 60 forest and urban locations around Japan, from Hokkaido to Okinawa.

The experiments were done with a group of approximately 10 to 12 test subjects divided into two groups. Each group performed sets of approximately 15 minutes of sitting and walking in a forest or urban area. On the second day, the groups swapped environments. Before and after the experiment, psychological measurements, utilizing the Japanese version of POMS2 (Profile of Mood States 2nd Edition), VAMS (Visual Analog Mood Scales), and a 13-point scale test for "comfort, calmness, and naturalness" (Semantic Differential method = SD method) were conducted. For physiological measurements, blood pressure, pulse rate, and saliva-based amylase or cortisol tests were done.

Making use of previous forest bathing studies, I began conducting museum bathing demonstration experiments in Japan in September 2020, with a Grant-in-aid for Scientific Research and a research grant from the Agency for Cultural Affairs. (However, due to the COVID-19 pandemic, I have not yet conducted physiological measurements by collecting amylase from saliva).

Firstly, I want to offer an outline of the tools I have used for psychological and physiological measurements, along with objective evaluation parameters.

(1) Psychometric/Health evaluation test: VAS (visual analog scale)

The VAS questionnaire is A4 paper size, with "healthiest" and "worst" at opposite ends of 10-cm measuring scales. To begin, test subjects mark their current state of health on the scale with an "X." The healthiest state is set to 100 and the worst state to 0. The distance of the marks from 0 is measured (in mm) to determine sense of well-being as a score out of 100

The seven questions are: (1) "How are you feeling physically now?"; (2) "Are you feeling any mental stress now?"; (3) "Are you feeling mentally focused now?"; (4) "Are you feeling tired now?"; (5) "Are you feeling happy now?"; (6) "Are you feeling anxious now?"; and (7) "Are you feeling fresh and energetic now? Test subjects are given about five minutes to answer the questions.

(2) Psychometric/Mood and emotion test: POMS (Profile of Mood States)

POMS is a questionnaire for the assessment of mood and emotion. I use the Japanese version of POMS2 published by Kaneko Shobo (a shortened version for adults or young people). It consists of 35 questions on A4 sheets. This version is about half as many questions as the full (65-question) version, making it less demanding on test subjects. This test measures

five negative emotions (anger-hostility, confusion-bewilderment, depression-dejection, fatigue-inertia, and tension-anxiety) and one positive emotion (vigor-activity). The allowed response time is approximately five minutes.

(3) Physiological measurement: Wrist blood pressure monitor/pulse monitor

The maximum blood pressure (systolic blood pressure), minimum blood pressure (diastolic blood pressure), and pulse rate, which are indicators of autonomic nervous system activity, are measured using an OMRON HEM-6121 Wrist Blood Pressure Monitor. Measuring blood pressure and pulse rate is the simplest way to assess autonomic nerve activity.

Basically, when the body is in a relaxed state, blood pressure and pulse rate decrease, whereas they increase when the body is in a stressed state. That is, a reduction indicates a relaxed state, with a predominance of parasympathetic activity. Conversely, an increase in blood pressure and pulse rate indicates a state of tension, with the sympathetic nervous system excited.

Note that demonstration experiments are conducted only after the consents of the test subjects are obtained, after they are provided with an explanation of museum bathing research as approved by the Ethics Committee of Kyushu Sangyo University.

7. Trying to unify demonstration experiment methods based on physiological and psychological measurements.

I began by publishing two research notes, “Verification of the Relaxation Effect of ‘Museum Bathing’: Toward a New Role for Museums in a Super-Aging Society” (2021)[11] and “Prospects for Furthering the Study of Museum Bathing: A Review of the International Research Literature Based on a Scoping Survey by Mikaela Law et al.” (2021).[12]

The former study, based on demonstration experiments in the field of forest bathing, involved psychological and physiological measurements at museums of history, art, archaeology, folklore, and other subjects, and the collection of objective evaluation data.

In contrast, the latter study reviewed research papers on museum bathing conducted around the world, to shed light on common issues, with the goal of promoting greater standardization of research methods and experimental procedures based on psychological and physiological measurements.

The author has since conducted more than 30 other museum bathing demonstration experiments, informed by the six questions raided by Mikaela Law et. Al. The results of these studies have been reported in a further three research notes: “A Study on Physiological and Psychological Effects of “Museum Bathing” (1): A Case Study of Junior High School and High School Students” (2022)[13]; “A Study on Physiological and Psychological Effects of “Museum Bathing” (2): A Case Study of Curators and Museum Workers” (2022)[14]; and “A Study on Physiological and Psychological Effects of “Museum Bathing” (3): A Case Study of University

Students “Learning” and “Not Learning” Museology” (2022).[15] However, due to the ongoing COVID-19 pandemic, it has not yet been possible to conduct a demonstration experiment at an elderly care facility.

