AUREUM ACADEMIC JOURNAL
VOL. 1, NO. 3, Sep 2024
https://doi.org/10.48161/aaj.v1n3a1

Visual and Performing Arts for Inclusion, Cultural Sustainability, and Social Innovation: National Evidence

Irfan Nurhidayat[1*], Fatima zahra Fakir[2]

[1] Department of Primary Education, Graduate Program, Majalengka University, Majalengka, Indonesia;
[2] Chair of Gastronomy and Culinary Innovation and Sustainability, Madrid, Spain;

* **Corresponding author:** irfannurhidayat09@gmail.com.

ABSTRACT: Visual and performing arts are frequently presented as resources for educational inclusion, cultural continuity, and community innovation, yet population-level evidence connecting these functions remains limited. This study examines whether prior arts learning is associated with continued participation in visual and performing arts and whether current creative participation is associated with volunteering, community activity, and support for cultural organizations. We conducted a secondary cross-sectional analysis using the Survey of Public Participation in the Arts supplement to the Current Population Survey. We linked public-use person records to 160 replicate weights. The analytical samples included 6,527 adults in the creation and performance module, 6,334 in the arts-education module, and 3,160–3,214 in the paired-module models. Design-weighted prevalence estimates and replicate-weighted regression models adjusted for age, sex, educational attainment, race and ethnicity, family income, disability, metropolitan status, and region. Adults reporting school-based arts classes had a 74.1% current participation rate, compared with 30.3% among adults who had never taken arts classes. After adjustment, school-based arts learning was associated with 5.49 times the odds of current creative participation. Domain-specific training was strongly associated with current visual practice (odds ratio 4.80) and performing practice (4.03). Visual and performing participation were each independently associated with 11.4–18.1 percentage-point increases in community activity, volunteering, and cultural support. The findings identify a coherent pathway from inclusive learning opportunities to creative continuity and community-oriented participation. They do not establish causal effects or directly measure completed social innovations; instead, they show that arts participation is embedded in capacities and relationships from which cultural sustainability and socially innovative action may develop.

Keywords: arts education; visual arts; performing arts; cultural sustainability; community engagement; social innovation.

I. INTRODUCTION

Visual and performing arts connect learning, cultural expression, and public participation in ways that purely informational forms of education cannot easily reproduce. Visual practices such as drawing, painting, photography, filmmaking, craft, and digital creation develop observation, interpretation, and symbolic communication. Performing practices such as music, singing, acting, theatre, and dance add coordination, embodiment, timing, and collective attention. These capacities matter beyond artistic production because they shape how people understand unfamiliar perspectives, sustain cultural practices, and enter shared spaces of community life.

People often discuss the educational significance of the arts through achievement, creativity, or engagement. A broader, more inclusive perspective asks who gets sustained opportunities to learn, create, perform, and participate. Inclusion is not achieved merely by placing an arts activity within a curriculum. It also requires accessible instruction, recognition of diverse forms of expression, continuity between formal

and informal learning, and opportunities for people from different socioeconomic backgrounds and with different abilities to remain culturally active.

Cultural sustainability adds a temporal and collective dimension. It concerns the capacity of cultural meanings, practices, skills, institutions, and rights to endure while remaining open to reinterpretation. Culture is not only a decorative component of development; it is also a living field of knowledge, memory, identity, practice, and participation. In this study, cultural sustainability is approached through observable pathways of arts learning, continued practice, and support for cultural organizations rather than through an abstract national index.

Social innovation refers to new or renewed social practices that address unmet needs by altering relationships, participation, or institutional arrangements. The concept is broader than commercial innovation because its central outcome is social value and collective capacity. Arts activity may contribute to this process by creating settings in which people communicate across differences, volunteer, organize events, support cultural institutions, and develop shared responses to community concerns. These mechanisms do not mean that every artistic activity is socially innovative, but they justify examining community-oriented participation as a measurable foundation for social innovation.

A major empirical problem is that researchers usually study the three domains separately. Arts-education studies focus on instructional outcomes; cultural-sustainability research often centers on policy, heritage, or institutions; and social-innovation research emphasizes organizational change. As a result, limited population-level evidence traces a coherent sequence from arts learning to continued creative practice and from practice to community engagement. Small program studies identify important mechanisms, but they cannot show whether similar relationships hold across a broad adult population.

This research addresses this gap using nationally representative public-use data. The survey records school-based, non-school, recent, and informal arts learning; current visual and performing arts production; volunteering; participation in community activities; and support for cultural organizations. Its randomized module structure does not allow observation of the full pathway for every respondent, but it enables two valid paired-module analyses: one linking arts education to current creative practice and another linking visual and performing arts participation to community-oriented outcomes. Replicate weights allow consistent estimation of uncertainty under the complex survey design.

The study uses cautious causal language. Earlier learning and current participation are associated within cross-sectional and retrospective data, and unmeasured family, institutional, motivational, and neighborhood conditions may influence both. The contribution lies in demonstrating whether the proposed pathway remains visible after adjustment for major demographic and socioeconomic differences and in separating visual from performing participation rather than combining all arts into one undifferentiated measure.

II. LITERATURE REVIEW

Inclusive arts education can be understood through a capability perspective: meaningful inclusion requires real opportunities to access, learn, create, interpret, and continue participating. Bowen, Greene, and Kisida showed that exposure to visual art can strengthen critical thinking and interpretation [5]. Arts learning therefore involves more than technical proficiency; it develops cultural agency and the capacity to engage with symbolic forms. This interpretation is especially important when participation gaps reflect unequal educational and family resources rather than differences in intrinsic interest.

The cultural-sustainability literature provides the second foundation. Soini and Birkeland showed that cultural sustainability encompasses continuity, diversity, heritage, vitality, and cultural change rather than one fixed definition [27]. Stylianou-Lambert and colleagues located museums within networks of stakeholders, policy forces, and cultural responsibilities [29]. Duxbury, Kangas, and De Beukelaer later identified strategic paths through which cultural policy can safeguard practices, connect culture with other development goals, and support culture as a transformative field [10]. Together, these perspectives justify treating continued creative practice and cultural support as indicators of a living cultural system.

Social innovation provides the third foundation. Cajaiba-Santana conceptualized social innovation as changes in social practices and relationships that create collective value [7]. This definition places

participation, trust, networks, and collaborative capability at the center of analysis. Participatory arts may contribute by generating shared attention, embodied coordination, and public expression. Tarr, Launay, and Dunbar describe music as a setting for self–other merging and affiliation [30], while Pearce, Launay, and Dunbar show experimentally that singing can accelerate social bonding among unfamiliar participants [20].

The integrated theoretical proposition is therefore sequential but non-deterministic. Arts-learning opportunities can build skills and confidence; sustained skills can support current creation and performance; and active participation can place individuals within networks of volunteering, community activity, and cultural support. Socioeconomic opportunity, disability, geography, and access to institutions shape each transition. The sequence is not assumed to operate automatically, and cross-sectional associations cannot prove temporal causation.

Research on visual arts shows that artistic engagement can combine learning with social connection. Museum-based art therapy has been associated with connectedness and psychological wellbeing among older adults [3]. Traditional and electronically mediated textile practices likewise connect making with identity, competence, and relationships [19]. Pöllänen and Weissmann-Hanski found that handcraft can support meaning, self-development, and eudaimonic wellbeing [23]. These studies suggest that visual making is not only an individual activity; it can sustain skills and social identities over time.

