RELATIONSHIPS BETWEEN DIFFERENT TYPES AND MODES OF ARTS-RELATED EXPERIENCES, MOTIVATION, AND CIVIC ENGAGEMENT

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Executive Summary

A recent report commissioned by the National Endowment for the Arts (Medvedeva, Novak-Leonard, & Brown, 2012) provides a theoretical context for the present investigation. The report reviews the literature assessing the intrinsic impacts of arts events and helps to clarify these impacts by organizing them into three categories. The first category consists of the constructs that have been measured. These include, for example, happiness and affect, engagement, experienced utility, rewards and efforts, physiological correlates, attendance, participation, and creation. The second category consists of the ways constructs have been measured, which are often obtained from surveys or other qualitative methodologies. The principal focus has been on social and economic well-being, as measured by public activities, interactions with people, values, aspirations, or social institutions and agencies, and income. The third category includes studies that address impact opportunities, particularly those afforded by museums and exhibitions.

Of particular interest for this investigation is the second category of intrinsic benefits. We set two goals: (a) to determine the relationship between participation in the arts and pro-social civic engagement, and (b) to determine the motivation that leads to participation in the arts. This is the second of two studies that addressed these goals. The first study, (Polzella & Forbis, 2013) analyzed data from 6257 households who took part in the 2008 U. S. Department of Commerce Current Population Survey: Participation in the Arts Supplement. We analyzed the data in two ways. First, we used logistic regression, in which three specific pro-social behaviors (i.e., voting in the most recent presidential election, making charitable donations or volunteering time, and attending community meetings) were regressed on having or not having attended a live traditional music concert (classical, jazz, or opera). Second, we used structural equation modeling to predict various types of participation in the arts from economic well-being.

The first analysis showed that individuals who attended a greater number of music performances over the course of that year had a greater likelihood of voting, a greater likelihood of volunteering or making charitable contributions, and a greater likelihood of participating in community activities. Other theoretically important variables, including age, education, income and the non-autonomous occupational categories remained significant predictors of pro-social behavior.

There were both strengths and limitations of the previous investigation. On the positive side, the data were extracted from a Federal database that met rigorous standards for validity and reliability. Another strength is that the results reinforced previous findings, thereby further bolstering arguments for the benefits of arts engagement. A third strength was the finding that the benefits were not exclusive to any one type of participation. A fourth strength was the finding that participation in the arts increased the likelihood of voting. This suggests that individuals who participate in the arts are motivated to influence the behavior and decisions of public servants. Finally, by focusing on what is probably the most common way that individuals participate in the arts, i.e., through direct encounter, the findings can be applied to individuals of varied backgrounds and interests.

There were also several limitations of the previous investigation. Although different types of arts were considered, many others were not, including participation through electronic media. A second limitation was that the Public Participation in the Arts Supplement did not include questions about the importance of arts participation to the individual. Such questions would permit an assessment of arts' impact on psychological well-being. A third limitation of the investigation is that it targeted a single cohort of individuals, i.e., those who took part in the 2008 survey. Therefore, we were unable to determine the degree to which the findings generalized to other cohorts. Related to this limitation was another. Since there were no longitudinal data we were unable to determine whether our findings indicated causal or merely associative relationships between arts engagement and pro-social behavior.

The present study was designed to address the first three of these limitations by providing answers to the following research questions: (a) Could we replicate our previous findings, using a different sample of individuals? (b) To what extent did these relationships generalize to a different mode of experience, namely, electronic media? (c) To what extent did these relationships generalize to arts-related experiences other than attending traditional music concerts, e.g., attending non-traditional concerts, dance, theater, art museums and galleries? (d) What motivated individuals to experience arts-related events? Was it primarily to experience their intrinsic benefits, e.g., emotional impact, or was it to share the experience with others?

Answers to these questions were obtained by analyzing data from two more recent public surveys: (a) the Public Participation in the Arts Supplement to the 2012 Current Population Survey (SPPA), and (b) the 2012 General Social Survey (GSS) Arts Supplement. The data for answering questions 1 through 3 were extracted from the 2012 SPPA and analyzed using logistic regression. The data for answering question 4 were extracted from the 2012 GSS Arts Supplement and analyzed using principal component analysis. These were the major findings:

(a) We successfully replicated our previous findings and can now conclude with a high level of confidence that individuals who attend traditional live musical performances are more likely to engage in pro-social behaviors, e.g., making charitable donations or volunteering, attending community meetings or voting.

(b) Individuals who attended other live arts-related events, e.g., dance, theater, art exhibitions, and nontraditional music performances, were also more likely to engage in pro-social behavior. This finding suggests that the relationship holds irrespective of the artistic domain.

(c) The findings suggested that the link between exposure to the arts and pro-social behavior is based primarily on the social characteristics of these encounters, e.g., shared group identity, familiarity with performers or artists, multimodal sensory experience, etiquette, venue, and customs or rituals.

(d) Individuals who were exposed to the arts through the Internet were also more likely to engage in pro-social behavior. This makes sense in that the Internet is essentially a public medium that is structured to facilitate interpersonal communication and sharing and that is universally accessible, including to those who lack the resources to attend a live performance.

(e) There were numerous reasons that individuals were drawn to the arts. But most important was that the reasons for attending did not operate independently of one another, and considering them in isolation would be misleading.

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Future research will be used to build a model that explicates the relationship between a broad spectrum of arts-related experiences and varieties of civic engagement.

Literature Review

It is well established that participation in the arts can enhance cognitive performance (Corrigall & Trainor, 2011; Moreno, Bialystok, et al., 2011; Schellenberg, 2004, 2011a, 2011b; Schellenberg & Mankarious, 2012; Winner & Hetland, 2000; Winner et al., 2006). Furthermore, some of the neurological processes underlying these benefits are now understood (Ehrlich, 2015; Gute & Gute, 2015; Hardiman, et al., 2009; Marcus, 2012; Peretz & Zatorre, 2003; Zatorre, 2005).