8. Findings from museum bathing experiments

To date, museum bathing demonstration experiments have been conducted with over 300 test subjects. These have included curators, museum personnel, junior and senior high school students, and university students (both museology students and non-museology students). As of October 2022, these experiments have been done at a total of 36 museums in the Kyushu and Okinawa regions of Japan, including: Kyushu National Museum, Fukuoka City Museum, Fukuoka Art Museum, Fukuoka Asian Art Museum, Saga Prefectural Museum and Saga Prefectural Art Museum, Togitsu Folk Museum (Nagasaki Prefecture), Mifune Dinosaur Museum (Kumamoto Prefecture), and Miyake Museum of Art (Kagoshima Prefecture). The experiments have been conducted in a wide variety of museums, spanning history, archaeology, art, folklore, and natural history.

Some of the key findings from the museum bathing demonstration experiments conducted so far are outlined below.

(1) Any duration of viewing (e.g., 10, 20, or 30 minutes) has a relaxing effect. A positive effect was observable even after just 10 minutes of viewing. For this reason, museum bathing could reasonably be advocated as a way of enhancing mental health during a lunch break.

(2) Experiments were conducted at various kinds of museums, such as history, archaeology, art, and natural history and the relaxing effect was observed in all of them. The effect was influenced by the exhibited content. For example, people who viewed classical arts at an art museum tended to score lower for depression-dejection and fatigue-inertia, while people who viewed abstract art tended to score higher for vigor-activity. If enough experiments are conducted to verify how different exhibits affect people, it may become possible to select the most suitable works to view according to the condition on a given day.

(3) Both “frequent museum goers” and “infrequent museum goers” experienced the relaxing effect of museum bathing. This evidence suggests the possibility of promoting user-friendly “museum health stations” that anyone can use at any time.

(4) Results showed that the blood pressure of people with low blood pressure tended to increase, while the blood pressure of people with high blood pressure tended to decrease. If participation in museum bathing was conclusively shown to lower blood pressure, museums and art galleries would become less suitable or less desirable spaces for people with low blood pressure. However, the results so far show that people with low blood pressure do not

experience any negative effects. This suggests that the relaxing effect of museum bathing can be enjoyed by a very wide range of people.

(5) A second-year high school student who participated in a demonstration experiment at the Fukuoka City Museum (conducted on December 26, 2021) offered her impressions, saying "This was the first time I heard the term 'museum bathing,' but after I tried it, I really felt more relaxed and enjoyed myself very much. From now on, I will try to make use of forest bathing or museum bathing when I feel unwell or tired." This feedback points to the potential benefits of using museum bathing as a mental health/well-being measure for high school students, particularly during a pandemic.

9. Finally, let's take a "museum bath"!

In the various museum bathing studies I have conducted since September 2020, I have tried to unify the methodology of demonstration experiments by answering the six questions posited by Mikaela Law et al. As a result, I have been able to collect scientific evidence through quantitative evaluation of the relaxing effects of museum bathing. These efforts has led to collaborations with day care service centers, rehabilitation hospitals, and other medical and welfare facilities and have begun to develop an online museum bathing program for elderly people and healthcare workers.

I hope that by conducting further demonstration experiments at museums and art galleries, and producing and accumulating more scientific data, we will gradually see more and more casual museum bathing fans saying, "Let's go and relax at the museum today!" Another goal is to build "museum health stations" (Fig. 1) to create new value for museums, by promoting their use as a well-being resource[16]. (Izumi Ogata)

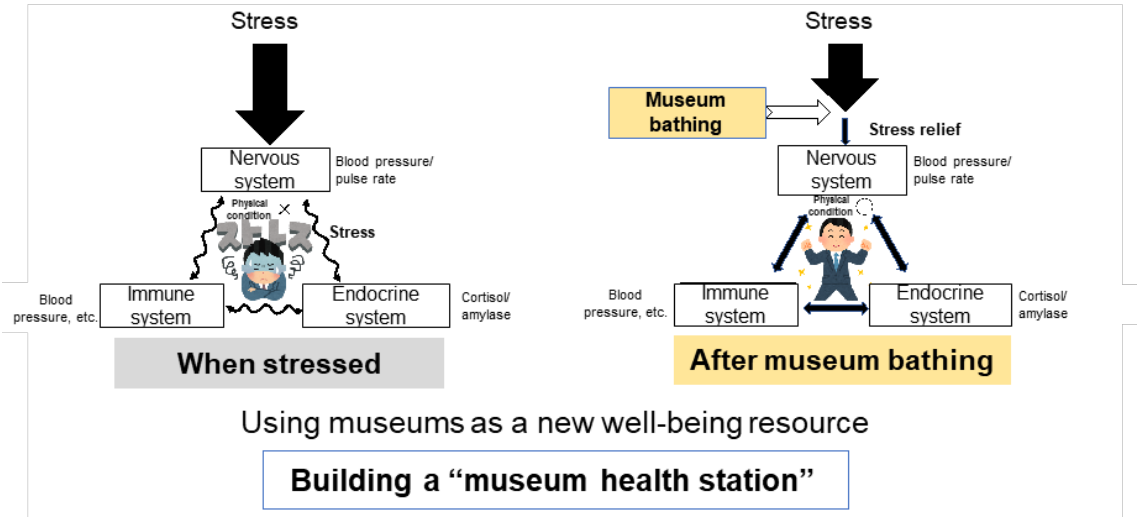

Fig. 1 Relationship between stress reduction after museum bathing and homeostasis in people

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