Performing-arts research offers particularly strong evidence on collective mechanisms. Group drumming has been described as supporting recovery through communication, mutual support, and group identity [21]. Choral participation can influence affect, perceived connectedness, and stress-related processes [6]. Music listening may also provide a temporary social surrogate under conditions of loneliness [26], although this receptive mechanism differs from the relational demands of live performance. The distinction supports the present study's separation of active visual and performing participation.

Community and museum programs show how arts activity may widen participation among people who are socially isolated. Todd and colleagues found that repeated museum-based programs can create structure, conversation, and belonging [31]. Dadswell and co-authors argued that participatory arts can address loneliness through self-worth, reciprocal relationships, and shared purpose [8]. Daykin and colleagues' qualitative systematic review identified social-capital mechanisms including trust, networks, recognition, and collective identity [9]. These findings provide a mechanism-based basis for examining volunteering and community activity as outcomes associated with arts participation.

Population studies reinforce the small-program evidence while also revealing inequality. Cultural engagement has been associated with later cognitive functioning [11], lower depression risk [12], and reduced loneliness [34]. Fixed-effects analyses have linked arts engagement to selected aspects of mental functioning and life satisfaction [37]. The Hearts studies found broad associations between arts engagement and social connectedness [22] while documenting unequal participation patterns and their implications [35]. These results do not eliminate selection bias, but they show that arts participation is embedded in broader social and health trajectories.

Digital participation has expanded the ways cultural practice can be accessed and shared. Reviews of digitally augmented learning identify potential benefits for visualization, motivation, and informal learning, alongside risks related to cognitive burden and unequal access [24], [25]. Exhibition experiments show that learning benefits depend on alignment between content, interface, and setting [28]. Cultural participation in digital environments remains stratified by education and other resources [17], indicating that technological availability does not automatically produce inclusive cultural capability.

Cultural-heritage technologies further demonstrate the importance of institutional design. A broad review of augmented, virtual, and mixed environments identified uses in preservation, interpretation, and reconstruction [2]. Wearable interpretation in galleries can support learning when it remains anchored to cultural objects [33]. Museum experience research also shows that digital augmentation affects attention, value, and behavioral response [14]. These findings matter for cultural sustainability because continuity increasingly involves hybrid practices of creation, documentation, and circulation.

Wellbeing and cultural-economics research cautions against reducing the value of the arts to a single outcome. Wheatley and Bickerton found that changes in arts, cultural, and sport engagement were associated with selected subjective-wellbeing dimensions rather than a uniform effect [38]. Wang, Mak, and Fancourt

similarly reported differentiated relationships across arts activity and mental-health outcomes [37]. These results support a multidimensional design that examines education, practice, volunteering, community activity, and cultural support separately.

Across this evidence base, four patterns recur. Structured learning is linked with interpretive capability and later participation; active making and performance create relational opportunities beyond passive consumption; cultural access remains socially unequal; and community outcomes depend on institutional and participatory conditions. The present study extends these patterns by testing them within a single national survey architecture and by distinguishing the visual and performing pathways.

Table 1. Comparative evidence base of the studies.

No.	Author(s) and year	Design / focus	Contribution to the present framework
1	Akçayır (2017)	Systematic review	Synthesizes access, motivation, usability, and load.
2	Bekele et al. (2018)	Cultural-heritage technology review	Maps preservation, interpretation, and access applications.
3	Bennington et al. (2016)	Museum art-therapy program	Connects visual-art activity with social connectedness.
4	Billinghurst, Clark, and Lee (2015)	Human–computer interaction review	Defines interaction and usability conditions.
5	Bowen, Greene, and Kisida (2014)	Randomized visual-art field experiment	Arts exposure and critical interpretation.
6	Bullack et al. (2018)	Choral psychobiology study	Links singing with affect, connection, and stress.
7	Cajaiba-Santana (2014)	Conceptual social-innovation analysis	Frames innovation as change in social practices and relations.
8	Dadswell et al. (2017)	Participatory-arts conceptual review	Links arts with self-worth, reciprocity, and reduced isolation.
9	Daykin et al. (2021)	Qualitative systematic review	Explains social-capital mechanisms in participatory arts.
10	Duxbury, Kangas, and De Beukelaer (2017)	Cultural-policy analysis	Identifies strategic paths from culture to sustainability.
11	Fancourt and Steptoe (2018)	Longitudinal population analysis	Associates cultural engagement with cognitive outcomes.
12	Fancourt and Tymoszuk (2019)	Longitudinal depression study	Finds a graded association with cultural engagement.
13	Garzón and Acevedo (2019)	Meta-analysis	Reports positive average learning gains with heterogeneity.
14	He, Wu, and Li (2018)	Museum experience study	Relates augmented content to experience and response.
15	Ibáñez and Delgado-Kloos (2018)	Systematic review	Emphasizes pedagogy and outcome measurement.
16	Leue, Jung, and Tom Dieck (2015)	Art-gallery learning study	Links digital interpretation with learning outcomes.

No.	Author(s) and year	Design / focus	Contribution to the present framework
17	Mihelj, Leguina, and Downey (2019)	Digital cultural-participation analysis	Shows persistent inequalities in digital access.
18	Nevay et al. (2019)	Mixed-method textile study	Connects material and digital making with relationships.
19	Pearce, Launay, and Dunbar (2015)	Experimental group singing	Shows rapid social bonding through shared performance.
20	Perkins et al. (2016)	Qualitative group-drumming study	Identifies support and group identity mechanisms.
21	Perkins et al. (2021)	National arts-and-connection survey	Finds broad links between arts engagement and connection.
22	Pöllänen and Weissmann-Hanski (2020)	Qualitative craft study	Identifies meaning, skill, identity, and connection.
23	Radu (2014)	Meta-review of digitally augmented education	Identifies benefits and cognitive-attention risks.
24	Santos et al. (2014)	Review of augmented-learning designs	Links design, learning objectives, and evaluation.
25	Soini and Birkeland (2014)	Discourse analysis	Defines major dimensions of cultural sustainability.
26	Sommerauer and Müller (2014)	Exhibition field experiment	Shows learning gains when digital content fits the setting.
27	Stylianou-Lambert et al. (2014)	Museum policy analysis	Connects institutions and stakeholders to cultural sustainability.
28	Tarr, Launay, and Dunbar (2014)	Music and bonding synthesis	Explains affiliation through embodied coordination.
29	Todd et al. (2017)	Museum programs for isolated adults	Explains how sustained cultural activity supports belonging.
30	Tom Dieck, and Jung (2018)	Wearable gallery study	Evaluates digital interpretation through learning.
31	Tymoszuk et al. (2020)	Longitudinal loneliness study	Associates receptive engagement with reduced loneliness.
32	Wheatley and Bickerton (2019)	Longitudinal wellbeing analysis	Finds differentiated wellbeing associations.

1. *RESEARCH GAP*

Three gaps remain. First, researchers often evaluate inclusive arts education through short-term instructional outcomes, while national-level data test its association with continued adult practice less often. Second, researchers commonly examine cultural sustainability through institutions, heritage, and policy, leaving the individual pathway from learning to sustained creative participation underdeveloped. Third, researchers often study social benefits in small, targeted programs, and few national analyses distinguish

visual from performing practice while examining volunteering, community activity, and cultural support. The present study addresses these gaps through paired-module population analyses with design-correct uncertainty.