Participation in the arts is beneficial in other ways. The National Endowment for the Arts (NEA) has formulated an ambitious research framework in order to "expand and promote evidence of the value and/or impact of the arts by fulfilling a long-term research agenda and by using traditional and social media channels to distribute findings and new information " (National Endowment for the Arts, 2014, p. 16). A good example of this line of research is Catterall, Dumais, and Hampden-Thompson's (2012) recent NEA report summarizing the findings of four large-scale government surveys that assessed the relationship between arts participation, academic achievement, and civic behavior among at-risk youth. It was found that participation in the arts, whether occurring within or outside of school, led to better academic performance and to greater involvement in civic behavior, such as participating in student government and service clubs, visiting libraries and reading books, and volunteering in the community. In addition, graduates who had participated in the arts as students chose professionally oriented majors when beginning college and were more likely to vote in local or national elections.

A useful strategy for understanding these benefits is to focus on audience members rather than on artists or performers (Brown & Novak, 2007). A recent report commissioned by the National Endowment for the Arts (Medvedeva, Novak-Leonard, J. & Brown, 2012) helps to clarify audience impacts by organizing the research literature into three categories. The first category consists of the constructs that have been measured. These include, for example, happiness and affect, engagement, experienced utility, rewards and efforts, physiological correlates, attendance, participation, and subsequent creative behaviors. The second category consists of commonly used qualitative measures of affect, happiness, and personal satisfaction. The principal focus here has been on social well-being, as measured by public activities, interactions with people, values, aspirations, and participation in social institutions and agencies. The third category includes studies that address audience venues, such as concert halls, theaters, and museums.

In a previous study (Polzella & Forbis, 2013) we focused on the second category and explored the relationship between audience participation and social and economic well-being. The data were obtained by from 6257 households who took part in the 2008 U. S. Department of Commerce Current Population Survey: Participation in the Arts Supplement. The data were analyzed in two ways. First, using logistic regression, three specific pro-social behaviors (i.e., voting in the most recent presidential election, making charitable donations or volunteering time, and attending community meetings) were regressed on what the NEA considers "traditional" music audience participation (i.e., attending classical, jazz, or opera music concerts). Second, using structural equation modeling, economic well-being was used to predict participation in arts-related events.

The first analysis showed that individuals who attended a greater number of music performances over the course of the previous year were approximately one and one-half times more likely to vote, two times more likely to volunteer time or contribute to charities, and two times more likely to participate in community activities. The second analysis showed that indicators of economic well-being were associated with greater participation in traditional arts-related events.

There were both strengths and limitations of that earlier study. On the positive side, the data we analyzed met rigorous psychometric standards, because they were extracted from a principal U.S. Government database. The results also expanded previous findings, thereby bolstering arguments for the broad range of benefits of arts engagement. In particular, the finding that audience members were more likely to vote suggested that individuals who participate in the arts are motivated to influence the behavior and decisions of public servants.

There were also several limitations of the earlier study. First, it targeted only a single cohort of individuals, i.e., those who took part in the 2008 survey. We do not yet know whether or the degree to which the findings generalize to other cohorts. A second limitation was that only one type of live arts-related experience, i.e., traditional music audience participation, was considered. There are many other categories of live experiences including attending "nontraditional" music concerts (e.g., rock, pop, rhythm and blues, country), visiting art museums and galleries, attending outdoor festivals, and reading. A third limitation was that the most frequent mode of engagement with the arts, i.e., electronic media (see Novak-Leonard and Brown, 2011), was not considered. A fourth limitation was that the Public Participation in the Arts Supplement did not include questions concerning the reasons individuals participate in the arts. Finally, because the survey did not include longitudinal data, we were unable to determine whether our findings indicated causal or merely associative relationships between arts engagement and pro-social and economic well-being.

The Present Study

The present study was designed to address the first three of these limitations by providing answers to the following research questions: (a) Could we replicate our previous findings, using a different sample of individuals? (b) To what extent did these relationships generalize to a different mode of experience, namely, electronic media? (c) To what extent did these relationships generalize to arts-related experiences other than attending traditional music concerts, e.g., attending non-traditional concerts, dance, theater, art museums and galleries? (d) What motivated individuals to experience arts-related events? Was it primarily to experience their intrinsic benefits, e.g., emotional impact, or was it to share the experience with others?

Answers to these questions were obtained by analyzing data from two major public surveys: (a) the Public Participation in the Arts Supplement (SPPA) to the 2012 Current Population Survey, and (b) the 2012 General Social Survey (GSS) Arts Supplement. The data for answering questions 1 through 3 were extracted from the 2012 SPPA. The data for answering question 4 were extracted from the 2012 GSS Arts Supplement.

The Current Population Survey and the Supplemental Survey of Public Participation in the Arts

The Current Population Survey (CPS, < http://www.census.gov/cps/ >), managed jointly by the US Census Bureau and the US Bureau of Labor Statistics, is the principal source of high-profile economic statistics as well as extensive demographic data and behavioral information that, together, provide a comprehensive understanding of labor market conditions in the nation overall. The CPS is administered monthly to a random sample of 57,000 individuals. It has its origins in the 1930s, when it was used as a means of tracking unemployment during the Great Depression. It has been updated numerous times since then in order to account for significant changes in the national economy.

In certain years, the CPS has included a Survey of Public Participation in the Arts (SPPA). This supplemental survey, developed by the NEA, included items that measure the household member's participation in various arts-related activities, e.g., frequency of participation, training and exposure, musical and artistic preferences, length of travel for trips to arts-related events, school-age socialization, and computer usage related to arts information. In our earlier study, we analyzed data from the 2008 supplemental survey. In this case, we analyzed data from the 2012 supplemental survey, which is the most recent version (United States Department of Commerce, 2014). Because the 2008 and 2012 SPPA surveys were similar, the two cohorts could be compared on numerous dimensions.