2. *CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT*

The framework generates six expectations. H1 proposes that adults with school-based or non-school arts learning will show higher current participation than adults with no arts classes. H2 proposes that prior visual training will be associated with current visual practice. H3 proposes the corresponding association for performing arts. H4 proposes that visual participation will be positively associated with community activity, volunteering, and cultural support. H5 proposes the same for participation in the performing arts. H6 proposes that adults active in both visual and performing arts will display the highest unadjusted community-oriented participation. All hypotheses concern adjusted associations, not causal effects.

III. RESEARCH AIM, QUESTIONS AND STUDY CONTRIBUTION

1. *RESEARCH AIM AND QUESTIONS*

The research aim is to examine how arts-learning opportunities, current visual and performing arts participation, cultural continuity, and community-oriented action are associated within one empirical framework. The study asks whether school-based and non-school arts learning are associated with current creative participation; whether domain-specific visual and performing training are associated with corresponding current practice; how access to school-based arts learning and current participation differs across demographic and socioeconomic groups; whether visual and performing participation are independently associated with volunteering, community activity, and cultural support; and whether adults who participate in both visual and performing arts show the strongest community-oriented profile.

2. *STUDY CONTRIBUTION*

The study's originality lies in translating three broad claims—educational inclusion, cultural sustainability, and social innovation—into a traceable sequence of observable population indicators. Inclusive education is represented by access to school-based and other arts-learning pathways and by how those opportunities are distributed across social groups. Cultural sustainability is represented by the continuation of artistic practice into adulthood and by support for cultural organizations. Social innovation is not claimed as a directly observed final product; instead, volunteering, community participation, and cultural support are treated as relational capacities through which socially innovative action can emerge. This operational discipline strengthens the paper by aligning each interpretation with what the survey can measure.

IV. PROPOSED METHOD

The proposed method is a split-module pathway analysis for a complex national survey. It treats arts education as an enabling exposure, current visual and performing participation as indicators of creative continuity, and volunteering, community activity, and cultural support as community-oriented capacities. The Module B–D sample tests the education-to-practice pathway. The Module B–C sample tests the practice-to-community pathway. This architecture respects randomized module assignment and avoids combining respondents who were never asked the same questions.

Table 2. Construct-to-measure alignment and analytical expectations.

Construct	Observed measures	Interpretive role	Hypotheses
Inclusive arts learning	Lifetime, school-based, recent, and informal arts classes	Access and educational pathway	H1–H3
Visual creative continuity	Current visual making, photography, film, craft, and digital art	Continued visual practice	H2, H4
Performing creative continuity	Current music, singing, acting, theatre, and dance	Continued performing practice	H3, H5
Community-oriented capacity	Volunteering, community activity, arts support	Relational and institutional participation	H4–H6
Conditioning inequalities	Age, sex, race/ethnicity, education, income, disability, metro, region	Unequal opportunity structure	All models

V. METHODOLOGY

1. *RESEARCH DESIGN*

The study is a secondary cross-sectional analysis of a nationally representative household survey. The design combines design-weighted descriptive estimation with replicate-weighted multivariable regression. It is explanatory in the associational sense: the analysis tests whether theoretically connected variables remain associated after adjustment, without claiming that the observed exposure caused the outcome.

2. *DATA SOURCE AND ANALYTICAL SAMPLE*

The data derive from the Survey of Public Participation in the Arts supplement to the Current Population Survey. Researchers selected one eligible adult within participating households for the arts supplement. Respondents completed a core section and randomized modules covering electronic participation, creation and performance, community activity, or arts education. The public-use person records were linked to 160 person-level replicate weights through the survey identifiers. Positive supplement weights identified 13,251 eligible adults.

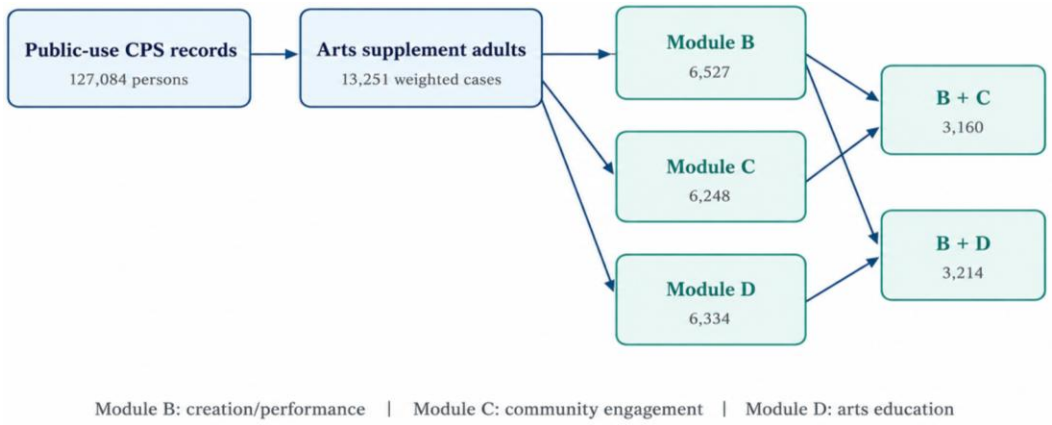


FIGURE 1. Survey structure and analytical sample flow.

Table 3. Analytical samples and weighted population representation.

Analytical sample	Unweighted n	Weighted population (millions)
Module B: creation/performance	6,527	124.3
Module C: community engagement	6,248	119.6
Module D: arts education	6,334	122.0
Modules B and C	3,160	60.5
Modules B and D	3,214	61.0

3. *SAMPLE SELECTION AND INCLUSION CRITERIA*

Records were included when the supplement weight was positive and the respondent received the module required for a given analysis. For education-to-practice models, respondents needed valid Module B and Module D data. For community models, respondents needed valid Module B and Module C data. Responses coded as substantive yes or no were retained; structural skips were handled according to questionnaire logic. The final paired samples contained 3,214 and 3,160 adults, respectively.

4. *VARIABLES AND OPERATIONAL DEFINITIONS*

Table 4. Principal variables and operational definitions.

Variable	Operational definition	Scale
Any current practice	Any substantive participation across visual or performing creation items	Binary
Current visual practice	Pottery/jewelry, material craft, textiles, artistic film/video, photography, other visual art, or digital art	Binary
Current performing practice	Singing, playing an instrument, acting, social dance, or dance practice/performance	Binary
Education pathway	No lifetime classes; non-school classes only; any school-based arts classes	Three categories
Visual training	Lifetime class in photography/film, other visual arts, art history/appreciation, or creative digital art	Binary
Performing training	Lifetime class in music, acting/theatre, or dance	Binary
Community activity	Participation in community meetings, activities, or events	Binary
Volunteering	Volunteer or charity work	Binary
Arts support	Arts volunteering, subscription/membership, donation, or purchase	Binary
Covariates	Age group, sex, race/ethnicity, education, family income, disability, metropolitan status, Census region	Categorical

5. *ANALYTICAL PROCEDURE*

First, we reported weighted prevalence estimates and 95% confidence intervals for learning, practice, and community outcomes. Second, inclusion gaps were summarized across sex, age, race and ethnicity, educational attainment, family income, disability, metropolitan status, and region. Third, replicate-weighted

https://doi.org/10.48161/aaj.v1n3a1

logistic regression estimated the association between education pathways and binary current-practice outcomes. Fourth, weighted linear probability models estimated adjusted percentage-point differences in community outcomes associated with current visual and performing participation. We selected linear probability models for the community stage because the coefficients provide directly interpretable adjusted differences and remain transparent when two correlated participation domains are included together.

$$\hat{p} = (\Sigma_i w_i y_i) / (\Sigma_i w_i) \quad (1)$$

In Equation (1), $\hat{p}$ is the weighted prevalence, y_i is a binary indicator, and w_i is the supplement weight. The same weighting logic was applied to group-specific estimates.

$$Var_BRR(\theta) = (4 / 160) \Sigma_{r=1}{}^{160} (\theta_r - \theta)^2 \quad (2)$$

Equation (2) gives the balanced repeated-replication variance estimator specified for the 160 person replicate weights. The factor 4/160 was applied to the squared deviation between each replicate estimate and the full-sample estimate.

$$logit[P(Y_i = 1)] = \beta_0 + \beta_1 ArtsLearning_i + \gamma' X_i \quad (3)$$

Equation (3) represents the adjusted logistic models, where X_i contains the demographic and socioeconomic covariates. Exponentiated coefficients are reported as odds ratios.

$$CommunityOutcome_i = \alpha + \beta_v Visual_i + \beta_p Performing_i + \delta' X_i + \varepsilon_i \quad (4)$$

Equation (4) represents the weighted linear probability models. The principal coefficients β_v and β_p are reported as adjusted percentage-point associations with each community-oriented outcome.

6. VALIDITY, RELIABILITY, AND ETHICAL CONSIDERATIONS

Construct validity was strengthened by matching each composite to questionnaire content and by reporting visual and performing domains separately. We strengthened statistical validity by providing an official supplement, replicating weights, fully reporting confidence intervals, and adjusting for major observed confounders. We assessed sensitivity using domain-specific training models and three distinct community outcomes rather than a single composite. The survey records are de-identified public-use data, and the analysis involved no direct contact with respondents or attempt at re-identification. Nevertheless, follow institutional requirements for secondary public-data analysis.

VI. RESULTS

1. WEIGHTED PROFILE OF LEARNING, CREATIVE PRACTICE, AND COMMUNITY PARTICIPATION

Current creative participation was common but not universal. An estimated 51.9% of adults in Module B reported at least one current creation or performance activity. 32.1% reported visual creation, while 38.8% reported performing activity. In Module D, 55.2% had taken at least one arts class during their lifetime and 48.5% reported school-based arts learning. Recent formal lessons were less common (11.9%), while 25.5% reported informal arts learning in the preceding year. Community activity, volunteering, and cultural support each involved about one-fifth of adults.

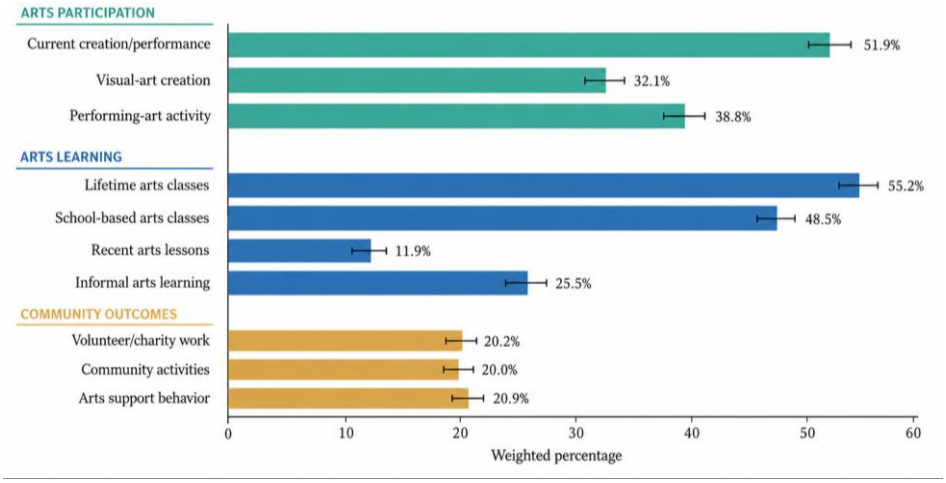


FIGURE 2. Weighted prevalence of arts learning, creative participation, and community-oriented outcomes.

Error bars show 95% confidence intervals calculated from all 160 replicate weights. The profile indicates a substantial base of arts participation but a narrower base of recent learning and community-oriented action.

Table 5. Weighted prevalence estimates with replicate-weighted confidence intervals.

Indicator	%	SE	95% CI	n
Any current art creation/performance	51.9	0.89	50.1–53.6	6,527
Any visual-art creation	32.1	0.79	30.6–33.7	6,527
Any performing-art activity	38.8	0.88	37.0–40.5	6,527
Any lifetime arts classes	55.2	0.89	53.4–56.9	6,334
Any school-based arts classes	48.5	0.95	46.7–50.4	6,334
Any recent arts lessons	11.9	0.59	10.7–13.0	6,334
Any informal arts learning	25.5	0.80	23.9–27.1	6,334
Volunteer/charity work	20.2	0.64	18.9–21.4	6,248
Community activities/meetings/events	20.0	0.67	18.7–21.3	6,248
Any arts support behavior	20.9	0.62	19.7–22.1	6,248

2. *INCLUSION GAPS IN ARTS LEARNING AND CURRENT PARTICIPATION*

Access to school-based arts learning was strongly socially graded. The weighted prevalence was 29.3% among adults with high-school education or less, compared with 63.4% among adults with bachelor's degrees and 71.4% among those with postgraduate education. School-based participation also rose from 33.0% in families below $40,000 to 61.5% in families at $150,000 or more. Adults reporting a disability had lower school-based access than adults without disability, and substantial differences were observed across race and ethnicity. Current creative participation showed similar, though generally smaller, gradients.

Table 6. Selected inclusion gradients in school-based arts learning and current creative practice.

Dimension	Group	Outcome	%	95% CI
Education	High school or less	School-based learning	29.3	26.4–32.2
Education	High school or less	Current practice	40.5	37.2–43.9
Education	Bachelor's degree	School-based learning	63.4	59.5–67.3
Education	Bachelor's degree	Current practice	60.6	57.4–63.8
Education	Postgraduate degree	School-based learning	71.4	68.0–74.7
Education	Postgraduate degree	Current practice	64.2	59.9–68.6
Income	Below $40,000	School-based learning	33.0	30.2–35.9
Income	Below $40,000	Current practice	42.3	39.2–45.5
Income	$75,000-$149,999	School-based learning	54.9	51.7–58.0
Income	$75,000-$149,999	Current practice	54.0	50.8–57.2
Income	$150,000 or more	School-based learning	61.5	57.3–65.7
Income	$150,000 or more	Current practice	61.5	57.6–65.4
Disability	Disability	School-based learning	40.6	36.5–44.7
Disability	Disability	Current practice	48.9	44.8–53.0
Disability	No disability	School-based learning	49.6	47.7–51.6
Disability	No disability	Current practice	52.3	50.5–54.1
Race Eth	Non-Hispanic White	School-based learning	55.2	53.0–57.4
Race Eth	Non-Hispanic White	Current practice	56.1	54.2–57.9
Race Eth	Non-Hispanic Black	School-based learning	36.7	31.5–41.9
Race Eth	Non-Hispanic Black	Current practice	41.0	35.4–46.6
Race Eth	Hispanic	School-based learning	32.2	27.6–36.8
Race Eth	Hispanic	Current practice	45.1	40.4–49.8
Race Eth	Non-Hispanic Asian	School-based learning	43.4	36.7–50.1
Race Eth	Non-Hispanic Asian	Current practice	48.4	39.8–56.9

3. *ARTS EDUCATION AND CREATIVE CONTINUITY*

The descriptive pathway was pronounced. Among adults who had never taken arts classes, 30.3% reported current visual or performing practice. The rate rose to 64.2% among adults with non-school classes only and to 74.1% among adults with school-based arts classes. The same ordering appeared for visual and performing outcomes. School-based learners had a current visual-practice rate of 51.5% and a performing-practice rate of 56.6%, compared with 13.5% and 21.4% among adults with no arts classes.