The General Social Survey (GSS)

Funded by the Sociology Program of the National Science Foundation, the General Social Survey (GSS, < http://www3.norc.org/gss+website/ >) is administered by the National Opinion Research Center (NORC) at the University of Chicago. Aside from the U.S. Census, it is the most frequently analyzed database of social science information. The GSS has been conducted nearly every year since 1972 to approximately 1500 individuals and contains data on over 5500 variables. Although longitudinal trends are not the focus of the present study, the GSS does include time-trend data for over 2000 of these variables.

Like the 2012 CPS, the 2012 GSS included an Arts Supplement. But there were important differences. Whereas the SPPA focused on the frequency of individuals' participation in various arts-related activities, the principal focus of the GSS Arts Supplement was on the reasons that individuals did or did not attend arts-related events. Included were questions on type of event, whether they attended with others; the importance of cost, time, distance, venue, or to support community activities; the desire to socialize with friends; and whether they attended in order to learn about or experience great artistic works.

Method

Participants

The number of participants ranged between 586 and 3009. Participants received alternative forms of the SSPA and GSS surveys, which resulted in different numbers of participants for each data analysis.

Data Analyses

Appendix A lists the SPPA survey variables that provided the data and describes how each was coded. Appendix B lists the GSS arts supplement variables. Logistic regression was used to analyze the SPPA data, while principal component analysis, a factor analytic procedure, was used to analyze the GSS data. In both cases the *unweighted* data were analyzed. [Note: It is important to point out that because the analyses use the unweighted data, the U.S. Census Bureau guides us that we cannot interpret the results as nationally representative. Nevertheless, while we recognize that the results in this report are not nationally representative, with complex large-scale survey data, such as those in the present study, there are conflicting opinions among researchers/statisticians as to whether it is more appropriate to analyze weighted or unweighted data (Bollen, et al., 2016). Our choosing to analyze the unweighted data was based on several considerations. When computing multiple regression analyses, Winship and Radbill (1994) recommends using the unweighted data because the standard errors are unbiased and consistent. More recently, Lindamood, Hanna, and Bi (2007) have shown that weighted and unweighted multivariate analyses generally yield the same results. Where differences do occur, the unweighted analyses tend to be more conservative. Finally, Gelman (2007) points out that good advice in the statistical literature on creating weights tends to be vague or inconsistent. He concludes that using weights to estimate anything more complicated than simple means or ratios is a risky strategy.]

To answer the first question, regarding the replicability of our earlier findings (Polzella & Forbis, 2013), we repeated the same procedures, this time applied to the 2012 SPPA. The analysis measured the relationships between attending traditional music concerts and engaging in two types of civic engagement: (a) making charitable donations or volunteering time, and (b) attending community meetings. [Note: Unlike the 2008 SPPA, the 2012 SPPA did not include a question addressing whether the participant voted in the most recent presidential election.] In technical terms, civic engagements, i.e., the *criterion* variables, were regressed on having or not having attended musical concerts, i.e., the *predictor* variables. All variables were assigned binary values, such that 1 = *observed* and 0 = *not observed*. Appendix C contains a more detailed technical description of logistic regression analysis.

To answer the second research question, regarding the difference between live versus media encounters with the arts, we computed separate logistic regression analyses for each pro-social behavior, treated as *criterion* variables along with the data for the two modes of arts-related experiences, treated as *predictor* variables. To answer the third research question, regarding the relative strengths of association between different types of arts-related experiences and pro-social behaviors, we computed separate logistic regression analyses for each pro-social behavior, treated as *criterion* variables, along with the data for the various arts-related experiences, treated as *predictor* variables.

Each regression model included seven control variables, which are known to predict civic engagement: Age, Race, Sex, Income, Education, Marital Status, and Occupation Class. To measure occupational class, we used a conventional six-category scheme (Goldthorpe 1987; Hout 1989; Manza, Hout & Brooks, 1995): (a) business owners and proprietors (including farm

owners and the self-employed), (b) managers and administrators, (c) professional and technical workers, (d) clerical workers, (e) skilled and unskilled laborers, and (f) service workers. To test for occupational class, we created a binary "class gap" measure that contrasted non-working class individuals, i.e., those in the first three categories, with working class individuals, i.e., those in the last three categories. We included the working class occupations in our analyses and used the non-working class occupations as a reference group of individuals who possess a relatively greater degree of capital autonomy or authority.

Principal component analyses of the data contained in the 2012 GSS Arts Supplement was used to address the fourth research question, regarding the reasons that individuals attend arts-related events. Each analysis focused on one of four outcomes: (a) reasons for attending a live performance, (b) reasons for *not* attending a live performance, (c) reasons for attending an art exhibit, or (d) reasons for *not* attending an art exhibit. In technical terms, each principal component analysis summarized the results by identifying higher order latent constructs that were derived from response similarities between pairs of variables, i.e., reasons for attending/not attending. Appendix D provides a more complete technical description of principal component analysis. (See O'Rourke & Hatcher, 2013, Chapter 1.)

Results

Strategy for Reporting the Results

The primary goal of this project was to provide evidence of the value and impact of the arts. As described above, we used logistic regression or principal component analysis to provide answers to the four research questions. While this final report follows the usual format for reporting scientific findings, it was also important that the evidence be reported in a manner that would be intelligible to a variety of stakeholders, including those who might not possess scientific expertise.

In the case of logistic regression, it is helpful to express the findings as odds likelihood ratios. This is the strategy we followed in our earlier study (Polzella & Forbis, 2013). For example, in one analysis we found a significant relationship between attending a musical performance and volunteering or contributing to charity. In addition to reporting this finding in the form of a regression coefficient, we were able to state that individuals who attended a greater number of musical performances over the course of the year were "twice as likely" to volunteer or contribute to charity.