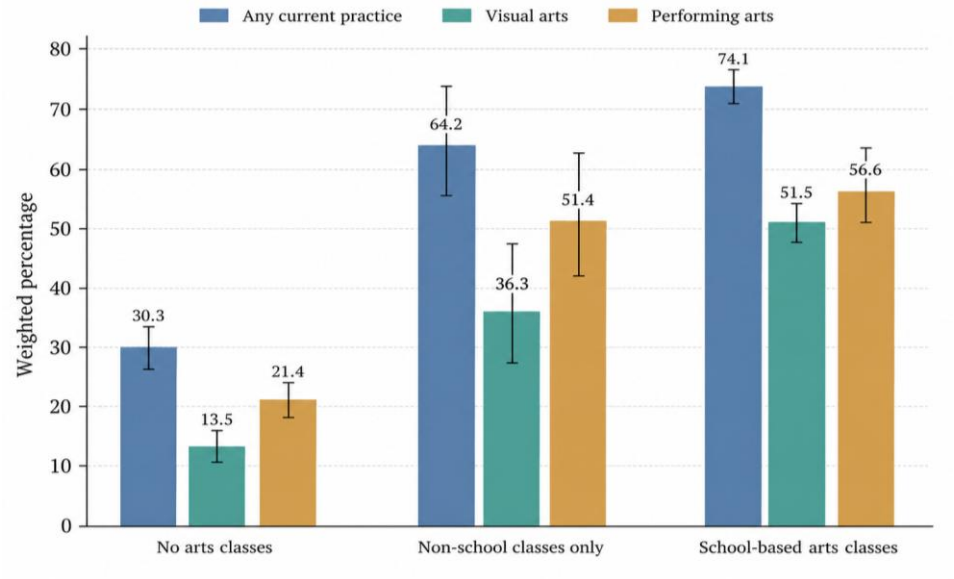


FIGURE 3. Current arts participation across prior arts-learning pathways.

The figure shows a graded relationship rather than a simple school-versus-no-school contrast. Non-school learning is also associated with continued practice, but school-based access is linked with the highest overall continuation rate.

Table 7. Weighted current-participation rates by arts-education pathway.

Education pathway	Current outcome	%	95% CI	n
No arts classes	Any current practice	30.3	26.9–33.7	1,335
No arts classes	Visual practice	13.5	11.0–16.0	1,335
No arts classes	Performing practice	21.4	18.2–24.6	1,335
Non-school classes only	Any current practice	64.2	55.5–73.0	226
Non-school classes only	Visual practice	36.3	27.8–44.8	226
Non-school classes only	Performing practice	51.4	41.5–61.3	226
School-based arts classes	Any current practice	74.1	71.3–77.0	1,653
School-based arts classes	Visual practice	51.5	48.1–54.9	1,653
School-based arts classes	Performing practice	56.6	53.3–59.8	1,653

4. *ADJUSTED EDUCATION-TO-PARTICIPATION MODELS*

The pathway remained strong after adjustment. Compared with adults with no arts classes, those with non-school classes had 3.99 times the odds of current creative participation, while those with school-based arts classes had 5.49 times the odds. Domain-specific models showed that prior visual training was associated with 4.80 times the odds of current visual practice and prior performing training with 4.03 times the odds of current performing practice. All principal estimates were statistically precise and substantively large.

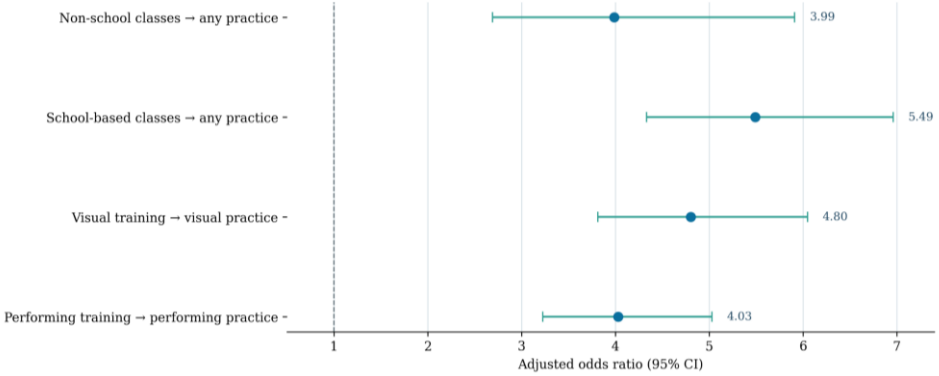


FIGURE 4. Adjusted associations between arts learning and current creative participation.

Odds ratios are adjusted for age, sex, race and ethnicity, educational attainment, family income, disability, metropolitan status, and region. The dashed line denotes no association.

Table 8. Principal replicate-weighted logistic regression estimates.

Outcome	Principal predictor	Adjusted OR	95% CI	p	n
Any current practice	Non-school classes only	3.99	2.69–5.91	<0.001	3,214
Any current practice	School-based arts classes	5.49	4.33–6.96	<0.001	3,214
Current visual practice	Visual training	4.80	3.81–6.05	<0.001	3,214
Current performing practice	Performing training	4.03	3.22–5.03	<0.001	3,214

The adjusted results support H1–H3. Because the design is cross-sectional and prior learning is retrospective, the estimates should be interpreted as durable associations rather than causal treatment effects.

5. *VISUAL AND PERFORMING PARTICIPATION AS COMMUNITY-ORIENTED CAPACITIES*

Community-oriented outcomes varied sharply by participation pattern. Adults active in neither visual nor performing arts had community-activity, volunteering, and arts-support rates between 8.5% and 9.8%. Adults active in visual arts only or performing arts only showed rates mostly between 23% and 29%. Adults active in both domains had the highest levels: 40.0% for community activity, 41.6% for volunteering, and 42.7% for cultural support. This pattern supports the expectation that broader creative repertoires are associated with wider participation networks.

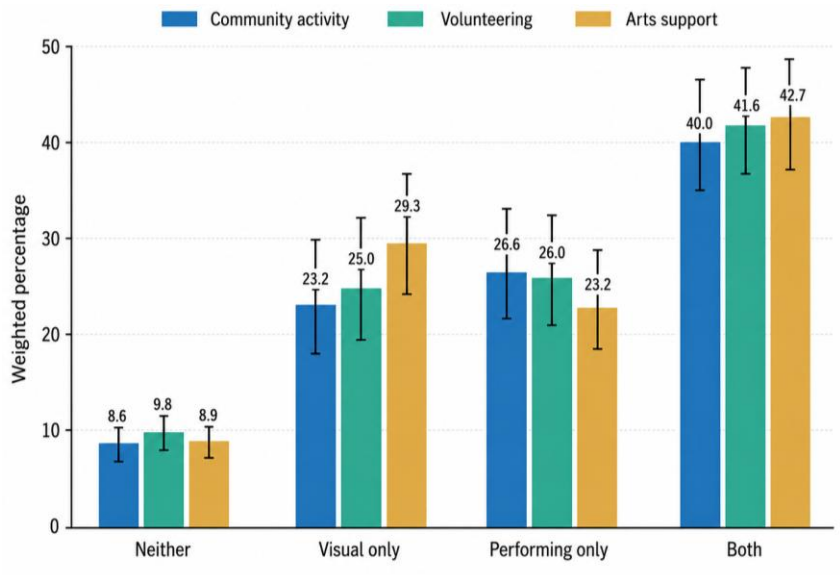


FIGURE 5. Community-oriented outcomes by current arts-participation pattern.