In the case of principal component analysis we followed the standard approach for presenting the results of a factor analysis, by constructing a table showing the variables, factor loadings, communalities, eigenvalues, and percentages of variance. (See Nicol & Pexman, 1999, Chapter 9.)

Replication

Table 1 shows descriptive statistics for the 2008 and 2012 SPPA databases. Although there were fewer respondents in the 2012 survey, the numbers exceeded the minimum threshold needed for

most multivariate analyses (Stevens, 2009). With few exceptions, the samples were comparable. The largest discrepancies were a decrease in community engagement, an increase in "other" races, a decrease in married participants, and an increase in service-sector employees. As expected (Novak-Leonard & Brown, 2011), a greater proportion of respondents experienced the arts through electronic means rather than through live attendance.

Table 2 compares the regression models derived from the 2008 and 2012 SPPA databases. The data are expressed as odds ratios, computed after accounting for variance due to inter-correlations among the variables. The table rows correspond to the predictor variables, the columns to the criterion variables. For example, in 2008, individuals who attended music concerts were 2.011 times more likely to volunteer than those who did not. In 2012, the ratio was nearly identical (2.103). The other odds ratios followed the same pattern. Table 3 compares the odds ratios obtained for each type of concert. It is clear that the previous findings were confirmed.

Table 1

Variables Summary (Means and Proportions)

Variable	2008 (N=6239)	2012 (N=3008)
Mean age (*SD*)	42.9 (13.5)	42.9 (14.3)
Mean income category (*SD*)	11.7 (3.5)	11.0 (3.9)
Mean education in years (*SD*)	10.7 (2.5)	10.7 (2.5)
Gender (female)	.49	.50
Race (black)	.08	.09
Marital Status (married)	.61	.45
Occupation category (labor)	.21	.20
Voted	.69	n/a
Volunteered or contributed	.38	.35
Participated	.35	.28
Classical (live)	.12	.10
Jazz (live)	.11	.10
Opera (live)	.03	.02
Classical (Internet)	n/a	.16
Jazz (Internet)	n/a	.14
Opera (Internet)	n/a	.06

Table 2

Logistic Regression Models of Civic Engagement: Odds Ratios (standard errors) Ŧ

	Civic Engagement Variables (2008)			**Civic Engagement Variables (2012)**	
Variables	Vote	Volunteer	Participate	Volunteer	Participate
Music attendance	1.598 **	2.011 **	2.116 **	2.103 **	2.096 **
	(0.112)	(0.105)	(0.110)	(0.168)	(0.161)
Age (50+)	2.432 **	1.032	1.169	1.086	1.257
	(0.165)	(0.060)	(0.070)	(0.092)	(0.112)
Female	1.020	1.249 **	1.122	1.316 *	1.252
	(0.067)	(0.074)	(0.068)	(0.114)	(0.114)
Black	1.077	0.993	0.949	0.863	0.729
	(0.115)	(0.105)	(0.105)	(0.130)	(0.122)
Other Race	0.314 **	0.755	0.659 *	0.719	0.667
	(0.039)	(0.094)	(0.087)	(0.108)	(0.109)
College Grad	2.262 **	1.500 **	1.557 **	1.793 **	1.644 **
	(0.180)	(0.098)	(0.103)	(0.171)	(0.165)
Income (60k +)	1.595	1.538 **	1.446 **	1.318 *	1.239
	(0.111)	(0.094)	(0.091)	(0.122)	(0.121)
Married	1.592 **	1.122 **	1.342 **	1.274 *	1.275
	(0.099)	(0.074)	(0.084)	(0.109)	(0.116)
Clerical	1.017	0.882	0.793	0.975	0.855
	(0.099)	(0.076)	(0.071)	(0.125)	(0.118)
Labor	0.490 **	0.533 **	0.537 **	0.618 **	0.581 **
	(0.041)	(0.045)	(0.047)	(0.079)	(0.081)
Service	0.495 **	0.676 **	0.603 **	0.637 **	0.673 *
	(0.042)	(0.058)	(0.055)	(0.067)	(0.088)
Constant	1.142	0.366 **	0.033 **	0.311 **	0.227 **
	(0.093)	(0.028)	(0.007)	(0.033)	(0.026)
N	6239	6239	6239	3008	3008

*p<.005; **p<.001

Ŧ Vote data collected only in 2008

Table 3

Logistic Regression Models of Civic Engagement Using Music Attendance Type: Odds Ratios (standard errors)

	Civic Engagement Variables (2008)					
	Vote		Volunteer		Participate	
Classical Attendance	1.732	**	2.825	**	2.964	**
	(0.207)		(0.251)		(0.261)	
Jazz Attendance	2.145	**	2.467	**	3.054	**
	(0.260)		(0.218)		(0.272)	
Opera Attendance	1.646		2.353	**	1.626	*
	(0.395)		(0.410)		(0.269)	
N	6239		6239		6239	
	Civic Engagement Variables (2012)					
			Volunteer		Participate	
Classical Attendance			3.127	**	3.163	**
			(0.428)		(0.419)	
Jazz Attendance			2.754	**	2.479	**
			(0.373)		(0.329)	
Opera Attendance			1.984		2.971	**
			(0.509)		(0.762)	
N			3008		3009	

**p<.005, **p<.001*

Table 4

Logistic Regression Models of Civic Engagement With Live and Electronic Exposure to Traditional Music: Odds Ratios (standard errors)

	Volunteer		Participate			Volunteer	Participate	
Music Attendance	1.723	**	1.961	**	Dance	1.387	1.427	
	(0.320)		(0.362)			(0.405)	(0.429)	
Classical Attendance	2.297	*	1.857	*	Theater	1.735 **	2.675	**
	(0.787)		(0.611)			(0.378)	(0.606)	
Jazz Attendance	1.887	*	2.272	**	Visual Arts	2.896 **	3.953	**
	(0.616)		(0.754)			(0.663)	(0.999)	
Opera Attendance	1.868		3.541	**	Other Music	1.607 *	2.498	**
	(0.954)		(1.842)			(0.417)	(0.679)	
N	586		586		N	586	586	
	Volunteer		Participate			Volunteer	Participate	
e-Music	2.035	**	2.141	*	e-Dance	2.273 **	2.256	**
	(0.451)		(0.500)			(0.580)	(0.585)	
e-Classical	2.698	**	2.877	**	e-Theater	2.424 **	2.112	**
	(0.711)		(0.758)			(0.801)	(0.689)	
e-Jazz Attendance	1.381		2.259	*	e-Visual Arts	1.387	2.348	**
	(0.370)		(0.635)			(0.338)	(0.598)	
e-Opera Attendance	4.111	**	4.004	**	e-Other Music	1.489 **	1.976	**
	(1.671)		(1.569)			(.277)	(0.435)	
N	586		586		N	586	586	

**p<.005, **p<.001*

Exposure to Live Versus Electronic Arts-Related Performances and Civic Engagement

Table 4 compares the odds ratios for live versus electronic arts-related performances. The table shows traditional types of music along with several other categories, such as dance, theater, visual arts, and nontraditional music. In the majority of cases, both live and electronic engagements were associated with greater likelihoods of volunteer or community activity.

Motivation to Experience Live Arts-Related Events

The GSS 2012 survey included questions that identified the reasons that individuals choose to attend live arts-related events. Blume-Kohout, Leonard, and Novak-Leonard (2015) summarized the findings in a recent NEA report: (a) socializing with friends or family was the most common motivation for attending arts-related events, especially live performances; (b) the desire to learn new things was also a motivation, especially visual arts exhibitions; (c) lack of time was the most common reason for *not* attending; (d) other reasons for not attending included cost, difficulty in getting to the venue, and not having anyone to go with. In the present study, we used principal component analysis to examine these findings in greater detail.

The principal component analysis of the reasons for having attended a live performance is summarized in Table 5. The variables with the highest loadings on Component 1 were: (a) wanting to experience high quality art, (b) wanting to celebrate cultural heritage, (c) wanting to support community, (d) wanting to learn, and (e) desirable location. Component 1 appeared to reflect reasons that were unrelated to the particular performance, whereas Component 2 did, in this case, a desire to see or hear the scheduled performer. Curiously, wanting to socialize had little or no impact on the interpretation.

Table 6 summarizes the analysis of the reasons for not having attended a live performance. Here, three components were retained. The variables with the highest loadings on Component 1 were: (a) too difficult to get there, and (b) not having anyone to go with. Component 1 appeared to reflect the need for company when traveling to a remote location. Component 2 reflected not having sufficient time to attend, whereas Component 3 reflected the cost to attend.

Table 7 summarizes the analysis of the reasons for having attended an art exhibit. Two components were retained. The variables with the highest loadings on Component 1 were: (a) wanting to experience high quality art, (b) wanting to learn, and (c) desirable location. Component 1 appeared to reflect a desire to view and learn about specific pieces exhibited in a good location. All the remaining variables had the highest loadings on Component 2: (a) low cost, (b) wanting to socialize, (c) wanting to celebrate a cultural heritage, and (d) wanting to support one's community. Component 2 appeared to capture pro-social behavior in a low cost environment. Of the four analyses, this one was interpreted most easily.

Table 8 summarizes the reasons for not having attended an art exhibit. In general, the results were similar to those for not having attended a live performance (cf. Table 6). Three components were retained. The variables with the highest loadings on Component 1 reflected the need for company when traveling to a remote location: (a) too difficult to get to, and (b) not having

anyone to go with. The variables with the highest loadings on Component 2 were: (a) high cost, and (b) not having enough time. Component 3 indicated lack of interest. Lack of interest was also a factor in not having attended a live performance. However, it was not included in that interpretation, because it loaded highly on more than one component.

Table 5

Principal Component Analysis (Rotated Matrix): Reasons for Attending a Live Performance

	Loading		
Variable	1	2	Communalities
Low cost	.40	.32	.26
Experience high quality art	.49	.03	.24
Socialize	.24	.33	.16
Celebrate cultural heritage	.67	.22	.50
Support community	.63	.07	.40
Learn	.78	-.06	.62
Location	.50	.26	.32
Specific performer	-.13	.90	.83
Eigenvalues	2.19	1.15	
% of Variance	27.38	14.39	

Table 6

Principal Component Analysis (Rotated Matrix): Reasons for Not Attending a Live Performance

Variable	Loading			Communalities
	1	2	3	
High cost	-.16	.28	.79	.73
Lack of interest	.05	.75	.13	.58
Getting there	.81	.04	-.06	.67
No one to go with	.77	.12	.11	.61
No time	-.26	.30	-.72	.68
Undesirable location	.11	.75	-.10	.58
Eigenvalues	1.36	1.31	1.19	
% of Variance	22.60	21.83	19.80	

Table 7

Principal Component Analysis (Rotated Matrix): Reasons for Attending an Art Exhibit

	Loading		
Variable	1	2	Communalities
Low cost	.10	.56	.32
Experience high quality art	.74	-.03	.55
Socialize	-.05	.62	.39
Celebrate cultural heritage	.34	.61	.49
Support community	.03	.70	.49
Learn	.78	.04	.62
Location	.58	.23	.39
Eigenvalues	1.64	1.62	
% of Variance	23.41	23.07	