The coexistence of visual and performing practice is associated with the strongest unadjusted profile. The finding supports H6 but does not show that adding a second art form causes community participation.

Table 9. Weighted community-oriented outcomes by visual and performing participation pattern.

Participation pattern	Outcome	%	95% CI	n
Neither visual nor performing	Community activity	8.5	6.7–10.3	1,515
Neither visual nor performing	Volunteering	9.8	8.0–11.5	1,515
Neither visual nor performing	Arts support	8.9	7.3–10.4	1,515
Visual arts only	Community activity	23.2	17.7–28.6	436
Visual arts only	Volunteering	25.0	19.3–30.8	436
Visual arts only	Arts support	29.3	24.1–34.5	436
Performing arts only	Community activity	26.5	22.0–31.0	579
Performing arts only	Volunteering	26.1	20.8–31.3	579
Performing arts only	Arts support	23.2	18.6–27.8	579
Both visual and performing	Community activity	40.0	34.6–45.4	630
Both visual and performing	Volunteering	41.6	36.5–46.7	630
Both visual and performing	Arts support	42.7	37.0–48.3	630

6. *ADJUSTED COMMUNITY MODELS*

Visual and performing participation remained independently associated with community outcomes after adjusting for covariates. Visual participation was associated with an 11.7 percentage-point increase in community activity, 13.4 points in volunteering, and 18.1 points in cultural support. Performing participation was associated with corresponding increases of 14.9, 14.2, and 11.4 points. The confidence intervals excluded zero in every principal model. These results support H4 and H5 and show complementary, rather than interchangeable, community profiles: visual practice was most strongly associated with cultural support, while performing practice was most strongly associated with general community activity.

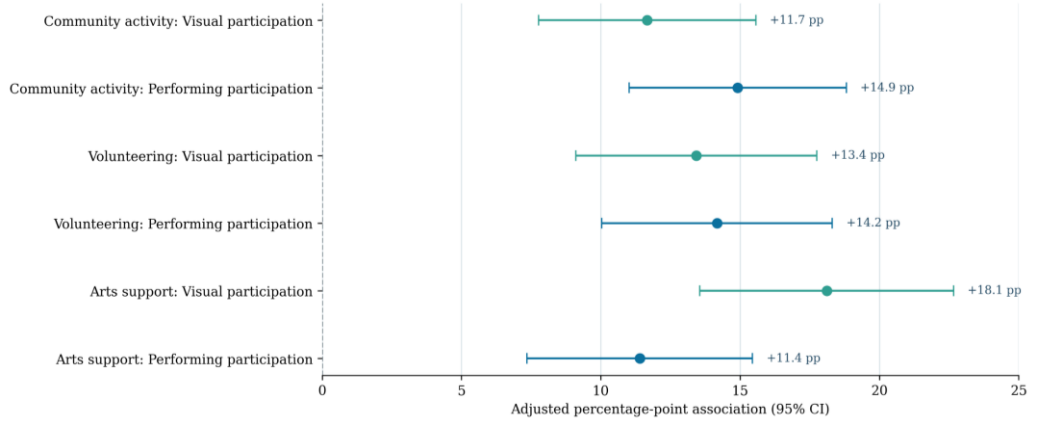


FIGURE 6. Adjusted percentage-point associations of visual and performing participation with community-oriented outcomes.

Each model includes both visual and performing participation and adjusts for the full covariate set. Estimates therefore represent the independent association of one domain while holding the other constant.

Table 10. Adjusted associations with community-oriented outcomes.

Outcome	Participation domain	Adjusted difference (pp)	95% CI	p	n
Community activity	Visual participation	11.7	7.8–15.6	<0.001	3,160
Community activity	Performing participation	14.9	11.0–18.8	<0.001	3,160
Volunteering	Visual participation	13.4	9.1–17.8	<0.001	3,160
Volunteering	Performing participation	14.2	10.0–18.3	<0.001	3,160
Arts support	Visual participation	18.1	13.6–22.7	<0.001	3,160
Arts support	Performing participation	11.4	7.4–15.4	<0.001	3,160

VII. DISCUSSION

The study provides population-level support for a pathway connecting arts learning, continued creative practice, and community-oriented participation. The principal result is not simply that people who took arts classes are more likely to make art later. Instead, the relationship is graded, domain-consistent, and linked to broader forms of social participation. School-based learning had the strongest association with current practice, but non-school classes also showed a substantial relationship, indicating that inclusive cultural capability can be developed through multiple institutional routes.

The education findings support viewing arts learning as capability formation rather than curricular enrichment alone. Arts education can develop interpretive, creative, emotional, and relational capacities that

remain meaningful beyond the classroom. The present results extend this understanding by showing that prior learning strongly predicts continued practice across a national adult population. Cultural sustainability therefore appears not only in preserving objects or institutions but also in whether people retain the skills and confidence to participate.

The domain-specific results are theoretically important. Visual training was associated with current visual practice, and performing training with current performing practice, even after adjustment. This correspondence supports the interpretation that cultural continuity involves accumulated, practice-specific capability. It also cautions against treating all arts education as one generic exposure. Music, dance, theatre, photography, craft, and visual production require different resources, spaces, instructors, and opportunities for continuation. Policy that expands one domain cannot be assumed to compensate fully for the absence of another.

The community results suggest that arts participation is closely connected with social interaction, shared activity, and civic engagement. Visual and performing participation were independently associated with volunteering, community events, and cultural support, suggesting that each domain may connect people to social networks through somewhat different practices. These relationships suggest that artistic activity can bridge individual creativity and broader community participation.

The strongest unadjusted community profile occurred among adults active in both visual and performing arts. This may reflect a broader cultural repertoire, stronger institutional attachment, greater social opportunity, or an underlying orientation toward public participation. The finding should not be interpreted as a dose-response causal effect. Nevertheless, it supports the idea that cultural ecosystems matter: people who can move among making, performing, attending, sharing, and supporting culture may be more deeply embedded in the relationships from which community initiatives emerge.

The results also expose a central challenge for inclusive education. School-based arts learning differed markedly by education, income, race and ethnicity, disability, and geography. These inequalities arise before we evaluate the later pathway. A positive association between arts learning and participation can therefore coexist with an inequitable distribution of the learning opportunity itself. Inclusive policy must address both the quality of arts education and the social conditions that determine who receives sustained access.

The results support cultural sustainability in a bounded sense. Continued adult practice after earlier learning shows creative continuity, and cultural volunteering, membership, donation, and purchase indicate support for cultural infrastructures. The survey does not measure cultural identity, intergenerational transmission within families, Indigenous cultural rights, language preservation, or the content of the art produced. The findings therefore support a participation-based dimension of cultural sustainability rather than the full construct described in cultural-policy scholarship.

The implications for social innovation are similarly specific. Volunteering and community participation are not completed innovations, and the survey does not identify whether respondents created a new service, organization, or solution. They are better understood as relational capacities: people participate in networks, institutions, and shared activities through which they can collectively solve problems. This interpretation avoids claiming more than the data support and keeps the discussion aligned with the measurable evidence.