Table 8

Principal Component Analysis (Rotated Matrix): Reasons for Not Attending an Art Exhibit

	Loading			
Variable	1	2	3	Communalities
High cost	-.08	-.70	.31	.60
Lack of interest	.02	-.02	.91	.84
Getting there	.68	.11	-.28	.55
No one to go with	.72	-.16	.22	.59
No time	-.42	.66	.23	.66
Undesirable location	.47	.49	.18	.50
Eigenvalues	1.37	1.21	1.14	
% of Variance	22.89	20.14	19.07	

Discussion

Live Exposure to Arts-Related Events

The present findings along with those of Polzella and Forbis (2013) indicate that a strong relationship between traditional music audience participation and civic engagement has persisted more or less unchanged from 2008 through 2012. Here, we have shown that the relationship extends to nontraditional music as well. This is consistent with Leung and Kier's earlier finding (2008) that the music listening habits of adolescents predict civic activism. Finally, we have shown that certain nonmusical events (e.g., theater and art exhibitions) are also related to civic engagement.

An analysis of audience reactions helps to explain this relationship. Reactions to the aesthetic content of a performance are certainly of fundamental importance. However, other reactions are also an essential part of the total experience (Small, 1986). Of primary importance in live performances is what Brown and Novak (2007) call "social bonding," leading to feelings of belonging or connectedness with the rest of the audience, to the sharing of a cultural heritage, and to gaining new insight on human relations or social issues. A principal component analysis of concert audience reactions (Thompson, 2007) revealed five additional coherent extra-musical components: anticipation and shared experience, mood, familiarity with performers or venue, distraction and boredom, and visual aspects. Collectively, these components constitute a major part of what Wilson, Marczynski, and O'Brien (2014) call "psychological setting," encompassing such additional factors as etiquette, venue, and rituals. Most of these psychological factors have a social component, an inherent characteristic of civic engagement, which helps to explain the positive relationship between live exposure and pro-social behavior.

Media Exposure to Arts-Related Events

It should not be surprising that arts-related media experiences were also related to pro-social behavior. Electronic media is the principal vehicle for the diffusion of information within and across communities and has had a profound social impact, one that is transforming how people access and engage with the arts (Egermann, Kopiez, & Altenmüller, 2013: DiMaggio, et al., 2001; Oumard, et al., 2008; Robinson & Halle, 2002). A good example is the incorporation of electronic and social media into art and humanities curricula (Albers & Harste, 2007; Peppler, 2013).

Live arts-related events are experienced in situ, as performances or exhibitions. In contrast, media exposure is not dependent on venue. It can be varied according to mood, preference or to serve some function. (Hakanen, 1995). Krause, North, and Hewitt (2014, 2015) conducted a detailed analysis of the everyday listening habits of university students. The analysis included both choice of music and preferred listening devices. Most students stated that listening to music was an important part of their lives. Frequency of listening was extremely high. When randomly probed over the course of a week, they reported over 46% of the time having listened recently to music. A factor analysis identified three musical choice categories: (1) music that enhanced concentration and work and increased motivation, (2) music that evoked associations and memories, and (3) music that was enjoyable. The most frequent ways to listen were by specific

artists or albums, personal or public premade playlists, or by streaming over the Internet. The most frequently used listening devices were radio, mobile players, and computers. Less frequent was live or recorded music heard in public. Krause, et al. concluded that listeners most liked or emotionally responded to music when they could control its selection. In contrast, audience members cannot control live performances.

And yet, being able to view a performance is an important part of the experience, even when the performance is recorded. Tsay (2013) presented groups of participants with recorded piano competition performances under sound only, video only, or sound plus video conditions. Participants were asked to choose the winner. Participants mistakenly assumed that sound would be the most salient cue. However, this was not the case. Only the participants in the video only condition reliably chose the actual winner. Participants in the sound only or sound plus video condition were unable to do so. It made no difference whether the participant was a musical novice or a professional musician. In most cases, visual cues are a component of social interaction (Frischen, Bayliss, & Tipper, 2007). Since civic engagement is not possible without some form of social interaction it appears that visual cues are common properties of both arts-related and civic engagement.

Motivation to Experience Arts-Related Events

We mentioned briefly Blume-Kohout, et al.'s (2015) report summarizing the GSS 2012 survey findings regarding the motivations for attending arts-related events. Socializing with friends or family was cited as the most common reason to attend. The desire to learn new things was also a factor, especially in attending art exhibits. The present study suggests that motivational factors do not operate independently of one another, however, and regarding them as isolable forces can be misleading. Consider socializing with friends or family, for example. It is important to ask *why* individuals cited it as a primary reason for attending. To share the experience with others is one explanation, but our results indicated that it could also reflect apprehension of traveling alone to an unfamiliar or undesirable location. Moreover, despite its being cited most often as a reason for having attended arts-related events, socializing with friends or family was not as important as other reasons in certain cases, e.g., a desire to see or hear the scheduled performer. The point is that there are numerous compelling reasons that individuals are drawn to the arts, many of which were not captured by the GSS survey. They include negative mood management, personal identity, learning about things other than the art itself, positive mood management, personality and individual differences, physical stimulation, and diversion (Lonsdale & North, 2011; Rentfrow, 2012; Roe, 1985).

Summary and Conclusions

The major findings of this study were as follows:

(1) Individuals who attended traditional live musical performances were more likely to have engaged in pro-social behaviors, e.g., charitable giving or volunteering, attending community meetings and voting.

(2) Individuals who attended other live arts-related events, e.g., dance, theater, art exhibitions, or nontraditional music performances, were also more likely to have engaged in pro-social behavior. This suggests that the relationship holds irrespective of the artistic domain.

(3) Our findings along with those of others suggest that the link between exposure to the arts and pro-social behavior was based on the social characteristics of these encounters, e.g., shared group identity, familiarity with performers or artists, multimodal sensory experience, etiquette, venue, and customs or rituals.