The adjusted results reduce, but do not remove, alternative explanations. We included educational attainment and income, yet unmeasured parental support, childhood neighborhood, personality, health, local arts infrastructure, and pre-existing civic orientation may influence both arts learning and later participation. Reverse selection is also possible: people predisposed toward creative and community activity may be more likely to recall or pursue arts learning. Longitudinal and quasi-experimental designs are needed to identify causal pathways.

Despite these limits, the study strengthens the evidence base in three ways. It uses nationally representative microdata; it applies official replicate weights rather than treating the file as a simple random sample; and it separates visual and performing pathways while testing multiple community outcomes. Consistent results across descriptive, logistic, and linear-probability analyses provide a defensible empirical foundation for the integrated framework.

Social innovation is represented through community-oriented capacities rather than completed innovative outcomes. Future studies should identify arts-based initiatives, compare organizational models,

and examine whether participation leads to new services, governance arrangements, or responses to local social challenges.

Although the models adjust for major socioeconomic characteristics, residual confounding remains. Stronger designs could exploit policy changes in school arts provision, local funding discontinuities, program lotteries, or phased implementation. Qualitative research should also examine why visual and performing pathways show different associations with cultural support and community activity.

VIII. PRACTICAL AND POLICY IMPLICATIONS

Educational policy should protect sustained school-based access across income, disability, race and ethnicity, and geography. Short-term projects cannot fully substitute for sequential learning that builds technique, confidence, interpretation, and opportunities for public presentation. Equity audits should therefore examine not only whether a school offers arts subjects, but also duration, specialist staffing, accessibility, materials, performance opportunities, and continuity across educational stages.

Cultural organizations can strengthen continuity by bridging school learning and adult participation. Museums, theatres, libraries, community centers, and arts organizations can offer low-cost classes, rehearsal space, mentorship, accessible equipment, and pathways from introductory participation to public sharing. The strong link between non-school learning and current practice suggests that community provision can partly broaden access beyond formal education.

Local governments should treat arts infrastructure as part of community infrastructure. Grants can require meaningful participation, accessible venues, collaboration with schools and disability organizations, and opportunities for residents to create rather than only consume. Evaluation should include volunteering, repeat participation, cross-group collaboration, and sustained cultural support in addition to attendance counts.

Programs described as socially innovative should document the unmet need, the collaborative process, changes in relationships or services, and the response's durability. The present evidence supports investment in the participatory capacities that make innovation possible, but it does not justify assuming that every cultural event produces social change.

IX. CONCLUSION

This study examined visual and performing arts within an integrated pathway from inclusive learning to creative continuity and community-oriented participation. Nationally representative evidence showed a pronounced gradient: adults with school-based arts education had substantially higher current participation than adults with no arts classes, and the association remained strong after adjustment. Prior visual and performing training were each closely aligned with corresponding current practice. In turn, current visual and performing participation was independently associated with volunteering, community activity, and support for cultural organizations. Adults engaged in both domains displayed the strongest unadjusted community profile. These findings support a balanced conclusion. Arts education can be understood as an enabling foundation for later cultural capability, and continued artistic practice is embedded in relationships that may strengthen community action. However, the evidence does not prove causal effects, directly measure cultural identity, or demonstrate completed social innovations. The study therefore reframes the arts as participatory infrastructure: their contribution depends on equitable access, sustained learning, opportunities to create and perform, and institutions that connect artistic practice with community life. For educational and cultural policy, the central task is not merely to increase exposure to the arts, but to build durable, inclusive pathways through which diverse people can learn, keep practicing, support cultural institutions, and participate in collective life.

Author Contributions

The author conducted the conceptualization, methodology, data analysis, investigation, writing, review, editing, and final approval of the manuscript.

Funding

This research received no external funding.

Data Availability

The dataset will be available from the author upon reasonable request.

Conflicts of Interest

The author declares no conflict of interest.

REFERENCES

[1] Akçayır, M., & Akçayır, G. (2017). Advantages and challenges associated with augmented reality for education: A systematic review. Educational Research Review, 20, 1–11. https://doi.org/10.1016/j.edurev.2016.11.002

[2] Bekele, M. K., Pierdicca, R., Frontoni, E., Malinverni, E. S., & Gain, J. (2018). A survey of augmented, virtual, and mixed reality for cultural heritage. Journal on Computing and Cultural Heritage, 11(2), Article 7. https://doi.org/10.1145/3145534

[3] Bennington, R., Backos, A., Harrison, J., Etherington Reader, A., & Carolan, R. (2016). Art therapy in art museums: Promoting social connectedness and psychological well-being of older adults. The Arts in Psychotherapy, 49, 34–43. https://doi.org/10.1016/j.aip.2016.05.013

[4] Billinghurst, M., Clark, A., & Lee, G. (2015). A survey of augmented reality. Foundations and Trends in Human–Computer Interaction, 8(23), 73–272. https://doi.org/10.1561/1100000049

[5] Bowen, D. H., Greene, J. P., & Kisida, B. (2014). Learning to think critically: A visual art experiment. Educational Researcher, 43(1), 37–44. https://doi.org/10.3102/0013189X13512675

[6] Bullack, A., Gass, C., Nater, U. M., & Kreutz, G. (2018). Psychobiological effects of choral singing on affective state, social connectedness, and stress. Frontiers in Behavioral Neuroscience, 12, 223. https://doi.org/10.3389/fnbeh.2018.00223

[7] Cajaiba-Santana, G. (2014). Social innovation: Moving the field forward. Technological Forecasting and Social Change, 82, 42–51. https://doi.org/10.1016/j.techfore.2013.05.008

[8] Dadswell, A., Wilson, C., Bungay, H., & Munn-Giddings, C. (2017). The role of participatory arts in addressing the loneliness and social isolation of older people: A conceptual review. Journal of Arts & Communities, 9(2), 109–128. https://doi.org/10.1386/jaac.9.2.109_1

[9] Daykin, N., Mansfield, L., Meads, C., Gray, K., Golding, A., Tomlinson, A., & Victor, C. (2021). The role of social capital in participatory arts for wellbeing. Arts & Health, 13(2), 134–157. https://doi.org/10.1080/17533015.2020.1802605

[10] Duxbury, N., Kangas, A., & De Beukelaer, C. (2017). Cultural policies for sustainable development: Four strategic paths. International Journal of Cultural Policy, 23(2), 214–230. https://doi.org/10.1080/10286632.2017.1280789

[11] Fancourt, D., & Steptoe, A. (2018). Cultural engagement predicts changes in cognitive function in older adults over a 10-year period. Scientific Reports, 8, 10226. https://doi.org/10.1038/s41598-018-28591-8

[12] Fancourt, D., & Tymoszuk, U. (2019). Cultural engagement and incident depression in older adults. British Journal of Psychiatry, 214(4), 225–229. https://doi.org/10.1192/bjp.2018.267

[13] Garzón, J., & Acevedo, J. (2019). Meta-analysis of the impact of augmented reality on students' learning gains. Educational Research Review, 27, 244–260. https://doi.org/10.1016/j.edurev.2019.04.001

[14] He, Z., Wu, L., & Li, X. R. (2018). The role of augmented reality in enhancing museum experiences. Annals of Tourism Research, 72, 127–135. https://doi.org/10.1016/j.annals.2018.07.003

[15] Ibáñez, M. B., & Delgado-Kloos, C. (2018). Augmented reality for STEM learning: A systematic review. Computers & Education, 123, 109–123. https://doi.org/10.1016/j.compedu.2018.05.002

[16] Leue, M. C., Jung, T., & tom Dieck, D. (2015). Google Glass augmented reality: Generic learning outcomes for art galleries. In Information and Communication Technologies in Tourism 2015 (pp. 463–476). Springer. https://doi.org/10.1007/978-3-319-14343-9_34

[17] Mihelj, S., Leguina, A., & Downey, J. (2019). Culture is digital: Cultural participation, diversity and the digital divide. New Media & Society, 21(7), 1465–1485. https://doi.org/10.1177/1461444818822816

[18] National Endowment for the Arts. (2022). Survey of Public Participation in the Arts: Survey overview and analytical documentation. Washington, DC.

[19] Nevay, S., Robertson, L., Lim, C. S. C., & Moncur, W. (2019). Crafting textile connections: A mixed-methods approach to traditional and electronic textiles for wellbeing. The Design Journal, 22(sup1), 487–501. https://doi.org/10.1080/14606925.2019.1595434

[20] Pearce, E., Launay, J., & Dunbar, R. I. M. (2015). The ice-breaker effect: Singing mediates fast social bonding. Royal Society Open Science, 2(10), 150221. https://doi.org/10.1098/rsos.150221

[21] Perkins, R., Ascenso, S., Atkins, L., Fancourt, D., & Williamon, A. (2016). Making music for mental health: How group drumming mediates recovery. Psychology of Well-Being, 6, 11. https://doi.org/10.1186/s13612-016-0048-0

[22] Perkins, R., Mason-Bertrand, A., Fancourt, D., Baxter, L., & Williamson, A. (2021). Arts engagement supports social connectedness in adulthood. BMC Public Health, 21, 1208. https://doi.org/10.1186/s12889-021-11233-6

[23] Pöllänen, S. H., & Weissmann-Hanski, M. K. (2020). Hand-made well-being: Textile crafts as a source of eudaimonic well-being. Journal of Leisure Research, 51(3), 348–365. https://doi.org/10.1080/00222216.2019.1688738

[24] Radu, I. (2014). Augmented reality in education: A meta-review and cross-media analysis. Personal and Ubiquitous Computing, 18, 1533–1543. https://doi.org/10.1007/s00779-013-0747-y

[25] Santos, M. E. C., Chen, A., Taketomi, T., Yamamoto, G., Miyazaki, J., & Kato, H. (2014). Augmented reality learning experiences: Survey of prototype design and evaluation. IEEE Transactions on Learning Technologies, 7(1), 38–56. https://doi.org/10.1109/TLT.2013.37

[26] Schäfer, K., Saarikallio, S., & Eerola, T. (2020). Music may reduce loneliness and act as a social surrogate for a friend. Music & Science, 3, 1–16. https://doi.org/10.1177/2059204320935709

[27] Soini, K., & Birkeland, I. (2014). Exploring the scientific discourse on cultural sustainability. Geoforum, 51, 213–223. https://doi.org/10.1016/j.geoforum.2013.12.001

[28] Sommerauer, P., & Müller, O. (2014). Augmented reality in informal learning environments: A field experiment in a mathematics exhibition. Computers & Education, 79, 59–68. https://doi.org/10.1016/j.compedu.2014.07.013

[29] Stylianou-Lambert, T., Boukas, N., & Christodoulou-Yerali, M. (2014). Museums and cultural sustainability: Stakeholders, forces, and cultural policies. International Journal of Cultural Policy, 20(5), 566–587. https://doi.org/10.1080/10286632.2013.874420

[30] Tarr, B., Launay, J., & Dunbar, R. I. M. (2014). Music and social bonding: Self–other merging and neurohormonal mechanisms. Frontiers in Psychology, 5, 1096. https://doi.org/10.3389/fpsyg.2014.01096

[31] Todd, C., Camic, P. M., Lockyer, B., Thomson, L. J. M., & Chatterjee, H. J. (2017). Museum-based programs for socially isolated older adults: Understanding what works. Health & Place, 48, 47–55. https://doi.org/10.1016/j.healthplace.2017.08.005

[32] tom Dieck, M. C., & Jung, T. (2017). Value of augmented reality at cultural heritage sites: A stakeholder approach. Journal of Destination Marketing & Management, 6(2), 110–117. https://doi.org/10.1016/j.jdmm.2017.03.002

[33] Tom Dieck, M. C., Jung, T. H., & Tom Dieck, D. (2018). Enhancing art gallery visitors' learning experience using wearable augmented reality. Current Issues in Tourism, 21(17), 2014–2034. https://doi.org/10.1080/13683500.2016.1224818

[34] Tymoszuk, U., Perkins, R., Fancourt, D., & Williamson, A. (2020). Cross-sectional and longitudinal associations between receptive arts engagement and loneliness. Social Psychiatry and Psychiatric Epidemiology, 55(7), 891–900. https://doi.org/10.1007/s00127-019-01764-0

[35] Tymoszuk, U., Spiro, N., Perkins, R., Mason-Bertrand, A., Gee, K., & Williamson, A. (2021). Arts engagement trends and their mental and social wellbeing implications. PLOS ONE, 16(3), e0246078. https://doi.org/10.1371/journal.pone.0246078

[36] U.S. Census Bureau. (2022). Survey of Public Participation in the Arts: Public-use data, replicate weights, questionnaire, and documentation. U.S. Department of Commerce.

[37] Wang, S., Mak, H. W., & Fancourt, D. (2020). Arts, mental distress, mental health functioning and life satisfaction: Fixed-effects analyses. BMC Public Health, 20, 208. https://doi.org/10.1186/s12889-019-8109-y

[38] Wheatley, D., & Bickerton, C. (2019). Measuring changes in subjective well-being from engagement in the arts, culture and sport. Journal of Cultural Economics, 43, 421–442. https://doi.org/10.1007/s10824-019-09342-7

Appendices

Appendix A. Survey variable map.

Construct	Variables	Coding rule
Current visual practice	PEMBQ1A, 1B, 1C, 1I, 1J, 1K, 1N	Any substantive yes
Current performing practice	PEMBQ1D, 1E, 1F, 1G, 1H, 2D, 2E	Any substantive yes
Lifetime arts classes	PEMDQ1A–PEMDQ1H	Any substantive yes
School-based arts learning	PEMDQ2A–PEMDQ2H	Any substantive yes
Recent arts lessons	PEMDQ3A–PEMDQ3H	Any substantive yes
Informal arts learning	PEMDQ4A–PEMDQ4H	Any substantive yes
Volunteering	PEMCQ3A	Yes
Arts volunteering	PEMCQ3B	Yes
Community activity	PEMCQ7	Yes
Arts support	PEMCQ3B, PEMCQ4–PEMCQ6	Any substantive yes
Survey weight	PWSUPWGT	Positive supplement weight
Replicate weights	PWSUPWGT1–PWSUPWGT160	Official BRR variance

Appendix B. Model specifications.

Model	Outcome	Principal predictor(s)	Modules	Estimator
M1	Any current practice	Education pathway	B–D	Logistic
M2	Current visual practice	Visual training	B–D	Logistic
M3	Current performing practice	Performing training	B–D	Logistic
M4	Community activity	Visual + performing participation	B–C	Linear probability
M5	Volunteering	Visual + performing participation	B–C	Linear probability
M6	Arts support	Visual + performing participation	B–C	Linear probability