(4) Individuals who were exposed to the arts through the Internet were also more likely to have engaged in pro-social behavior. We believe this was because the Internet is essentially a public medium that is structured to facilitate interpersonal communication and sharing and that is universally accessible, including to those who lack the resources to attend a live performance.

(5) There were numerous reasons that individuals were drawn to the arts. But most importantly, the motivation to attend arts-related events was interactive. The reasons for attending did not operate independently of one another, and considering them in isolation would be misleading.

The findings were based on the results of regression analyses, which are used primarily to uncover predictive relationships between variables. Regression analyses do not, however, determine whether variables are related causally. Causal inference is possible only when data are obtained from experimental designs in which the investigator controls the sources of variability. Here that was not the case.

Might there be a causal relationship between participation in the arts and pro-social behavior? Although we cannot conclude that based on the present findings, it is known that participation in the arts does have positive consequences in other social situations. We noted already that arts-related experiences lead to cognitive gains. There are also positive effects on health and well-being. An extensive review of medical literature (Staricoff, 2004) on arts and health concluded that patients who engaged in arts-related activities experienced both physical and psychological benefits. Cohen, et al. (2006) conducted a well-designed experiment to measure over a 12-month period the impact of a music participation program on the physical health, mental health, and social functioning of older adults. They found that the program improved overall health, decreased doctor visits and medication use, decreased falls, reduced loneliness, improved morale, and led to greater activity. A recent report by the National Endowment for the Arts (Chapline & Johnson, 2016) provides a guideline for future collaborative research in this important area.

It has been suggested (Huron, 2001) that exposure to live arts-related events is an evolutionary adaptation that actually gives rise to civic engagement. Indeed, civic engagement may contribute to good health. Konrath, Fuhrel-Forbis, Lou, and Brown (2012) found that socially motivated volunteers had a lower mortality risk than did self-motivated volunteers, who had a mortality risk comparable to that of non-volunteers. In any case, additional research is needed to determine whether exposure to the arts leads to pro-social behavior.

Finally, a major concern about the ubiquity of arts-related media is that a clear conceptual distinction between original and reproduction may no longer exist (Davis, 1995). This could affect how individuals engage with original art and may even discourage live encounters (Isaac, 2008). Fortunately, large-scale national survey data show that this is not the case. The use of information technology has actually become a way of extending or enhancing live attendance rather than displacing it (Robinson, 2011). Our view is that live and media presentations are mutually reinforcing. Live performances help create a market for recorded performances, and recorded performances encourage audience participation.

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Appendices

Appendix A: Variables from the 2012 SPPA

Voting Turnout was measured as a dummy variable (1 = yes; 0 = no) based on the question: "Which of the following statements best describes you:… I am sure I voted."

Volunteer/Charitable Donation was measured as a dummy variable (1 = yes; 0 = no) based on the question: "During the last 12 months, did ... do any volunteer or charity work?"

Community was measured as a dummy variable (1 = yes; 0 = no) based on the question: "During the last 12 months, did ... participate in any community activities, meetings, or events?"

Classical was measured as a dummy variable (1 = Yes; 0 = No) for the following SPPA question: "With the exception of elementary or high school performances, Did ... go to a live classical music performance such as symphony, chamber, or choral music during the last 12 months?"

Jazz was measured as a dummy variable (1 = Yes; 0 = No) for the following CPS question: "With the exception of elementary or high school performances, Did ... go to a live jazz during the last 12 months?"

Opera was measured as a dummy variable (1 = Yes; 0 = No) for the following SPPA question: "With the exception of elementary or high school performances, Did ... go to a live opera during the last 12 months?"

Music Attendance was measured as a count variable containing the sum of positive responses to classical, jazz and opera performances.

Age was measured in years.

Household Income was measured in dollars. Scale ranging from one (low) to twenty-two (high).

Education was based on the number of years of schooling.

Gender was recoded into a dummy variable for *Female* (1 = Yes; 0 = No).

Race is recoded from a multi-response nominal variable into a dummy variable for *Black* (1 = yes; 0 = no), and Other (1 = yes; 0 = no).

Marital Status was recoded into a dummy variable for *Married* (1 = Yes; 0 = No).

Class Position was coded as a series of dummy variables (1 = yes; 0 = no) based on the occupational codes in the ANES. We identify the following classes. *Business*: Proprietors and all self-employed workers. *Managers*: All managers. *Professional and technical*: Professional and technical workers, high level sales workers, and protective service workers. *Labor:* All

manual workers. *Clerical and Sales Workers:* All clerical and sales workers (except high level sales). *Service Workers:* All service workers (except protective service).

Appendix B: Variables from the 2012 General Social Survey (GSS)

Did respondent attend a live performance in last 12 months (1 = Yes, 2 = No)?

Importance of low cost in decision to attend (1 = major reason, 2 = minor reason, 3 = not a reason).

Importance of wanting to experience high quality art in decision to attend (1 = major reason, 2 = minor reason, 3 = not a reason).

Importance of wanting to socialize with others in decision to attend (1 = major reason, 2 = minor reason, 3 = not a reason).

Importance of wanting to celebrate cultural heritage in decision to attend (1 = major reason, 2 = minor reason, 3 = not a reason).

Importance of wanting to support community in decision to attend (1 = major reason, 2 = minor reason, 3 = not a reason).

Importance of wanting to learn in decision to attend (1 = major reason, 2 = minor reason, 3 = not a reason).

Importance of location in decision to attend (1 = major reason, 2 = minor reason, 3 = not a reason).

Importance of specific performer(s) in decision to attend (1 = major reason, 2 = minor reason, 3 = not a reason).

Did not go due to cost (1 = a reason, 2 = not a reason).

Did not go due to lack of interest (1 = a reason, 2 = not a reason).

Did not go due to difficulty in getting there (1 = a reason, 2 = not a reason).

Did not go due to having no one to go with (1 = a reason, 2 = not a reason).

Did not go due to lack of time (1 = a reason, 2 = not a reason).

Did not go due to undesirable location (1 = a reason, 2 = not a reason).

Did respondent attend an art exhibit in last 12 months (1 = yes, 2 = no)?

Importance of low cost in decision to attend exhibit (1 = major reason, 2 = minor reason, 3 = not a reason).

Importance of wanting to experience high quality art in decision to attend exhibit (1 = major reason, 2 = minor reason, 3 = not a reason).

Importance of wanting to socialize with others in decision to attend exhibit (1 = major reason, 2 = minor reason, 3 = not a reason).

Importance of wanting to celebrate cultural heritage in decision to attend exhibit (1 = major reason, 2 = minor reason, 3 = not a reason).

Importance of wanting to support community in decision to attend exhibit (1 = major reason, 2 = minor reason, 3 = not a reason).

Importance of wanting to learn in decision to attend exhibit (1 = major reason, 2 = minor reason, 3 = not a reason).

Importance of location in decision to attend exhibit (1 = major reason, 2 = minor reason, 3 = not a reason).

Did not go to exhibit due to cost (1 = a reason, 2 = not a reason).

Did not go to exhibit due to lack of interest (1 = a reason, 2 = not a reason).

Did not go to exhibit due to difficulty in getting there (1 = a reason, 2 = not a reason).

Did not go to exhibit due to having no one to go with (1 = a reason, 2 = not a reason).

Did not go to exhibit due to lack of time (1 = a reason, 2 = not a reason).

Did not go to exhibit due to undesirable location (1 = a reason, 2 = not a reason).

Appendix C: Technical Note on Logistic Regression Analysis

Logistic regression allows the researcher to fit a regression model of dependent variables on independent variables, where the dependent is categorical or dichotomous (or, more precisely, a 0/non-0 variable). Logistic regression displays estimates as odds ratios, which allows for interpretation of the probability of a change in the dependent variable (Y) given a change in the independent variable.

Logistic regression can also show results in the form of coefficients for an alternative interpretation of the relationship between the independent and dependent variables. Typically, goodness of fit tests for logistic regression include the Wald test, which is similar to a t-test in linear regression. The likelihood-ratio test is also commonly used as an alternative test and allows one to test the contribution of individual predictors (Y) in a given model.

In addition to arts participation variables, our regression model also included seven control variables, which are known to predict civic engagement. These were: Age, Race, Sex, Income, Education, Marital Status and Occupation Class. To measure occupational class, we used a conventional six-category scheme (Goldthorpe 1987; Hout 1989; Manza, Hout and Brooks, 1995) to distinguish: (1) business owners and proprietors (including farm owners and the self-employed), (2) managers and administrators, (3) professional and technical workers, (4) clerical workers, (5) skilled and unskilled laborers, and (6) service workers. Next, we constructed a binary "class gap" measure by grouping the first three categories into an "upper" class and the last three into a "lower" class, the basic difference being the degree to which its members have capital autonomy or exercise authority.

The regression model can be stated as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k + e \ ,$$

where, in our analysis, Y represents the binary pro-social behavior to be predicted, $X_1, X_2 \ldots X_k$ are the independent variables, β_0 is the intercept, $\beta_1, \beta_2 \ldots \beta_k$ are the slope coefficients, and e is the random error.

Appendix D: Technical Note on Principal Component Analysis (after O'Rourke and Hatcher, 2013)

Principal component analysis is a variable reduction procedure. It is appropriate when you have data on a relatively large number of variables and believe that there may be some redundancy in the data, i.e.,
that some of the variables are correlated with one another, possibly because they are measuring the same construct. Because of this redundancy, it may be possible to reduce the number of observed variables into a smaller number of principal components (latent variables) that will account for most of the variance in the observed variables.

Technically, a principal component can be defined as a linear combination of optimally-weighted observed variables. The weights are determined by applying a special type of equation called an *eigenequation*. The weights produced by these eigenequations are optimal weights in the sense that, for a given set of data, the obtained set of components will account for the maximal amount of variance in the observed variables. The weights are created so as to satisfy a principle of least squares similar to that used in multiple regression.

In most analyses, only the first few extracted components account for meaningful amounts of variance, so only these first few components are retained and interpreted. The first component extracted accounts for the greatest amount of the total variance in the observed variables. The second component extracted will account for the greatest amount of variance that was not accounted for by the first component. Under typical conditions, the second component will be correlated with some of the observed variables that did not display strong correlations with component 1. A principal component analysis proceeds in this fashion, with each new component accounting for progressively smaller and smaller amounts of variance. This is why only the first few components are usually retained and interpreted. When the analysis is complete, the resulting components will display varying degrees of correlation with the observed variables, but are completely uncorrelated with one another.

Ideally, the correlations between the variables and the components are used to interpret the components; that is, to determine what construct each component measures. Unfortunately, when more than one component has been retained in an analysis, interpreting the factor pattern may be difficult unless it is *rotated*. A rotation is a linear transformation that makes the solution easier to interpret while preserving factor independence. Another feature that helps in the interpretation is a variable's *communality*, which is the percent of variance in the observed variable that is accounted for by the retained components. A variable with a large communality loads heavily on at least one of the retained components.

Interpreting a solution means determining what is being measured by each of the retained components. In general, this involves identifying the variables that show high loadings on only one component. (As a rule of thumb, a loading of at least 0.40 is considered high.) The investigator then decides what it is that these variables have in common, and that is what the component presumably measures. Variables with high loads on more than one component are

usually discarded, since they are not pure measures and, therefore, complicate the interpretation. The process is repeated for each of the retained components.
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